Law and Power Relations in Risk Governance of Oil and Gas Activities in the Russian North

This dissertation is submitted for the degree of

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Declaration

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except as specified in the text. It is not substantially the same as any that I have submitted or is being concurrently submitted for a degree or diploma or other qualification at the University of Cambridge or any other University or similar institution except as specified in the text. I further state that no substantial part of my dissertation has already been submitted or is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University of similar institution except as specified in the text.

It does not exceed the prescribed word limit for the relevant Degree Committee.
Total words not including Bibliography and Appendices: 86,887.

Abstract

This thesis is a socio-legal interdisciplinary study of risk governance in the oil and gas sector in the Russian North. Against a backdrop of the author's experience of training to be and working as a lawyer in both Siberia and the United States, it is based on four types of sources: (i) texts of relevant policies, laws, and administrative regulations; (ii) transcripts of official presidential meetings, addresses, and speeches on matters relevant to oil and gas development; (iii) observations obtained during fieldwork, including data from semi-structured interviews; and (iv) energy statistics and results of various public polls. After a review of the basic characteristics and trends of the industry, highlighting the distinctive role hydrocarbons play in the Russian economy, society, and politics, the argument starts with theories of risk and risk governance in the context of the global energy sector. Moving on to rules of risk governance, the discussion homes in on how these rules actually work in the policy, legal, and regulatory regime of Russia. A subsequent chapter introduces the conceptual common denominator for analysing the dynamic between the principal parties in risk governance – the social concept of power. It includes a study of a trunk pipeline called (appropriately) the Power of Siberia, in which law emerges as a demarcation of sovereign power. The next chapter explains particular challenges of risk governance of the oil and gas sector through the concept of network power. The final chapter examines sovereign power structures responsible for governing risk posed by oil and gas activities, and the allocation of such risks and benefits, in Russia's 'Petrostate'. Throughout the thesis, the relevant Russian policy, legal, and regulatory regime, which serves as the case study, is closely interwoven with wider social theory. This study contributes to risk theory by proposing the Risk Governance Power Framework, an analytical framework for understanding power relations that shape risk governance of the oil and gas sector. The framework asserts that the following three factors play critical roles in influencing the power relations: (i) the strength of network power behind the hazardous activity; (ii) the capacity of the sovereign power structures and agents responsible for governing risks related to the activity to counter-balance the network power behind the hazardous activity; and (iii) the spatial and temporal allocation of individual and public risks and benefits. The network power of the oil and gas sector is premised on three dependences: technological, socio-economic, and political.

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Table of Frequently Used Energy Units

Data source: (IEA, 2013)

Abbreviation	Term
bbl	Barrel
b/d	Barrel per day
boe	Barrels of oil equivalent
bcf	Billion cubic feet
bcm	Billion cubic metres
mbo	Million barrels of oil
MMBtu	Million British thermal units
MMcf	Million cubic feet
Mt	Million metric tonnes
Mtoe	Million tonnes of oil equivalent
GW	Gigawatt
TWh	Terawatt hour
tcf	Thousand cubic feet
tcm	Trillion cubic metres

Romanization System for the Russian Language

BGN/PCGN 1947 System, Data Source: (U.K. Government, 2016)

	Russian				Romanization		Russian				Romanization
1.	А	а	*А*	*а*	a	18.	Р	р	*Р*	*р*	r
2.	Б	б	*Б*	*б*	b	19.	С	с	*С*	*с*	s
3.	В	в	*В*	*в*	v	20.	Т	т	*Т*	*т*	t
4.	Г	г	*Г*	*г*	g	21.	У	у	*У*	*у*	u
5.	Д	д	*Д*	*д*	d	22.	Ф	ф	*Ф*	*ф*	f
6.	Е	е	*Е*	*е*	e, ye	23.	Х	х	*Х*	*х*	kh
7.	Ё	ё	*Ё*	*ё*	ë, yë	24.	Ц	ц	*Ц*	*ц*	ts
8.	Ж	ж	*Ж*	*ж*	zh	25.	Ч	ч	*Ч*	*ч*	ch
9.	З	з	*З*	*з*	z	26.	Ш	ш	*Ш*	*ш*	sh
10.	И	и	*И*	*и*	i	27.	Щ	щ	*Щ*	*щ*	shch
11.	Й	й	*Й*	*й*	y	28.	Ъ	ъ	*Ъ*	*ъ*	”
12.	К	к	*К*	*к*	k	29.	Ы	ы	*Ы*	*ы*	y
13.	Л	л	*Л*	*л*	l	30.	Ь	ь	*Ь*	*ь*	’
14.	М	м	*М*	*м*	m	31.	Э	э	*Э*	*э*	e
15.	Н	н	*Н*	*н*	n	32.	Ю	ю	*Ю*	*ю*	yu
16.	О	о	*О*	*о*	o	33.	Я	я	*Я*	*я*	ya
17.	П	п	*П*	*п*	p						

Glossary of Frequently Used Terms and Abbreviations

Term or Acronym	Definition
$	U.S. dollar
BP	British Petroleum
C&E	Risk characterization and estimation
EA	Environmental assessment; refers to the entire process of environmental assessment
EER	Expert environmental review; a term encompassing state environmental review (SEER) and public environmental review (PEER) under 'On Environmental Review'
EIA	U.S. Energy Information Administration
ER	Ethnological review
GDP	Gross domestic product
HSE	Health, safety, and environmental
IEA	International Energy Agency
IOC	International oil company
IRGC	International Risk Governance Council
LNG	Liquefied natural gas
Minenergo or Minesterstvo Energetiki	Ministry of Energy
Minprirody	Ministry of Natural Resources and the Environment
NOC	National oil company
OVOS or *otsenka vozdeystviya na okruzhaiyschuiy sredu*	Environmental impact assessment; refers to the first step of environmental assessment
PA	Risk pre-assessment
PEER	Public environmental expert review

Term or Acronym	**Definition**
RF Government	The Government of the Russian Federation or *Pravitel'stvo Rossiyskoy Federatsii* that resembles a mega-agency and consists of many administrative agencies
Rosnedra	Federal Agency for Mineral Resources
Rosprirodnadzor	Federal Service for Oversight of Natural Resources
Rosstandart	Federal Service for Technical Regulating and Metrology
Rostekhnadzor	Federal Service for Ecological, Technological, and Nuclear Oversight
SEER	State environmental expert review
State Duma or *Gosudarstvennaya Duma*	The lower house of the Russian parliament, Federal Assembly (*Federal'noe Sobranie*)
The Oil Standard	A term indicating the network power of the oil and gas sector (proposed by the author)

1. Introduction and Background

1.1. The academic and policy rationale for the study

1.1.1. Why the Russian Arctic and Subarctic?

An interest in a region alone, regardless of how strong, does not provide a sufficient reason for conducting a PhD study. Fortunately, in the context of energy and the environment, the Russian North – Arctic and Subarctic – provides a plethora of compelling reasons for studying it. This region has been home to oil and gas development for over 50 years. More importantly, the Russian Arctic and Subarctic has the potential to become the site of a new wave of oil and gas exploration and extraction, despite considerable environmental, socioeconomic, and geopolitical concerns. Accordingly, this study concerns a concept that is important to the region's future, the governance of risks associated with oil and gas development.

In 2008, the U.S. Geological Survey (USGS) published a study entitled 'Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle' (USGS, 2008). This four-page publication provided a quick and simple reference for academics, corporate executives, journalists, policy-makers, and politicians researching, considering, and (or) advocating for energy development in the Arctic. The USGS estimated that the Arctic might hold 412,157.09 million boe (*Id.* p. 4). This amounts to 13% of the world's undiscovered oil, 30% of its undiscovered natural gas, and 20% of its undiscovered natural gas liquids. As Table 1 depicts, 52% of resources, largely natural gas and natural gas liquids are located in Russia. These estimates came with the following disclaimer:

> [Q]uantitative assessments were conducted in those geologic areas considered to have at least a 10-percent chance of one or more significant oil or gas accumulations. For the purposes of the study, a significant accumulation contains recoverable volumes of at least 50 million barrels of oil and/or oil equivalent natural gas. The study included only those resources believed to be recoverable using existing technology, but with the important assumptions for offshore areas that the resources would be recoverable even in the presence of permanent sea ice and oceanic water depth. No economic considerations are included in these initial estimates; results are presented without reference to costs of exploration and

development, which will be important in many of the assessed areas (USGS, 2008, p. 4).

The study sparked interest in the Arctic; it also inspired some to study it. Unfortunately, because the USGS study was referred to so frequently, and because the disclaimer above was almost universally disregarded or omitted, the Arctic energy discourse has narrowed to a discussion of the region's foremost importance as a resource base.

The USGS study coincided with the growing oil and gas prospecting and exploration activity in the Arctic, a stage during which energy companies were competing for a starting position in the Arctic oil and gas race (EY, 2012). Some of the notable developments included Cairn Energy commencing its eight-well drilling campaign offshore Greenland by 2010 (*Id.* p. 9). In North America, Conoco Phillips and Shell were both in the middle of the exploratory plan approval process (*Id.* p. 11). The Norwegian continental shelf saw the highest level of activity, with the Snovit gas field already in production and Skrugard, Havis, and Goliat projects in the development stage (*Id.*). Russia was not far behind with Rosneft' and Gazprom negotiating joint projects with foreign oil and gas companies in the Barents, South Kara, and Okhotskoe Seas and Gazprom entering the development stage for the Prirazlomnoe project (*Id.*).

At the time of writing this thesis, only two projects have come into fruition. Prirazlomnoe began production in December 2013 (Gazprom, 2016j) and Goliat in March 2016 (ENI Norge, 2016). The rest of the aforementioned initiatives did not fare well. Carin Energy failed to find oil in commercial quantities in offshore Greenland (Webb, 2010) and Statoil failed to find it in offshore Norway despite spending nearly $1 billion and over $3 billion respectively (Reuters, 2015). Rosneft' postponed exploratory drilling in Arctic offshore in 2014 (Reuters, 2015a). Conoco Phillips suspended its Arctic campaign in April 2013 (Krauss, 2013). Shell's Arctic adventure proved the most eventful and costly. Its first attempt at exploratory drilling resulted in a beached drilling rig and investigation by the enforcement agency (U.S. Department of the Interior, 2013, pp. 1-2) and its second attempt in 2015 lasted only a few weeks (Eilperin & Mufson, 2015). The combined cost of Shell's unsuccessful adventure exceeded $7 billion (*Id.*).

Interest in the region declined due to poor exploratory drilling results, the sharp drop in oil prices in the second half of 2014, and U.S. and E.U. economic sanctions against Russia. In January 2015, however, the Norwegian Petroleum Directorate (the government agency responsible for awarding oil and gas exploration and extraction licences on the Norwegian continental shelf) announced it would commence its 23rd licensing round, and interest exceeded expectations. As of December 2015, 26 energy companies were gearing up for the next oil price climb by expressing interest in exploring 57 licensing blocks, 54 of which are located in the Barents Sea (NPD, 2015).

Exxon Mobil CEO Rex Tillerson succinctly captured the oil and gas industry's interest in the Arctic region in an interview with the Associated Press:

> Associated Press: Why the Arctic?
>
> Tillerson: The size of the resource prize has to be large to support the risked capital that has to be put in place. The Arctic is one of the few places left where we believe those opportunities exist (AP, 2015).

The oil and gas industry has a more reliable source than the USGS survey to justify its Arctic ambitions – historic data. If we are to narrow the definition of the Artic to its continental shelf, the region displays all the characteristics of an energy frontier. It is one of the most remote and fastest-changing regions, and has one of the harshest climates for exploring, developing, and extracting hydrocarbons. However, because of an extensive history of hydrocarbon exploration and extraction, the Arctic appears to be more of an energy playground than a frontier (Table 1). The supergiant Russian Samotlor discovered an oilfield there in 1965, quickly followed by discovery of the American Prudhoe Bay oilfield in 1968 (Budzik, 2009, pp. 3-5). The Russian portion of this playground is particularly impressive – out of 61 discovered large oil and gas fields, 43 are located in Russia.[1]

[1] Arctic states include Canada, the Kingdom of Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden, and the United States. These nations comprise sovereign members of the Arctic Council and are known as the Arctic Eight. (Arctic Council, 2015) As Figure 1 shows, Canada, the Kingdom of Denmark (including Greenland and the Faroe Islands), Norway, Russia, and the United States are Arctic littoral states. This group of nations is known as the Arctic Five. Under the U.N. Convention on the Law of the Sea, non-littoral Arctic states do not have jurisdiction over Arctic shelf. Thus, the discourse regarding future oil and gas development in the Arctic usually centres on the Arctic Five. (UN, 1982)

Table 1: Discovered Arctic oil and gas fields with recoverable resources exceeding 500 million boe and undiscovered resources (USGS, 2008) (Budzik, 2009)

Country	Discovered Oil and Natural Gas Fields	Fields Currently in Production	Fields Have Yet to Commence Production	Percentage of Undiscovered Resources
Russia	43	41	2	52%
Canada	11	0	11	5%
United States	6	4	2	20%
Norway	1	1	0	12%
Greenland/Denmark	0	0	0	11%

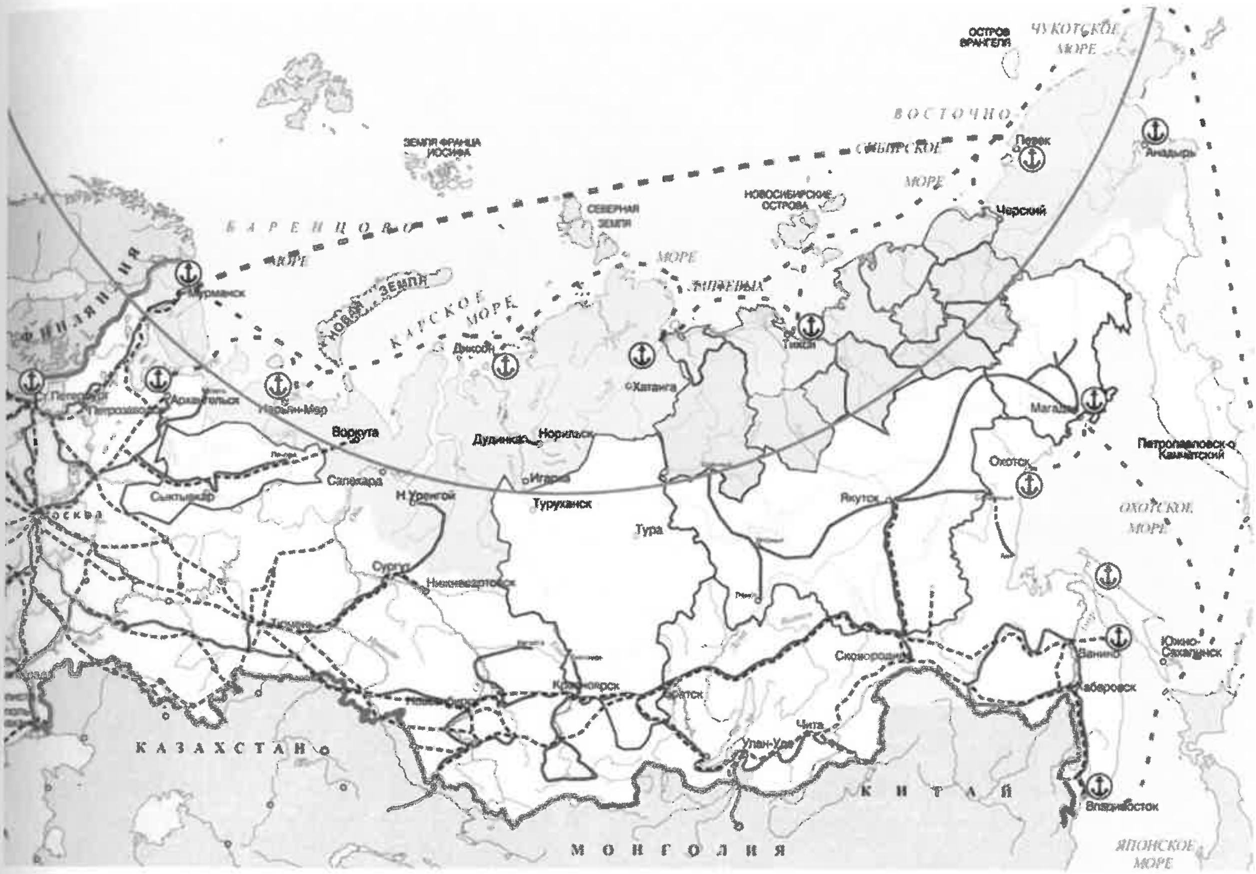
Whether a field is located in the Arctic depends on the definition of the region. Figure 1 shows the region pursuant to the three most common definitions – north of the Arctic Circle (66° 32" N), north of the permanent tree line, and average summer temperatures not exceeding 10 degrees Celsius (NSIDC, 2016).

Figure 1: Map the three definition of the Arctic the Arctic (NSIDC, 2016)

The Arctic is sometimes defined legislatively. For example, pursuant to the law 'On the Arctic Zone of the Russian Federation' (Figure 2), some regions located north of the Arctic Circle are excluded from the Arctic Zone (Sakha Government, 2015).[2]

[2] The Arctic Zone of the Russian Federation is shaded in yellow.

Figure 2: Arctic Zone of the Russian Federation (Sakha Government, 2015)



Oil and gas fields span according to the rules of geology, not according to legal or any other rules that exist 'above the ground'. In addition, many fields on different sides of the Arctic boundary are often connected through geological formation, infrastructure, and management and ownership. However, as depicted on Figures 3 and 4, the regions of oil and gas production in the Russian Federation can be grouped to those located in the Arctic and Subarctic and to those located outside this combined region (Peel, M.C., *et al.*, 2007).[3]

[3] The Subarctic is shaded in non-grey colours.

Figure 3: Russian Subarctic (Peel, M.C., et al., 2007)

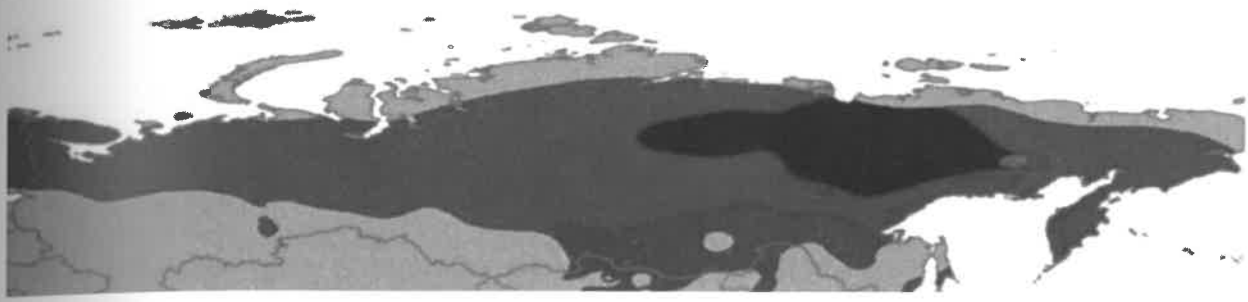
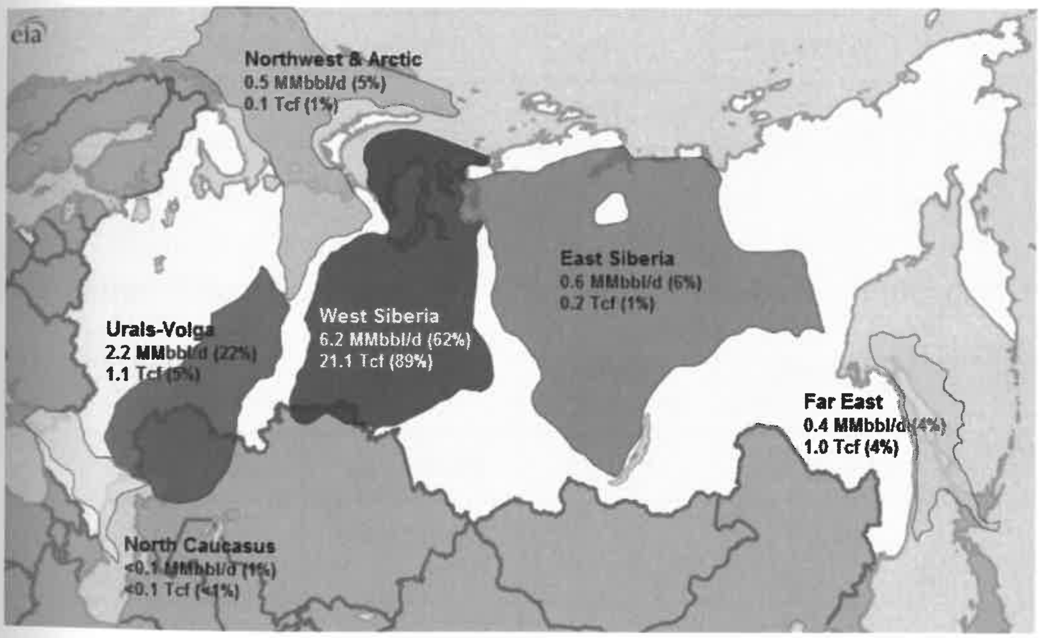


Figure 4: Spatial allocation of oil and natural gas production in Russia in 2013 (EIA, 2014)



In addition, as Figures 1 and 2 above show, many regions located in the Russian Subarctic pose similar remoteness and climatic challenges to oil and gas development than those located in the Arctic Zone. Finally, Arctic and Subarctic oil and natural gas dominate Russia's oil and gas production as captured in Tables 2 and 3. For these reasons, I opted to focus on the Russian Arctic and Subarctic as the geographic region for this study.

Table 2: Russia's oil production in Arctic and Subarctic regions in 2013 (EIA, 2015)

Region/Territorial Unit	Output (thousand b/d)	Percentage
Western Siberia	6,422	61.60%
Krasnoyarsk	426	4.09%
Sakhalin	277	2.66%
Arkhangelsk	269	2.58%
Komi Republic	257	2.47%
Irkutsk	227	2.18%
Sakha (Yakutia)	149	1.43%
Total	8,027	77%

Table 3: Russia's Natural Gas Production in Arctic and Subarctic Regions in 2013 (EIA, 2015)

Territorial Unit	Region	Output (bcf/day)	Percentage
Yamalo-Nenets	West Siberia	53.7	82.87%
Khanti-Mansiisk	West Siberia	3.5	5.40%
Tomsk	West Siberia	0.5	0.77%
Sakhalin	East Siberia and the Far East	2.7	4.17%
Irkutsk	East Siberia and the Far East	0.3	0.46%
Krasnoyarsk	East Siberia and the Far East	0.3	0.46%

Territorial Unit	Region	Output (bcf/day)	Percentage
Yakutsk	East Siberia and the Far East	0.2	0.31%
Komi Republic	European North	0.3	0.46%
Total		61.5	95%

1.1.2. Why risk?

The Arctic and Subarctic have provided billions of barrels of oil and trillions of cubic feet of natural gas. However, the Arctic energy development has caused significant negative environmental and socio-economic impacts.[4] The on-going interest in the resource base of the region indicates that many government and corporate decision-makers are on the threshold of making very important decisions about the development of the Arctic resource base. Judging by the past, these decisions will cause far-reaching consequences, some of which will be adverse. Therefore, the exact outcomes of these decisions, both positive and negative are uncertain.

Risk, the meaning of which I discuss at length in Chapter 3, aims to reduce the uncertainty. As I elaborate in Chapter 3, risk has become a critical concept in the energy policy discourse. For example, my review of the Russian President's official meetings, speeches, and remarks concerning energy matters revealed that the term risk was mentioned 67 times.[5] For these reasons, I made risk and risk governance, the comprehensive process of handling it, the central theoretical point of this study.

It is impossible to study governance of risks posed by oil and gas development without having a general idea of what such risks are. Most reports that I reviewed listed an oil spill as the

[4] I will elaborate on the impacts of oil and gas development in the Russian Arctic and Subarctic in Chapter 7. (UNDP, 2009) (IWACO, 2001) (Greenpeace, 2016)
[5] I elaborate further on the sources of my energy discourse data later in this chapter.

most serious risk to the Arctic environment.[6] A report produced jointly by Lloyd's and Chatham House titled 'Arctic Opening: Opportunity and Risk in the High North' (the 'Lloyd's Report') lists the following ways ('other than direct release of pollutants') in which ecosystems can be disturbed: '[t]hrough noise pollution from offshore drilling, seismic; [t]hrough the construction of pipelines and roads, survey activity or additional maritime traffic; [t]hrough physical disturbance of the sea and seabed during drilling; [and, t]hrough the break-up of sea ice' (Emerson & Lahn, 2012, p. 38). The E&Y Arctic Report lists some of these items as 'large environmental risks' associated with 'greenfield development' of supporting infrastructure (EY, 2012, p. 5). Surprisingly, the Lloyd's Report does not specifically mention emissions to the sea (other than oil spills) and to the air. The former include waste, produced water, and drilling mud disposal (Bellona, 2007). The latter include emissions from vessels and casing head gas flaring (*Id.*).

Some reports view such environmental risks as a much more inclusive category. For example, the report entitled 'Oil Spill Prevention and Response in the U.S. Arctic Ocean, Unexamined Risks, Unacceptable Consequences' (the 'Pew Oil Spill Report') covers potential adverse consequences of an oil spill on fish, marine animals, birds, and the very species who cause oil spills – people (Nuka, 2010). The Arctic risk database developed by DNV GL also targets oil spills as the primary risk driver. It approaches to identifying and spatially tracking these risks in the environmental and safety contexts (DNV GL, 2016).

The report entitled 'An Evaluation of the Science Needs to Inform Decisions on Outer Continental Shelf Energy Development in the Chukchi and Beaufort Seas, Alaska' prepared by the U.S. Geological Survey (the 'USGS Circular') elaborates on the systemic approach taken in the Pew Oil Spill Report and investigates risks to subsistence activities of the indigenous Iñupiat (USGS, 2011). The report also covers cumulative impacts, i.e. adverse consequences, that 'can result from factors that may be insignificant by themselves but significant when interacting and (or) accumulating over time and space, through repetition, or in combination with other effects.' (*Id.* p. 203) Such consequences include *inter alia*

[6] I converged on the sources in which risk was the main focus of the discussion, and gave a cursory review to the sources where risk was discussed tangentially. See e.g. (AMAP, 2010) (Rees & Sharp, 2011) I also had to scrutinize sources for potential bias, dictated by organizational agenda. See e.g. (Bellona, 2007)

socioeconomic change; aesthetic, cultural, and spiritual impacts; and human health effects (*Id.* p. 207).

The Lloyd's Report takes note of nations' commitments to mitigate climate change in the section labelled, 'Commercial rationales and risks' (Emerson & Lahn, 2012, p. 24). It states that: 'Governments and companies should consider how the drive to develop Arctic oil and gas exploration will align with international action on climate change mitigation.' (*Id.*) However, the report does not specify how (if at all) these commitments will affect the future of Arctic oil and gas development (*Id.*). A report prepared by the Arctic Monitoring and Assessment Programme (AMAP) paints a comprehensive picture of 'potential effects' related to oil and gas development in the Arctic spanning environmental, social, and economic dimensions (AMAP, 2010, Sec. 2.6, 2.7, 2.8, Ch. 3.).

Even though most sources that I reviewed emphasise an oil spill as the principal environmental risk in connection with hydrocarbon development, a fair number of sources include other potential impacts on the physical environment to this risk category. Yet some reports go even farther and extend the reach of environmental risks to economic and social wellbeing of affected communities (e.g. impact on subsistence activities) and the societies at large (e.g. climate change). The majority of sources note the complexity of environmental risks arising out of oil and gas activity in the Arctic and highlight the high level of uncertainty due to the lack of knowledge and the rapidly changing environment.

Although the reports provide a comprehensive picture of different sources from which risks posed by oil and gas development arise, a disparity exists in what is understood and described as a risk. More importantly, the reports do not appear to agree on the typology of the approaches to handling it. Related but distinct terms as 'risk analysis', 'risk assessment', 'risk governance', and 'risk management' are often used interchangeably (Emerson & Lahn, 2012, pp. 48-53). This disparity is troubling – it not only creates barriers to developing an in-depth picture of the risks associated with oil and gas activities in the Arctic, but it also influences what decision-makers and societies at large *do* about the risks while developing policies to unlock the ostensible benefits.

1.2. Research question, scope, aims, and contribution of the study

1.2.1. Ontological and epistemological foundations of the study

This study is about risk governance. My primary objective is not to determine what constitutes risk conceptually or to provide a detailed examination of risks arising in connection with oil and gas activities in the Russian North. Instead, the primary objective of this study is what decision makers and societies at large *do* about the risks arising in connection with oil and gas development in the region.

Therefore, it is only logical to conclude that what people do about risk cannot be understood outside the social context. Studying risk governance is similar to studying virtually any collective decision-making process. It involves collecting data about how the decisions are made and implemented, as well as systematizing and analysing the data. And every step inherently involves making 'observer relevant' assumptions, choices, and interpretations (Searle, 1995). Moreover, such studies often feature concepts such as law, power, and many others.

As I show in Chapters 4, 5, and 6, there is no universal definition of concepts such as law, power, and governance. In fact, I dedicate a fair amount of space to explaining what I mean by these concepts before I connect them with the data. Furthermore, before I commenced data collection, I also made certain choices based on my prior research experience, research skills, and educational and professional background, the attributes that I obtained and developed by virtue of being part of social institutions. I did not simply dive into the ocean of data, determined to make a discovery. Rather, I had a general idea where to look and what to look for. Whilst analysing the data, I relied on my understanding of law and power (developed through literature) to construct what I understood as an accurate representation of the risk governance state in the Russian Federation.

In other words, I did not approach the data collection and data analysis in a 'mind-independent' manner (Boghosian, 2006). Correspondingly, I did not consider the risk governance process that I studied as existing independently of my understanding of it.

Neither was my approach guided by a universal objective standard and the results of my investigation thus constituted a universal truth. There is no single approach to studying risk governance as a collective decision-making process, because there is little agreement as to what constitutes risk or governance or virtually any other relevant concept (Rosa *et al.*, 2014). The 'truths' about these concepts must be socially negotiated in the academic discourse. (*Id.*) Therefore, this study has a constructivist ontological and epistemological foundation.

Not all scholars share the view of studying risk in the context of collective decision-making as a social construct. As I elaborate in more detail in Chapter 3, there is a strong realist tradition in risk theory (Adams, 1995). According to the realist tradition, risk is an objective concept expressed in 'the probability of an adverse future event multiplied by its magnitude' (*Id.*, p. 69). Therefore, risk analysis constitutes an objective process that is a prerogative of the so-called risk professionals (risk experts) who are capable of rendering a universal truth about a particular risk (*Id.*).

As I show in Chapter 3, the ontologically and epistemologically realist approach to risk runs into a host of theoretical and empirical problems.[7] Realist epistemology appears particularly susceptible on the grounds that placing values on the magnitude of an adverse event is an inherently subjective process. This prompted some scholars such as Crawford-Brown (1999) to take a placatory agnostic approach premised on the possibility of coexistence of the objective and subjective risk concepts. I found this approach initially persuasive, mainly because I intended to focus on the collective decision-making part of risk governance and not on the concept of risk itself.

The realist ontology, constructivist epistemology approach taken by Rosa, Renn, and McCright (2014) proved to be particularly compelling. These scholars, unlike Crawford-Brown (*Id.*) or Sjoberg and Boholm (Oltedal, *et al.*, 2004), provide a conceptual dualistic foundation for the combined approach. They point out that all the attributes assigned to risk, such as probabilities and likelihoods, are products of human invention and are thus social constructions representing uncertainty (Rosa, *et al.*, 2014, pp. 22-23). Rosa, Renn, and

[7] I urge the reader to not view this section as a duplication of Chapter 3. In Chapter 3, I discuss approaches to defining risk in light of policy implications of the expert versus lay people debate.

McCright's argument for realist ontology, however, is less compelling. They maintain that a person is at risk not due to a social construction, but because he or she is in 'a state of the world' where conditions are uncertain or circumstances unknown, and yet decisions must be made (*Id.*) However, the opposite might be true if there is no real risk, yet the person is deemed to be in such a state. Based on this logic, this person is simultaneously in two states of the world in relation to the same potential event – at risk and not at risk. This analysis exposes a flaw in Rosa, Renn, and McCright – the conflation of an event and a possibility thereof.

Although I remain convinced that a constructivist approach to studying risk governance is suitable for risk agnostics, I no longer designate it as the working approach for this thesis. Therefore, ontologically and epistemologically I view risk and risk governance as social constructions.

1.2.2. Research question and scope of the study

Based on the reasons outlined above, this study aims to answer the following research question:

> *In what ways and to what extent is risk governance of oil and gas activities in the Arctic and Subarctic region mandated and/or allowed by the Russian policy, legal, and regulatory regime?*

The first key element in the research question is risk governance. Rosa, Renn, and McCright (2014) view governance as an approach and an observation. The former normative definition sees governance as 'a model or framework for organizing and managing society' (van Asselt & Renn, 2011, p. 435). Under the latter descriptive definition, governance comprises 'structures and processes for collective decision-making involving governmental and non-governmental actors' (*Id.*) (Hagendijk & Irwin, 2006). In this study, I embrace both definitions in the manner consistent with a Weberian ideal type analysis (Kalberg, 2011). On the one hand, I use the concept of risk governance to identify the scope of the empirical field and categorize the relevant processes and structures. On the other hand, I utilize the texts of laws, regulations, and official policies, as well as official government and policy discourse data, to critique and hopefully to contribute to the development of the risk governance theory. This study does not single out any particular type of risk, environmental risks for example. Rather, it embraces all potential risks, including systemic risks posed by oil and gas development in the Russian Arctic and Subarctic. However, because environmental risks dominate the discourse, the discussion often gravitates towards risks to the environment.

Oil and gas activities occurring in the Russian Arctic and Subarctic is the second key element of the research question. With 77% of oil and 95% of natural gas production in Russia occurring in the Arctic and Subarctic, the region is representative of the entire Russian oil and gas sector. As I noted above, oil and gas activities occurring in the Arctic are connected to oil and gas activities occurring in the Subarctic through energy infrastructure, management, and ownership. The same ties connect activities occurring in the combined (Arctic and Subarctic) region to oil and gas activities occurring in the rest of Russia, as well as beyond its borders. For this reason, my analysis includes up- (exploration, development, and extraction), mid- (transportation), and downstream (refining and distribution) oil and gas activities in the non-Arctic and non-Subarctic parts of Russia.[8] Because Russian oil and gas constitutes a critical component of the global energy system, I also venture outside Russia to highlight such connections. I do not rely on any particular oil and gas project as a case study. However, I use the Prirazlomnoe field in the Pechora Sea, the Yamal LNG project, and the Power of Siberia pipeline as examples throughout the thesis to illustrate my points.

The third key element in the study's research question is the Russian policy, legal, and regulatory regime. I have already highlighted the qualities of the empirical data from Russia above. In addition, as I outline below, the theory of risk and risk governance has been premised on Western data and philosophies. Considering the theory's claim to universal applicability, this is a significant limitation that this study will help to reduce. The policy, legal, and regulatory refers to the types primary sources upon which the study relies: (i) policy statements; (ii) acts enacted through a legislative process (laws); and (iii) acts promulgated by administrative agencies (regulations). In this sense, the term 'regulation' is distinct from the definition prevalent in the economic literature that sees regulation as the act of

[8] Because of the importance of the upstream and midstream sectors for the Russian economy, I examine the downstream sector only tangentially.

regulating.[9] The word 'Russian' in the 'regime' means the study's emphasis on state (government) governance of risk. The phrase 'mandated and/or allowed' refers to the amount of discretion that actors have in governing risks under the Russian national policy, legal, and regulatory regime.

'Ways' and 'extent' represent the fourth and final element of the research question. As I explain later in this chapter and in Chapter 4, most if not all significant decisions regarding up-, mid- and downstream oil and gas projects are either made in or approved by the Kremlin. Hence, the study focuses on the *ex-ante* processes leading up to *threshold* decisions. Correspondingly, this study centres on the risk pre-assessment (PA) and risk categorization and evaluation (C&E) phases of the risk governance framework.[10] These risk governance phases provide ample breadth while maintaining sufficient depth required for answering the study's research question.

Therefore, in the simplest terms, this thesis is about the policy, legal and regulatory setting of risk governance of oil and gas activities in Russia. The applicable Russian policy, legal, and regulatory regime serves as the case study. As I will show throughout the thesis, this setting is best understood through the lenses of the social concept of power.

1.2.3. Study objectives

On 13 January 2016, I attended an event hosted by Queen Mary University of London and Clifford Chance, a large multi-national law firm. The event gathered a wide array of participants ranging from oil and gas executives to environmental law professors and from renewable energy professionals to energy analysts. The main feature of the event was an address by Sir David King, a Special Representative for Climate Change. In his address, entitled 'Climate Change: Post-Paris Energy Transition', Sir David King made the following remark: 'Oil and gas companies need to change or they will not be.'

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[9] Because the term 'regulation' used in the economic literature overlooks important legal differences, I prefer the more encompassing term 'intervention'. (Fung, Weil, & Graham, 2007)

[10] I elaborate on each step of risk governance in Chapter 3.

Sir David's statement articulated some of the consequences of the decarbonisation effort exemplified by the U.N. Convention on Climate (Sidortsov, 2012). However, this is not how Exxon Mobil's CEO feels about the possibility of a change in his company's business model:

> AP: Environmentalists would also say that it's one of the last few places left that are unspoiled. Why not leave it alone?
>
> Tillerson: Because eventually we are going to need it. It's back to that insatiable appetite that the world has for energy. Oil demand is going to continue to grow as population grows. If you look out 25 years from now we are going to have another couple of billion people on the planet, we're going to be at 9 billion people. Something like 3 billion people are going to move from poverty into middle class status. When they do that, the energy demand goes up enormously.
>
> As we move out into the middle of this century our outlook shows you are going to need those resources even with a lot of other alternative forms of energy continuing at a fairly aggressive growth rate (AP, 2015).

Although Mr. Tillerson's comments offer several insights, I will focus on one – that the oil and gas industry has and will continue to pose a significant obstacle to qualitative and quantitative changes to the global energy system.[11] Therefore, the *policy objective* of this study is to identify encompassing and transcending characteristics of the oil and gas sector and to develop a comprehensive analytical framework, which I term the Risk Governance Power Framework (RGPF) to better understand the challenges that the industry poses in response to state actions that are contrary to the industry's current objectives and self-perceived interests.

A meaningful conversation about risk governance, including the governance of oil and gas activities, should include considerations of the social concept of power. Although these two concepts 'are inextricably linked', they have not been consistently discussed as such in the literature (Barnett & Duvall, 2004). Meanwhile, according to Russel (1937), power is the most fundamental concept in the social sciences. It thus lies at the foundation of governance and serves as the basis of an in-depth analysis of risk governance frameworks.

[11] Climate change concerns indeed occupy the top of the list of reasons for the transformation of the current global energy system. This list includes adverse environmental (other than climate change-related), social, economic, and political impacts. My co-authors and I explored these reasons through the lenses of justice in *Energy Security, Equality, and Justice*. (Sovacool, et al., 2013)

Therefore, the main *academic objective* of this study is to develop an analytical framework of power relations in risk governance of the oil and gas sector. By reaching the main objective, I hope to contribute to the development of risk and risk governance theory, especially its socio-legal context. I also hope to contribute to the fields of Russian and energy studies, particularly to better understanding of the decision-making processes in the Russian oil and gas sector.

1.2.4. Limitations of research

This study aims to answer a broad research question. Although risk governance narrows the theoretical scope of this study from a broader and more inclusive risk theory, it also calls for input from more than one discipline. This opens the door for a multitude of literatures, conceptual frameworks, and methodologies. Limiting the disciplinary reach of this study to one discipline – law, for example – is theoretically possible. However, as I explain below, because the legal method is limited in explaining how law and policy are implemented and enforced, utilizing only one discipline would be at the expense of obtaining a comprehensive picture of the aforementioned setting in which risk governance of oil and gas activities occurs. Because I attempt to answer a broad research question whilst utilising literatures and methodological and theoretical frameworks from a few disciplines within the boundaries of a PhD study, my research comes with limitations, which I discuss below.

There is a multitude of potentially relevant and applicable social theories capable of explaining the data. For instance, I conducted a cursory review of literature on the three theories capable of conceptualising, encompassing, and transcending the characteristics of the oil and gas sector. These theories are resource curse, path dependence, and social network theories.

Karl (2007, p. 1) defines resource curse as 'the negative growth and development outcomes associated with minerals and petroleum-led development. In its narrowest sense, it is the inverse relationship between high levels of natural resource dependence and growth rates.' A particular case of resource curse is the so-called 'Dutch disease', which was named after the negative impacts of the North Sea oil development on the Dutch economy. Rise of real exchange rates and migration of capital and labour to the booming extraction sector resulted in reduced competitiveness of other economic sectors (*Id.*). The resource curse concept brings valuable insight into the effect on an economy when the oil and gas sector dominates. I chose not to make this theory the centrepiece of my analysis, because in my cursory review I concluded that it might not provide sufficient insight into the mechanism by which the extractive sector 'crowds' other economic sectors, overcomes institutional controls, and turns political, social, and economic institutions into rentier structures. However, my review was limited to an overview of the concept and did not include investigations rich with societal context.

Path dependence, also known as inertia, stickiness, and lock-in, means in the simplest terms that the 'past determines the future' (Mahoney, 2000, p. 507). Puffert (2015) defines path dependence as follows:

> Path dependence is the dependence of economic outcomes on the path of previous outcomes, rather than simply on current conditions. In a path dependent process, "history matters" – it has an enduring influence. Choices made on the basis of transitory conditions can persist long after those conditions change. Thus, explanations of the outcomes of path-dependent processes require looking at history, rather than simply at current conditions of technology, preferences, and other factors that determine outcomes.

Perhaps the most recognizable form of path dependence in the energy sector (the most 'uninteresting' to Puffert) is known as sunk costs. This form is based on the longevity of capital-intensive equipment. Thus, according to Puffert (2015), '[o]bsolete, inferior equipment may remain in use because its fixed cost is already "sunk" or paid for, while its variable costs are lower than the total costs of replacing it with a new generation of equipment.' I decided against conducting a more in-depth literature review of the path dependence theory because of its overall deterministic nature. However, my review did not encompass path dependence literature regarding social capital, which might have contained the necessary insight regarding agency. Nonetheless, I found the concept of path dependence invaluable for understanding the ontologies of the actors and groups of actors centred on oil and gas and their related activities.

The network concept is a logical approach to analysing the social reality powered by Russian oil and gas, as it is an organised compilation consisting of different actors (Moulaert &

Cabaret, 2006). To borrow from Scott (1988), these actors are 'tied to one another by invisible bonds which are knitted together in a criss-cross mesh of connections, much as a fishing net or a length of cloth is made from intertwined fabrics.' In light of such a powerful statement, it is hard to disagree with Scott's description of a social network as capable of providing a 'powerful image of social reality' (*Id.*). In analysing the web of social relations, I found the Actor Network Theory (ANT) to be a particularly intriguing branch of social network theory. ANT's focus on non-human actors and their agency appeared to be a valuable pathway of conceptualizing the central role of crude oil and natural gas in the web (Latour, 2007, pp. 46-50). A historic analysis of crude oil – from its days as a whale oil competitor to its modern-day domination of the transportation sector as a jack-of-all-trades fuel – has the potential to generate a great deal of insight for energy policy. In this sense, it would be similar to Bruno Latour's examination of the diesel engine's history and its contribution to understanding of technology development in modernity (Chiu, 2008, p. 17).

Social science network theories are often criticised for providing a rather static snapshot of social reality and failing to fully reflect the complexity of dynamic processes – interactions and institutionalizations – within and among different networks (Moulaert & Cabaret, 2006, p. 52) (Grewal, 2008). This is not to say that some ANT scholars have not recognised and remedied this problem. For instance, Law's (1992) advancement of ANT alleviates one of the sharpest reproaches of social network theories centred on the absence of the role of power relations in the analysis (Moulaert & Cabaret, 2006, pp. 53-54). His idea of ordering takes ANT out of a static realm and brings much-needed dynamism to the concept. Therefore, it is conceivable that a more in-depth look into ANT and ordering provided a better conceptual foundation for my analysis than Grewal's theory of network power.

This study relies on four data sources: (i) observations obtained during fieldwork, including data from semi-structured interviews; (ii) texts of relevant programmatic policy statements, laws, and regulations; (iii) transcripts of presidential meetings, press conferences, addresses, and speeches; and (iv) energy statistics and results of public polls. This variety of data sources provides the necessary breadth for answering a broad research question. However, its breadth also raises concerns about the depth limitations.

As I explain later in this chapter, my original plan was to use participant observation and semi-structured interviews data with legal sources. However, because of the difficulties in gaining access, I supplemented these two sources with official transcripts and statistics. This relegated participant observation and semi-structured interviews to experiential data.[12] Even though this data source became of secondary importance, I would have benefited from a greater diversity of interviewees. For example, I did not find opportunities to interview Russian government officials.

The legal data source benefits from a comprehensive universe of federal programmatic policy statements, statutes, and regulations. However, with the exception of one regional statute, this group does not include regional and municipal sources. This shortcoming is partially compensated by the superior legal authority of federal law. However, including regional and municipal sources into the analysis would have provided an additional spatial nuance. Laws and regulations are subject to change, and, as I show in Chapters 4, 5, and 7, in Russia, these changes can be rapid and significant. Therefore, the conclusions drawn based upon legal data need to be revisited every time programmatic policy statements, statutes, and regulations undergo a significant change.

All of the official transcripts used in this study came from the executive branch of the Russian government. Moreover, all them came from the Office of the Russian President. This excluded not only regional and municipal decision makers but also key federal agencies and business entities involved in oil and gas policy-making, implementation, and enforcement. I partially controlled for this limitation through including statements by regional and municipal officials, and oil and gas companies' heads made at various presidential meetings. Also, I did not have access to meetings held off the record. In addition, it is possible that some of the transcripts were altered by Kremlin staff. I was able to verify the accuracy of several but not all transcripts by watching some available videos of the meetings.

The biggest limitation of energy statistics and results of public polls is the non-originality of the data. Although the International Energy Agency (IEA), U.S. Energy Information

[12] Strauss (1987, p. 20) defines experiential data as '"data in the head"', drawn from the researcher's personal, research, and literature-reading experiences'.

Administration (EIA), and British Petroleum (BP) are highly respected in the energy world in terms of the statistics that they collect, I had no way of verifying this data. The same is true for the public polls data that came from the Moscow-based Levada-Centre, an organization with a stellar international reputation (Levada-Centre, 2016).

In addition, all the aforementioned data came from the Russian Federation. This limited the scope of knowledge claims resulting from the study to one country. To mitigate this shortcoming, I highlight throughout the thesis the currently indispensable role of the Russian oil and gas sector in the global system. I also use several international examples, particularly from Norway and the United States, to show potential applicability of this study's knowledge claims beyond Russia's borders. In addition, I justify this in-depth, single-country study by the data-rich discourse policy discourse in Russia. Yet, as I acknowledge in the conclusion, such application would require additional research.

This study aims to propose the RGPF, a comprehensive analytical framework for analysing power relations in the risk governance of the oil and gas sector. Yet this study relies only on qualitative methods to achieve its objective. Such methods are essential for developing qualitative categories such as analytical steps and framework elements (Babbie, 1999). However, qualitative analysis does not provide tools for measuring these categories. As a result, the use of the framework is likely to be limited because of the lack of tools for quantitative assessment of the power relations (Jorgensen, 1989). Therefore, due to the limitations posed by the lack of quantitative methods in this study, the word 'comprehensive' above should be understood as limited to the elements and analytical steps of the RGPF.

1.2.5. Positionality

Merriam *et al.* (2010, p. 411) note that 'positionality is . . . determined by where one stands in relation to "the other"'. This observation sets forth the insider-outsider research role dichotomy (Jorgensen, 1989). 'An outsider . . . gains a more advantageous location, yet under most circumstances he or she still lacks the familiarity with what goes on within the setting' (*Id.* p. 56). In contrast, an insider is given a role presented by the setting but this role provides an ultimate insight into a social reality being investigated (Jorgensen, 1989). Assuming an outsider or insider position also extends beyond data collection impacting how data is categorised and analysed.

Being an insider does not necessarily translate into an advantage. For example, Herod (1999) concludes that his position as an outsider was more beneficial than that of an insider in the research of Czech trade union elites. Richardson (2014) makes the same observation regarding his research of Russian elites in the country's Far Eastern region and Moscow.

Jorgensen (1989 p. 61) notes that, '[t]he performance of multiple roles offers the distinct advantage of providing access to different standpoints and perspectives'. Yet gaining insider access and perspective takes time and effort. Doing so in a foreign country further complicates the process (Jorgensen, 1989). In this study, I found myself in a very fortunate position as having several insider and outsider perspectives. Yet this multirole ability came with a burden of multiple biases, which I made a conscious effort to control.

I was born and raised in the city of Irkutsk, located in Eastern Siberia. I obtained my first law degree in 1999 from Irkutsk State University (ISU).[13] I had the privilege of studying law in Russia during one of the most exciting times in the nation's history. As the country was transitioning from totalitarian rule and a planned economy, it was also changing its legal system. I commenced my studies in the autumn of 1994, only nine months after the current Russian Constitution was adopted. Over the next few years, Russia adopted the majority of its foundational laws, such as the Civil Code,[14] the Criminal Code,[15] and the Tax Code.[16] It also enacted some of the laws that are critical to this thesis, such as 'On Environmental Review' (Law N175-FZ, 1995) and 'On the Continental Shelf' (Law N187-FZ, 1995).

Most of my textbooks during that time were obsolete because they were based on old Soviet laws, some of which had already been replaced and some of which were on their way out. As a result, my classmates and I relied on the texts of existing and forthcoming laws published in the Russian Gazette (*Rossiyskaya Gazeta*), an official source for newly adopted Russian

[13] According to World Education Services, an international educational certification organization, my ISU degree is a combined bachelor's and master's degree in law.
[14] Part I was adopted in 1994 (Law N51-FZ, 1994) and Part II in 1996 (Law N14-FZ, 1996).
[15] Adopted in 1996 (Law N63-FZ, 1996).
[16] Part I was adopted in 1998 (Law N146-FZ, 1998) and Part II in 2001 (Law N117-FZ, 2000).

laws. Most of the scholarly works regarding new laws were mere regurgitations of text, offering little in terms of in-depth analysis. As a result, I learned to rely on my own analysis of a legal text.

After a strong academic performance during my first year at ISU, an instructor invited me to join his firm as a law clerk. Because some of the firm's clients were involved in privatization disputes, I was able to get a glimpse of one of the largest transfers of wealth in the world's history. I recall reviewing an addendum to a document capturing the results of a privatization auction and seeing the laughable amount that the lucky winner paid for the equipment, materials, and other assets. For example, the Russian government received an equivalent of $20 for a fairly new ZIL-130 medium lorry.

Narayan (1993 p. 671-672) notes that '[f]actors such as education, education, gender, sexual orientation, class, race, or sheer duration of contact may at different time outweigh the cultural identity we associate with insider or outsider status'. Although my Russian legal education enabled me to read Russian legalese and growing up during the tumultuous 1990s provided me with the insight to the current government and corporate culture, it also had an impact on how I see the current regime and the circumstances that lead to its rise.

For example, the effects of socio-economic changes in the Russian society, marked by the new policy, legal, and regulatory regime and redistribution of Soviet state assets, made a lasting impression on me. My father began the 1990s as one of the most skilled and respected workers at his industrial plant.[17] By the mid-1990s, he found himself ousted from the plant, along with the vast majority of other workers, because the plan had no orders. Already a heavy drinker, my father fell into a deep depression and died from a massive heart attack in December 1998 at the age of 54. He joined millions of Russians, predominately men, who were decimated by the changes that hit the country (Dawisha, 2015).

[17] I witnessed the respect with which my father's colleagues treated him because I spent two summer months working as a courier at the plant.

My personal experience with the socio-economic and legal contexts in which the new Russian laws were implemented served as an important foundation for this study. But I also had to be cognizant of my bias against the ruling government and corporate elites.

I began forming my outsider Western researcher perspective through obtaining a Juris Doctor degree from Vermont Law School (VLS) in the United States. After practicing law as a transactional attorney at a U.S. law firm for two years, I returned to VLS in the autumn of 2010 to pursue an LL.M in environmental law and policy and to serve as a research associate and global energy fellow at the Institute for Energy and the Environment (IEE).[18]

Because of my background in Russian law, Professor Betsy Baker invited me to become a team leader in analysing the Russian national legal and regulatory regime governing oil and gas development in the Arctic for the Inuit Circumpolar Council (ICC). The project's primary goal was to educate the ICC leaders on the intricacies of complex national legal frameworks and thus enable these leaders to intervene in the regulatory process and enforce their rights. We accomplished this goal by presenting ICC with a white paper that, in my view, remains the most comprehensive English-language source on the Russian law pertaining to offshore oil and gas activities (Baker, *et al.*, 2011).

Working on the ICC project presented me with an opportunity to combine the insider and outsider perspective in collecting and analysing Russian legal data. Diving into Russian law after maintaining a largely U.S. legal perspective for nine years reminded me of its great epistemic value for developing legal and social-science concepts that are deemed to have global application. I found the public and policy discourses on the topic of Arctic oil and gas development in Russia extremely rich. At the same time, I found the deficiencies and gaps in the legal and regulatory framework and the conflict of interest between government and non-government actors less disguised than in other Arctic nations.

My work on the ICC project was recognized by the Department of Energy in the form of an invitation to participate in the U.S.-Russia Bilateral Presidential Commission's Energy Scholarship Working Group, to which I committed prior to being accepted into my PhD

[18] I received my juris doctor degree from VLS in 2008 and became a member of the Vermont Bar in March 2009 after passing the bar exam in July 2008.

course. Participation in the working group enabled me to travel to Russia as a member of U.S. energy law and policy academic community and collect data relevant to this study.

Merriam *et al.* (2010 p. 411) pose an important clarifying question regarding insider status: 'What is it that an insider is insider of?' As I elaborate in more detail below, participation in the working group put me in the role of insider as part of the international academic and policy research community working on energy issues. Although I made strides toward becoming a member of the Russian energy law and policy research community, political complications after the annexation of Crimea by Russia in March 2014 precluded me from gaining this insider role.

My participation in the working group also exposed a shift in what I saw as my insider Russian-educated legal expert perspective. Because I left Russia in January 2001, I did not fully experience Vladimir Putin's Russia. I was able to compensate for this shortcoming by regularly talking to my family and friends about the new regime and reading Russian newspapers and watching Russian TV. Because of lack of practice, my ability to converse and communicate freely in Russian legalese also diminished. Fortunately, I recognized this problem before it manifested in my research and remedied it with additional preparation. Despite the aforementioned difficulties, I was able to utilise the insider-outsider dualism to my advantage and approach this study with a view not limited to a single country.

1.2.6. Prior research and scholarly endeavours

I was able to locate only one risk governance study involving the Russian oil and gas sector. In this study, Nazarova (2016) applies the concepts of risk governance and risk management to the activities of a Russian oil company in the Arctic. Nazarova premises her finding on interviews conducted with the company's employees in a wide range of occupations, such as health, safety, and environmental (HSE) specialists to senior managers responsible for the company's oil transportation activities.[19]

Sirina and Fondahl's (2006) study of perceived risks posed by the East Siberia Pacific Ocean (ESPO) pipeline contributes to the development of risk perception theories. However, the authors focus on concerns about the gap between formally granted indigenous rights and the realities of a powerful state company disrupting their hunting grounds. My collaboration with Stammler and Ivanova resulted in a study in which my co-authors and I explore the local approach to handling risk arising out of industrial projects in Sakha (Yakutia). In this study, we used the Power of Siberia pipeline system as a case study, and compare and contrast the local approach to handling risk to that prescribed under the federal law 'On Environmental Review' (Law N175-FZ, 1995) and the Sakha (Yakutia) law 'On Ethnological Review in the Areas Traditionally Occupied and Utilized by Indigenous Small-numbered People of the Republic Sakha's (Yakutia) North' ('On Ethnological Review') (Law 820-Z N537-IV, 2010).[20] In the resulting article, we did not provide a comprehensive analysis of the policy, legal, and regulatory mechanisms responsible for governance of risks in the Russian oil and gas sector. In addition, we concentrated on a single natural gas project and forewent exploration of foundational underpinnings of the risk governance concept.

Because of the scarcity of prior studies directly on this thesis's topic, I provide a brief overview of scholarly efforts on the following related topics: the socio-legal side of risk, risk governance of the energy sector, and energy policy-making, environmental assessment (EA) and ethnological assessment (ER) in the context of oil and gas development in Russia.

It would be incorrect to say that there is no research targeting the legal aspect of risk governance. There are entire academic journals devoted to the legal side of risk. Yet the vast majority of such scholarship is focused on technical risk assessment and the rules that govern

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[19] This article appeared in the special issue of *Energy Research and Social Science* (ERSS) entitled 'Arctic Energy: Views from the Social Sciences', for which I served as the editor. The author utilized the risk governance concept pursuant to my advice during the article review process.

[20] We published the results of our study as an article entitled 'Localizing Governance of Systemic Risks: A Case Study of the Power of Siberia Pipeline in Russia' in the aforementioned special issue. (Sidortsov, *et. al.*, 2016)

it. The same is true for risk regulation scholarship, an area that straddles law and economics, and which often finds inspiration and purpose in the aforementioned laypeople-versus-experts debate. Correspondingly, much of the literature on regulation of risk is concerned with the protection of the regulatory process from the erroneous fears of the citizenry rooted in so-called cognitive heuristics (MacGillivray, 2013). The work of Sunstein exemplifies this trend in the risk literature (*Id.*). This is not to say that such investigations are not important or not valuable. For many academics and practitioners, they are intellectually enriching and useful for the practice of law. However, equating the legal side of technical risk assessment with the legal side of risk governance is problematic.

On the other side of the scholarship spectrum is what Callon, Lacoumes, and Barthe (2011, p. 226) call 'Grand Narratives' associated with the works of Beck. It would not be completely appropriate to critique the scholarship of Beck based on the standards applied to legal scholarship, as he is a theoretical sociologist. Yet he frequently refers to law and what the law does in relation to risk while constructing his grand narratives and making far-reaching pronouncements. What he lacks is both theoretical and empirical specificity of the extent and ways in which law is applied to risk matters. The lack of empirical grounding is typical and expected from his work – after all, Beck is a theoretician. However, his general oversight of important conceptual issues such as jurisdiction and legal authority begs for further clarification and better placement in the context of legal theory.

The literature regarding the socio-legal aspect of risk governance is scarce but growing. The concept's broad reach allows scholars to branch out of technical regulating, standardization, administrative rulemaking, and other narrow areas traditionally associated with legal research of risk. I underscored the need, rationale, and outlined agenda for developing the socio-legal aspect of risk governance in an article entitled 'Reinventing Rules for Environmental Risk Governance in the Energy Sector' published in *Energy Research and Social Science* in 2014.

A recent collective volume edited by Lindoe, Baram, and Renn (2014) entitled 'Risk Governance of Offshore Oil and Gas Operations' consists of chapters covering largely traditional risk areas, such as risk management in HSE regulations. To its credit, the volume also incorporates several atypical pieces: a chapter on values and norms as a foundation for risk-oriented regulatory culture (Mearns, 2014), a chapter on legitimacy and accountability in risk regulation (Kringen, 2014), and a chapter on an institutional foundation of inclusive risk governance (Rosness & Forseth, 2014). Yet the volume largely ignores some of the critical issues associated with risks posed by offshore oil and gas development. These issues include climate change risks associated with typically long-term, capital-intensive offshore projects and social risks associated with hydrocarbon production-dependent economies.

The risk governance framework developed by the International Risk Governance Council (IRGC) and on which I rely throughout the thesis has been utilized to assess policies in several areas of the energy sector. These assessments include a study on risk governance of bioenergy policies, (IRGC, 2007) critical infrastructure in the energy sector (AEA, 2009), and issues surrounding carbon capture and sequestration (IRGC, 2008).

Aven and Renn (2012) use the IRGC framework to examine issues related to oil and gas activities in the Norwegian sector of the Barents Sea (Aven & Renn, 2012). This is the only scholarly study that I was able to locate in which the authors utilized the entire risk governance framework as an approach for analysing and critiquing the ways in which Norway handles risk in the Arctic and Subarctic.

As mentioned above, the third group includes concepts that are tangential to risk governance in the context of oil and gas development in Russia. Below, I list a few examples that epitomise this subgroup.

The first subgroup comprises the academic and analytical literature regarding decision-making in the oil and gas sector in Russia. Gustafson's (2012) 'Wheel of Fortune' offers perhaps the most comprehensive and detailed account of the modern history of the Russian oil and gas sector. Goldman's 'Petrostate' (2010) is similar to Gustafson's work, but it is not as detailed and nuanced. Paik, whose 'Sino-Russian Oil and Gas Cooperation: The Reality and Implications' I reviewed for *Pacific Affairs*, analyses energy policy-making by the Russian government from the standpoint of Russia's relationship with its south-eastern neighbour. Although all three authors refer to risk as a consideration used during the policy-making process, they do not make it a feature of their investigations. In addition, all three favour law and economics as their main discipline and focus on the macroeconomic effect of risk-oriented regulatory culture (Mearns, 2014), a chapter on legitimacy and accountability in risk regulation (Kringen, 2014), and a chapter on an institutional foundation of inclusive risk governance (Rosness & Forseth, 2014). Yet the volume largely ignores some of the critical issues associated with risks posed by offshore oil and gas development. These issues include climate change risks associated with typically long-term, capital-intensive offshore projects and social risks associated with hydrocarbon production-dependent economies.

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Aven and Renn (2012) use the IRGC framework to examine issues related to oil and gas activities in the Norwegian sector of the Barents Sea (Aven & Renn, 2012). This is the only scholarly study that I was able to locate in which the authors utilized the entire risk governance framework as an approach for analysing and critiquing the ways in which Norway handles risk in the Arctic and Subarctic.

As mentioned above, the third group includes concepts that are tangential to risk governance in the context of oil and gas development in Russia. Below, I list a few examples that epitomise this subgroup.

The first subgroup comprises the academic and analytical literature regarding decision-making in the oil and gas sector in Russia. Gustafson's (2012) 'Wheel of Fortune' offers perhaps the most comprehensive and detailed account of the modern history of the Russian oil and gas sector. Goldman's 'Petrostate' (2010) is similar to Gustafson's work, but it is not as detailed and nuanced. Paik, whose 'Sino-Russian Oil and Gas Cooperation: The Reality and Implications' I reviewed for *Pacific Affairs*, analyses energy policy-making by the Russian government from the standpoint of Russia's relationship with its south-eastern neighbour. Although all three authors refer to risk as a consideration used during the policy-making process, they do not make it a feature of their investigations. In addition, all three favour law and economics as their main discipline and focus on the macroeconomic effect of

Russian oil and gas policies without noting the societal changes brought by the revival of the oil and gas sector during Vladimir Putin's first presidency.

The second subgroup comprises academic and popular literature on the state of political and economic affairs in the Russian Federation. This literature does not specifically target risk and/or oil and gas sector. However, because of the sector's dominance in the Russian economy and society, this literature is full of insightful commentary and analysis of the decisions that involve exploration, extraction, and transportation of oil and gas. Dawisha (2015) tracks the rise of Vladimir Putin from a KGB officer to the head of the Russian state. Her investigation is full of references to the Russian President's involvement in the governance of the energy sector. Hoffman's (2011) historic inquiry into the rise of private actors in post-Soviet Russia includes several detailed accounts featuring the oil and gas sector. Although Dawisha, Hoffman, and several other authors from this subgroup intend their investigations for both academic and general audiences, I found their accounts helpful in examining the role that risks and benefits to individual actors play in the decision-making processes. However, this body of literature does not address the topic of risk governance of oil and gas activities in a comprehensive manner.

The third subgroup consists of literature that touches upon risk in relation to ER and EA of individual oil and gas projects in the Russian Arctic and Subarctic. This body of literature is particularly helpful for understanding how risk governance mechanisms under ER and EA are implemented on practice. However, none of the authors listed below ties his or her analysis to the risk concept, let alone provides a comprehensive account of risk governance of oil and gas activities under the Russian policy, legal, and regulatory regime. Murashko has been on the forefront of effectively assessing risks posed by oil and gas development to indigenous communities of the Russian North. She was one of the first scholars to introduce ethnological review (ER) into academic Russian literature (Murashko, 2006). She has also carried out ERs (Dallman, *et al.*, 2010) (Dallman, *et al.*, 2011). Novikova, with whom I also had the privilege to collaborate frequently, conducted such reviews upon requests from oil and gas companies (Novikova & Martynova, 2011). Yakovleva (2011) (2011a) (2014) provides valuable insight on the impact of ESPO construction on the indigenous peoples of Sakha (Yakutia) in the context of both legal and implementation gaps of the applicable federal law. Ivanova (2007) highlights the need for regional ER legislation to address the concerns over cultural, social, and economic impacts during the ESPO construction in Sakha. Stammler and Ivanova (2016), recently produced a study in which they outline the difficulties of finding a mutually acceptable solution in the cases of oil and gas development in two remote Russian regions.

It is important to note the extent to which I was able to utilize Russian-language sources. Based on my engagement with Russian scholars through conversations, research collaboration, and editorial work, I have become aware that Russian social science and humanities research, including legal research, has seen better days.[21] Ledyaev, whose work on the concept of power I found very helpful, does not include any Russian and Soviet scholars into his thorough review of power, citing the scarcity and originality of their work (Ledyaev, 2001, p. 56).

Fortunately, there are exceptions. I found insightful Russian legal commentary regarding environmental protection (Ignatyeva, 2013), pipeline transport (Perchik, 2005), and ethnological assessment (Sleptsov, 2013), as well as Ledyaev's work on the social concept of power.

Based on the above review, this study represents a novel endeavour that aims to bridge an obvious gap in the existing risk governance scholarship. Unlike previously conducted studies, this study targets the top of the decision-making pyramid in relation to oil and gas development in the Russian Arctic and Subarctic and employs the risk governance theory in a comprehensive manner.

It accomplishes this goal so by asserting that risk governance of oil and gas activities is shaped by power relations that can be analysed through the RGPF. Furthermore, it views risk governance as an inherently adversarial process between the network power behind the hazardous activity and the sovereign power of government structures and agents. The network power of the oil and gas sector, or as I term it, the Oil Standard, is premised on three dependences: technological, socio-economic, and political. The analysis of the spatial and

[21] I have served as a permanent editor for ERSS since January 2014.

temporal allocation of individual and public risks and benefits can be used to evaluate the incentives for prompt, comprehensive, and inclusive risk governance. A power relations analysis is particularly important at the risk PA and risk C&E phases of the IRGC framework.

These contributions to the risk governance literature also enrich the social concept of power literature by providing the risk and risk governance context. In addition, this study contributes to academic and analytical literature on Russian oil and gas law and policy. In particular, it shows the importance of a three-dimensional analysis of the Russian oil and gas sector. It identifies the scope of the Russian policy, legal, and regulatory regime responsible for risk governance and the dominant (prescriptive) approach to handling risk. Finally, it demonstrates how law- and rule-making processes can be used to forecast the changes in organizational and institutional capacity to govern risks.

1.3. Disciplinary orientation, data sources, methods, and key concepts

1.3.1. A note on interdisciplinarity of the study

Because this thesis examines the Russian policy, legal, and regulatory regime in the societal context, it belongs to the category of socio-legal studies (The British Library, 2016). This designation also makes this thesis an interdisciplinary study, which '[i]n the simplest terms' means 'a mode of research that transgresses traditional disciplinary boundaries' (Rhoten & Pfirman, 2007). Sime and Horlick Jones (2004) argue that constraining a study of risk by disciplinary boundaries has a perverse reductionist decontextualizing effect. More importantly, it reduces the options for targeting a real-life problem clad in rich context.

This study combines literature and methodology from several social science and humanities fields under the risk governance approach. For example, the theoretical analysis of risk is based on the works of anthropologist Mary Douglas, psychologist Paul Slovic, and sociologists Ulrich Beck and Ortwin Renn, among others. To corroborate my analysis of empirical data I rely on accounts of contemporary governance in Russia by political scientists such as Karen Dawisha and economists such as Clifford Gaddy. To verify my analysis of laws and regulations I employ specialized legal literature in both Russian and English. To distil the concept of power into the study's context, I utilize works of perhaps the widest range of authors, from Max Weber and Bertrand Russell to contemporary legal scholar David Grewal and political and social theorists Michel Foucault and Steven Lukes. More importantly, it targets a real-life problem as application for this study's outcome. Therefore, this study firmly belongs in the interdisciplinary category.

1.3.2. Sources and methods

1.3.2.1. Overall methodology

This is a qualitative study that uses a combination of discourse analysis and legal analysis methods. The overall methodology of the study is premised on Grounded Theory (Strauss, 1987). Grounded Theory is inductive in nature and thus 'grounds' the developed theory in data (*Id.*). This is a 'constant comparative method' of analysis that involves the following steps: (i) comparing the relevant data to each theoretical category; (ii) incorporating the categories and their properties; (iii) identifying the limits of the emerging theory; and (iv) writing up the theory (Glazer & Strauss, 1967).

I received a great deal of help from the experiential data. This data comprised the following sources. First, the knowledge and experience that I obtained while studying and practicing law in Russia, as well as conducting extensive research on Russian energy law and policy after moving to the United States. Second, the participant observation and semi-structured interview data that I collected between March 2013 and March 2014. This data, combined with the knowledge gained through a literature reviewed conducted during the first year and a half of my PhD study, provided enough foundation for the development of the conceptual categories in risk governance – power and knowledge. I also hypothesised that the power relations impacting risk governance may vary depending on the nature of a hazardous activity from which risks arise, the government's capacity for risk governance, and allocation of risks and benefits within the society.

My next step was to compare the data from my main sources, the official transcript and legal texts, to each conceptual category and sub-category. An analysis consisting of coding, further sub-categorization, and further conceptualization enabled me to incorporate each category and subcategory with its properties. At this stage I also confirmed the critical importance of the social power concept for this study. At the following stage, I identified the limits of the RGPF by examining the data in light of the following inquiries: (i) whether the framework can be applied across other sectors of Russia's economy; (ii) whether the framework is limited to the Russian North; and (iii) whether the framework can be applied to other national regimes. After designating the framework to the Russian oil and gas sector, regardless of the geographic location of the underlying activities within the country's boundaries, I moved to the final stage. The writing stage revealed only minor, clarifying changes to the analytical framework.

1.3.2.2. Texts of relevant programmatic policy statements, laws, and regulations

In order to answer the main research question of this study, I had to be strategic in selecting the level of the Russian policy, legal, and regulatory regime. Russia is a federal state consisting of eighty-five constituent entities or subjects of the federation (*subyekty federatsii*) (Constitution, art. 65). In addition to the federal and regional levels, Russia's local affairs are administered by municipal governments, or as it is known in Russia, local self-rule (*mestnoe samoupravlenie*) (Constitution, art. 72). Therefore, including policy, legislative, and regulatory acts from all three levels would have been impossible within the bounds of this study. As mentioned above, based on my expertise in the Russian legal system, I chose to concentrate on the federal level in order to produce the most comprehensive answer to the research question.

I narrowed down the scope of the initial review to the policies, laws, and regulations on the following matters: strategic energy planning, distribution and management of onshore and offshore mineral resources, environmental protection, petroleum taxation, protection of small-numbered indigenous people, and construction of energy infrastructure. The second stage of the analysis involved a more in-depth examination of the most pertinent sources, the full list of which can be found in Appendix I. I obtained the sources through the Russian legal database ConsultantPlus (2016), which along with the Garant (2016) database is considered the most comprehensive and current legal depository in Russia. As noted above, I have run database searches throughout the study to incorporate all of the legislative and regulatory changes. I conducted the last update on 10 June 2016.

1.3.2.3. Official transcripts

Legal analysis of policies, laws, and regulations, which at its core is analysis of 'law as written', has significant limitations. However, these sources alone are unlikely to provide a comprehensive picture of the setting in which risk governance takes place because they are silent on the extent to and ways in which they were *implemented.* I utilised transcripts of official meetings to remedy this shortcoming of the above data source.

In selecting the level and the most appropriate branch of the government I turned to the court system, a forum favoured by legal anthropologists (Roberts, 1979) (Bohanan, 1989). There is little doubt that Russia has a functioning judiciary (although many doubt its independence). However, one should not look to it as a primary source of relevant discourse, as my cursory review of applicable court decisions did not identify a single successful challenge to large oil and gas projects in the Arctic or Subarctic based on the alleged risks and impacts these projects pose. My second stop was the State Duma (*Gosudarstvennaya Duma*), the lower house of the Russian Parliament where federal legislation is made. However, for reasons described in Chapter 4, I found the State Duma to be a *de facto* rubberstamping extension of the executive branch of the Russian Government.

My research lead me to conclude that the RF Government and the President are the most appropriate parties to examine when researching the ex-ante processes that result in threshold decisions regarding oil and gas development in the Russian Arctic and Subarctic.[22] Because publicly available records are scarce within the RF Government, and because the President holds a superior position in the Russian State hierarchy, I turned my attention to what is known as the 'heart of Russia' – the Kremlin. I utilized 105 transcripts of Presidential meetings, press conferences, addresses, and speeches. I found meetings of presidential commissions especially informative, as well as those of ad-hoc consultative and coordinating

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[22] The Government of the Russian Federation or *Pravitel'stvo Rossiyskoy Federatsii* is a mega-agency that consists of many sub-agencies. For the sake of clarity, in this thesis the term 'RF Government' refers to this mega-agency.

bodies. In fact, on many occasions, by merely examining a meeting transcript, I was able to track the entirety of a substantive decision-making process that resulted in a policy or legislative change. In addition, I was able to obtain a surprisingly accurate assessment (as corroborated by other evidence) of a particular policy issue.

Initially, I was sceptical as to the veracity and credibility of their content but I quickly discovered that leading Russian analysts, such as Mitrova, treat these presidential meetings, addresses, and speeches as official policy statements (Mitrova, 2015). After conducing an in-depth review of several transcripts, I was pleasantly surprised by their content. Information that I expected to be redacted by Kremlin censors appeared to be intact. Nevertheless, while the Administration of the President of the Russian Federation has been conscientious in documenting the activities of Presidents Putin and Medvedev since 2008, it is very likely that not all official conversations and remarks are made available to the public.

At the initial stages of my research, I searched the Office of the Russian President's official online transcript database for the terms 'environment', 'energy', 'oil and gas', and 'risk' (in Russian) and manually reviewed the returned records (President of Russia, 2016). The transcripts span from June 2003 to April 2015, with only a few transcripts dated prior to 2008. I selected 105 relevant transcripts for a more in-depth discourse analysis, which I describe below. A full of list of transcripts can be found in Appendix II.

1.3.2.4. Observations obtained during fieldwork, including data from semi-structured interviews

According to Jorgensen, participant observation helps to obtain a valuable 'insider viewpoint' (Jorgensen, 1989, p. 15). Skinner (2012) points out that semi-structured interviews serve as a great complementary tool to participant observation. For example, LaBelle (2012) used a similar two-round approach in his study of post-carbon institutions in the EU. Therefore, my strategy of combining 'law as enacted' and 'law as implemented' appeared especially appropriate in the comparative context, as it 'guard[s] against the possibility of our domestic preconceptions creeping into our understanding of other societies.' (Roberts, 1979, p. 18)

Because the oil and gas sector is considered a strategic industry of the Russian Federation, it makes for a sensitive discussion topic. I recognized this fact, and from the time I embarked on my first fieldwork trip in September 2013, I paid particular attention to ethical considerations. Pursuant to a discussion with my supervisor, I followed the Ethical Guidelines for Good Research Practice adopted by the Association of Social Anthropologists of the UK and the Commonwealth (ASA). I clearly disclosed my purpose and background before engaging in a research activity and only proceeded after receiving express consent. Because of the sensitivity of the subject, I honoured all confidentiality requests. I preserved the anonymity of every interviewee and entity unless I received expressed consent not to.

I have conducted 21 semi-structured, open-ended interviews in person at conferences, workshops, lectures, and meetings, as well as eight semi-structured interviews via Skype and phone. The full list of interviews, their locations, and topics discussed can be found in Appendix IV. I also lectured at an industry workshop in Oslo in September 2013 and at a Russian university in Moscow in February 2014. Participation in the U.S.-Russia Bilateral Presidential Commission's Energy Scholarship Working Group and my affiliation with the IEE as a Senior Global Energy Fellow gave me 'insider' status within the international academic and policy research community. As a result, other workshop participants and lecture attendees were more willing to talk to me because they were interested in what I thought of their ideas as a peer or because they wanted to know more about the topic on which I presented.

The sensitivity of the topic prevented me from making audio or video recordings. As a result, I took written notes during or shortly after an interview or participation in a data-rich activity, such as group discussion. When necessary and possible, I reached out to the interviewees with follow-up questions.

1.3.2.5. Statistics

Energy statistics and results of public polls conducted in Russia were the last data source utilized in the study. The vast majority of energy statistics came from two most respected public sources, the IEA and the U.S. EIA. I also utilized BP Annual Statistical Review, which is one of the most esteemed private sources of energy data.

I have also reviewed over 50 public polls conducted by the Moscow-based Levada-Centre on a variety of topics ranging from Russian citizens' perception of the 2013 Greenpeace protest to their view of Russia's model of governance. Levada-Centre is a reputable source often used by respected international organizations such as World Bank (Levada-Centre, 2016).

1.3.2.6. Data Analysis

As stated above, I used the texts of relevant programmatic policy statements, laws, and regulations, as well as transcripts of official presidential meetings, addresses, and speeches on matters relevant to oil and gas development, as my main data sources. The analysis that I performed in relation to these two data sources can be categorized as a mixture of discourse and legal analysis.[23] I performed the former to put the data in the context of power relations in risk governance of oil and gas activities in Russia. I utilized the latter to focus in on particularly important substantive points in conjunction with the discourse analysis (Babbie, 1999).

Originally, I had planned to conduct a study comparing the relevant Russian and Norwegian policy, legal, and regulatory regimes. Both regimes were going to be evaluated in terms of their functions in the risk governance process. For this reason, I utilized the functional legal method, which focuses not on the legal rules and doctrinal structures, but on their effects and function in society (Michaels, 2006). When I chose to focus exclusively on Russia, I did not have to change my legal methods because I had concentrated from the beginning on finding functional equivalents of Russian policies, laws, and regulations in the IRGC risk governance framework.

Because a legal and regulatory framework is rarely static, especially in Russia, I conducted legal analysis throughout the study to ensure that the discourse analysis remained in the context of policies, laws, and regulations that are currently in effect. Because I came to Cambridge with a sufficient understanding of the relevant Russian legal and regulatory

[23] Legal analysis is performed by using the legal method or methods. It serves as a cornerstone of legal education that aims at training prospective lawyers, researchers, and other professionals that engage in legal research how to decipher the meaning of legal text. (Strauss, 2008)

landscape, I centred my analysis on the changes in the policy, legal, and regulatory regime since autumn of 2012.[24] Therefore, I conducted the discourse analysis of the official transcript data and the legal analysis of the relevant policies, laws, and regulations in a cross-complementary and cross-corroborative manner (Shuy, 2003).

I did not use special software to analyse legal data, because I found thematically organised excerpts in a word document manageable. However, I used the Atlas.ti software to analyse the official transcripts.[25] Atlas.ti proved to be indispensable for managing voluminous transcript texts and numerous quotes. I performed several rounds of coding, starting with open coding and gradually moving to axial coding, the final version of which can be found in Appendix III. Because of the importance of the transcript and legal data, I use it extensively in both paraphrased form and the form of quotations throughout the thesis.

As noted above, my original plan was to rely on legal texts and participant observation and semi-structured interviews as two main data sources. After the first year and a half of my PhD study, it became apparent that I needed access to top Russian government decision-makers in order to answer my research question. The already very-slim possibility of gaining such access vanished with Russia's annexation of Crimea and escalation of the political situation in Ukraine. Unfortunately, not long after, most of my interviewees stopped responding to my correspondence. As a result, I had to substitute semi-structured interviews and participant observation with the official transcript as my main discourse data source.

Yet this data source provided important contribution to this study. It served as part of the experiential data that helped me to form the initial hypothesis. I also use it to contextualise findings derived from legal statistical data sources. In fact, for this reason, I reached out to the informants who were still willing to speak with me to ask for their opinion on a particular issue. For example, in June 2015, I asked my former classmate in Russia and elected municipal official to comment on the use of outdated oil and gas equipment. In November 2014, I interviewed my former oil and gas professor about her experience in dealing with

[24] This proved to be a correct approach as the Russian national legislature enacted several significant changes, which I review throughout the thesis.

[25] Atlas.ti is a qualitative data research software that is particularly suited for systematic analysis of large unstructured texts and multimedia (Atlas.ti, 2016).

Soviet-era oilmen in the 1990s. In February 2016, I sat down with my co-authors, Stammler and Ivanova, to talk about their investigation of public hearings in connection with the Power of Siberia pipeline. I chose to use quotes from these interviews to emphasise an important contextual point.

I provided further context by incorporating energy statistics and results of various public polls in my overall analysis. I faced similar challenges to those with legal sources, as energy data changes frequently and sometimes drastically. When needed, I performed simple mathematical calculations to determine averages and totals, and to convert various units of energy. However, these calculations were minimal and thus did not affect the qualitative nature of this study.

1.3.3. A note on power and knowledge as key concepts

I have noted above that in addition to risk and risk governance, power serves as a key concept in this study. Another such concept is knowledge. Because of the enormity of literature on these two concepts, I deemed it appropriate to elaborate on the extent to which I examined knowledge and power.

Prompted by the question of *what is knowledge* in the context of risk, I began my investigation with a review of the relevant philosophical literature. I attempted to cast a wide net by largely disregarding the contextual qualifier, only to realise that I was staring at an ocean of literature with no means by which to cross it. After all, we can trace well-reasoned attempts to answer this question to Plato's Meno and Theaetetus (Plato, 399 BCE). To avoid being consumed by an epistemological quicksand, I remained focused on the prevalent conceptual theme of this study – power relations – and decided to forego using general epistemology literature as a departure point. This choice prevented me from investigating the risk concept within the classic Justified True Belief (JTB) framework, as well as the challenges to it.[26] Instead, I focused on the literature dedicated specifically to the origins of risk knowledge while using elements of the JTB framework in a descriptive manner.

[26] My brief excursion into this topic did, however, provoke ideas for future research. (Gettier, 1963) (Lehrer & Paxson, 1969)

Paradoxically, the literature on this issue is rather scarce. This is not to say that all scholarship on risk epistemology is underdeveloped – there is plenty of literature on the applied side of risk.[27] It is the investigations into the essence of risk knowledge that lag behind. Beck (1992), Weinberg (2001), Douglas and Wildavsky (1982), Giddens (1991), and Luhmann (1990) all cover this subject in their well-received works. However, Hansson's (1996) take on the origins of risk knowledge is particularly interesting, as he approaches it in light of one of the most fundamental philosophical questions. For this reason, I structure the discussion of knowledge about risk in Chapter 3 around his work.

Before undertaking this study, I was rarely tempted to inquire as to what a speaker or author meant when referring to 'power relations'. My law background oversimplified my perception of what constituted social power – it had to be something obvious, direct, and palpable. This was hardly surprising, as often a legal statute or case specifies what power is by describing powers of a certain actor or a group of actors.

'Power is everywhere; not because it embraces everything, but because it comes from everywhere.' This frequently used quote from Foucault's *The History of Sexuality* rings true on more than one level (1980, p. 93). First, the scholarship on the social theory of power is vast and diverse, with many scholars offering divergent views on what constitutes power in the social context (Morris, 2012, p. 1). Second, it is hard to disagree with Russel (1937, p. 10), who identified power as 'the fundamental concept in social science' and compared its importance to that of the concept of energy in physics. Indeed, my first significant foray into the social theory of power proved to be both humbling and overwhelming.

I faced a similar challenge in sorting through over two millennia worth of scholarship on the subject as with the concept of knowledge. Thus, a comprehensive literature review did not appear to be an acceptable option because of the sheer volume of scholarship on the subject and the page limit of this thesis. Thus, I chose to review meta-studies conducted by prominent power scholars to identify key categories as well as forms and mechanisms of power. When

[27] There are entire journals dedicated to this aspect of risk, Law, Probability & Risk, for example. (Law, Probability & Risk, 2016)

my data analysis required an in-depth examination of certain categories, I utilized works with the utmost relevance and explanatory capacity.

One such examination occurred with Ledyaev's work (2001), which provides perhaps the best example of the value that the Russian-language sources bring. He notes that the Russian language provides one of the sharpest contrasts between two words '*vlast'*' and '*sila'* that can be translated into English as 'power'. *Vlast'* originates from the Church Slavonic's '*volost'*', which means 'a region, territory, government, or power' (Ledyaev, 2001, p. 92). Thus, *vlast'* not only implies some kind of legitimized or formalized power, but it also suggests that this power is over a territorial unit. On the other hand, the Big Dictionary of the Russian Language lists the most common meaning of *sila* as physical force or strength of an animate subject or inanimate object (Kuznetsov, 2014). The dictionary also lists a less-frequent use of *sila* as a legal or financial power (*Id.*). In addition, the first subtitle of a Russian legal statute is when it goes into effect or '*vstupaet v silu*'.

1.4. Roadmap of chapters

Chapter 2 provides an overview of the basic characteristics and trends of the Russian oil and gas sector and its place in the global energy landscape, as well as the analysis of its penetration into the country's political, social, and economic life. Chapter 3 elaborates the theories of risk and risk governance in the context of the global energy sector. Chapter 4 transitions to the socio-legal context of risk governance and analyses what government policies, laws, and administrative regulations actually govern risk posed by oil and gas activities in Russia. Chapter 5 commences with a study of the Power of Siberia natural gas pipeline and develops the conceptual common denominator for analysing the dynamic between the principal parties in risk governance – the social concept of power. Chapter 6 homes in on particular challenges of risk governance of the oil and gas sector through the concept of network power begins the development of the RGPF. Chapter 7 continues the Power of Siberia analysis of sovereign power structures responsible for governing risk posed by oil and gas activities on a macro-level and concludes with an investigation of spatial and temporal allocation of such risks and benefits in Russia's 'Petrostate'. This concludes the RGPF development. The thesis closes revising the research question, restatement of knowledge claims and literature contributions, description of the RGPF as a whole, and a brief agenda for future research.

2. Oil and gas: Russia's Sacred Cow

2.1. Physical and technological dimensions of Russia's oil and gas sector

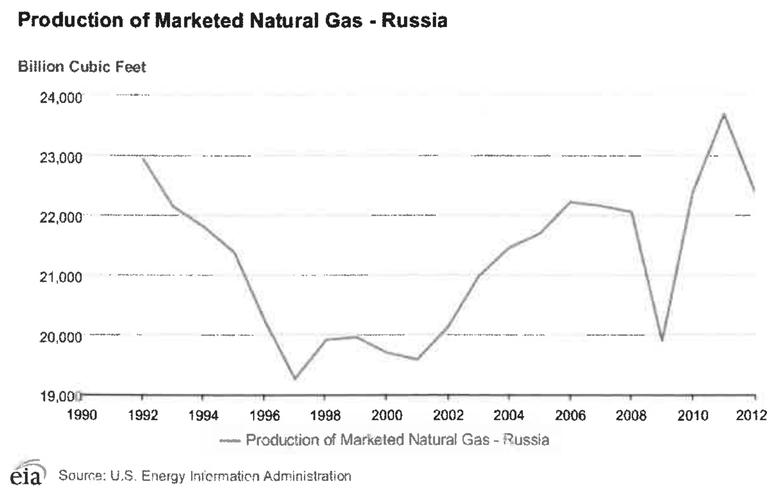
I commence this thesis with a statistical overview of the Russian oil and gas sector in the context of the global energy landscape. However, energy numbers, averages, ratios, percentages, and project examples alone do not reveal perhaps the most important part of the story – the qualitative penetration and systemic effect of oil and gas activities on the Russian economy, society, and politics. In particular, they do little to unveil and elaborate on the relationships among a multitude of actors who are directly and indirectly connected to oil and gas activities in Russia. To remedy this shortcoming, in the second half of the chapter I examine the political and geopolitical dimensions, as well as the social and economic dimensions, of the Russian oil and gas sector as described by such key actors and regular Russians.

Therefore, the objective of this chapter is two-fold. First, it is to provide the necessary background regarding the Russian oil and gas sector for ensuing chapters that tie together the sector's technological and physical side, its political and policy decisions, and the society affected by these decisions. Second, it is to contribute to bridging the gap in the academic and analytical literature on the Russian oil and gas sector that frequently portrays the sector through statistical averages or through actions by the key government and business actors.

2.1.1. Russia's oil and gas sector: statistics and trends

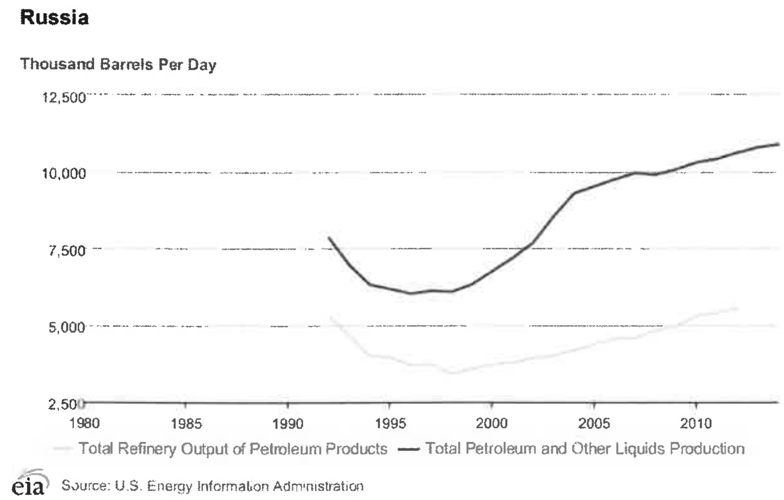
According to the U.S. Energy Information Administration (EIA), in 2014 Russia ranked first in the world in crude oil production (including condensate) and second in dry natural gas production (EIA, 2015). Shortly after the collapse of the Soviet Union, natural gas production experienced a steep decline, hitting the lowest point in 1997 at 19,257 bcf, a nearly 3,000 bcf drop from 1992 (Figure 5).

Figure 5: Historic natural gas production in Russia 1992-2012 (EIA, 2016)



Oil and refined petroleum products output declined in a similar fashion, with the former hitting the lowest point in 1996 at 6,017,000 b/d and the latter in 1998 at 3,376 b/d (Figure 6).

Figure 6: Historic oil and petroleum products output in Russia 1992-2014 (EIA, 2016)



However, as Figures 5 and 6 show, production of both oil and gas rose steadily between 1998 and 2008, contributing to the so-called Russian oil miracle (Gustafson, 2012).

As noted in the introduction, since the late 1970s, the bulk of Russia's oil production has occurred in the Arctic and Subarctic fields of Western Siberia. To transport such significant quantities of hydrocarbons to refineries, export terminals, and to domestic and international customers, some of which are located thousands of miles away, Russia relies on a vast network of pipelines. Russia's longest pipeline, *Druzhba* (Friendship), is a staggering 2,400 miles in length and capable of delivering two million b/d to customers in Belarus, Poland, Germany, Ukraine, Slovakia, the Czech Republic, and Hungary through its Northern and Southern Routes (EIA, 2015).

Table 4: Russia's Oil Pipelines (EIA, 2015)

Pipeline	**Route**	**Length (miles)**	**Capacity (million b/d)**
Druzhba	Northern Route: Belarus, Poland Germany; Southern Route: Belarus, Ukraine, Slovakia, Czech Republic, Hungary	2,400	2
Baltic Pipeline System 1	Timan Pechora to Primorsk Terminal	730	1.5
Baltic Pipeline System 2	Unecha to Ust-Luga Terminal	620	1
Northwest Pipeline System	Polotsk to Butinge and Ventspils	500	0.3
Caspian Pipeline Consortium (CPC)	Tengiz (Kazakhstan) to Russian Black Sea port of Novorossiysk	940	0.7
Baku-Novorossiysk Pipeline	Sangachal Terminal (Azerbaijan) to Russian Black Sea port of Novorossiysk	830	0.1
Eastern Siberia-Pacific Ocean (ESPO) Pipeline	Taishet-Skovorodino-Kozmino Bay (with a 60-mile spur running from Skovorodino to Daqing in China)	270	0.6
Purpe-Samotlor Pipeline	Oil fields in the Yamal-Nenets and Ob Basin (including Vankor field) to the ESPO Pipeline	266	0.5
Zapolyarye-Purpe Pipeline (planned)	Oil fields in the Zapolyarye region and new fields in Yamal-Nenets region to the ESPO and Purpe-Samotlor Pipelines	310	0.9

Expansions are planned for the CPC (to 1.4 million b/d) and Baku-Novorossiysk (to 0.3 million b/d) pipelines. However, even more significant is the new Zapolyarye-Purpe pipeline that will link new Arctic oil fields in Western Siberia to the ESPO pipeline serving China and Southeast Asia. As the Transneft's map (Figure 7) depicts, the geographic reach of Russian pipelines is expansive and multidirectional, enabling producers to adjust to market demands.

Figure 7: Transneft's pipeline system (Transneft', 2016)

Rail has been important for establishing Russian oil markets. For example, Rosneft' started shipments via rail before ESPO became operational (Paik, 2012). The most important link in delivering oil and petroleum products to Russia's overseas customers are the 18 ports that serve as export outlets. The seven ports listed in Table 5 are of the utmost significance for Russia's oil exports (EIA, 2015).

Table 5: Russia's main oil exporting ports (EIA, 2015)

Port	Location	Capacity
Primorsk	Near St. Petersburg	1,500,000 b/d
Kozmino Bay	Primorsky Krai	300,000 b/d to be expanded to 1 million b/d
Novorossiysk	Black Sea	950,000 b/d
Tuapse	Black Sea	350,000 b/d
De-Kastri	Tatar Strait, Far East	250,000 b/d
Prigorodnoye	Aniva Bay, Sakhalin Island	100 Aframax, 160 LNG vessels per year
Varandey	Offshore, Barents Sea	240,000 b/d

Russia's total refining capacity is approximately 5.5 million b/d (EIA, 2015). It comprises 50 refineries, including 31 major refineries with an annual capacity of over one million tonnes (7.33 million bbl). During the last ten years, the refining capacity grew at a faster rate than production, creating market opportunities for the expansion of the upstream sector (EY, 2014).

The Arctic and Subarctic are even more important for Russia's natural gas production than for that of oil, as nearly 95% of it is extracted in Siberia and the Far East. The extracted gas flows through the Unified Gas Supply System of Russia (UGSS) that includes ten major trunk pipelines, eight of which are used for exports.

Table 6: Russia's Major Natural Gas Export Pipelines (EIA, 2015)

Pipeline	Route	Length (miles)	Annual Capacity (bcf)
Yamal-Europe I	To Poland and Germany via Belarus	1,300	1,200
Blue Stream	To Samsun, Turkey via the Black Sea	750	560
North Caucasus	To Georgia and Armenia	620	350

Pipeline	Route	Length (miles)	Annual Capacity (bcf)
Yamburg-Uzhgorod, Orenburg-Uzhgorod, Urengoy-Uzhgorod, and Dolina-Uzhgorod[28]	To Western Europe, predominately Germany, Italy, and France via Ukraine	N/A	700-1,000
Gazi-Magomed-Mozdok	To/from Azerbaijan	400	200
Nord Stream	To Greifswald, Germany via Baltic Sea (from Vyborg)	760	1,900

Russia has been active in expanding its gas export pipelines to existing and new markets. While scrapping the South Stream pipeline, which would have delivered Russian gas to Southern Europe via the Black Sea and Bulgaria, Gazprom signed a memorandum of understanding to build a pipeline accessing South Europe via Turkey (Korsunskaya, 2014) (Gazprom, 2016h). However, due to recent tensions between Russia and Turkey over the downing of a Russian military plane, the project's future is uncertain (Pinchuk & Astakhova, 2015).

However, the most significant expansion of the UGSS is set to occur in the East. As Figure 8 shows, although it does with oil, Russia currently does not have gas pipelines connecting its giant West Siberian fields with new markets in China and South Eastern Asia. On 21 May 2014, Gazprom CEO Alexey Miller and Zhou Jiping, the Chairman of China National Petroleum Corporation (CNPC), signed an agreement for Gazprom to supply 38 bcf of natural gas per year to China via a pipeline for 30 years (Gazprom, 2014). Gazprom will tap into the Kovyktinskoe field in the Irkutsk Region with natural gas reserves of 1.5 tcm (24 tcf), and the Chayandinskoe field in the Sakha (Yakutia) Republic with natural gas reserves of 1.2 tcm (19 tcf) (Gazprom, 2016e). Gazprom and CNPC are in the process of building the Power of Siberia unified gas transmission system (GTS), spanning about 4,000 kilometres

[28] These four pipelines appear on the Gazprom map of the UGSS, but are not listed among individual current and planned pipelines. (Gazprom, 2016c)

and capable of delivering 61 bcm per (978 bcf) per year.[29] Although the Power of Siberia discourse has focused on the 30-year deal with China, the GTS is presented by the Gazprom leadership as part of the state's Eastern Gas Program. The Russian leadership tends to stress the overall economic development of the region, and its gasification in particular, as one of the main goals of the Eastern Gas Program. However, the fact that the region comprises 60% of Russia's territory and is home to only 10% of Russia's population indicates that the overwhelming goal of the Eastern Gas Program is to create a resource base and transport infrastructure for exports to China and Southeast Asia.[30] (Gazprom, 2016b)

Yet it is not only the Power of Siberia GTS, with its mega distances and mega contract, that holds the Russian leadership's attention. The planned Altai Project or *Zapadny Marshrut* (the Western Route), if implemented, will connect operating and emerging fields in Western Siberia to the Chinese West-East Pipeline superhighway (Paik, 2012). The Western Route will then enable Russia to become a swing supplier to Europe and China, thereby solidifying its role as the world's leading natural gas producer and exporter (Gazprom, 2016a).

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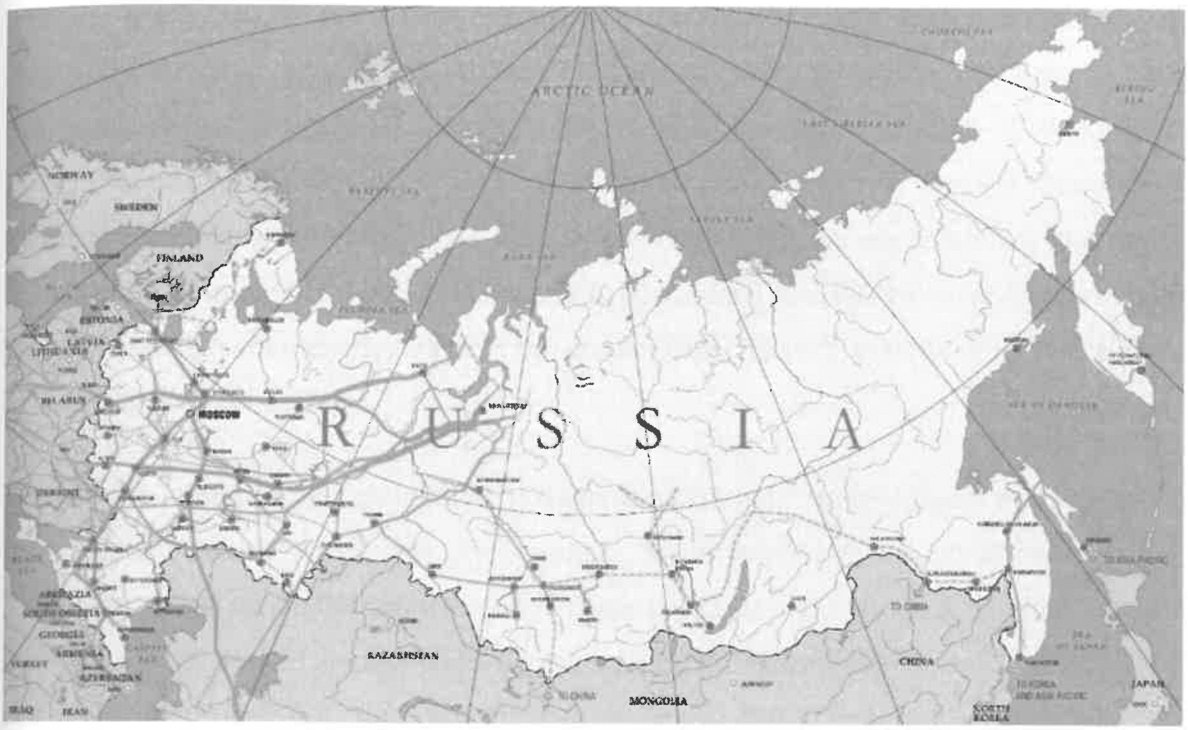
[29] I elaborate on the details and significance of these planned projects throughout this thesis.

[30] Historically, Eastern Siberia and the Far East include the following Russian administrative units from the Siberian Federal Circuit: Republic of Buryatia, Republic of Tyva, Republic of Khakassya, Krasnoyarskiy Province, Zabajkalskiy Province, and Irkutsk Region; and the following administrative units from the Far Eastern Federal Circuit: Republic of Sakha (Yakutia), Kamchastskiy Province, Primorskiy Province, Khabarovsk Province, Amur Region, Magadan Region, Sakhalin Region, Evrejskiy Autonomous Region, and Chukotskiy Autonomous District. (Federal Statistics Agency, 2014)

Figure 8: Unified Gas Supply System of Russia (Gazprom, 2016c)



This brief description of the Russian natural gas sector would not be complete without mentioning liquefied natural gas (LNG), the technology that can move Russian gas beyond pipelines. Currently, Russia has only one LNG plant, which is part of the Sakhalin II project located in the country's Far East region ('Sakhalin LNG').[31] (Gazprom, 2016f) Sakhalin LNG serves the South Asian market, with Japan receiving 76%, South Korea 20%, China 3.4%, and Taiwan 0.6% of the plant's output (EIA, 2015). In 2013, Sakhalin LNG produced 10.8 Mt, the equivalent of 14.9 bcm or 526.2 MMcf of natural gas from the Piltun-Astokhskoye and Lunskoye fields (Gazprom, 2016f).

Sakhalin LNG effectively amounts to about 3.6% of global LNG exports. Thus, the Russian leadership hopes this is only the beginning of the LNG story in Russia, as two other Russian companies are currently working on the expansion of the country's LNG export capacity (President, 13 February 2013). Gazprom plans to build on Sakhalin II by adding an additional LNG train to the existing two and connecting the plant to the Kirinskoye Block in Sakhalin III (EIA, 2015). In addition, Gazprom is currently working on two LNG export projects:

[31] This project is better known in the West as the Sakhalin Energy LNG plant.

Vladivostok LNG and Baltic LNG. According to the company, the projects are to have the annual capacity of 15 and 10 Mt, respectively (or 731 and 487 MMcf of natural gas, respectively) (Gazprom, 2016d). Rosneft' is currently working on the Far Eastern LNG project (*Dalnevostochny SPG*), and plans to start LNG production in 2018-2019 (Rosneft', 2016). Yet perhaps the most interesting and ambitious LNG project in Russia is Yamal LNG. Developed by Novatek, Yamal LNG will include three trains having an annual capacity of 5.5 Mt each, with the first LNG train becoming operational in 2017. Novatek claims to have placed long-term contracts for 95% of the project capacity with customers in both Europe and Asia (Novatek, 2016).

One way to appreciate the magnitude of these numbers is to envision them in terms of the infrastructure that they represent. For example, to move 80% of oil extracted in Russia, Transneft' relies on 70,000 kilometres of trunk pipelines, 500 pumping stations, and 22 million cubic meters of storage tanks (Transneft', 2016). Gazprom's hardware is equally if not more impressive: 170,700 kilometres of pipelines, 250 compressor stations featuring 3,825 compressor units, and 26 underground storage facilities totalling 71.1 bcm in storage capacity (Gazprom, 2016g).

However, this is just the very tip of the oil and gas infrastructure iceberg. Above-the-water assets directly involved in oil and gas exploration, production, and processing include oilrigs, tankers, and refineries. Less visible are the machinery and personnel that are not directly involved in these activities but are nonetheless critical for getting oil and gas out of the ground and to the market. These assets are quantitatively and qualitatively vast and range from spare parts for helicopters that service remote oil and gas fields to special modelling software used to educate future petroleum engineers.

Many of these assets are capital intensive. For example, the Russian leadership estimates the cost of the South Kara licence blocks development to be around $500 billion (Humber & Bierman, 2011). Most of the new capital-intensive assets need to be financed with repayment periods over 10, 20, and even 30 years. However, when paid in full, drilling rigs, pipelines, and loading terminals do not magically vanish. They often remain in service well beyond their full accounting depreciation. For example, my high school chemistry teacher marvelled over the fact that the Angarsk Refinery was using a German distillation column taken as part of reparations in the aftermath of World War II. While I was unable to confirm officially this rather puzzling piece of Siberian trivia, a brief Internet search through Angarsk auto forums revealed several car owners' complaints about the poor quality of gasoline and motor oil due to the use of *trofeynoe faschistskoe oborudovanie* (captured fascist equipment) (Drom.ru, 2008). When I asked for comment from my Irkutsk State classmate, a former member of the Angarsk City Council, he replied: 'One column? Half of the refinery was requisitioned in Germany and a lot of it is still in use.' (Classmate, 2015)

Russia's massive up-, mid-, and downstream oil and gas infrastructure sits on top of one of the largest hydrocarbon resource bases in the world. The country has the largest proved natural gas reserves in the world with 680 trillion cubic feet (IEA, 2015). The EIA lists Russia's proved oil reserves at 80 billion barrels of oil (bbo), which places it eighth in the world.[32] (EIA, 2015) BP Statistical Review of World Energy lists Russia's proved oil reserves at 103.2 bbo. However, BP includes gas condensate and natural gas liquids (NGLs) in addition to crude oil, whereas the EIA appears to limit its data to crude oil (BP, 2015, p. 6). Despite this statistical bump, Russia's reserves are declining. In fact, the review authors singled Russia as the country with the largest decline in oil reserves in 2014, 1.9 billion bbo (BP, 2015). In contrast, according to BP, Russia added the most natural gas reserves in 2014, 0.4 trillion cubic meters.[33]

As I elaborate in greater detail in the forthcoming sections, the Russian leadership's concern over the seemingly dwindling oil resources is well founded. Despite the largesse of the natural gas infrastructure, reserves, and output numbers, oil remains the lifeblood of the Russian economy. In 2010, the revenue from the two main taxes on oil and gas, the Mineral Extraction Tax (MET) and Export Duty (ED), was allocated as depicted in Table 7.

[32] I discuss the issue of relatively low proved oil reserves, as compared to other oil producers, at several points below.

[33] Interestingly, the disparity between the EIA and BP's data regarding Russia's natural gas reserves is even more significant, as the British oil and gas giant lists Russia's proved reserves at 1152.8 tcf.

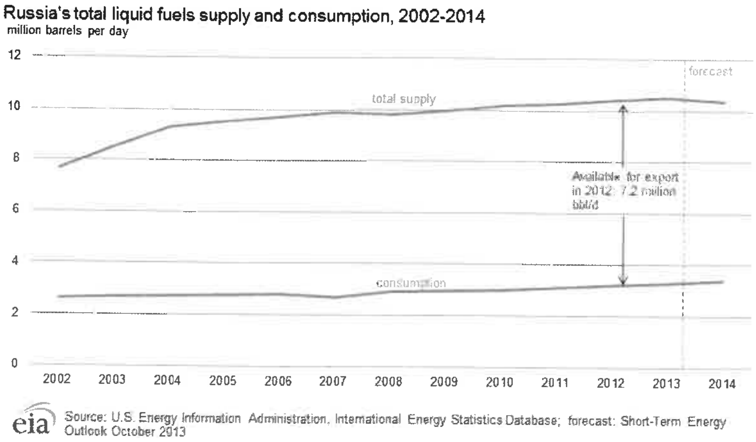
Table 7: Revenues from the Mineral Extraction Tax (MET) and Export Duty (ED) in 2010 (Paik, 2012, p. 22)

MET	
Crude oil	1,266.8 billion rubles
Natural gas	85.1 billion rubles
Gas condensate	9.4 billion rubles
ED	
Crude oil	1,672.4 billion rubles
Oil products	603.8 billion rubles
Natural gas	193.3 billion rubles

The shares of the oil and gas budget revenues in Russia's GDP is even more telling. In 2010, only through the MET, ED, and excise tax, the oil sector contributed 3,713.3 billion rubles or 8.4% of Russia's GDP. In contrast, the natural gas sector revenues from these three taxes amounted to 278.4 billion rubles or 0.6 % of Russia's GDP (Paik, 2012, p. 22). According to Marshall Goldman (2010, p. 91), oil served as the financial foundation for the Russian state during the 2000s. This statement is hardly surprising given the ascent of oil prices between 1998 and 2008 (Figure 9) and the ratio of domestic oil consumption *vis-à-vis* export (Figure 10) (EIA, 2015).

Figure 9: European (Brent) spot prices 1985-2015 (EIA, 2016)

Figure 10: Russia's oil export capacity (EIA, 2015)



Collectively, oil and gas accounted for 70% of Russia's export and 52% of its budget revenue in 2013 (EIA, 2015). In fact, the rise of the oil and gas sector in the Russian economy is generally attributed to the re-emergence of Russia as a major world economy. This in turn corresponded to the rise of oil and gas exports from $27.9 billion in 1998 to $301.1 billion in 2008 (Paik, 2012, p. 21).

This brief statistical overview leaves no doubt as to the critical importance of oil and gas for Russia and for Russia's status as a global energy superpower. The Russian oil miracle that culminated with energy superpower status would not have been possible without the demand for hydrocarbons. In the next section, I briefly explore the source of this demand.

2.1.2. Where do Russian oil and gas go?

The global economy runs on oil. This rather overused sentence has a deeper meaning than it might appear at first glance. Oil is absolutely essential for human mobility, with nearly 93% of all transport literally running on oil (IEA, 2015a, p. 33). In addition, oil and oil products are traded on a global market, which at a time of high demand has little spare capacity (Yergin, 2011).

Table 8: Transportation Sector Fuel Mix (IEA, 2015a)

Transportation Fuel	1973		2013	
	Mtoe	Percentage	Mtoe	Percentage
Coal	31.96	2.96%	3.22	0.13%
Crude Oil and Oil Products	1020.82	94.40%	2373.68	92.60%
Natural Gas	17.72	1.64%	96.22	3.75%
Biofuels and Waste	0.24	0.02%	64.52	2.52%
Other Sources	10.6	0.98%	25.86	1.01%
Total	1081.34		2563.5	

As Table 8 shows, there has not been a significant change in the transportation sector's fuel mix since 1973. Oil remains king, outgaining the next most prevalent fuel, natural gas, by a factor of 25. Nearly 64% of all oil is consumed by the transportation sector, up from 45% in 1973 (*Id.*). Although oil's share in primary energy production dropped from 46.2% to 31.1% in 2013, the total production grew from 2938.38 Mtoe to 4215.64 Mtoe in the same time span (*Id.* pp. 6, 36).

These numbers translate into trillions of dollars worth of transportation infrastructure, ranging from petrol stations to airplanes and from personal automobiles to refineries. For example, in 2010, in the European Union alone there were 239 million light duty and 35 million heavy-duty vehicles (ICCT, 2013). All of this infrastructure comes with a human dimension: petrol station owners and employees, grandparents travelling to their grandchildren's graduations, commuters and car enthusiasts, and engineers specifically trained to design, construct, and operate refineries.

During a time of extreme oil price highs and lows, it is not uncommon to see mass media stories elaborating on the fact that people do not travel significantly less when the price of petrol doubles and more when it is slashed by half (*Id.*). For example, in the United States, a 25 to 50% decrease in the price of petrol leads only to a 1% increase in the distance travelled by motorists (EIA, 2014a). The lack of notable elasticity of demand in personal automobile transportation is not found in leisure air travel. According to the U.S. EIA, a 10% increase in the cost of air travel leads to a greater than 10% decrease in miles travelled to and from holiday destinations (*Id.*).

The quantitative difference between these two levels of elasticity is prompted by the qualitative difference behind the factors that drive the demand. The U.S. transportation system is built around the personal automobile. With the exception of a few large cities, Americans often do not have a choice but to drive to work, school, or the store. Many cities and towns lack effective public transit and many roads do not even have sidewalks or walkable shoulders. Thus, the decision of whether to drive is not just about one's lifestyle, it is about one's ability to earn a living.

The United States provides the most vivid example of addiction to the personal automobile, with 250 million light-duty vehicles on the road, amounting to approximately three cars or pickup trucks per four Americans (ICCT, 2016) (The World Bank, 2016). However, the more pedestrian-, cyclist-, and public transit commuter-friendly European Union is not drastically behind, with one car per two E.U. citizens (ICCT, 2013). Yet a few recent studies concluded that some advanced economies have reached 'peak car' as evidenced by, among other factors, the decline in personal car ownership and the number of new registered drivers (IEA, 2013, p. 514). Remarkably, the studies failed to produce a coherent economics-centric explanation behind the 'deautomobilization', citing a plethora of behavioural and cultural reasons that might be at play. Also unsurprisingly, the deautomobilization trend in Organization of Economic Cooperation and Development (OECD) countries has been offset by the 4.3% growth of personal automobile fleets in non-OECD countries (*Id.*).

Yet the complexity of these socio-technological dynamics does not end there. Unlike electricity, for example, oil is not a homogenous commodity. The chemical composition of oil from one deposit differs from the chemical composition of oil extracted from another deposit, and at times quite significantly (Gordon, 2012). As a result, refineries are usually configured to process oil of a particular range of viscosity and sulphur content (Yergin, 2011). To make matters even more complex, sometimes the deposit where a particular type of oil is extracted lies many thousands of kilometres away from where this type of oil is processed.

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Thus, a relatively numerically insignificant disruption (on a global scale) in supply, transportation, or refining may lead to significant global consequences.

The disruption in the supply of Libyan oil due to the military conflict in this country in 2011 serves as a vivid illustration of the global oil cycle. Prior to the conflict, Libya supplied 1.6 million b/d. This figure represented approximately 1.8% of all global oil production in 2011, which amounted to 88.53 million b/d (EIA, 2016). Yet as a result of this visibly insignificant drop in production, the price of Brent crude oil, to which Libyan oil is usually pegged, surged from $95 per barrel in December 2010 to $120 per barrel in April (Morse & Lee, 2011). The impact of the price hike forced the IEA to release its strategic reserves, a move the agency uses only in extraordinary circumstances (*Id.*).

The reason behind the price surge and the subsequent emergency measures is two-fold. First, Libyan oil is the light sweet kind, meaning that it has low viscosity and low sulphur content. These qualities normally translate into lower costs of refining, as light sweet crude does not require additional energy and extensive equipment for removal of sulphur and other impurities. Second, the demand for light sweet oil at that time was even higher than usual due to its increasing use in the transportation and electrical power sectors in Southeast Asia (*Id.*).

Despite being by far the largest consumer, the transportation sector is not the only consumer of oil. Currently, 16.2% of all oil is allocated to non-energy use, usually as the feedstock for various petrochemical products (IEA, 2015a, p. 33). The remaining share is used for other energy applications in the industrial, agricultural, commercial, and residential sectors. The share of oil in electricity generation dropped from the second largest (behind coal), 24.8% in 1973, to the smallest, 4.4%, behind non-hydro renewable sources in 2013 (*Id.* p. 24). However, the overall production of electricity surged from 6,131 TWh to 23,322 TWh (*Id.*). Thus, despite the significant percentage drop, the total production only decreased by one third. This effectively means that outdated coal-fired plants and diesel generators are still widely used, especially in island and (or) remote locations, as well as for peak generation. For example, Japan, the world's third largest oil exporter, relies on oil for 14% of its electricity generation. This figure doubled in the aftermath of the Fukushima accident as the

Japanese government began replacing nuclear power with electricity derived from combustion of natural gas, coal, and oil (EIA, 2015a).

In contrast to oil, natural gas has been one of the fastest growing fuels in electricity generation, second only to non-hydro renewable sources (IEA, 2015a, p. 24). This trend, combined with the use of natural gas-fired peaker generators to meet daily load fluctuations, has caused some scholars to start using the term convergence to describe the intertwined relationship between electricity and natural gas markets (Bosselman *et al.*, 2010, p. 530). The global energy system added 4319.02 TWh of electricity from combustion of natural gas from 741.85 Twh in 1973 to 5060.87 TWh in 2013, thereby increasing natural gas's share in the global electricity mix by 9.6% to 21.7% (IEA, 2015a, p. 24). The share of natural gas in the global primary energy mix had risen by 5.4% between 1973 and 2013, from 16% to 21.4%, whilst the total volume had tripled from 976 Mtoe to 2897.77 Mtoe (*Id.*).

The last decade has been especially eventful for natural gas producers. Proliferation of hydraulic fracturing and horizontal (directional) drilling in the United States has lead to unlocking natural gas from previously commercially inaccessible geological formations (Yergin, 2011). The so-called shale gas revolution has transformed the global energy landscape by turning the United States into the world's largest natural gas producer, with an output of 730 bcm and accounting for one fifth of all global production (IEA, 2015a, p. 13). This surge in natural gas production, along with the promise presented by the aforementioned technologies, made the IEA label the current energy era as the 'Golden Age of Gas' (IEA, 2012).

While the United States remains a top ten net importer of natural gas, requiring 33 bcm per annum to meet its domestic demand, the global natural gas flows and regional price dynamics have changed drastically. In the late 1990s and early 2000s, the price for natural gas in the United States hovered around \$5 per MMBtu, above the European and slightly below the Japanese prices (IEA, 2013, p. 134). Demand was projected to grow significantly due to the displacement of old coal-fired power plants with natural gas-fired generation. Additionally, domestic conventional natural gas reserves were around 3% of the global total. Thus, importing natural gas *en masse* seemed inevitable. In fact, the Federal Energy Regulatory

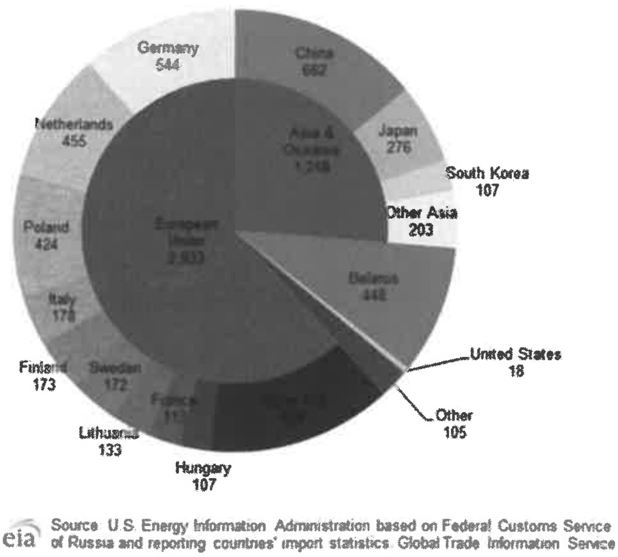
Commission, Maritime Administration, and the U.S. Coast Guard received 128 permitting applications to construct LNG de-liquefication terminals intended to compensate for the projected loss in domestic supply (*Id.*). In 2012, natural gas prices in the United States were roughly one quarter of the European price and almost one sixth of the Japanese price. Out of 128 planned LNG import facilities, only three were actually built. In fact, the LNG pendulum swung in the opposite direction, with only four export projects approved and 28 others waiting for approval in 2013 (IEA, 2013).

These numbers and examples explain the qualitative difference between where the demand for oil and the demand for natural gas come from, and how the demand for these two similar commodities is met. Because energy use of natural gas is confined predominately to the industrial, electrical power generation, and residential (heating) sectors, the social relations regarding the transportation, processing, and end use of natural gas differ from those of oil. A European city dweller might not have the same kind of personal attachment to his gas furnace as to his Mercedes, but during a January cold spell, he is likely to be more reliant on it than on his beloved automobile. Because of the difference in their physical qualities, natural gas is more problematic to transport and store than oil. The traditional way of transporting natural gas is via pipeline, which all but limits the intercontinental linkages between producers and consumers. This is the main reason for differences in the regional price of natural gas and the absence of a truly global market for natural gas.

LNG is supposed to serve as a primary means of achieving another convergence of natural gas markets – convergence of regional prices (IEA, 2013, p. 133). Yet the proliferation of LNG requires substantial capital investments and several years to permit and construct the necessary infrastructure, as demonstrated by the U.S. LNG import terminals. As a result, the apparent demand for LNG usually needs to be secured by a long-term contract for large quantities of natural gas. This effectively means that meeting projected demand might never move beyond the project-planning stage. For example, despite the ongoing difference in regional natural gas prices, as of autumn 2015 the prospects for new LNG projects appeared to be marginal because of the scarcity of buyers willing to take on 10- to 20-year-long contractual commitments (Fesharaki, 2015).

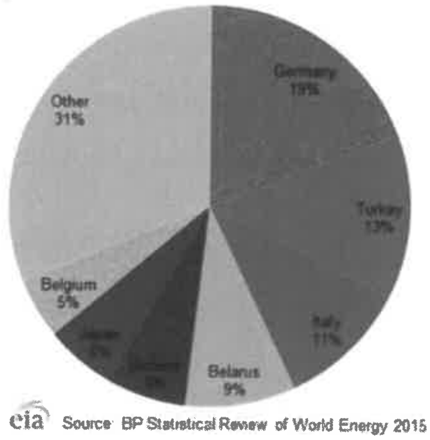
Therefore, if we return to the question asked by the title of this section – Where does Russian oil and gas go? – the answer would be as follows: Russian natural gas goes almost exclusively where Gazprom pipelines take it and Russian oil goes to the global market. This effectively means that Russian oil is traded globally. However, it flows from Russia through established routes, pipelines, rail, and sea tankers to the refineries that are configured to process Russian oil grades. Although certain grades and refineries are interchangeable, the flexibility is far from absolute. With approximately 30% of Europe's oil coming from Russia and 72% of Russia's oil going to European countries, a sudden interruption of the flow will undoubtedly lead to catastrophic consequences for the Russian and European economies. As Figure 11 shows, Asian countries are not as dependent on Russian oil because only a quarter of Russian oil exports head east and southeast.

Figure 11: Russia's crude oil and condensate exports in 2014 (EIA, 2015)



Some European countries are more dependent on Russian oil than others. Finland, Poland, and Hungary, for example, have nearly 70% dependence. Although Europe's dependence on Russian gas is at the same level as that on Russian oil, countries like Lithuania, Estonia, Finland, and Latvia are nearly 100% dependent on Russian natural gas (EIA, 2015). It is important to note that the three former Soviet Baltic republics have had deep political disagreements with the current political regime in Russia (Borger & Harding, 2014). They have also drawn the Russian leadership's ire for allegedly persecuting the Russian-speaking minority and proliferating Neo-Nazism (INTERFAX, 2015).

Figure 12: Russia's natural gas exports in 2014 (EIA, 2015)



Until just a few years ago, virtually all of Russia's natural gas was delivered to customers in Europe. The situation changed when the Sakhalin II LNG project came online. In 2014, for example, approximately 10% of all Russia's natural gas exports went to Asia, with 6% going to Japan (EIA, 2015).

As mentioned above, the global economy runs on oil. With the proliferation of natural gas in the electrical power, industrial, and transportation sectors, a significant portion of it is powered by natural gas. Due to its massive hydrocarbon resources and energy infrastructure, Russia is an important and, in some instances, indispensable hub in the global technological network built around oil and gas.

2.2. Political and geopolitical dimensions of Russian oil and gas

2.2.1. Oil and gas sector politics or just politics?

One would be hard-pressed to find a national leader who spoke on energy issues as much as the two Russian presidents of this century. Russian presidents, their ministers, advisers, and governors appear to be very knowledgeable and articulate on the subject. While their apparent knowledge might be due to the efforts of their research and speechwriter staffs, the amount of *attention* that the Russian leadership pays to the energy sector reveals a more illuminating indicator of the role that oil and gas play in Russian politics.

The Russian leadership's statements, as well as the opinions and attitudes of ordinary citizens, reflect the deep, wide, and robust intranational socio-economic dependencies premised on oil- and gas-related activities. This intranational bundle of dependencies is closely connected with the international 'bundles' of interconnectedness, which is centred more on consumption rather than production of oil and gas.

The Russian leadership has frequent meetings with oil and gas executives spanning the entire sector: Russian national oil and gas companies (NOCs), domestic private companies, foreign majors, service companies, fully integrated companies, and companies that specialize on transporting oil and gas (President, 4 June 2014) (President, 23 March 2010). Russian NOCs Rosneft' and Gazprom enjoy special attention from the President. The heads of these companies, Igor Sechin and Alexey Miller, or as Dawisha (2015) calls them, Putin's energy lieutenants, attended every single non-individual meeting related to the oil and gas sector, the transcripts of which I reviewed. It is not uncommon for the President to sit down with either Sechin or Miller *tete-a-tete* (President, 17 September 2014) (President, 22 October 2012). For example, according to Dawisha (2015, p. 318), Miller and Putin met over 100 times between 2001 and 2014, including at least a dozen times individually. Figure 13 is a photo of a meeting between Vladimir Putin and Igor Sechin regarding the $55 billion deal concerning Rosneft' and British Petroleum (BP) in which the Russian NOC acquired BP's share in TNK BP, BP's joint venture with a group of Russian billionaire oligarchs. As a result of the deal, BP netted $12.5 billion in cash and 19.75% of Rosneft's stock (Shiryaevskaya, 2013).

Figure 13: Vladimir Putin and Igor Sechin discuss the Rosneft'–British Petroleum deal on 22 October 2012 (President of Russia, 2016)

The tone of the exchange between Mr Sechin and Mr Putin is particularly interesting, as it resembles a meeting between a supervisor and a subordinate. For example, Sechin begins with 'today I would like to report to you, Vladimir Vladimirovich . . . .' (President, 22 October 2012) Throughout the conversation, he notes that the deal is in furtherance of Putin's order to lower the Russian government's stake in oil and gas enterprises. In exchange, the Russian President thanks Sechin for a 'job well done' (*Id.*).

The extent of Mr Putin and Mr Medvedev's interactions with Gazprom and Rosneft's bosses exceeds what is accessible from publicly available sources. Both Mr Miller and Mr Sechin are long-term friends of Mr Putin, dating back to his tenure as an official of the St. Petersburg government. Dawisha (2015) describes Igor Sechin as one of Putin's most loyal captains who has the Russian President's nearly unconditional trust. Although Putin's relationship with Alexey Miller does not appear to be on the same level as with Mr Sechin, the tone of his meetings with the head of Gazprom leaves little doubt as to the Kremlin's oversight if not control over the NOC's affairs.

Therefore, it is not surprising that Rosneft' is Russia's top oil producer (Table 9) and Gazprom its largest natural gas producer (Table 10). The latter's dominance of natural gas production is astonishing – Gazprom produces eight times more natural gas than the second largest natural gas producer, Novatek. Indeed, Gazprom is the successor of the 'Gazprom State Gas Concern', which was a successor of the Soviet Gas Industry Ministry (Gazprom, 2016i). Rosneft', on the other hand, was a minor player until 2003, when it received the majority of Yukos's assets after its takeover and eventual dissolution by the government (EIA, 2015).

Table 9: Russia's Top Oil Producers, 2013 (EIA, 2015)

Company	Output (thousand b/d)
Rosneft'	3,997
Lukoil	1,703
Surgutneftegaz	1,224
Gazprom Neft'	640
Tatneft'	526
Gazprom	340
Slavneft'	335
Bashneft'	320
Russneft'	316
PSA operators	278
Novatek	95
Others	651
Total	**10,425**

Table 10: Russia's Top Natural Gas Producers, 2013 (EIA, 2015)

Company	Output (bcf/day)
Gazprom	47.2
Novatek	6.0
Rosneft'	2.6

Company	Output (bcf/day)
Lukoil	2.0
Surgutneftegaz	1.2
ITERA	1.2
PSA operators	2.7
Others	1.8
Total	**64.6**

The Russian government's influence over Rosneft' and Gazprom translates into direct control of 50% of the country's oil and near 80% of its natural gas production (Gazprom, 2016k) (Rosneft', 2016a) (EIA, 2015). The Russian government also controls Transneft', which has a monopoly over transportation of oil via pipelines (EIA, 2015). By virtue of controlling Gazprom and its monopoly over natural gas pipelines, the Russian government exercises 100% control of natural gas export pipeline infrastructure (Gazprom, 2016g). As I elaborate in Chapter 7, Novatek's right to export natural gas is limited to a single project, Yamal LNG.

The government's grip on the refining sector is significant but not as overwhelming as it is in the upstream sector. Rosneft' is the single largest owner and operator with nine refineries and Lukoil is the second largest with four. This anomaly in the Russian oil and gas sector is partially due to historic reasons. After the collapse of the Soviet Union, oil producers had to rely on government-owned export pipelines to access the export market. In contrast, petroleum products could be moved by rail, water, and, in the case of mini (usually illegal) refineries, truck (Gustafson, 2012). In addition, petroleum products could be marketed domestically, whereas domestic refineries were awash in cheap oil. For this reason, the downstream sector served as a low-hanging fruit to whomever had the ability to seize the assets, frequently by physical force. With often weak or non-existent law enforcement agencies, refineries were taken over by criminal gangs that at times would wage turf wars over them (*Id.*).

Contrary to Mr Putin's statement that Russia hosts many 'purely private companies', (President, 19 December 2013) independent oil and gas companies represent a definite minority in the Russian oil and gas sector. The two largest independents, Lukoil and Novatek, might be independent in terms of direct ownership by the Russian government, but they are not completely independent in terms of the control that the Kremlin exercises over their affairs. Heads of both Lukoil and Novatek have private meetings at the Kremlin (President, 10 October 2013) and serve as permanent members of the Presidential TEK Commission (Order N859, 2012). More importantly, the heads of both companies act in a manner similar to Mr Sechin and Mr Miller, often reporting on the implementation of presidential 'directives', even though they are under no formal obligation to do so (President, 31 October 2014). Their 'yes, sir' behaviour is not a complete surprise, considering the support they receive from the Kremlin in the form of preferential access to mineral deposits, export opportunities, and taxation.

Figure 14: Vladimir Putin and Vagit Alikperov discuss Lukoil's activities in the foreign markets (President of Russia, 2016)

The Russian leadership is equally as open to meeting with foreign oil and gas executives as it is to meeting with Russian oilmen. For example, Vladimir Putin and Dmitry Medvedev have had numerous meetings with the leadership of ExxonMobil (President, 9 August 2014) and Total (President, 2 March 2011). In fact, it appears that the Russian leadership has forged particularly strong ties with the French supermajor. Vladimir Putin sent French President François Hollande official condolences when Total's CEO Christophe de Margerie died in an airplane crash at the Moscow Vnukovo airport in October 2014 (BBC, 2014). The Russian

President also awarded the late CEO with the Order of Honour and promised to name 'large sea ships' after him (President, 28 November 2014).

Figure 15: Dmitry Medvedev and the late Christophe de Margerie discuss Total's investment projects in Russia in 2011 (President of Russia, 2016)

Some oil and gas companies have had a presence in Russia for many decades. For example, Schlumberger, one of the largest service companies, first ventured to the Soviet Union in 1929 (Schulumberger, 2016). After the Soviet Union's collapse, majors and foreign independents flocked to Russia only to encounter what Gustafson (2012, pp. 177-181) calls 'Russian Risk'. Unpredictable carryovers from the Soviet era, known as oil generals, and an ambiguous and unstable legal framework made it particularly difficult to start projects in Russia. However, after the collapse of the Soviet Union, three projects were launched pursuant to internationally accepted production sharing agreements (PSAs) – one with Total in northwest Russia and two in Sakhalin with Exxon and Shell (Gustafson, 2012, p. 180). I witnessed the excitement that PSAs brought to Yuzhno-Sakhalinsk when I travelled there on a business trip in the autumn of 1999. Foreign oil and gas companies took over perhaps the only suitable office building in the city, with Exxon, BP, and Shell occupying entire floors. The building's roof was dotted with satellite dishes and its interior resembled a typical Western office space. The building even had an American-style cafeteria that served fried chicken with boxed mashed potatoes.

These three projects represent the extent to which PSAs have been used in the Russian oil and gas sector.[34] Instead, foreign oil and gas companies formed alliances with their Russian counterparts under less transparent and internationally accepted arrangements resulting in different levels of success. TNK-BP and Sakhalin, proved to be successful, (Kramer, 2012) (Sakhalin Energy, 2016) whereas a few others, like much touted Shtockman LNG flopped (EIA, 2015). In the summer of 2012, Vladimir Putin bragged on a few occasions that 25% of all oil production in Russia was done by companies with foreign participation (President, 21 June 2012) (President, 10 July 2012). He attributed the high level of penetration to the Russian oil and gas sector's policy of liberalization (*Id.*). As I will show in the remainder of this thesis, this statement is simply not true. The level of government control over the oil and gas sector remains very high, whereas the list of risks that foreign energy companies face in Russia has become longer. In response to Russia's annexation of Crimea in 2014, the United States and European Union imposed economic sanctions that effectively stopped joint projects that required innovative technology and expertise, including ExxonMobil–Rosneft's offshore exploration in the South Kara Sea (EIA, 2015).

2.2.2. Energy geopolitics – Kremlin style

2.2.2.1. Kremlin 'krysha'

Hydrocarbon exports play a vital role in the Russian economy. They are as critical for Russia as oil and gas imports are for the European Union. Thus, for Russia, energy security is a security of demand. Unsurprisingly, the Russian leadership does not shy away from acting as the Russian oil and gas sector's 'krysha' (protection) by promoting and defending it in foreign markets.

It is not uncommon for the Russian leadership to appeal to reason while persuading its audience of the mutual benefits of oil and gas cooperation. The following excerpt from Vladimir Putin's statements at a 2008 press conference serves as a representative example of this narrative:

[34] I elaborate on the reasons for such a lack of popularity in Chapter 7.

> Finland receives energy resources almost exclusively from Russia, over 70% of oil and 90% of natural gas. Is Finland suffering from this? On the contrary, the Finnish economy has a long-term supply guaranteed by legal contracts that are strictly performed. I must assure you that I will act in a similar manner with other European partners (President, 14 February 2008).

At the same press conference, the Russian leader made statements about the United States pressuring some European countries to refrain from acquiring Russian energy resources and to find transportation routes around Russia's territory. Mr Putin called such a policy incorrect, unwise, and unprofessional, adding that it was based on politics and not reason. He concluded that European nations do not have a rational choice other than relying on the Russian supply:

> I have said it again and the Europeans know this very well – the British resources have been almost exhausted and the Norwegian resources are running dry. Where would one replenish them? In Germany, for example, a decision has been made on the closure of nuclear power plants; they do not want to develop coal because it is dirty. You are left with natural gas. Where will you get it? You can get some from Algeria and Qatar, but there the exports are oriented toward the North American market with a possibility for more demand. It is uncertain what will happen with Iran; there are all sorts of problems around Iran. Every year [Iran] interrupts exports to Turkey, for example; but we honour our obligations fully and did so this year. Central Asia had an abnormally cold year and we solved this problem without making noise and engaging in political pandering (*Id.*).

As a general rule, President Putin's statements about not mixing business with politics are directed only to people, companies, and states that disagree with Russia's foreign energy policy. This enables him to separate the otherwise inseparable Russian state from the oil and gas industry, and invoke the rational market argument that is popular among foreign business leaders.

Yet appeal to reason is not the only persuasion technique that the Russian leadership uses. Appeal to values, albeit frequently in crude form, is also in the Kremlin's public speaking arsenal. During his speech at the Valdai discussion club in October 2014, Mr Putin accused the United States of hypocrisy for not imposing sanctions on countries that purchase oil from the Islamic State (President, 24 October 2014). In the same speech, the Russian President chided the European Union for potential plans to import American shale oil and gas: 'I don't know what kind of colony it should become to do something like this!' (*Id.*)

Although environmental values do not appear to be high on the Russian leadership ethics chart, it is not afraid to use them to promote Russian oil and gas abroad. For example, Mr Putin added environmental considerations to mutual energy security (security of demand for Russia and of supply for Europe) and sensible economics to the list of reasons why Russian gas should be a natural choice for European customers. Interestingly, he did so by questioning the decisions of E.U. energy planners to subsidize renewable energy and import inexpensive U.S. coal (President, 13 February 2013).

When the going gets especially tough, the Kremlin deploys its entire persuasive arsenal. In the wake of the annexation of Crimea, many started questioning Europe's dependence on Russian oil and gas. Correspondingly, the Russian leadership intensified statements persuading European nations to stick with the ostensibly reliable and affordable Russian gas. Similar to his February 2008 statement, Mr Putin dismissed concerns as 'stupid' on the grounds that the dependence is mutual and thus contributes to global economic stability (President, 24 May 2014). He also added some statistics that were sobering for proponents of European energy supply diversification: in 2013, Russian natural gas exports grew by 10% in comparison to 2012 (*Id*). It appears that the Russian President capitalized on virtually every opportunity to remind the European audience that Russia has been a reliable energy trading partner (*Id.*) (President, 24 October 2014).

2.2.2.2. Leaning on a pipeline

The flow of political capital between the Kremlin and the Russian oil and gas sector is not one-directional. The Russian leadership uses its sacred cow and the public perception thereof to gain popularity when Russian citizens start questioning Kremlin policies. The public relations campaign launched in the aftermath of the aforementioned deal to construct the Power of Siberia natural gas transportation system serves as a case in point.

Amidst the calls to scale down Europe's dependence on Russian energy, the Russian leadership has turned east, accelerating Gazprom's negotiations with the China National Petroleum Corporation (CNPC) for a long-term natural gas deal. After the sides reached an agreement on 21 May 2014, the Russian leadership did not waste any time in parading the deal as a sign of success for Russia's foreign energy policy and a bright future for the Russian hydrocarbon-driven economy (Weitz, 2014).

The deal with China served as a launch pad for many of Mr Putin's remarks during the St. Petersburg Economic Forum that took place only two days after the signing of the agreement. The Russian President emphasized, on multiple occasions, the size ($400 billion) and the longevity (30 years) of the contract, as well as the size of the reserves (3 tcm) contained in the Chayandinskoe and Kovyktinskoe fields (President, 23 May 2014) (President, 24 May 2014a). He juxtaposed Europe's 'stupid' concerns regarding excessive dependence on Russian gas with the 'higher level' and 'exclusively partner-like' bilateral relationships between Russia and China (President, 24 October 2014). At some point, Mr Putin struck a romantic cord, noting that, 'we never think about imposing conditions on each other', and 'it is natural that we complete each other' (*Id.*).

As the leadership touted its newfound 'complete relationship', the Russian media rejoiced. *Ros Biznes Konsulting*, or RBK, called the deal 'Europe's nightmare' (RBK, 2014); RIA Novosti utilized the Peter the Great 'window to Europe' analogy and described the result of the negotiations as 'cutting a gas window into Asia' (RIA Novosti, 2014).[35] *Komsomolskaya Pravda* labelled the deal a 'Russo-Chinese Victory' (Baranchik, 2014).

However, a closer look at the deal's economics raised serious questions about its benefits for Russia. In fact, after obtaining more details about the terms of the agreement, Morgan Stanley downgraded Gazprom's stock 'to reflect the signing of the deal with China' (Treadgold, 2014). James Sherr, a former head of Chatham House's Russia and Eurasia Program valued Russia's ultimate return from China as 'tea and sympathy' (Chatham House, 2015).

Vladimir Putin's performance in St. Petersburg, together with the jubilant reaction from the Russian media, prompted questions as to the real reasons behind the 21 May agreement. Russia and China reached the agreement after 22 years of negotiations (Paik, 2012) and just two days before a large two-day public event full of foreign investors, business leaders, and

[35] In Russia, the result of Peter the Great's West-oriented reforms is commonly referred to as "window to Europe".

media. Such international public outreach events had become more rare after the annexations of Crimea. This suggests that the Russian leadership needed its oil and gas sector to create a sense of stability after the West's response to the annexation, conflict in Eastern Ukraine, and downing of the Malaysian Airlines plane in July 2014. Mr Putin needed and ultimately created an opportunity to assure Russia and the world of the Kremlin's control over the country's socio-economic present and future.

Although the 21 May agreement captured the hearts and minds of the Russian media, the Russian leader made sure to mention the Western Route in his remarks in St. Petersburg (President, 23 May 2014) (President, 24 May 2014a). He left little doubt about Russia's plan to expand its already vast natural gas system: 'We will have a unified gas supply system that will fundamentally and substantially improve gasification in Russian territories and will enable us to diversify the exports – when it is needed, in the Western direction, and when it is more lucrative, pursuant to global demand, in the Eastern direction.' (President, 23 May 2014)

Accessing the Southeast Asian market by way of becoming a swing supplier appears to be one of the main economic goals of the Kremlin. Vladimir Putin noted the 'sizable economic advantages' of becoming a swing supplier during his meeting at the Northeastern Federal University in Yakutsk on 1 September 2014 (President). He singled out the expansion of the supporting infrastructure as the 'priority objective' at the 4 June 2014 Energy Commission meeting (President, 4 June 2014). He noted the 'easier implementation' of the Western Route during his meeting with Gazprom's CEO Alexey Miller (President, 17 September 2014). Finally, during his remarks at the Investment Forum that took place in Moscow on 2 October 2014, the Russian President emphasized that increased energy cooperation with China and Southeastern Asia is part of a larger international cooperation effort intended to bring geopolitical balance to the U.S. and E.U. power (President, 2 October 2014).

2.3. Social and economic dimensions of Russian oil and gas

2.3.1. Social stability, dwindling reserves, and the Arctic

Although extensive energy infrastructure and hydrocarbon reserves are critical for the foundation of a petroleum-producing state, it is hardly sufficient for ensuring its existence. According to the Russian leadership, the oil and gas sector needs to maintain its geographic reach and quantitative share in the existing markets. In addition, it needs to grow and capture new markets in places currently outside its reach. Because of the limitations of the stagnant domestic demand, the Russian oil and gas sector needs demand from abroad (Mitrova, 2015). To survive it needs a stable interdependency relationship with European natural gas consumers and global oil consumers. To grow and prosper it needs to find new foreign markets, which the Russian leadership believes are in China and Southeast Asia.

The stability of a house starts with a foundation. The foundation of House Russia is oil and gas. Oil and gas provide, among other things, the wherewithal for the house to sustain its lifestyle, a geopolitical tool to demand respect from its close and distant neighbours, and a public relations tool to boost its leadership's domestic popularity during challenging times. As noted in the preceding section, the relationship between the foundation and the house is not one-directional. The foundation needs to be protected, repaired, and extended. The Russian leadership accomplishes this objective by vehemently protecting the current interdependence, taking the lead in expanding it by advocating for new interdependence, and providing the space and the resources for expansion projects.

The Kremlin often uses energy statistics in official meetings to underscore the importance of oil and gas development for the country's stability. However, the context in which such remarks are used are not always the same. For example, on 10 December 2010, President Medvedev noted that Russia provides 12% of the world's oil and 25% of the world's gas supply, thereby emphasizing Russia's indispensable place in the world economy (President, 13 December 2010). Mr Medvedev displayed his keen knowledge of world energy statistics by implying that 'the world goes as Russia goes' during an upward swing of oil and gas prices. He noted that Russia was not interested in 'monopoly-like high energy prices but rather in stable, predictable, and reasonable prices (*Id.*). During the 21 June 2012 (President) meeting with energy companies, President Putin stressed the fact that in 2011 Russia became the world's leading producer of oil by publicly traded companies. Mr Putin made the remark to ensure the meeting participants of a stable business environment in Russia (*Id.*). In June 2014, in the aftermath of the annexation of Crimea and the first round of sanctions, Vladimir Putin tied the need for further development of Russia's energy infrastructure to the need to protect the state from 'crisis events in global markets and ensuing volatility' (President, 4 June 2014).

'Anchor' and 'system-forming' are the adjectives that the Russian leader used to describe the place that the oil and gas sector has in the Russian economy (*Id.*). The 'system-forming' sector sits on Russia's hydrocarbon reserves, which Mr Putin described as 'our competitive advantage' and 'national heritage' (*Id.*). Maintaining this competitive advantage is a national policy objective. Another national objective is becoming one of the leaders of the 'qualitatively transforming global economy' (President, 24 May 2014). According to the Russian President, oil and gas appears to be an integral part of the new global economy vision, as the European energy policy is unreasonably skewed toward supporting 'crony' renewable energy. This policy leads to market distortions and harms whole other economic sectors (*Id.*).

The expansion of Russian oil and gas to new foreign markets would be impossible without ensuring that there is a resource base to support such an expansion. As noted above, Russia has been adding natural gas reserves, whereas the reserves of its primary source of revenue, oil, have been declining. 'Expansion of the resource base' (*rasschirenie syr"yevoy bazy*) has been one of the main economic objectives of the Russian government, with the Arctic and Subarctic serving as the priority regions for expansion (President, 21 June 2012).

Prior to the collapse of the Soviet Union, the government put significant resources into oil and gas prospecting and exploration. Petroleum geologist was a well-paid and well-respected job. It also came with a certain flair of romanticism, popularized in books, newspaper articles, and films. Exploratory drilling was prevalent but often wasteful, as Soviet Ministry of Energy drillers set quantity of wells drilled, not quality, as the main objective. Nonetheless, quantity at times led to quality and drillers made new discoveries. Whereas the vast majority of the current production is occurring from legacy fields, the vast majority of recently and soon commissioned fields are the byproduct of 'legacy discoveries' (Gustafson, 2012). For example, Russia's only Arctic offshore field, Prirazlomnoe, was discovered in 1989 (Gazprom, 2016j).

After the Soviet Union's collapse, the oil and gas industry went into survival mode, and prospecting and exploration went virtually extinct. Despite production climbing back to Soviet levels, exploration is yet to do so. For example, according to Sergey Kudryashov, a former deputy Energy Minister and, as of the writing of this thesis, the head of state-owned oil company Zarubezhneft', only six or seven wells are drilled on the Russian continental shelf each year, as compared to 19 per year during the Soviet period (President, 13 February 2013). Russia was expected to reach the vicinity of Soviet levels by 2020 (*Id.*).

However, it is not necessarily the scope of the planned resource base expansion but its geographic location that is likely to have a larger impact on the global energy landscape. The Arctic, particularly the Arctic continental shelf, is the area that, according to Vladimir Putin, will be responsible for the growth of Russia's wealth:

> Lomonosov once said that Russia will grow through Siberia – he was right, it is already happening. However, it will certainly grow through the Arctic. And not just because of its gigantic – global, I would say – all-planet mineral resources. I am talking about oil, gas, and metals also, because this region is very suitable for developing a transportation infrastructure.[36] (President, 29 August 2014)

Russia made its Arctic intentions known in 2007 when it placed a plaque on the ocean floor at the North Pole (Parfitt, 2007). The Kremlin was quick to dismiss any land claims. When asked by a foreign journalist whether Canada needs to worry about Russia's plans to appropriate the North Pole, President Putin jokingly responded that such worries would be tantamount to concerns over the United States claiming ownership of the moon after placing its flag there (President, 14 February 2008). Putin's remark was only a half-joke. In February 2016, Russia submitted a revised claim to extend the boundaries of its Arctic continental

[36] The Russian President slightly misquoted Mikhail Lomonosov, the 'father' of Russian science, who is believed to once have said: 'The *wealth* of Russia will grow through Siberia.' [emphasis added]

shelf beyond 200 nautical miles (Kramer, 2016). According to Sergey Donskoy, the Minister of the Environment and Natural Resources, the planned application is 'the most important, the largest, and the most economically valuable' (President, 4 April 2014).

According to the Russian President, Russia's economic interests in the Arctic need to be protected, for instance, from U.S. nuclear submarines patrolling Arctic waters off the Norwegian shore. Protection of Russian interests justifies the build-up of the Russian nuclear icebreaker fleet and the return to some of the abandoned Soviet military bases located on Arctic islands. Mr Putin's message about Russia's increasing ambitions in the Arctic is a mixture of aggressive overtones and righteous justification of Russia's position. On the one hand, he claimed that missiles from U.S. submarines located in the Arctic can reach Moscow in 15-16 minutes (President, 29 August 2014). He also noted that the recent landings on Russia's Arctic islands were part of a military operation. On the other hand, he stated that the troops had a peaceful mission and added that the resurrection of the military and search and rescue infrastructure is intended to ensure the security of navigation (*Id.*). Finally, he proclaimed that all of Russia's actions would aim at reaching a compromise with other nations while fully complying with the norms of international law (*Id.*). Judging by Mr Putin's high approval ratings, his strategy of appealing to 'hawks', 'doves', and everybody in between has been an example of successful persuasion (Levada-Centre, 2015).

As noted above, the Russian leadership often emphasizes the size of Arctic hydrocarbon resource potential. 'Colossal', 'globally significant', and 'massive' are the adjectives used to describe the magnitude of Russia's unexplored and undeveloped resource base (President, 23 May 2014). Such statements are frequently made and used with an ulterior motive. For example, former Energy Minister Kudryashov noted the deficiencies of the licensing process for the continental shelf as one of the barriers to developing the resource base. Mr Kudryashov stated that out of 6 million square kilometres of the Russian continental shelf, only 8% were enrolled in the licensing program in 2012 (President, 13 February 2013).

Arkticheskiy kontinental'ny shel'f (the Arctic continental shelf) has become a permanent feature of the energy policy discourse in Russia. Every presidential non-individual meeting or press conference, the transcripts of which I reviewed, contained some discussion regarding the Arctic continental shelf. However, the discourse has not been limited to acknowledging Russia's hydrocarbon potential in the Arctic and calls for realizing its potential (President, 10 July 2012) (President, 21 June 2012). The discourse also features restatements of what various actors have done to expand the Arctic resource base, policy pathways for the expansion, which often double as lobbying efforts, and explanations of why certain policy pathways benefit the Russian economy and society. For example, during his meeting with Vladimir Putin, Russian Energy Minister Alexander Novak highlighted the increased offshore oil production in 2014 (1 million tonnes), including 300,000 tonnes from the Arctic Prirazlomnoe field. He also mentioned the existence of a special tax stimulus plan to ensure that the production from Russia's Arctic offshore fields continues to rise (President, 2 March 2015).

Development of Arctic offshore natural gas fields is linked with another strategic goal discussed above, namely turning Russia into a swing supplier of natural gas. While obliquely lobbying for demonopolization of the LNG export market, Mr Kudryashov noted that the development of natural gas fields and LNG facilities in the Russian Arctic 'also solves diversification of supply routes for Russian gas, creates a multiplication effect for the Russian industry, and increases the robustness of the whole system . . . .' (President, 13 February 2013) Following Mr Kudryashov's presentation, Igor Sechin said:

> Development of economic and regulatory stimuli for the LNG production from offshore fields is not only a question of the growth of the natural gas sector, it is also a question of the effectiveness and the advisability of the Russian continental shelf development. In the end, it is a question of the future of our energy sector and the growth of our nation's economy (*Id.*).

According to President Putin, the future of the Russian oil sector is in the Arctic, in the development of new fields, the continental shelf, and large projects. In his speech at the 21st World Oil Congress, the Russian leader acknowledged the capital intensive nature of such undertakings and called for 'the improvement of the applicable international legal framework, widening mutually beneficial asset and technology exchanges, integration of energy-saving systems, and lowering of environmental risks.' (President, 16 June 2014)

2.3.2. Oil price as a magic number for Russian society and economy

Unsurprisingly, the global price of oil is of particular importance to the Russian Federation. While, it measures the value of Russia's two most important export commodities, oil and gas, its importance does not end there.[37] Oil price is yet another indicator of the qualitative penetration of oil and gas in the Russian economy and society.

The RF Government uses oil price as the benchmark to calculate its national budget. Russia is not alone in this practice – many oil-producing states tie their national budgets to oil price (Lam, 2015). Table 11 depicts the threshold oil prices at which OPEC nations' budgets (with the exception of Ecuador) start running deficits (Fahey, 2015). For 2015, 2016, and 2017, the RF Government calculated the federal budget based on the oil price of $96 per barrel with the budget deficit of 0.5 - 0.6% of its GDP. This places Russia roughly between Iran and Algeria in the 'oil budget deficit' list (President, 2 October 2014).

Table 11: OPEC Nations Budget Deficit/Surplus Thresholds Expressed in Oil Price (Fahey, 2015)

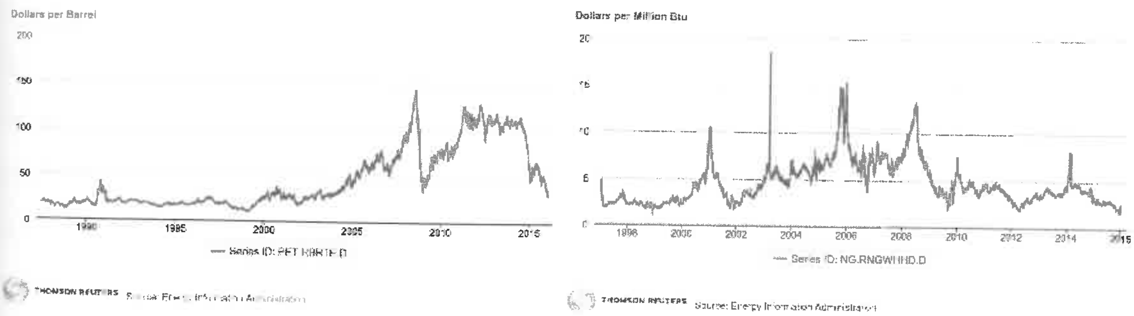
Country	Oil Price (per barrel)
Kuwait	$49.10
Qatar	$55.50
UAE	$72.60
Iraq	$81.00
Iran	$87.20
Algeria	$96.10
Saudi Arabia	$105.60
Angola	$110.00
Venezuela	$117.50

[37] Oil price is often used as the baseline for natural gas contracts. For example, it is common to tie the price of natural gas in contracts for delivery of LNG to the so-called Japan Crude Cocktail (JCC), which represents the average price of crude oil imported to Japan. For example, the JCC-based formula is used for Yamal LNG contracts. (Lunden & Fjaertoft, 2014)

Country	Oil Price (per barrel)
Nigeria	$122.70
Libya	$269.00

As the Figure 16 examples demonstrate, the only certainty about oil and gas prices is their volatility. Paradoxically, the Russian leadership touted the stability of the $96 per barrel figure (President, 24 May 2014). President Putin was especially bullish when oil prices were soaring, remarking on the cushion that Russia was enjoying during a time of economic uncertainty (President, 22 April 2013). In June 2014, Sechin was one of the first key Russian decision makers to contemplate the possibility of oil price decrease in the short- and medium-term due to manipulations caused by 'concentrated and deliberate' actions (President, 4 June 2014).

Figure 16: Europe Brent spot price FOB (1990 - 2016) and Henry Hub natural gas spot price (1998 - 2016) (EIA, 2016)



Yet President Putin remained unconvinced insisting at the same meeting that the oil and gas sector should serve as the Russian economy's anchor due to the 'real and sustainable demand for oil and gas' (*Id.*). By October 2014, as the oil price started declining from an annual high of $111 per barrel in June to $87 per barrel, the Russian leader acknowledged its lack of predictability while still defending the RF Government's decision to calculate the budget based on the $96 per barrel figure (EIA, 2016) (President, 2 October 2014).

In November, when the price of oil dropped to $79 dollars per barrel (EIA, 2016), Vladimir Putin was asked during an interview with the Chinese press a three-part question about his view on the causes behind the oil price decline, the effect of the decline on the Russian economy, and the steps that the Russian leadership was taking to remedy the negative effect (President, 6 November 2014). For the first part of the question, the President identified only external causes of the price decline, such as the glut of the global supply, slowing global economy and demand, technological advances, and, most importantly, geopolitical and market manipulations. He limited his answer to the second part of the question to the following statement: 'We cannot ignore the current oil market situation given the importance of the energy sector products for the budget' (*Id.*). His response to the third part could not have been more general. Mr Putin assured the Chinese journalists that the Russian leadership is implementing comprehensive and long-term measures aimed at further diversification of the budget revenue sources, including diversification of Russia's export markets away from Europe and toward the Asia Pacific region, as well as optimization of the budget, financial, and tax policies (*Id.*).

Vladimir Putin spent the lion's share of his answer elaborating on the causes of a trend that is potentially devastating for the Russian economy, while downplaying and not accepting any responsibility for the potential adverse consequences (*Id.*). This demonstrates that his answer, although addressed formally to the Chinese press, was directed predominately at an audience deeply concerned with the health of the Russian economy – Russian citizens.

As noted above, prior to the oil price collapse, Mr Putin used the 'stable' oil price to assure the people that the country was on the right course under his leadership. For example, he remarked that the 'stable' $96 per barrel would all but guarantee the stability of all social programs under the 2015–2017 federal budgets (President, 24 May 2014). Thus, unsurprisingly, the Russian leader chose to distance himself from oil price, a public relations friend turned foe.

It would be an understatement to say that Russian citizens were concerned about the declining price of oil. According to a Levada-Centre poll, Russians named it the fourth most important event of 2014. The importance of this ranking is amplified by the fact that 2014 was one of the most eventful years in Russia's modern history. The declining oil prices were superseded by Russia's first ever hosting of the winter Olympics, the first sharp drop in the ruble exchange rate since the 20th century, and the first annexation of a formerly foreign territory (the Crimea peninsula) since World War II (Levada-Centre, 2015, p. 9).

The reason behind the ranking is clear – Russian citizens firmly believe that the oil price drop is directly responsible for the downturn of the national economy and the decrease in the quality of life for average Russians. For example, according to another Levada-Centre public poll, 37% of the respondents listed the drop in oil price as the main reason behind the rise in prices for groceries, consumer goods, and essential services (Levada-Centre, 2015). This answer was second only to the devaluation of the ruble. Unsurprisingly, 51% of the respondents tied the devaluation to the decline in oil prices (Levada-Centre, 2015, p. 56).

Judging by the September 2015 Levada-Centre public poll, the Russian leadership strategy of assigning blame for the country's economic woes to external factors, particularly the decline in oil prices, has worked. Thirty-four per cent of the respondents believed that was the case. In contrast, only 26% thought that the economic crisis emerged due to the deficiencies in the structure of the Russian economy, excessive government involvement, and poor decision-making by government officials (Levada-Centre, 2015a).

It is not uncommon for a story about oil price to grace the front page of the Russian printed and electronic media. A typical article usually commemorates a pricing milestone of the commodity and discusses what this milestone means for Russia (Gazeta.ru, 2016). This topic has entered the art and popular culture domain where, as the song below by Russian bard Semyon Slepakov shows, it has been insightfully and eloquently framed and narrated:

> I am a simple tractor factory worker
> My surname is Sinitsyn, first name Volodya
> Every morning I go to the factory
> And this is the 25th year of this happy life
> I am working a lathe and making components
> To be assembled into pedals
> I am paid zilch
> But I am not complaining as the entire town lives like this
>
> However, recently some hubbub happened

Money started disappearing twice as fast
Prices in shops went through the roof
And I am unable to support my less-than-ideal life
I started worrying - what is up?
Luckily, TV explained things well
It happens that America treacherously screwed us over
And as a result, the price of our oil fell

But this is an artificially composed act
Everything will soon change, it's a definite fact
No longer those faggots will be bending us over
The price for our mother oil will rise again
Things will go back to normal, we will be prospering
And I will be able to support my less-than-ideal life
I really liked what the TV announcer said
But I still have a little burning question:

Chorus:
I am of course very happy that oil will go up in price
But what if it fucking does not? But what happens if it does not?
I understand that everything will get better when oil goes up in price
But what if it fucking does not? Just does not and that's it? (Slepakov, 2015)

2.4. Conclusion

Yergin (2011) argues against designating Russia as a 'Petrostate'. He contrasts it with Venezuela and Nigeria and highlights, among other things, the higher percentages oil and gas revenues in these nations' GDPs. Yet Yergin's argument does not factor in the vital role that oil and gas play in the Russian leadership's political grip on the country and its geopolitical ambitions abroad. It also discounts the qualitative penetration of the oil and gas sector in the national economy and the social life the Russian state. In addition, the argument overlooks the least transparent but perhaps the most defining criterion of a petrostate – the perception of oil and gas's importance among Russian citizens for their well-being.

Although the primary goal of this chapter was to provide the necessary background and foundation for further analysis, the dimensionality of the Russian oil and gas sector explored above helps to close the gap in the literature regarding the societal processes influenced by the country's economic dependence on oil and gas. Petrostate is not only a state of an economy expressed in statistical averages, it is also a state of mind of those directly involved in and impacted by the economy. The Russian leadership pays close attention to the public perception of the critical role that the national oil and gas plays in the lives of ordinary Russians and it exploits this perception for political gain. This, in turn affects the current and future state and the size of the oil and gas infrastructure. The physical and technological, political and geopolitical, social and economic dimensions of the Russian oil and gas sector interlock in a feedback loop. The academic literature and energy analytics that fail to recognize this feedback loop are unlikely to depict an accurate picture of the Russian oil and gas sector, or to render a well-supported projection of its future. In addition, as I show throughout the thesis, the interlocking of these dimensions contributes to challenges that the Russian oil and gas sector poses for risk governance, the mechanics of which I examine in the next chapter.

3. Risk and its Disguises: Theoretical Framework

3.1. What is risk?

In this chapter, I review the key risk and risk governance concepts and theories in the context of the energy sector, and more specifically, in the context of oil and gas development. Therefore, the overarching objective of this chapter is not to add to the crowded field of risk definitions. Rather, it is to identify a set of theoretical tools wielding the greatest explanatory power for the ensuing data analysis whilst noting potential gaps and shortcoming in the risk and risk governance literature.

It is impossible to discuss risk governance without defining risk first. Aven and Renn (2012) identify more than ten definitions of risk in the academic literature. Rosa, Renn, and McCright (2014, p. 20) describe the 'net result' of such plurality 'is not clarification of key terms but befuddlement'. Practitioners, even those who work for the same government agency, cannot seem to reach consensus either.

Because I targeted risks to the environment as one of this study's focus areas, I decided to consult the U.S. Environmental Protection Agency (EPA) to see how it defines risk (EPA, 2016). I was surprised to see fifteen different definitions of the term risk alone. In addition, I discovered four different definitions of environmental risk and four definitions of acceptable risk, and many other definitions of terms that included the word risk. Most definitions, which can be found in Appendix VI, may appear substantially similar, but each offers a different approach or emphasis, thus warranting a distinct entry (*Id.*).

All the EPA definitions of risk that I reviewed include a term implying the probability of an event or occurrence. These terms range from 'chance' to the nearly certain 'expected frequency'. The second common feature is the event or occurrence's adverse nature. Some definitions make it rather opaque by disguising it, for example, in a negative connotation commonly associated with injury, disease, and death (*Id.*).

However, all the definitions unequivocally indicate that the 'term' risk implies what Callon, Lacoumes, and Barthe (2011, p. 19) describe as 'well-identified danger associated with a perfectly describable event or series of events'. This kind of quantitative grasp on an event or occurrence is what the authors believe sets risk and uncertainty apart, making the former a tamer version of the latter. The scholars point to a frequent interchangeable use of the terms, which often leads to muddling of 'very different realities' (*Id.* p. 19). The argument put forth by Callon and his co-authors is not without merit. However, as I elaborate below, for the purposes of this thesis, I use the term uncertainty as one of the characteristics of systemic risks.

Similar to risk and uncertainty, risk and hazard are used interchangeably (Barents 2020, 2012, p. 110). Even though some theorists understand risk as hazard (i.e. danger 'related both to its probability and to the magnitude'), some mark a difference (SCOPE 15, 1980, p. 1). According to the International Risk Governance Council (IRGC), 'hazards characterize the inherent properties of the risk agent' [emphasis added] (IRGC, 2005, p. 19). Conversely, risks 'describe the potential effects that these hazards are likely to cause on specific targets' [emphasis added] (*Id.*). These targets include 'buildings, ecosystems or human organisms and their related probabilities' (*Id.*).

In addition, when gathering data about the ever-changing technological and geographic dimensions of energy, reducing an activity or event to its properties (hazardous, dangerous) may be rather limiting. This is especially the case when obtaining empirical data by engaging a wide range of stakeholders who are mostly familiar with the adverse *effects* of an activity, but not necessarily with the activity itself. For example, some stakeholders, indigenous communities, and marine scientists are unlikely to understand the details of offshore oil and gas development. However, members of an indigenous community may be well familiar with routine spills and seepages because of the fishing activities in which they are engaged. Similarly, marine scientists would be knowledgeable on issues such as the increasing acidity of the ocean (Cappa, 2010), while members of the oil and gas industry or a permitting agency could thoroughly explain the dangers of offshore drilling (Sidortsov, 2014).

However, one gains both wider and deeper insight when shifting the definition of risk from the activity itself to the effect of that activity. If we classify exploratory drilling as the hazard, oil exploration becomes the source of the hazard, and oil spills are one of the associated risks (uncertain adverse consequences). To take this a step further, if one were to depart from the 'conventional' risks associated with oil and gas development, and giving consideration instead to climate change, climate change would be the hazard; oil exploration its source, due to direct emissions from exploratory activities and the ensuing emissions from the combustion of extracted hydrocarbons; and ocean acidification would be one of the risks (Sidortsov, 2012a). Thus, a catastrophic oil spill ceases to be the only severe risk associated with oil exploration.

Overlooking this seemingly academic typology can have far-reaching policy consequences. If, for example, oil spills are viewed as the sole or chief risk of oil and gas activities, any risk analysis would likely focus on their prevention and containment. Yet the adverse consequences of an oil spill, especially a major one, do not end with coastal land and sea birds covered in oil. During the Deepwater Horizon disaster, for instance, the livelihoods of millions of U.S. households were placed in jeopardy as the economy of several states ground to a halt. The spill impacted Floridians, Alabamians, Louisianans, and Texans of many different occupations and trades, ranging from tourist-shop owners to helicopter pilots and from fishermen to restaurant employees (National Commission, 2011). The oil and gas sector itself experienced a shutdown, due to the moratoria imposed on offshore oil and gas activities (*Id.*). Thus, how one defines risk determines *which* adverse consequences will be included in the scope of risk analysis.

This consideration is especially important for Russia, whose economy is built on oil and gas. A failure to recognize environmental risks as having far-reaching economic and social implications, and more importantly to handle such risks accordingly, could bring the entire country to a standstill. As I explore in more detail below, the Russian leadership made this critical connection, but ultimately failed to act upon it.

Also essential to a conceptual understanding of risk is recognizing the difference between objective risk and subjective (perceived) risk. The policy implications of this theoretical divide are vast, as they extend to the question of *who* makes decisions about risk, including the rules for determining it.

Beck (2006, p. 330) notes that risk 'does not mean catastrophe. Risk means the anticipation of catastrophe.' According to this narrative, the extent to which a risk is anticipated determines its likelihood of 'becoming real' (*Id.*). Adams (1995, p. 8) takes this a step further, observing that the key difference between objective and subjective risk stems from *who* anticipates the 'catastrophe'. He bolsters this assessment by citing the Royal Society's 1983 report entitled 'Risk Assessment' (*Id.*). This report identified objective risk as the prerogative of 'the experts', while subjective or perceived risk was classified as the product of lay-people's anticipation of an adverse event (*Id.*). Correspondingly, it is the objective view of risk as 'the probability of an adverse future event multiplied by its magnitude' that dominates the safety literature (Adams, 1995, p. 69).

Subjective or perceived risk is based on how an individual perceives a potential adverse effect (Oltedal, *et al.*, 2004, p. 11). One's specific understanding of risk may be influenced by a number of different factors, including familiarity with the hazard, level of control over the situation, and commonality of the event (*Id.*). Some proponents of the subjective view deny the very possibility of objective risk. This denial is premised on the belief that as long as humans are the party appraising the risk (at any time, and in any shape or form), the risk cannot by definition be objective (Beck, 2006, p. 333). On the other hand, according to Brehmer, a human cannot perceive risk because there is nothing 'out there' that can be sensed and called 'risk' (Oltedal, *et al.*, 2004, p. 11).

Sjoberg and Boholm take a reconciliatory position and concede that 'real' and 'perceived' risks can coexist (*Id.*). Similarly, Crawford-Brown concludes that '[t]here is no way to decide which definition of risk is correct.' (Crawford-Brown, 1999, p. 12) Putting the subjectivity/objectivity of risk question into the context of a decision-making process, he notes that although risk assessment can be done according to an objective standard, risk management must have a subjective element, as managers are people, not machines. Rosa, Renn, and McCright (2014, p. 21) arrive to a similar reconciliatory position via a different route. As noted in the introductory chapter, they lay a meta-theoretical foundation for the risk concept by contrasting the two main epistemological approaches: realism and constructivism. The three scholars elucidate this coexistence by recognizing the ontological and epistemological dimensions of states of risk. This approach does not discard the possibility that events and situations occur independently of human perception or cognition. It also recognizes that once an event or occurrence is deemed to be of human value, it ceases to be an objective notion (Rosa, *et al.*, 2014, pp. 20-22).

Further investigation of this question has been the subject of many scholarly debates not limited to the risk theory (*Id.*). The principal goal of this study is not to contribute to this discourse, and committing to either end of the spectrum is not instrumental to answering this study's research question. Yet, I remain committed to the epistemological view of risk as a social construction. Accordingly, I adopt the following working definition of risk offered by Rosa: 'Risk is a situation or an event where something of human value (including humans themselves) is at stake and where the outcome is uncertain.' (Rosa, 1998)

3.2. Risk perception theories

Certainly, if one rejects the notion of subjective or perceptive risk, and the definition of risk is limited to the probability of an adverse consequence multiplied by its severity, there would be no need for inquiry into the theories of risk perception. However, because my working definition of risk is premised on the constructivist approach, such a review is both warranted and necessary.

Wildavsky and Dake (1990, pp. 42-44) identify six rival social science theories of risk perception. *Knowledge theory* is based on the premise that people believe or *know* technologies to be dangerous and thus perceive them as such. *Personality theory* focuses on the individual propensity to take or avoid risk. *Economic theory* has two versions, the first of which asserts that affluent people are more tolerant to risks stemming from new technologies because they benefit more from and are better insulated from them due to economic status. The second version, known as 'post-materialist' theory, is the reverse – that indigent people are willing to take more risks (and otherwise do whatever it takes) to become wealthier.

Political theory uses the struggle over political interests to explain differences of risk perception, and finally, *cultural theory* connects cultural biases to risk taking/avoiding (*Id.*).

Remarkably, the cultural and psychometric theories of risk perception have been at the centre of the risk perception debate, along with another set of theories that Wildavsky and Dake failed to mention – rational actor theories. The basic principle of rational action is premised on the notion that 'human beings are capable of acting in a strategic fashion by linking decisions with outcomes.' (Renn, *et al.*, 2001, p. 4) The Rational Action Paradigm (RAP) takes a more sophisticated view, resting on the following assumptions: (1) every action is an individual choice; (2) people and institutions have the ability to separate the ends from the means; (3) people seek to meet objectives when making choices; (4) the ultimate driver in making decisions is personal satisfaction; (5) people recognize the likely outcomes of their decisions; (6) people's preferences are based on values and expected benefits; and (7) if subjective knowledge and preferences are known, a person's actions are predictable (*Id.*). Regarding collective behaviour, RAP assumes that people select the option that will likely result in the biggest payoff, thereby maximizing their utility (*Id.*).

Empirical evidence indicates that people are more likely to violate than follow the rules of rational action (*Id.* p. 8). Such evidence serves as a significant crack in RAP's empirical foundation and has led to criticism for RAP-based individual choice theories. RAP is also criticized as a basis for collective choice because it does not extend its assumptions from the individual to the collective level (*Id.* p. 11). According to Renn and his co-authors, RAP proponents have treated empirically sound challenges on both the individual and collective levels as a nuisance, while simultaneously failing to adequately respond to them (*Id.* p. 8).

The psychometric theory centres on cognitive factors that influence a person's perception of risk. This theory developed out of empirical studies measuring people's aversion to and acceptance of risks, as well as the differences in perception of risk between the layperson and the expert (Slovic, 1987). Slovic, who is widely considered the father of the psychometric theory, and his colleagues concluded that people's perception of risk is dominated by both the dread risk factor and the unknown risk factor (*Id.* p. 281).

Though rooted in behavioural psychology, the psychometric theory fails to explain the differences in risk perception among ethnic and socio-economic groups (Rippl, 2002, pp. 148-149). Slovic does identify cognitive factors, but these do not explain why one society is more accepting of risk than another (*Id.*). Indeed, critics of the psychometric theory cite issues of empirical support as one of its weaknesses. Sjoberg (2002, p. 443) conducted a study similar to Slovic *et al.*'s foundational nuclear waste study, but arrived at different results. In addition, Sjoberg, Gregory, and Mendelsohn (1993) had problems with understanding the qualitative characteristics that psychometric theory employs. They note that risk professionals oppose the theory due to difficulties with incorporating it into risk management practices (*Id.* p. 259).

The psychometric theory's inadequacies opened the door for anthropologists and sociologists to contribute to risk perception theory (Wildavsky & Dake, 1990, pp. 42-44). In their book *Risk and Culture*, Douglas and Wildavsky (1982) argue that each culture, with its specific set of shared values and supporting social institutions, emphasizes certain risks and downplays others. Because people are creatures of social culture, individual perception of risk is shaped by cultural values, views, and attitudes (Rippl, 2002, p. 149). Douglas and Wildavsky proposed the so-called grid/group typology as a means of describing different types of cultures, wherein grid refers to the level of social control while group refers to the level of social commitment. Correspondingly, the following four cultural patterns materialize: (1) hierarchy (high grid/group); (2) egalitarianism (low grid, high group); (3) individualism (low grid/group); and (4) fatalism (high grid, low group) (*Id.*).

Like the opponents of psychometric theory, critics of cultural theory focus their arguments on lacking empirical support. Oltedal *et al.* (2004, p. 5) cite Sjoberg, Boholm, and Raynes, who note that the 'empirical support for this theory has been surprisingly meagre.' Boholm notes that the paltry empirical support stems from the theory's structural flaw in that it rejects personality as a basis for explanation of individual behaviour, yet it 'clearly is related to personality as an explanatory concept.' (*Id.* p. 6) Additionally, the 'meagre' empirical support may also be a result of the 'instrument' used to measure culture. According to Sjoberg (1998), although Dake and Wildavsky's World View scales produced favourable outcomes in the United States, empirical studies in Europe failed to reproduce such results. There is reason to believe, however, that more reliable scales would have resulted in only marginal improvement (*Id.*). In responding to criticism of the cultural theory of risk perception, Rippl (2002, p. 149) concludes that a 'theoretically conforming measurement of cultural biases is possible.'

3.3. Conceptualizing risk as knowledge

Regardless of who perceives the risk, in the simplest terms, risk analysis aims at creation of new knowledge. There is something uncertain about a potentially adverse event or occurrence, something that we do not know. That knowledge gap about something uncertain needs to become more manageable, and this can be achieved by obtaining new *knowledge* about the uncertain event or occurrence. Correspondingly, Hansson views reduction of epistemic uncertainty as the main goal of risk knowledge. In the case of collective decision-making, or as Hansson puts it, policy-relevant cases, the effects of the decisions are of value and cannot be ignored, whereas the knowledge about them is lacking (Hansson, 1996, p. 170). For example, knowing with 100% certainty that offshore oil exploration will result in a catastrophic oil spill would make a regulator's permitting decision much easier.

Hansson sees the origin of this knowledge gap in the ability of human cognitive powers. Rosa, Renn, and McCright join Hansson while stressing the importance of his observation:

> Because it cannot be overstated, we have repeatedly pointed out that human perceptual and cognitive capabilities are inherently limited. As a consequence, we can neither generate perfect knowledge about the world—that elusive God's view-eye view—nor create a 'true' understanding of our physical and social environments, risky ones and otherwise. Facts seldom speak for themselves, and ambiguity may surround even the most basic facts (Rosa, *et al.*, 2014, p. 29).

Thus, reaching the absolute truth is prohibited by the very definition of risk knowledge. After all, the very inquiry into percentages and levels of acceptance is premised on the assumption that the absolute truth about a future event is unknown. In this sense risk knowledge is in line with the notion of truth in Nietzsche's 'On Truth and Lies in a Nonmoral Sense', in which he saw it as a drive for belief in knowledge and truth (Nietzsche, 2008).

Yet uncertainty can be reduced to probability, thereby creating 'a cognitively manageable representation of the world' (Hansson, 1996, p. 172). In fact, under the Bayesian ideal rationality, *all* non-logical statements should never be fully believed; rather, they should be assigned various probabilities. Thus, the core principle behind the Bayesian approach is the variable fallibility of knowledge claims (*Id.*).

The first problem into which a strict Bayesian would run is multiple sets of probabilities produced by different experts. Particularly steep challenges arise when 'two cultures of risk analysis' clash – one represented by social sciences, and the other by the physical sciences and engineering (Horlick-Jones & Sime, 2004, p. 446). Reconciling these differences often proves an insurmountable challenge. Callon, Lascoumes, and Barthe (2011, p. 19) note, 'there's always someone more specialist' and, as I noted in the previous section, this specialist expert often comes from a different field. In addition, non-experts bring what the scholars call 'subjective probability', which despite its quantitative shortcomings brings additional qualitative layers into the analysis (*Id.*).

The second problem with equivocating risk knowledge with probability is that it ignores the fact that people have always lived with some unreduced epistemic uncertainties (Hansson, 1996, p. 173). Ignorance of this fact leads to an even bigger problem, the loss of the principal purpose of risk knowledge, which is to aid *people* in making decisions that involve uncertainty. Sime describes this situation as 'designing [a] "*in spite of* rather than *for* the building user"', which in turn results in buildings designed for 'people or ball-bearings' (Horlick-Jones & Sime, 2004, p. 446).

The third problem with strict Bayesianism is that people need to make decisions that are based on fully certain or nearly certain beliefs (Hansson, 1996, p. 172). This necessitates a different kind of certainty, a certainty that is not based on probabilities. Callon, Lacoumes, and Barthe (2011, p. 24) note the existence of 'social uncertainties' that accompany scientific and technical uncertainties. They emphasize the importance of overcoming the former for the making of informed decisions as follows:

> However, the controversies engendered by these uncertainties go far beyond solely technical questions. One of the central issues in these controversies is precisely establishing a clear and widely accepted border between what is

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> However, the controversies engendered by these uncertainties go far beyond solely technical questions. One of the central issues in these controversies is precisely establishing a clear and widely accepted border between what is

> considered unquestionably technical and what is recognized as unquestionably social. The line describing this border constantly fluctuates throughout the controversy. To declare that an issue is technical is effectively to remove it from the influence of public debate; on the other hand, to recognize its social dimension restores its chance of being discussed in political arenas (*Id.*, pp. 24-25).

Walsh (2013) calls this kind of certainty 'political'. Political certainty converts what is usually a myriad of probabilities and unreduced epistemic uncertainties into a socially acceptable decision. In a sense, it enables the lowercase 'truths' to work together in the context of a consensus created by the political certainty.

It is therefore not surprising that generating risk knowledge poses particular problems in the context of public policy. Horlick-Jones and Sime (2004, p. 448) suggest two possible avenues for overcoming the plurality of objective and subjective probabilities, the self-fulfilling tendency of technical risk assessment, and the need for some certainty for collective decision-making. The first suggestion draws on Rein's value-critical approach and emphasises 'the specificity of problem situations rather than adopting a universal "general laws" perspective.' The second suggestion seeks to place the process of knowledge creation within the boundaries of 'material limits on human sense-making and action' (*Id.*). Both suggestions, while inherently conceptual, recognize the context in which knowledge is created and more specifically the limits that the context creates.

Risk knowledge is not generated in a lab by completely impartial, bias-, agenda-, and prejudice-free, acultural risk experts. The initial inquiry does not appear from thin air. It comes to a 'risk lab' shaped by the values of those who send it there. The inquiry is sent to the lab because something of *value* is at stake, in the event or occurrence of which the outcome is uncertain. Even assuming that the lab is full of impartial risk expert robots (which for obvious reasons is highly unlikely), there is no guarantee that all these human robots have been 'programmed' by the same discipline. Thus, a battle of risk expert robots has a much higher likelihood of occurring. In addition, what if there is more than one risk lab? It would be even more of a stretch to assume that all risk labs employ the same methodology, internal procedures, and so on. The knowledge product that comes out of a risk lab or a coalition of labs might not sit well with those who have to live with the decision that was made based upon said knowledge. Some people might have legitimate concerns about the validity of the knowledge and some might just not trust robots. After all, humans and robots have a rather complicated relationship. In addition, there are politicians and interest groups who use risk knowledge to further their agendas, risk managers who implement risk-knowledge-based decisions, and employees, students, servicemen, and many other categories of people who are required to act pursuant to these decisions.

3.4. Heterogeneity of risks and contexts in the energy sector

3.4.1. Not all risks are alike

Each of the three major theories of risk perception reviewed above suffers from the shortcomings common to virtually any social theory aimed at universal application. As I noted in the previous section, these principal shortcomings can be attributed to a failure to recognize the heterogeneity of risks and the contexts in which these risks are handled.

Simply put, not all risks are created equal, even though many risk professionals and risk scholars treat them as if they are. In the 1990s and early 2000s, recognition of systemic risks dealt a major blow to the one-size-fits-all approach to understanding risk. Rosa, Renn, and McCright (2014, p. 124) associate traditional risks with 'obvious negative physical effects' that are 'typically bounded'. They use the risk of a school fire to provide an illustration of traditional risks. The scholars note that although the fire might result in direct loss to the facility and disrupt children's education, due to modern technology and safety systems in place the blaze and economic damage is unlikely to spread beyond the school building:

> When fire breaks out at school, safety equipment, sprinklers, and routine fire drills (some of the basic tools of conventional risk management) are likely to be effective. With appropriate safeguards in place, the odds are minimal that lives will be lost or even than anyone will suffer serious physical harm. What is more the economic cost is almost certain to be limited by insurance claims and contingency budgets, while disaster planning probably means that the lives of teachers and students are disrupted for no more than a few days (2014, pp. 124-125).

In contrast, it took an errant spark in Thomas Farriner's bakery on Pudding Lane in 1666 to engulf 436 acres within London and destroy 13,200 houses and 87 churches (Museum of London, 2016).

Systemic risks do not end with a probability of physical damage. According to the IRGC, systemic risk is 'embedded in the larger context of societal, financial and economic consequences and is at the intersection between natural events, economic, social and technological developments and policy-driven actions.' (IRGC, 2008a, p. 4) Kaufman and Scott's simple but encompassing definition of systemic risk captures its essence: 'the risk of or probability of breakdowns in an entire system, as opposed to breakdowns in individual parts or components, and is evidenced by co-movements (correlation) among most or all parts.' [38] (Kaufman & Scott, 2003, p. 372)

One of the first comprehensive attempts to conceptualize systemic risks is associated with the 2003 OECD report entitled 'Emerging Risks in the 21st Century'. The report targeted threats to the human and natural environments and identified the following major characteristics of systemic risks: (1) complexity, (2) uncertainty, (3) ambiguity, and (4) ripple effects (OECD, 2003). Klinke and Renn (2006, p. 3) elaborate that complexity refers to the difficulty of 'matching' the overabundance of adverse effects with potentially affected parties and objects. This includes the deciphering of casual relationships and identifying feedback loops. Uncertainty refers to the evidentiary deficiencies that eventually weaken the cause and effect chain. Ambiguity presumes the presence of various legitimate interpretations of the same set of data. Finally, 'ripple effects' denote the prospect of secondary impacts that may be separated by time and space from the primary consequences; ripple effects may extend into political, social, and economic dimensions (*Id.*).

3.4.2. Risky energy business

Modern energy systems, from the all-encompassing global energy system to regional and sectorial systems, such as provincial electric power grids, constitute breeding grounds for systemic risks. There are three main reasons for this.

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[38] Although Kaufman and Scott came up with the definition in the context of risks to financial systems, it cuts across different sectors and disciplines.

First, by virtue of being an instrumental good, energy is a prerequisite for the lion's share of goods and services produced in the global economy (Sovacool, *et al.*, 2013). For example, without electricity, a garment factory in Bangladesh, an auto conveyer line in Germany, and a local school in Russia would not be able to stitch a shirt, assemble a car, or provide modern education to a student.

Second, in its current configuration, primary energy is a global but unevenly distributed good. Because fossil fuels and nuclear power continue to provide over 86% of the total global energy supply, and oil, gas, and uranium are allocated unevenly in the planet's crust, the world is divided into primary energy producers and consumers (IEA, 2015a). If we add countries that have production but not refining capacity, we end up with a complex and interdependent international network, in which energy flows in the most improbable patterns.

Third, the modern-day global energy system is dominated by centralized infrastructure (Sovacool, *et al.*, 2013). The world gets the bulk of its energy from power plants capable of providing electricity to entire cities and even countries; extensive power grids and trunk pipelines covering millions of kilometres of real estate; and rapidly dwindling giant oil and gas fields. Energy planners have been chanting the 'economies of scale' mantra since the first wave of electrification. Although the first electrical power stations resembled what is now known as 'community' and 'distributed' generation, and despite increasing attempts to revive distributed and community generation, 'large' and 'top-down' continue to serve as the energy sector's operating terms (*Id.*).

Energy projects that have over $1 billion in capital expenditures, known in the energy studies literature as 'mega projects', epitomize systemic risks arising in the energy sector.[39] This is largely due to the amplifying of the centralization effect by enlarging the size, scale, and scope of the overarching energy system. For example, ensuring a steady flow of oil through the Trans-Alaska Pipeline System (TAPS) has become a central objective of the Alaska state government (Baker & Sidortsov, 2014). The pipeline's capacity is 2 million barrels of oil per day and oil producers had little problem filling most of it when the pipeline began operating

[39] Van de Graaf and Sovacool designate such a mega projects as 'international' if it spans over at least three countries. (Van de Graaf & Sovacool, 2014, p. 16)

in 1977. However, the actual throughput dipped below one million barrels a day in 2003 and has been on a steady decline ever since (EIA, 2015b). As a result of the low flow and frigid temperatures, TAPS requires frequent and costly maintenance, which in turn affects the profitability of the oil it delivers. Meanwhile, state revenues from oil activities, a significant portion of which have hinged on the successful operation of TAPS, have accounted on average for 85 percent of the total state revenue (Alaska Oil and Gas Association, 2016). Thus, should oil stop flowing through TAPS in the foreseeable future, most if not all state government services, including education, healthcare, and law enforcement, will be at risk of systemic failure.

Flyvbjerg, Bruzelius, and Rothengatter (2003, p. 3) highlight the mega-project paradox: despite all but certain cost overruns and lower than expected return, mega-projects are becoming an ever more popular infrastructure solution. As noted above, the Russian leadership has been particularly keen on promoting energy mega projects, including those located in the Arctic and Subarctic. Consider the costs of the three energy projects used as examples in this thesis listed in Table 12.

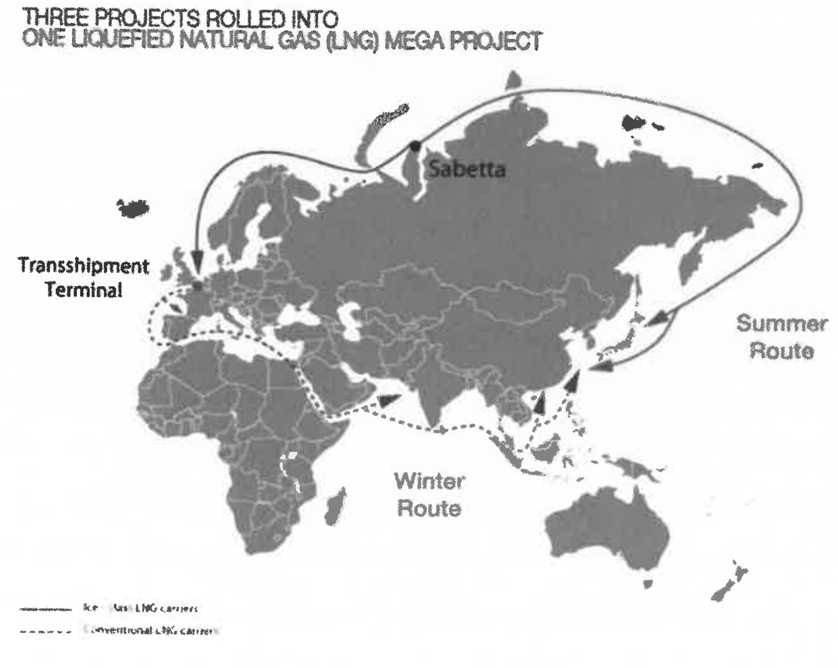
Table 12: Capital costs of the three projects featured in the study (Lunden & Fjaertoft, 2014) (Chow & Cuyler, 2015)

Project	Cost
Prirazlomnoe	$5.7 billion
Yamal LNG	$26.9 billion (estimated)
Power of Siberia	$77 billion (estimated)

The figures for the Prirazlomnoe and Yamal LNG projects do not include significant expenditures by the Russian government in the form of supporting infrastructure and forgiven debts. For example, the total cost of Prirazlomnoe excludes the expenditures incurred from the original prospecting and field discovery phase from 1989 through 2002 (Lunden & Fjaertoft, 2014).

The long-term commitment required to bring a mega project online and complete it extends the timeline in which adverse consequences can occur. As mentioned above, Prirazlomnoe was discovered in 1989, came online almost a quarter century later in December 1989, and will likely remain in production for the next 15–25 years (Sidortsov, 2012). Yamal LNG, labelled by one of its participants, Total, a 'mega project' has a shorter development history but might extend even father into the future. Although the South Tambeyskoye field was discovered in 1974, the investment decision to proceed with the project was only made in 2013 (Lunden & Fjaertoft, 2014, p. 10). The first LNG shipments are scheduled for 2017 and will occur pursuant to 15- to 20-year contracts, similar to the contract with China National Petroleum Corporation (CNPC) (Novatek, 2014). The Power of Siberia taps into the Kovyktinskoe and Chayandinskoe fields to be developed specifically to serve the Power of Siberia. The fields were discovered in 1987 and 1989, respectively, but the investment decision to develop them in conjunction with the development of the unified gas transmission system (GTS) was not made until 2012 (Gazprom, 2016e). As noted in Chapter 2, in May 2014, the Russian leadership announced the signing of a 30-year contract between Gazprom and CNPC to deliver 38 bcm of natural gas per year to Northern China (*Id.*).

Figure 17: Yamal LNG: A mega project (Total, 2016)



The aforementioned financial largesse and long-term commitment do not mean that any risk arising out of energy-related activities is of a systemic kind. Moreover, not all risks associated with construction of an energy mega-project are systemic. For example, it appears that most of the risks considered as part of the environmental assessment process for waste disposal sites serving the Power of Siberia pipeline fall into the traditional risk category. As I explore in Chapter 5, these risks do not impact the entire pipeline transportation system. Granted, an improperly constructed and operated waste disposal site might impact the local ecosystem, but juxtaposed with the school fire example, the existing technologies and safety protocols can all but guarantee that such impacts will not come to fruition.

In contrast, a systemic risk must impact a system as a whole. This does not have to be the energy system from which the risk arises. As I show in this thesis, construction of an energy project may impact the socio-economic system prevalent in the entire region or even country. In addition, because of the instrumentality of energy, the risk may impact a system or systems that do not physically interact with each other. In this respect, the farther the risk is located in the 'instrumentality chain' the less likely it will impact the system as a whole. For example, the systemic risk effect posed by a faulty transformer powering a residential city block is very different than that of powering an offshore oil platform in Arctic waters. In addition, the more ability a risk has to disrupt the ties between functionally different parts of the energy system, the bigger systemic impact it has. For example, a navigation error while crossing the Atlantic will likely have a lesser systemic effect than an error made while passing through the Strait of Hormuz. As one of the world's main energy choke points, Strait of Hormuz is the waterway through which passes approximately 80 percent of Japan's and South Korea's oil supply and 40 percent of China's total energy supply (Yergin, 2011, p. 4571). Also, the bigger the source from which a risk originates, the more severe and broader the systemic effect will likely be. An engineering problem that results in shutting down a community solar farm would have a much different systemic effect than a similar problem resulting in the shutdown of a 1 GW nuclear power plant. Finally, not all accident-related risks are of the systemic kind. A risk does not need to lead to an accident to be considered systemic. Certain slow and subtle processes originating in the energy sector have had a much more pronounced effect on a variety of systems than the malfunctioning of a nuclear reactor or a minor oil spill.

Most if not all energy sector undertakings highlighted in Chapter 2, including the three mega projects, are *complex* in nature. Proponents of the development prefer to focus on the net positive effect; the distribution of risks rarely becomes a part of the sales pitch. For example, construction of an oil pipeline can translate into additional tax revenue for a remote region. However, it can also mean a blocked reindeer migration route, ensuing demise of a herd, and economic marginalization of the people who rely on it.

The socio economic impacts of the Russian oil miracle serve as a prime example of *uncertainty* surrounding risks associated with the energy sector. Russia's return from the economic doldrums was attributed to increased production from Siberia's legacy fields in the 2000s. However, the drop in the price of oil in 2014-2015, and the resulting economic crisis, points to a lack of reliable long-term data that can serve as the foundation for comprehensive and conclusive analysis. As a result, some commentators celebrate the 'well of stability' (CPA, 2013), while others compare the Russian economy's addiction to oil production to that of an intravenous drug user (Nikolaev, 2014). Therefore, the same data set are often interpreted differently, reinforcing the *ambiguity* of risks arising in connection with oil and gas development in the Russian Arctic and Subarctic.

Perhaps the most visible characteristic of systemic risks in the energy sector is *ripple effects*. One does not need to look further than the changes in an oil producing state's social fabric following a significant drop in oil price. Not just the energy industry, but also all of society suddenly looks deflated, discouraged, and otherwise unoptimistic about its future. Dmitry Medvedev, while serving as Russia's President, succinctly yet accurately captured the reach of systemic risks arising in conjunction with energy sector activities, noting that their effect extends well beyond 'bankrupting a company' and can 'bring the entire country to its knees' (President, 27 May 2010).

3.4.3. Different risks – divergent approaches

Yet despite the vast range and variety of risks, many scholars fail to recognize such apparent heterogeneity and diversity. Sunstein (2002) (2003), who is regarded as one of the premier legal scholars on the topic of risk and a champion of a 'rational' approach to dealing with risk, ignores this rather important detail. Instead, he focuses on quantitative attributes of risks and downplays the importance of qualitative categories (Kahan, *et al.*, 2005-2006). Sunstein is not alone in this approach. During the course of this study, I spoke to risk scholars and professionals who would only consider a conversation featuring numbers, ratios, and percentages to be within the realm of risk.

Preoccupation with measuring risks is one of many problems related to examining a particular risk outside of the social, economic, and political contexts in which it arises. For example, consider the reoccurring statement that experts rate risks lower than do lay people (Sjoberg, 2002). This statement presumes that all risks must be rated. One would argue, though, that risks should first be identified, including those that are hard or even impossible to measure. The imperative to measure risk, and the corresponding fixation on calculating it, is perplexing. Even economists recognize non-calculable forms of contingency. Keynes acknowledged that in regard to certain matters, there is 'no scientific basis on which to form any calculable probability whatever. We simply do not know.' (Keynes, 1937, p. 114) To paraphrase a fundamental legal principle, *ignorantia juris non excusat* (ignorance of the law is no excuse), ignorance of risk – on the basis of quantification difficulties – does not excuse one from the potential adverse consequences. For the reasons stated above, systemic risks are particularly difficult to grasp quantitatively, but this does not mean that they do not exist.

Yet it is the ability of risk experts to 'convert' uncertainty into what Callon, Lacoumes, and Barthe (2011, p. 19) call 'objective probability' that serves as the main argument for their superiority over lay-people. The shortcomings of this argument were amplified by major technological disasters in the 1980s, including several catastrophic accidents in the energy sector, and raised a great deal of public scepticism over the dominance of experts in the risk realm. For example, in the aftermath of the Chernobyl accident, Beck's *Risk Society: Towards a New Modernity* (1992), which among other things challenges the expert-centric status quo, became a bestseller within six months of its release, a rare achievement for any scholarly book (2014, p. 71).

Two major accidents involving oil and gas activities have ensured that the entire energy sector was at the forefront of the debate over lay-people versus risk experts. The explosion at the Piper Alpha platform off the coast of Scotland claimed 165 lives (Education Scotland, 2016), and the grounding of the Exxon Valdez tanker resulted in 257,000 barrels of North Slope oil being spilled into Prince William Sound off the Alaskan coast (EVOSTC, 2016).

The public concern manifested in protests, which in turn forced governments to make policy changes. Sweden, Italy, Austria, and Switzerland opted to phase out their nuclear programs (Agarwal, 2003, p. 107). The Piper Alpha accident expanded risk analysis from the purely technical realm to management practices, which paved the way for the safety case approach to regulating offshore oil and gas activities. The Oil Pollution Act, enacted in the aftermath of the Exxon Valdez accident, brought in a new liability regime, thereby changing the financial foundation of risk management of offshore hydrocarbon exploration and extraction in the United States (Bosselman *et al.*, 2010, pp. 336-340).

This wave of public outrage brought the two sides of the debate into a dialogue on both the policy and academic levels. Yet when the 'risk crisis' passed, public concern over major technological risks faded. In addition, the high cost of first attempts to handle risk inclusively forced governments to turn back to the 'efficient' experts. These factors all but nullified many attempts to achieve a consensus in the expert versus lay-people debate (Rosa, *et al.*, 2014, pp. 33-42). Although an occasional major accident, such as the Deepwater Horizon blowout or Fukushima-Daichi reactor meltdown, reignites the debate, these isolated 'fires' are yet to provoke the public response akin to that of the *Risk Society* era. As a result, experts appear to have a firm grip on the risk steering wheel.

However, it would be a severe understatement to say that the reconciliatory effort of the 1980s and 1990s had no effect on how scholars and decision-makers approach handling risk. One of the more important realizations was that conventional risk analysis, which consists of risk assessment, risk management, and risk communication, lacks the capacity for taking a broad view of potential risks (*Id.*). Such a view is necessary even for proponents of risk expert supremacy because it creates a forum in which multiple qualitatively divergent data points and causal ties and connections can be examined, evaluated, and possibly linked together. As a result, different groups of risk experts responsible for creating different data points and casual connections lack the ability to reconcile such differences in a transparent, as well as socially and politically acceptable, manner. Hence, in the mid-1990s, a plausible platform for handling systemic risks emerged in the form of integrating analysis and deliberation (*Id.* pp. 139-149).

This hastened the arrival of risk governance, a more refined model for handling risks. It represented a qualitative step away from the expert-centric version of analysis and deliberation model by making non-experts legitimate actors in the process of handling risk. Most importantly, risk governance gave risk analysis much-needed social and political context, thereby extinguishing the artificial division of the world's population into experts and lay-people (IRGC, 2005).

3.5. Risk governance framework

Risk governance is based on the concept of collective decision-making. It draws upon the participation of a combination of both private and state actors, who are acting pursuant to formal and informal rules (Rosa, *et al.*, 2014, pp. 151-159). It coalesces this collective decision-making with traditional risk analysis. As a result, risk analysis is integrated into applicable political, legislative, administrative, and corporate processes. It thus benefits from the additional controls and safeguards built into these processes. Risk governance brings into the process actors who can openly question and sometimes overrule experts on non-scientific, ethical, political, and legal grounds; it thus ostensibly challenges the hegemony of risk experts (Renn, 2006).

The IRGC has been on the forefront of advancing both the theoretical and applied aspects of risk governance. This resulted in a creation of a holistic, flexible, and interdisciplinary risk governance framework. The IRGC Framework assigns equal significance to risk governance's 'conventional' elements (such as technical risk analysis) and its societal context (IRGC, 2005, p. 11). The contextual features are separated into two groups. The first group encompasses the relationships among and structure of the different actors who 'deal' with risks, their perception of such, and the adverse consequences the risks pose (*Id.*). The second group covers the style, culture, capacity, and imperatives of the entities and institutions involved in the risk governance process (*Id.*). The first group is assimilated into the risk process's 'conventional' elements, and the second group serves as a set of basic conditions for every risk-related decision (*Id.*). The symbiosis of the 'factual' and 'socio-cultural' dimensions of risks, as well as inclusive stakeholder participation lie at the foundation of the

IRGC Framework (*Id.* p. 8). Under the IRGC Framework, the risk process comprises five phases: pre-assessment (PA), appraisal (scientific risk assessment and concern assessment), characterization and evaluation (C&E), management, and communication (*Id.* p. 5).

The first phase, risk PA, generally intends to obtain a comprehensive portrait of the risk. The following example from the Classical Antiquity that Walsh (2013) uses in *Scientists as Prophets* perfectly captures PA's essence. When a potential danger was spotted, citizens of ancient Athens would often consult with the Oracle at Delphi. During the public debate, the Athenian citizens would argue whether to ask the Oracle and, if yes, what questions should be taken up to Mount Parnassus. As a result, a real-life challenge would be converted into an epistemological inquiry and taken to an expert.

Correspondingly, PA relies on non-experts to obtain the initial snapshot of risk. This phase chiefly aims to engage the public 'to capture both the variety of issues that stakeholders and society may associate with a certain risk as well as existing indicators, routines, and conventions that may prematurely narrow down, or act as a filter for, what is going to be addressed as risk.' (IRGC, 2005, p. 13) Groups of actors may differ as to what they perceive as a risk. PA includes two sub-phases that are not necessarily sequential: (1) framing risks and defining relevant issues, and (2) inventorying institutional and organizational capacity (*Id.*). The first sub-phase identifies, frames (identify dimensions), and discovers the extent to which the risks at issue can be identified; it also determines the imminence of existing risk indicators. The second sub-phase identifies pertinent institutions, stakeholders, and scientific methods, and then identifies their *de jure* and *de facto* role and place in risk PA. It does not, however, end after a technology or activity in question is assigned to risk appraisal and management. The technology or activity is often "sent back" to PA, thus creating a feedback loop (IRGC, 2008a, p. 8).

The second phase of the risk process under the IRGC Framework – risk appraisal – is divided into a 'scientific risk assessment' and a 'concern assessment'. IRGC provides the following definition of the former: 'a conventional assessment of the risk's factual, physical and measurable characteristics including the probability of it happening.' (IRGC, 2008a, p. 10) The IRGC defines the latter as 'a systematic analysis of the associations and perceived consequences (benefits and risks) that stakeholders, individuals, groups or different cultures may associate with a hazard or cause of hazard.' (*Id.*) The bifurcation of risk appraisal into scientific risk assessment and concern assessment is one of the IRGC's many innovations aimed at socializing risk analysis. However, none are more important for the purposes of this thesis than risk PA and the third phase of IRGC's risk process, C&E. Together with risk PA, risk C&E transforms risk analysis into risk governance.

The main purpose of risk C&E is to 'ensure that the evidence based on scientific facts is combined with a thorough understanding of societal values when making the sometimes controversial judgement.' (*Id.* p. 12) Reverting back to the Athenian analogy, whereas during PA the Athenian citizens would argue whether to approach the Oracle and what questions to ask her, during risk C&E they would debate a threshold question of what to do with her (usually cryptic) message (Walsh, 2013). Often they would reach out to the Oracle again, asking for additional information or clarification of the previous prophecy. Perhaps the most famous example of such a repeated inquiry comes from the events preceding the naval battle of Salamis in 480 BC, as described by Herodotus. The Pythia's first prophecy all but destroyed Athens' hopes to save their city-state:

> Leave your homes and the lofty heights girded by your city.
> The head is unstable, the trunk totters; nothing—
> Not the feet below, nor the hands, nor anything in between—
> Nothing endures; all is doomed. Fire will bring it down,
> Fire and bitter War, hastening in a Syrian chariot (Mistriotis, 2014).

Fortunately, the Athenians asked for another prophecy and received a more encouraging yet equally cryptic reply that included references to a wooden wall and retreating from the advancing Persian forces before confronting them. After deliberation, the Athenians ultimately interpreted the 'wooden wall' as their navy and decided to abandon the city and avoid fighting the overwhelmingly superior Persian forces on land. The rest is history, and history tells us that the Athenians' effort to characterize and evaluate the Pythia's utterance, which they believed was the best evidence they had, was a successful one. Not only did the victory at Salamis halt the Persian advance to Greece, but it also resulted in the city-state's dominance of the Eastern Mediterranean for the next century (*Id.*).

I am yet to see this example given in the context of risk governance; even Walsh (2013) uses it to illustrate the role of science advisers and only tangentially relates the subject to risk. However, at its core the deliberation process in which the ancient Greeks engaged around 480 BC included at least some of the following questions that the IRGC ascribes to risk C&E:

- What are the societal, economic, and environmental benefits and risks?
- Are there impacts on quality of life?
- Are there ethical issues to consider?
- Is there a possibility of substitution? If so, how do the risks compare?
- Does the choice of a particular technology have an impact on the risk? How?
- What are the possible options for risk compensation? For risk reduction?
- What are the societal values and norms for making judgements about tolerability and acceptability?
- Do any stakeholders – government, business, or other – have commitments or other reasons for wanting a particular outcome of the risk governance process? (IRGC, 2008a, p. 12)

A diehard risk 'objectivist' would argue that these questions all but exclude probability and severity and are thus hardly relevant to risk analysis. Yet even assuming this is true, these questions, especially those that are related to tolerability and acceptability of risk are foundational for the overarching purpose of technical risk analysis – making informed decisions about matters that are of value to people.

Finally, regarding the fourth and fifth phases of risk process, risk management and risk communication, the IRGC defines them as follows. Risk management 'involves the design and implementation of the actions and remedies required to avoid, reduce, transfer or retain the risks.' (IRGC, 2008a, p. 13) Risk communication supports risk management by 'creating trust' in it (*Id.* p. 15).

One of the criticisms of the IRGC framework is its excessive rigidity. Klinke and Renn (2012), for example, recognize this shortcoming and offer a more flexible approach. Under their model, there is greater opportunity to adapt to the risk at hand. Their model also allows for more integration with available competences to manage the risks. Klinke and Renn rename and slightly redefine risk governance phases to further emphasise the social aspect of risk. Their framework consists of the following phases, which roughly correspond to the five phases identified by the IRGC: pre-estimation, interdisciplinary estimation, C&E, management, and monitoring and control (2012). Although the phases are positioned in a cyclical sequence, this order is not strict. This means that a risk problem does not have to go through all the phases if at a given stage it is determined that a step back to any of the previous phases is appropriate. In addition, because all the phases are integrated, some accompany the entire process, such as monitoring and control.

Yet the most welcoming innovation of the modifications Klinke and Renn (2012) offer is their emphasis on the capacity for dealing with risk. Such capacity includes institutional means, financial and technical resources, human resources, and social capital (*Id.* p. 58). The latter group is especially important for ensuring appropriate integrative capacity to handle risk (Rosa, *et al.*, 2014, p. 158). However, as I elaborated above, it is difficult to incorporate risk experts representing various disciplines, government officials of different agencies and jurisdictional levels, and local and national public into the decision-making process. 'Difficulties arise when a particular problem framing is *presumed* in appraisal,' note Owens, Rayner, and Bina (2004, p. 1946), 'though it is actually (or potentially) controversial.' (*Id.*) Certainly, in the world of energy, associated risks are not only complex, but also very controversial. For example, the debate over the future of oil and gas development in the Russian Arctic featured 30 Greenpeace activists attempting to board the *Prirazlomnaya* production platform. The protesters were arrested by Russian law enforcement officials and charged with piracy (BBC, 2013). Indeed, finding an energy sector-related activity, technology, or issue that is free from controversy is a difficult task.

Difficult or not, bringing all relevant actors into the decision-making process is beneficial if not necessary. This concept is known in the literature as inclusive risk governance (Renn & Schweizer, 2009, p. 174). Inclusive risk governance further undermines the supremacy of risk experts, as it varies the typology of actors engaged in risk governance. The concept presupposes that relevant stakeholders (and not risk experts) bring to the process topical knowledge and values that are necessary to an equitable, efficient, effective, and socially acceptable decision about risk (*Id.*). According to Engelen *et al.* and Rauschmayer *et al.*, the interaction among stakeholder groups can lead to 'adequate representation of pluralism of perspectives, knowledge, claims, and values' (*Id.*).

Renn and Schweizer note that the more controversial an issue is, and the broader it is in both geographic scale and substantive scope, the harder it is to reach closure (i.e. a joint statement or agreement) (*Id.*) Owens, Rayner, and Bina (2004, p. 1950) acknowledge the same problem with 'deliberative and inclusive processes', stating that they appear 'difficult, expensive, time consuming, and (to the discomfort of decisionmakers) potentially inconclusive.' The scholars go on to imply that context should govern the choice between or the role of the technical and deliberate models (*Id.* p. 1951). Considering the complex and coercive nature of the risks at issue, along with the overarching purpose of risk PA, as well as risk C&E, deliberative and inclusive participation appear to be not only appropriate but necessary (*Id.*).

Deliberative and inclusive participation in matters determining the fate of energy mega projects, akin to those used as examples in this study, pushes the boundaries of risk governance into a qualitatively new realm. As Callon, Lascoumes, and Barthe (2011, p. 11) state, such threshold matters call for the invention of 'new modalities of democracy that can pick up the challenge of the sciences and technologies'. They recognize the importance of legitimacy and responsibility when dealing with risk and call for 'democratization of democracy', which can ultimately lead to 'the people's control of their destiny'.

3.6. Conclusion

As Renn, *et al.* (2001, p. 21) note, in the absence of a universal theory of risk, people will have to utilize 'a patchwork of different concepts'. Although such an approach might alarm academics dedicated to defending their theoretical turf, in a policy setting this can be not only an acceptable course of action, but also a *preferred* one. As I highlighted throughout the chapter, academic clashes over what constitutes risk – epitomized in the policy context as the expert-versus-laypeople debate – revolve around epistemological certainty. However, even a cursory investigation of these debates' circumstances and policy consequences reveals that there is more to it than the question of whose knowledge is superior. The true essence of the debate – *who* is in charge of making decisions about risk – also serves as a pathway into the ontology of risk in the context of collective decision-making – the dynamic between power and knowledge. Given the particular heterogeneity of risks associated with the global energy system, including the presence of systemic risks, the *plurality* of approaches to handling risks is especially important. Risk governance provides a forum for hosting such a plurality while steering the process towards an inclusive and comprehensive solution.

In this chapter, I made the case for a plurality of approaches to handling risk in the energy sector, under the umbrella of the risk governance theory. I began with taking the Renn, et al. (2001) 'patchwork of different concepts' idea and providing a sectorial example of why a single theory of risk perception is unlikely to explain risk governance processes in complex environments. I also strengthened Horlick-Jones and Sime's (2004) argument for a contextual approach to studying risk in the context of decision-making, and contributed to the literature on energy megaprojects risks. I did so by noting the coexistence of simple and systemic risks in the energy sector and identifying the following three factors contributing to the prevalence of systemic risks: energy as a prerequisite good, uneven geographic distribution of primary energy producers and consumers, and high concentration and centralization of modern energy systems. In addition, I contributed to the development of the risk governance theory in general, and the IRGC risk governance framework in particular, by highlighting political certainty (Walsh, 2013) as an essential concept of the risk governance process. Most importantly, I laid out a theoretical foundation for the analysis contained in the following chapters.

4. Rules of Risk Governance: Empirical Framework

4.1. Governance, government, and law

In the previous chapter, I stressed the importance of the contextual side of risk governance. In this chapter, I explore the socio-legal context in which risks posed by oil and gas activities in the Russian Arctic and Subarctic are governed. More specifically, I first establish a theoretical connection among governance, government, and the principal means by which government operates, law. Second, I match the types of decisions about oil and gas development to the risk governance phases during which they occur. Third, I take a broad view of the Russian national legal system and determine which parts are primarily utilized in handling risks arising during oil and gas activities. Although the overarching goal of this chapter is to identify the scope of the applicable policy, legal, and regulatory regime, I also aim at contributing to the literature on governance of oil and gas in Russia, as well as to the risk governance literature.

While delivering a keynote speech titled 'Russia in the Arctic' at the January 2014 Arctic Frontiers conference, Russia's Ambassador at Large and Representative to the Arctic Council Anton Vasiliev paused to comment on the increased use of the term 'governance' in the Arctic policy discourse (Arctic Frontiers, 2014). 'In Russian, "governance" means "*pravlenie*" or "ruling"', remarked the Ambassador, 'and no one rules the Arctic alone.' (Vasiliev, 2014) According to Vasiliev, the term is synonymous with the word 'government', and should thus be deemed redundant. The ambassador attributed the term's rise to academics and the media, pointing out that both camps 'create problems where they do not exist' (*Id.*). The concept of governance embraced by academics and the mass media appeared to be a particularly sore subject for the ambassador; during the break, I overheard him fuming in Russian, '*Da delat im nechego!*' ('They really have nothing better to do!') (*Id.*).

It is safe to say that the Ambassador and I are unlikely to become fast friends, as this thesis is predominately concerned with governance. The same is true for a growing contingent of social science scholars who are contributing to the development of the governance concept. The idea of governance, especially in the context of international relations, is having its moment in the academic world. As Barnett and Duvall (2004, p. 1) observe, it has attained 'near-celebrity status'.

To a certain extent, though, the Russian diplomat is right. Traditionally, the terms governance and government were virtually synonymous. Finer provides the following indicia of government: 'the activity or process of governing or governance', 'a condition of ordered rule', 'those people charged with the duty of governing or "governors"', and 'the manner, method or system by which a particular society is governed' (Rhodes, 1996, p. 652). Yet as of late, the term governance has broadened its reach to include corporate governance, socio-cybernetic systems, and self-organizing networks among other things (*Id.* pp. 652-653).

The term's assent to popularity began in the 1980s among development practitioners and scholars. It reached prominence because of an intellectual revolt against the dominance of policy theories built around a central actor: the government or the market. Both of these theory streams see power structured in a hierarchical manner, leaving little room for 'odd' actors such as inter-governmental and non-governmental organizations, citizen groups and movements that are not formally organized, and quasi-governmental private entities (van Asselt & Renn, 2011, p. 434). Of course, these actors do not emerge out of nowhere. Various political clubs and societies, secret and otherwise, have been involved in deciding collective fates since the dawn of times. The Dutch East India Company, for example, formally a trading enterprise, had its own army and coined its own money (van Elderen, 2016). However, it was not until the 1980s that the social sciences experienced a long-overdue Kuhnian paradigm shift and acknowledged the existence of a more horizontal allocation of power in societies featuring a multitude of actors (Kuhn, 1962).

The pendulum swung too far in the other direction, prompting some scholars argue in favour of removing government from the concept of governance altogether (Rosenau, 1992) (Rosenau, 1995). Although instances of governance without government are possible, one should be careful approaching this postulate outside the context of a particular situation. As I show throughout this thesis, a meaningful discussion of the governance of virtually any type of business organization must include at least a few remarks about government intervention, usually through legal means. Even something as benign as a routine corporate action 'papered' through a boilerplate resolution cannot violate the laws of a nation in which the company in question is doing business. The law of business associations (also known as company law, corporate law, and corporations law) provides broad discretion to corporate officers, directors, and owners, but it does so within certain *limits*. And if such an officer, director, or owner acts beyond these limits, an interested party, including the government in some cases, has the right to employ the judicial and executive machinery to curtail the action.

Government intervention in matters requiring distribution of resources and/or their development all but shatters the myth of 'governance without government' in business organizations belonging to the extractive industry. Even in the case of private ownership of mineral rights, the government plays a significant role in shaping conditions under which the resource is explored, developed, and extracted. For example, in the United States, an oil and gas company that just secured the right to a mineral resource via a private lease is still required to comply with many government-imposed restrictions, such as mandatory pooling and unitization, as well as zoning restrictions (Bosselman *et al.*, 2010, pp. 462 – 465).

The U.S. example is an exception, as in the vast majority of national jurisdictions, including Russia, mineral resources are owned publically (Sidortsov & Sovacool, 2014). In addition to protecting the public interest in environmental and socio-economic matters, the government also acts as a representative of the state's citizenry in mineral resource distribution and allocation. Correspondingly, its role in the governance of oil and gas activities expands drastically. Therefore, an argument can be made that resource management could have served as a more appropriate theoretical framework for this study. Although this argument is not without merit, a governance framework serving as both approach and observation is more suitable for this study due to the following two reasons. First, the modern oil and gas business, especially in the global energy system context, resembles a complex and closely intertwined web of government and non-government actors that act pursuant to norms, some of which are adopted and enforced by non-government bodies. Second, selecting a more vertical and hierarchical resource management framework would have limited the scope of my inquiry into the concept of social power. Third, a resource management approach would have shifted the focus of my analysis from risk PA and C&E that are essential for determining the policy, legal and regulatory setting of risk governance of oil and gas activities in Russia.

Stoker (1998, p. 17) captures the essence of governance as a concept that is 'ultimately concerned with creating the conditions for ordered rule and collective action'. In the context of resource development, the government assumes the leading role in this process and does so via law. The notion of a 'government of laws and not men' serves as the *de jure* foundation of a modern state. This is not to say that *de facto* actors, including government officials, act at times as if they were above the law. However, even in such instances, the law remains the standard by which their conduct is evaluated. Therefore, law should serve as a starting point for a conversation about the government's role in the governance of oil and gas activities.

4.2. Identifying the bounds of risk regimes - applicable policy, legal, and regulatory frameworks

4.2.1. Scoping and scaling risk governance rules

Thus far, I have been building a case for why law should serve as a starting point for investigating power relations in risk governance. In this section, I elaborate on the scope of my further investigation by identifying the most relevant aspects of the legal and regulatory regime that 'host' various elements and phases of risk governance.

As I mentioned in the introduction, the literature regarding the socio-legal aspect of risk governance is scarce but rapidly developing. Perhaps the most noteworthy example of scholarship that aims to place risk governance in the context of a national policy, legal, and regulatory regime is the aforementioned Aven and Renn's (2012) study of petroleum operations in Norway. The authors use the IRGC framework to examine issues related to oil and gas activities in the Norwegian sector of the Barents Sea. They term the endeavour a 'thought experiment' intended to determine how the 'risk governance process of the year-around petroleum activities in the Barents Sea' would be different if 'the Norwegian government had followed the guidelines of the IRGC' (Aven & Renn, 2012, p. 1573). Correspondingly, Aven and Renn utilize all five risk governance phases to assess the steps taken by the Norwegian government to handle risks arising out of opening new environmentally sensitive areas to oil and gas development. Aven and Renn's effort is indeed commendable, as they are among the first scholars attempting to ground risk governance theory in the context of a politically controversial, empirically comprehensive, and disciplinarily multi-faceted field.

However, their work is not without shortcomings. One of the most glaring gaps of Aven and Renn's analysis is a very narrow view of risk governance rules. While describing the Norwegian government's organizational and institutional capacity to deal with the risks at hand during the PA stage, Aven and Renn note the following:

> An important component of the preassessment is the selection of conventions and procedural rules needed for the appraisal of the risk (i.e., for assessing the risk and the concerns related to it). Of particular importance are conventions that govern the risk assessment process. In this case the risk assessments were carried out according to fairly standard procedures in the engineering risk analysis community (Aven & Renn, 2012, pp. 1566-1567).

Aven and Renn mention rules for risk appraisal only. Although the risk appraisal phase under the IRGC framework includes concern assessment, which is responsible for putting probabilities into social context, the rules for handling risk in other largely contextual phases are equally if not more important. Risk assessment conventions are instrumental for getting the epistemology right, and risk management conventions are important for ensuring that the scientific data and findings are applied in an effective and efficient manner.

Because assessment of organizational and institutional capacity is one of the critical elements of PA, the rules governing it set forth the entire policy, legal, and regulatory structure in which the entire risk governance process occurs (IRGC, 2008a). In this sense, they act as meta-rules for risk governance. These rules also guide the decision-making process in *ex-ante* threshold matters and help determine whether a matter even gets to the scientific risk assessment stage. In the context of this study, such threshold matters include, among other things, opening an area for exploration, granting the right to develop a hydrocarbon deposit, negotiating terms of a licence, and extraction. Rules governing categorisation and evaluation (C&E) are as important, if not more so, for decision-making in such threshold matters. Risk C&E is the phase of risk governance when actors make an *informed* decision based on the scientific risk and concern assessment. This is when the risk-benefit analysis is performed, risk's tolerability is determined, and risk is deemed acceptable or not (*Id.*). In the context of oil and gas policy in the Russian Arctic and Subarctic, this is the last opportunity to stop before making a multi-billion dollar and multi-year commitment to a project, activity, or technology.

I do not suggest that risk appraisal and management rules are unimportant. After all, application of an inadequate standard may lead to a major accident. Rather my main point is that the rules governing PA and C&E serve as meta-rules for technical standards and conventions. Thus, no matter how adequate a standard or convention is, its adequacy will likely not matter if the standard or convention cannot be applied under the 'meta-rules' or if a decision is made despite the findings obtained under this standard or convention.

Recognizing that risk governance rules vary based on scope and scale is essential for development of the risk governance concept. Equally important is recognizing that not all risks are regulated in a public policy domain. In fact, risk experts employed by the oil and gas industry would likely maintain that most if not all handling of risks occurs in a private realm (Senior Manager, HSE Russia, 2016). Such a view is understandable – the vast majority of integrated and service oil and gas companies assess and manage risk pursuant to ISO, API, and NORSOK standards (Barents 2020, 2012). Hood, Rothstein, and Baldwin (2003, p. 9) observe that 'many regulatory regimes involve some mixture of public and private and semi-public organizations.' In their analysis of nine risk regulation regimes, Hood, Rothstein, and Baldwin (2003, p. 11) specify carefully 'what level of "regime" is being analysed, and the kind of risk the regime addresses.'

As I demonstrate in this thesis, most if not all significant decisions regarding up-, mid- and downstream oil and gas projects are either made in or approved by the Kremlin. This is not to say that federal executive agencies not located at Red Square, regional and municipal governments, and other branches of the Russian government play absolutely no role in risk governance of oil and gas activities in Russia. They do, but their role is secondary and auxiliary. Correspondingly, the scale or level of the policy, legal, and regulatory regime examined below is predominately federal.

4.2.2. Risk governance in the Russian policy, legal, and regulatory regime

4.2.2.1. Prescription for risk

In September 2013, I travelled to Oslo to give a lecture on HSE regulations at a closed 3-day industry event. The event brought mid-level engineers, managers, logistics specialists, and analysts who worked for two Norwegian companies involved in the oil and gas sector. Its main purpose was to increase the competency of up-and-coming decision-makers with the expectation that they would be in charge of managing various sides of their companies' operations in the Circumpolar Arctic (Oslo Event, 2013).

My lecture covered three HSE regimes as they relate to offshore oil and gas operations in the Arctic: Greenland (Denmark), Norway, and Russia. While planning the lecture, I asked the organizers which countries were of the most interest to the participants. The organizers unequivocally indicated that they and the participants would very much like me to focus on Russia. During the Q&A session that followed my lecture, every single question concerned Russia. The participants' inquires ranged from updates on the most recent laws, rules, and regulations to issues concerning application of particular HSE provisions.

In the evenings of days one and two, the participants were asked to work in teams that targeted a specific offshore region in the United States (Alaska), Norway (Barents Sea), Greenland/Denmark (Baffin Bay), and Russia (Sakhalin Island).[40] The specific location that each team focused on indicated that the sponsoring companies did not want the participants to concentrate on hypothetical locations. Rather, the organizers and their corporate bosses had specific oil and gas projects in mind (Oslo Event, 2013).

Lecturers invited to the event, including me, were asked to stop by each group's 'war room' and answer the participants' questions. Although I was not made privy to the exact task that each team had, it became apparent that the teams were asked to develop multi-step business plans or strategies for potential oil and gas projects in the target areas. I visited the Teams Alaska, Barents, and Greenland, and received only a few clarifying questions. In contrast,

[40] Geographically, Sakhalin Island is not located within the Arctic Circle. However, due to its severe climate conditions, the northern part of the island and the surrounding waters are deemed to have Arctic conditions.

my stop in the room occupied by Team Russia took over an hour. Similar to the Q&A session, the team members were interested in virtually every aspect of the licensing and permitting process, as well as liability for non-compliance with Russian law and operating requirements. Participants' inquiries stemmed from concern over operating in what they saw as complete regulatory chaos and lawlessness. In particular, many Team Russia members pondered how risk-centric procedures and practices of their Norwegian companies could be successfully implemented and complied within such an ambiguous and convoluted regulatory environment (*Id.*).

The perception of the Russian legal and regulatory regime as a crossbreed between the Wild West and Al Capone's Chicago is very common among energy professionals. Virtually every Norwegian, Swede, or Finn with whom I have spoken during the course of my fieldwork has seen corruption, intentional ambiguity, and unnecessary complexity as common features of the Russian legal and regulatory system. Risk regulation was a particularly sore subject for Norwegians who have worked with Russian companies and governmental officials (Senior Manager, Consulting Company, 2013). The collective opinion, comprising many comments and remarks (some sharply worded), is that there is very little risk regulation in the Russian oil and gas sector (Norwegian Oil and Gas Trade Association, 2013) (Russia Director, Consulting Company, 2014).

Based on my analysis, this collective opinion is only partially true. As I will show throughout the remaining chapters, there are significant gaps in regulation of risk in connection with oil and gas activities in Russia, especially in comparison to the risk-based Norwegian regulatory system (Lindøe, Baram, & Paterson, 2012). Yet, according to a Russian-born and trained upper level manager at a Norwegian research and consulting company (the 'HSE Manager'), the main reason behind the collective opinion lies in the question of *who* regulates risk (Senior Manager, HSE Russia, 2014). Norway almost exclusively relies on the performance-based model, which places ultimate control over handling risk on the operator (Lindøe, Baram, & Paterson, 2012). With nearly complete control, however, comes full responsibility. For example, in the case of an accident, an operator cannot use a faulty standard or technical regulation as defence.

In contrast, Russia follows the prescriptive model of regulation. Unlike the performance-based model, prescriptive standards, rules, and regulations tell the operator exactly what to do – for example, what steps to follow, what thickness of steel to have on a drilling rig, and what kind of education a drilling foreman should have (Order N105, 2014). The so-called *predel'no dopustimye konsetratsii* (maximum allowed concentrations) or PDK play a particularly important role – as the HSE Manager put it, 'risk is included in PDK' (Senior Manager, HSE Russia, 2014). If the operator checks all the boxes prescribed by the government, it is generally cleared of liability. A senior manager at a supermajor who started his career in the oil and gas sector as a sailor on a service ship explained the difference to me in the following simple yet illustrative manner:

> Under the performance-based model, you are required to get a man out of the water in 4 minutes. So you figure out how to do it – and you'd better get it right, otherwise you will not be allowed to operate anymore. Under the prescriptive model, you need to have a required number of lifeboats, of the required specifications, the required number of men trained to operate this type of lifeboat, and you need to follow the required steps to get a man out of the water. Ultimately, it does not matter if you actually get the man of the water (Senior Manager, IOC, 2013).

The prescriptive model puts government as the ultimate authority on risk matters. Yet the prevalence of the prescriptive approach in risk regulation does not necessarily mean a top-down approach where regional regulators and municipal authorities have no say. For example, the United States has relied almost exclusively on this approach to regulate offshore oil and gas activities until the introduction of the Safety Environmental Management Systems (SEMS) rule in the aftermath of the Deepwater Horizon accident (Baker & Sidortsov, 2014). However, under the Coastal Zone Management Act, the federal government is required to solicit input from the state and local governments (*Id.*). Moreover, during the exploration and development and production stages of the Outer Continental Shelf Lands Act process, a consultation takes the form of a binding consistency review, meaning that an impacted coastal state can block exploration or production (*Id.*).

The prevalence of the performance-based approach does not translate into a situation where individual companies govern the risk realm without any public oversight. In Norway, for example, such oversight is premised on the so-called tripartite model featuring collaboration among the industry, unions, and the Norwegian government (Bang & Thuestad, 2012). In addition, the general public has the ability to influence decisions over opening new areas to petroleum activities (Aven & Renn, 2012).

Therefore, just as one should not judge a book by its cover, one should not draw far-reaching conclusions about a national risk legal and regulatory regime based on the prevalent regulatory model. For this reason, in the remainder of this chapter and in Chapters 5 and 7, I provide a broad overview of the Russian policy, legal, and regulatory framework with specific notations and references regarding regulation of risk. Because of this thesis's focus on the Arctic, I highlight the legal and regulatory areas relevant to the Russian leadership's ambitions in the region: expansion of the resource base via offshore exploration and extraction and expansion to new markets via pipelines and liquefied natural gas (LNG) projects.

4.2.2.2. Applicable policy, legal, and regulatory framework

Because of this study's focus on the *ex-ante* processes leading up to threshold decisions, I consider the operations component of the legal and regulatory decision-making process tangentially. This process includes enactment and implementation of standards and technical regulations. I provide a general overview of standards and technical regulations utilized for appraising and managing risks while exploring the overall institutional and organizational capacity of the Russian legal and regulatory framework to handle risks.

4.2.2.2.1. Programmatic policy statements

It would only be appropriate to start the discussion of the policy, legal, and regulatory framework governing risk in relation to Arctic oil and gas development in the Russian Federation where it is captured in the broadest terms. The Russian leadership appears to have a strong interest in having a programmatic statement on virtually every area of public policy regardless of whether it actually plans to act in furtherance of the enacted policy statement. This approach creates the appearance of control and order, although in reality administration of public affairs in Russia hardly resembles a well-oiled machine.

'The Energy Strategy of the Russian Federation for the Period Ending in 2030' is probably the most important document among energy policy-related programmatic statements from the Russian Federation (Directive N1715-r, 2009). The document identifies Arctic oil and gas development, including development in the continental shelf, as a key component of Russia's economic future, or 'new economic infrastructure' (*Id.* art. 12). The Arctic continental shelf is mentioned some 26 times throughout the strategy (*Id.*). Other programmatic and policy documents that underscore the importance of the Arctic and Subarctic regions to Russia's economic development include: 'The Program for the Development of the Unified System of Extraction, Transportation of Gas and Gas Supply for Potential Gas Exports to Chinese Markets and Markets of Other Counties of the Asia-Pacific Region' (the 'Far East Gas Program') (Order N340, 2007) and 'On the Main Measures of Strengthening Russia's Positions in the Global Energy Sector for the Period Ending on January 1, 2016' (Directive N443-r, 2012).

Interestingly, although Russian policy makers have put a great deal of importance on the continental shelf, they have never created a stand-alone program or strategy for the Artic continental shelf. Since 2006, the Ministry of Natural Resources and the Environment has written several drafts of the continental shelf strategy. However, the Government of the Russian Federation (the 'RF Government') did not approve 'The Strategy of Exploration and Exploitation of Oil and Gas Potential of the Russian Continental Shelf for the Period Ending in 2020' (Mazkov, 2008). Instead, it incorporated various continental shelf development provisions (including the Arctic continental shelf) into various Arctic- or otherwise energy-related programmatic statements.

In reality, doctrines, strategies, and programs specifically covering the energy sector often overlap with doctrines, strategies, and programs that apply to a specific region that has an energy component. There are two main documents that note the importance of Arctic hydrocarbon resources to the Russian Federation: 'The Foundations of the National Policy of the Russian Federation in the Arctic for the Period Ending in 2020 and Beyond' (Order N1969-pr, 2008) and the more specific 'Strategy of the Arctic Zone Development and Ensuring National Security for the Period Ending in 2020' (Strategy of the Arctic Zone Development, 2013). Both identify the Arctic and the Arctic offshore in particular, as one of the main areas for large-scale economic development and for replenishing Russia's hydrocarbon reserves.

Related to the Arctic-specific programmatic statements are those that target regions partially located in the Arctic. These include 'The Strategy of Socio-Economic Development of the Far East and Baikal Regions for the Period ending in 2025' (the 'Far East Strategy') (Directive N2094-r, 2009) and 'The Strategy of Socio-Economic Development of Siberia for the Period ending in 2020' (the 'Siberia Strategy') (Directive N1120-r, 2010). Remarkably, the Far East Strategy lists 'transportation support of the Arctic oil and gas fields, including those located on the continental shelf, and transport of oil and gas by sea' as the top objective of the Northern Sea Route development (Directive N2094-r, 2009). The Siberia Strategy lists 'intensive mineral exploration and development of new deposits' as the top two priorities for the Arctic region, followed by environmental protection and support of indigenous peoples (Directive N1120-r, 2010). Interestingly, for the Northern (Subarctic) part of the region, the top priorities include: successful energy project development; construction of the Northern-Russian transport corridor; extraction, including that of oil and gas; construction of pipelines leading to oil and gas deposits; and the construction and retrofitting of petrochemical plants (*Id.*).

Many federal doctrines, strategies, and programs that do not have a specific geographic or sectorial reach have Arctic-specific provisions. Among those are 'Regional Policy and Federal Relations' aimed at supporting indigenous peoples, including those residing in the Arctic and Subarctic (Decree N307, 2014); 'Fisheries Sector Development', which aims to, among other things, grant priority access to fisheries to indigenous communities of the Russian North (Decree N314, 2014); and 'Development of the Transportation System', which specifically targets areas of new oil and gas development (Directive N2584-r, 2014). However, the programs entitled 'Regeneration and Use of Natural Resource' (Decree N322, 2014) and 'Energy Efficiency and Energy Sector Development' (Decree N366, 2014) are of particular relevance to the topic of this study. The former creates an integrated and coordinated prospecting and exploration campaign that views the Arctic and Subarctic as nothing but a gargantuan resource base. A significant part of the latter, despite its environmental-sounding title, aims to increase the recovery factor of the existing oil and gas projects and develop new technologically and geologically challenging projects.

This is not say that programmatic statements completely ignore risks associated with oil and gas development in the Arctic. Developed as part of a United Nations Environmental Programme project, 'Strategic Action Program for Protecting the Environment of the Arctic Zone of the Russian Federation' focuses on the environmental dangers of hydrocarbon development in the Arctic, including increased pollution in the region, and warns about the environmental and socio-economic impacts (including climate change) of oil and gas exploration and extraction (Strategic Action Program, 2009).

The same is true for a more encompassing federal program entitled (Decree N326, 2014), which specifically mentions potential negative environmental impacts of economic development in the Russian Arctic. The program lists water pollution, adverse effects on flora and fauna inhabiting the sea floor, an extinction of species endemic to the Arctic, and other dangers associated with oil and gas activities in the region. It singles out offshore oil and gas activities as posing the greatest threat to the Arctic environment.

The Russian Federation's risk regulation regime includes a programmatic policy statement directed specifically at dealing with risk. Entitled 'Risk Reduction and Mitigation of Consequences Arising out of Natural and Technogenic Accidents in the Russian Federation until 2015', it has the status of a 'federal objective-oriented program' (*federalnaya tselevaya programma*) (Decree N555, 2011).[41] This means that it has dedicated funding for certain measures set forth in the program. When the program was first introduced in 2011, its budget totalled over $1 billion for four years, a substantial number for the Russian Federation. The program has a significant Arctic component in which oil and gas activities were highlighted as particularly hazardous (*Id.*).

In addition to programs intended to curb risks, including risks arising from oil and gas activities in the Arctic and Subarctic, virtually all the aforementioned programs mention such risks. However, the amount of attention given the discussion of the benefits of oil and gas

[41] Despite having the end date (2015) in its title, this programmatic policy statement is regarded active.

development outweighs by a sizable margin the amount of attention given to risk. For example, the Far East Gas Program contains a risk mitigation plan to ensure its seamless implementation. Interestingly, the program touts the environmental benefits of natural gas, calling it 'ecologically clean fuel' throughout the document (Order N340, 2007). It would be remiss not to mention that the document actually contains several provisions intended to balance the dominance of the projected benefits of natural gas development in the Far East. In particular, the document encourages decision-makers to consider all development options, including *nulevoi variant* (zero option), which means no activity at all (Order N340, 2007, § 19).

Not all programmatic statements are alike. They differ based on the issuing authority, level of specificity, and perhaps most importantly, dedicated funding. As noted above, a type of program with dedicated funding is referred to as an 'objective-oriented program' (Decree N594, 1995). According to the 'Order of Development and Implementation of Federal Objective-Oriented Programs in which the Russian Federation Participates', such federal programs include 'an objective-, resource- and goal-coordinated complex of research, experimental, industrial, socio-economic, organizational, and other measures, providing an effective solution of systemic problems in the area of state, economic, environmental, social, and cultural development of the Russian Federation, as well as innovative development of the economy.' (*Id.* § 1) In addition to the federal level, such programs are also adopted at the agency level (Decree N239, 2005). The adoption of both federal- and agency-level (*vedomstvennye)* programs involves a multi-step process, featuring concept development and inter-agency consultation (Decree N239, 2005) (Decree N594, 1995, § 1). Aside from inter-agency consultation, participation of non-government entities and actors is limited to solicitation of input from the Russian Academy of Sciences (for federal-level programs only) (Decree N594, 1995, § 1).

In 2014, the Russian Parliament enacted a law entitled 'On Strategic Planning in the Russian Federation' ('On Strategic Planning') (Law N172-FZ, 2014). The chief purpose of this law is to bring more consistency to the country's policy-making. Statute makes risk one of the key concepts of strategic planning. For example, under Article 3, the primary goal of forecasting, an important term used throughout the law, is creation of knowledge about risks to the nation's socio-economic development. In addition, On Strategic Planning includes risk analysis as a key element of 'The Strategy of the Russian Federation's Socio-Economic Development' (Article 16) and 'The Strategic Forecast of the Russian Federation' (Article 23), two main strategic planning documents (*Id.*).

4.2.2.2.2. Statutes

The hierarchy of sources of law within the Russian legal system is robust. Atop sits the Russian Federation's Constitution, with constitutional statutes (*konstitutsionnye zakony*) and statutes (*zakony*) descending down the legal authority ladder (Constitution, 1993, art. 15). Beneath these are the so-called sub-statutes (*podzakonnye akty*). The Constitution, constitutional statutes, and statutes are enacted and amended by the legislature or, far less frequently, the people via a referendum. Conversely, sub-statutes are promulgated by the executive branch of the Russian government, typically under an enabling statute (though not always).[42] Thus, the 'rules and regulations' found in western legal regimes are the closest functional equivalent of Russian sub-statutes.

Eleven articles in the Russian Constitution are directly relevant to the environmental, regulatory, and jurisdictional aspects of exploration and extraction of oil and gas in the Arctic region. Perhaps the most important provisions are Articles 15, 67, 71, 72, and 76 concerning regulatory and jurisdictional issues. In light of the recent increase of federal control over mineral resources, these are also among the most controversial provisions. Article 72 lists matters within the joint jurisdiction of the Russian Federation and its territorial entities (*subjekty federatsii*)[43]; the list includes 'issues of the possession, utilisation and management of land and of subsurface, water and other natural resources' and 'protection of the environment and provisions for ecological safety'. This could be interpreted to mean that both federal and regional governments have an arrangement in which to create a balance between federal and regional interests. However, regarding all matters set forth in Articles 71 and 72, the pre-emption doctrine found in Article 76 states that '[l]aws and other

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[42] Because this subsection is devoted to legislatively enacted sources of law I will elaborate on the applicable sub-statutes in the following section.
[43] Because Russia is an asymmetrical federation comprised of several types of territorial units with different legal statuses and names, I will refer collectively to them as 'regions'.

normative legal acts of the constituent entities of the Russian Federation shall not conflict with federal laws', and that 'the federal law shall prevail' in the event of a conflict.

The strengthening of the vertical power policy by Vladimir Putin left regions with little authority over a great deal of matters, including distribution of all significant onshore and all offshore oil and gas deposits, as well as siting and permitting of large energy infrastructure (Nysten-Haarla & Kotilainen, 2009) (Law N199-FZ, 2004). As I elaborate below, due to changes in the federal legislation, the role of regional governments in the decision-making process regarding oil and gas development was reduced to competing for federal subsidies, usually in the form of direct spending.

Russia's territorial jurisdiction over the Arctic spans eleven time zones – the length of the entire country that consists of 84 constituent entities or subjects of federation (*subjekty federatsii*). An expectation that an area of this size can be governed effectively without proactive and meaningful participation from the regions is naïve. Yet not all of the 84 federation subjects are equally powerless *vis-à-vis* the federal government. Under Article 65 of the Constitution, the Russian Federation consists of the following six types of territorial entities: Republics (*Respubliki*), Provinces (*Kraya*), Regions (*Oblasti*), Autonomous Region (*Avtonomnaya Oblast*), Autonomous Districts (*Avtonomny Okrug)*, and Cities of Federal Significance (*Goroda Federalnogo Znachenya*). Territorial entity's type does not impact its legal status. However, in reality, the two Cities of Federal Significance, Moscow and St. Petersburg, wield more political and economic power than any other territorial unit of the Russian Federation does. Moscow's status as a country within a country is due to its highly centralized revenue collection and distribution system, as well as it serving as the seat of nearly all key federal agencies and officials. Thus, Moscow resembles a gigantic administrative filter that accumulates the vast majority of Russia's revenue intake. St. Petersburg's economic and political prowess is not at the same level as Moscow's, but because of its size and ties with Vladimir Putin, the 'City on the Neva' remains a significant bastion of regional power in Russia.

A Republic typically encompasses a territory that is influenced by a strong non-Russian ethnic group. Thus, historically, the Kremlin's relationship with Republics requires more nuance and effort than with the rest of the territorial entities. At times, this leads to compromises regarding the extent to which the Republic's statutes and regulations are pre-empted by federal law. I will consider one such rare example in Chapter 5 in relation to the Power of Siberia pipeline.

When it comes to legislation governing mineral resource extraction and environmental protection, Russia seems to be in a state of perpetual reform. For example, the main statute governing oil and gas exploration and extraction, 'On Subsoil Resources', has been amended 50 times since the Russian President signed it into law in 1992 (Law N2395-I, 1992). Most relevant to this study's topic, the environmental statute 'On Environmental Review' has been amended 34 time since its enactment in 1995 (Law N175-FZ, 1995). Yet the quantity of amendments and revisions has not necessarily translated into quality. Many statutory provisions contradict one another, and the constant revising of the statutory framework has largely exacerbated the problem rather than resolved it.

Because Russia's statutory framework governs a complex set of jurisdictional, environmental, health and safety, and licensing issues, the statutes relevant to oil and gas development are plentiful. As mentioned above, 'On Subsoil Resources' dominates the statutory framework. However, 'On the Continental Shelf' has pre-emptive authority over it by virtue of being a more specific statute (Law N187-FZ, 1995). The most pertinent statutes covering jurisdictional matters include: 'On Inland Sea Waters, Territorial Sea and Adjacent Zones of the Russian Federation' ('On Inland Sea Waters') (Law N155-FZ, 1998), and 'On the Exclusive Economic Zone of the Russian Federation' (Law N191-FZ, 1998). The statutes governing environmental matters, including stakeholder participation in decisions involving risk to natural and human environment, are 'On Environmental Review', 'On Environmental Protection' (Law N7-FZ, 2002), and 'On the Natural World' (Law N52-FZ, 1995). Yet certain energy infrastructure, trunk pipelines for example, has been exempt from the environmental assessment process under 'On Environmental Review'. Instead, the City Building Code of the Russian Federation governs risk associated with the construction and operation of such infrastructure (Law N232-FZ, 2006). As the title suggests, 'On Guarantees of the Rights of Numerically Small Indigenous Peoples of the Russian Federation' sets forth the rights of indigenous communities in regard to extractive projects (Law N82-FZ, 1999).

‘On Production Sharing Agreements’ offers an alternative to the currently prevalent method of issuing oil and gas licences (Law N225-FZ, 1995). ‘On Technical Regulating’ establishes, *inter alia*, a framework for enactment of operational, health, safety, and environmental, search and rescue, and other standards for oil and gas operations (Law N184-FZ, 2002).

While I elaborate on these statutes’ most relevant aspects in the ensuing sections, it is important to note here that two common features of Russia’s law-making process have hindered these statutes, along with the country’s entire legal system. First, as revealed through a thorough analysis of amended legislation, the Russian parliament often makes statutory changes to fit the needs of a specific group, and sometimes a few individual actors. This practice is especially prevalent in relation to statutes governing access to mineral resources and their transportation and export, as exemplified by the 2013 amendments to the LNG export regime. Under the amending legislation, Rosneft’ and Novatek became the only two additional (to Gazprom) companies qualified to hold LNG export licences. They were the only ones to have an ownership structure and operational and licensing history that matched the new set of requirements, leaving little doubt that the legislation was tailored for them.[44]

Second, the checks and balances system within the Russian legislative process all but guarantees that any legislative initiative with Kremlin backing will become law. The LNG export amendments passed both the upper (Federation Council) and lower (State Duma) houses of parliament in 21 days without any substantive changes (State Duma, 2013) (Law N318-FZ, 2013).

4.2.2.2.3. Regulations

As I noted above, Russia employs a prescriptive regulatory model for governing risk in oil and gas activities. Given the high complexity of modern-day oil and gas technology and Russia’s ambitions in what is one of the most challenging regions of the world, regulators must be equipped with an extensive and sturdy structure of rules and standards. As I elaborate in Chapter 7, the Russian regulatory framework has many gaps and remains a work in

[44] I elaborate on the amendments to the LNG export regime in Chapter 7.

progress. However, those significant gaps do not translate into a quantitative lack of rules, regulations, instructions, and orders. For example, there are over 800 legal and regulatory documents that concern matters of offshore mineral resource use and environmental protection (Baker, *et al.*, 2011, p. 43).

Some parts of the regulatory framework are detached from the overarching statutory framework. In fact, some sub-statutes are not promulgated under an enabling statute at all and hold the utmost authority on the issue they govern. An example of this would be the expired 2003 Oil and Gas Industry Safety Rules (Decree N56, 2003). The implementing agency had to reaffirm the rules in order for them to remain mandatory because 'On Technical Regulating' (Law N184-FZ, 2002) had replaced the enabling statute (Decree N56, 2003). Therefore, the sub-statutory act remained the main authority on offshore oil and gas safety for over ten years despite the existence of a legislative act that enabled the creation new sub-statutory acts on this issue. I will expand more on the Russian government's failure to create a comprehensive framework of technical rules and standards for risk appraisal in Chapter 7.

Various environmental standards exemplify how sub-statutes interact with enabling statutes. For example, in Articles 1 and 19-29, 'On Environmental Protection' sets forth the general legal framework for environmental standards (Law N187-FZ, 1995). Article 1 establishes general concepts of environmental protection, as well as the relevant categories of standards and regulations. Article 21 describes the environmental quality standards that establish maximum allowable concentrations, the aforementioned PDK. Article 22 discusses procedural standards that set forth environmental impact standards, and Article 23 covers air and water emission/discharge standards. The statute does not actually set the standards. Rather, it defers to the administrative agencies to develop individual, specific measurable requirements (Baker, *et al.*, 2011, p. 49).

Sub-statutes fall into various categories with various degrees of legal authority. They range from Presidential Orders (*ukazy*) to letters (*pisma*) and instructions (*instruktsii*) of an administrative agency's structural unit. To determine a document's pre-emptive authority, one should examine the issuing agency's place in the Russian government hierarchy (Order

N636, 2012). Documents issued by government special agencies and research institutions, as well as industry and corporate standards, supplement the decrees, orders, letters, and instructions that official government ministries and agencies enact. For example, it is not uncommon for an agency to utilize the research arm of a corporate entity, such as Gazprom's Natural Gases and Gas Technologies Research Institute, to develop mandatory technical regulations (Order N4347, 2009).

In fact, it appears that various industry standards, some dating back to Soviet times, constitute the majority of technical risk analysis rules upon which companies rely in their day-to-day operations. Although they are not banned from doing so under 'On Technical Regulating', companies still need to comply with the multitude of other applicable sub-statutes. For example, the Federal Environmental, Technological and Nuclear Oversight Service (*Federalnaya Sluzhba po Ekologicheskomu, Tekhnologicheskomu i Atomnomy Nadzoru*), known as *Rostekhnadzor*, recently promulgated two regulations aimed at setting parameters for risk analysis – 'Safety Manual: Risk Assessment Methodology for Accidents in Technological Pipelines Related to Transportation of Flammable Gases' (Order N365, 2015) and 'Safety Manual: Risk Assessment Methodology for Accidents on Hazardous Offshore Oil and Gas Installations' (Order N364, 2015). Thus, if an industry standard contradicts such a manual, the provisions of the manual apply.

4.2.2.3. The risk regulation process at a glance

As I have shown above, the risk governance process starts well before a scientific inquiry is sent to a 'risk lab'. In the case of Russian oil and gas projects, it often starts with enactment of a programmatic policy statement, statute, or regulation, which paves the way for a more specific action. Such an action may include a grant of a licence to prospect, explore, or extract a hydrocarbon deposit. It may also include a decision to proceed with a project involving construction of a transportation system, such as the aforementioned Power of Siberia or Yamal LNG pipelines. Because the federal government has jurisdiction over all significant (e.g. 70 Mtoe and over) oil and gas deposits, and because all export and other hydrocarbon transportation involve broader policy considerations, these decisions are usually made at the level of the President or RF Government.

This puts the President of the Russian Federation at the front and centre of the decision-making process. A cursory review of Chapter 4 of the Russian Constitution reveals that the President enjoys significant if not overwhelming capacity to exercise power in virtually every area. This capacity extends to a day-to-day operational exercise of executive power. Pursuant to the Presidential Order No. 636 dated as of 21 May 2012, the President directly oversees and controls a number of key ministries and agencies.

In this sense, the President co-leads the RF Government with the Prime Minister. The RF Government coordinates and directs all the federal agencies, including, to some extent, those under the control of the President. The RF Government system includes Ministries or *Ministerstva*, Agencies or *Agenstva*, and Services or *Sluzhby*. An Agency and Service can either be part of a Ministry or an independent, Ministry-like body, whereas Ministries are always independent bodies (Order N636, 2012).[45] As Figure 18 shows, many administrative agencies (underlined in red or blue) take part in risk governance of oil and gas activities in the Russian Federation. For example, the following seven administrative agencies are involved in a combined licence issuance process: the Federal Agency for Mineral Resources (*Rosnedra*), the Ministry of Defense, the Ministry of Economic Development, the Federal Security Service, the Federal Fisheries Agency, and the Ministry of Energy (Decree N783, 2009). Yet, as I demonstrate in the remainder of this thesis, the main administrative agencies involved in risk governance of oil and gas activities include: the Ministry of Energy (*Minesterstvo Energetiki*); the Federal Service for Ecological, Technological, and Nuclear Oversight (*Rostechnadzor*); the Federal Service for Technical Regulating and Metrology (*Rosstandart*); and the Ministry of Natural Resources and the Environment (*Minprirody)*, as well as two of its subordinate agencies, the aforementioned *Rosnedra* and the Federal Service for Oversight of Natural Resources (*Rosprirodnadzor*). Interestingly, *Minprirody* is tasked with matters regarding both environmental protection and distribution of mineral resources. Also interesting is the fact that the head of the environmental ministry, Minister Sergey Donskoy, is a graduate of the Moscow Academy of Oil and Gas named after I.M. Gubkin (Minprirody, 2016).

[45] For the sake of consistency, I will use the term “administrative agencies” to refer to the Russian administrative government entities as a group.

Figure 18: The structure of the Russian federal government (Order N636, 2012)

President of the Russian Federation	**Government of the Russian Federation**
Ministry of Internal Affairs **<u>Ministry of Civil Defence, Emergencies and Disaster Management</u>** **Ministry of Foreign Affairs** • Federal Agency of Commonwealth of Independent States, Expatriate and International Humanitarian Affairs **<u>Ministry of Defense</u>** • Federal Service for Military and Technical Cooperation • Federal Service for Technical and Export Control • Federal Service for Special Construction Projects **Ministry of Justice** • Federal Service for Penitentiary Affairs • Federal Marshals Service • Federal Courier Service **Federal External Intelligence Service** **<u>Federal Security Service</u>** **Federal National Guard Service** **Federal Protection Service** **Federal Financial Monitoring Service** **Federal Archive Agency** **Main Directorate of Special Programs*** **<u>Presidential Affairs Directorate</u>*** * Has federal agency status	**Ministry of Health Services** • Federal Service for Healthcare Oversight • Federal Bio-Medical Agency **Ministry of Culture** **Federal Tourism Agency** **<u>Ministry of Education and Science</u>** • Federal Service for the Educational Sector Oversight • Federal Youth Affairs Agency **<u>Ministry of Natural Resources and the Environment (*Minprirody*)</u>** • <u>Federal Hydrometeorological and Environmental Monitoring Service (*Roshydromet*)</u> • <u>Federal Service for Oversight of Natural Resources (*Rosprirodnadzor*)</u> • Federal Agency for Water Resources (*Rosvodresurs*) • Federal Forestry Agency • <u>Federal Agency for Mineral Resources (Rosnedra)</u> **Ministry of Trade and Industry** • <u>Federal Service for Technical Regulating and Metrology (*Rosstandart*)</u> **<u>Ministry of Transport</u>** **<u>Ministry for the Development of the Far East</u>** **<u>Ministry of Communication and Mass Media</u>** • <u>Federal Service for the Oversight of the Communication Sector, Information Technologies and Mass Media</u> • <u>Federal Agency for Print and Mass Media</u> • Federal Communication Agency **Federal Ministry for Northern Caucuses Affairs** **Ministry of Agriculture** • Federal Service for Veterinarian and Phytosanitary Oversight

Figure 18: The structure of the Russian federal government (Order N636, 2012)

<u>**President of the Russian Federation**</u>	<u>**Government of the Russian Federation**</u>
Ministry of Internal Affairs	**Ministry of Health Services**
<u>**Ministry of Civil Defence, Emergencies and Disaster Management**</u>	• Federal Service for Healthcare Oversight • Federal Bio-Medical Agency
Ministry of Foreign Affairs	**Ministry of Culture**
• Federal Agency of Commonwealth of Independent States, Expatriate and International Humanitarian Affairs	**Federal Tourism Agency**
<u>**Ministry of Defense**</u>	<u>**Ministry of Education and Science**</u>
• Federal Service for Military and Technical Cooperation • Federal Service for Technical and Export Control • Federal Service for Special Construction Projects	• Federal Service for the Educational Sector Oversight • Federal Youth Affairs Agency
Ministry of Justice	<u>**Ministry of Natural Resources and the Environment (*Minprirody*)**</u>
• Federal Service for Penitentiary Affairs • Federal Marshals Service • Federal Courier Service	• <u>Federal Hydrometeorological and Environmental Monitoring Service (*Roshydromet*)</u> • <u>Federal Service for Oversight of Natural Resources (*Rosprirodnadzor*)</u> • Federal Agency for Water Resources (*Rosvodresurs*) • Federal Forestry Agency • <u>Federal Agency for Mineral Resources (Rosnedra)</u>
Federal External Intelligence Service	**Ministry of Trade and Industry**
<u>**Federal Security Service**</u>	• <u>Federal Service for Technical Regulating and Metrology (*Rosstandart*)</u>
Federal National Guard Service	<u>**Ministry of Transport**</u>
Federal Protection Service	<u>**Ministry for the Development of the Far East**</u>
Federal Financial Monitoring Service	<u>**Ministry of Communication and Mass Media**</u>
Federal Archive Agency	• <u>Federal Service for the Oversight of the Communication Sector, Information Technologies and Mass Media</u> • <u>Federal Agency for Print and Mass Media</u> • Federal Communication Agency
Main Directorate of Special Programs*	**Federal Ministry for Northern Caucuses Affairs**
<u>**Presidential Affairs Directorate**</u>*	**Ministry of Agriculture**
* Has federal agency status	• Federal Service for Veterinarian and Phytosanitary Oversight

President of the Russian Federation	Government of the Russian Federation
	• Federal Fisheries Agency **Ministry of Sport** **Ministry of Housing Affairs** **Ministry of Transport** • Federal Service for Air Transport Oversight • Federal Air Transport Agency • Federal Highway Agency • Federal Railway Agency • Federal River and Sea Transport Agency **Ministry of Labour and Social Welfare** • Federal Labour and Unemployment Agency **Ministry of Finances** • Federal Tax Service • Federal Service for the Regulation of the Alcohol Market • Federal Customs Service • Federal Treasury* **Ministry of Economic Development** • Federal Accreditation Service • Federal Service for State Registration, Registry and Cartography • Federal Intellectual Property Service • Federal State Reserves Agency • Federal State Property Management Agency **Ministry of Energy** **Federal Antimonopoly Service** **Federal State Statistics Service** **Federal Consumer Protection and Welfare Service** **Federal Service for Ecological, Technological, and Nuclear Oversight (*Rostechnadzor*)** **Federal Agency for Scientific Organizations**

President of the Russian Federation	Government of the Russian Federation
	Federal Ethnic Affairs Agency * Has a status of a federal service

The vast majority of 'Presidential' agencies are so-called '*silovye*' (force) agencies, meaning that they are authorised to wield physical force. As Figure 18 shows, none of the primary risk governance agencies is under the President's control and oversight. However, some of the Ministries, Agencies, and Services (underlined in red) that he does control and oversee can interfere in virtually any process or procedure for which the 'primary' risk governance agencies are responsible. As I noted above, the involvement of the regional and municipal administrative agencies is limited. Municipal governments, however, aid the environmental review process by facilitating solicitation of input from the local population (Law N187-FZ, 1995).

Thus far, I have made only a handful of references to the Federal Assembly (*Federalnoe Sobranie*), the Russian national legislature. My lack of attention to the Federal Assembly and its two houses, the State Duma (*Gosudarstvennaya Duma*) and the Federation Council (*Sovet Federatsii*), was not because they are uninvolved in the legislative process. On the contrary, based on my review of the legislative history of a few bills considered by both houses, these legislative bodies are frequently very efficient and effective in enacting legislation governing oil and gas activities. However, their efficient and effective law-making appears to be aimed mainly at legitimizing initiatives proposed by the President and the RF Government. I do not claim to have conducted a comprehensive review of the legislative process regarding oil and gas activities for the last decade. However, in-depth inquiries into the legislative history of the aforementioned LNG export regime amendments and the April 2008 amendments into 'On Environmental Review', as well as discourse analysis of the Presidential commissions meetings, made me agree with the following op-ed statement by Evgeniy Gontmakher, a prominent economics scholar and civil activist:

> Look at what happened with the State Duma and the Federation Council. They have become, de facto, another department of the Presidential Administration and the RF Government. I am not even going to try to enumerate all the laws enacted through a legislative effort that was akin to a malfunctioning printer (Gontmakher, 2013).

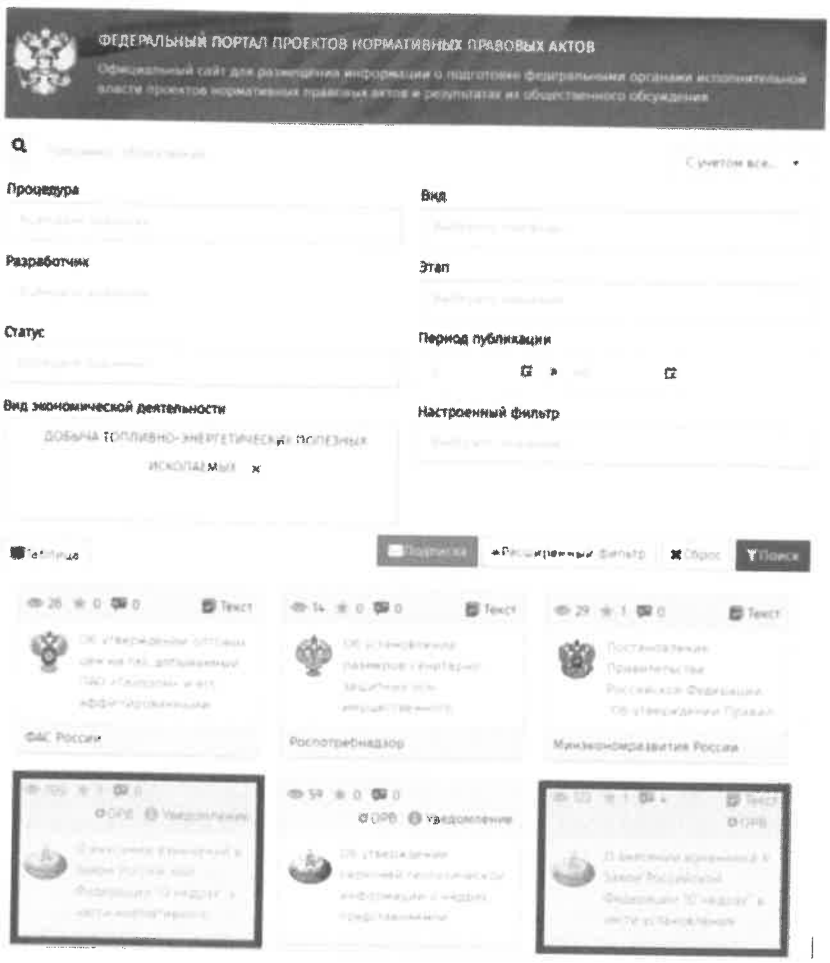
The comment made by Mikhail Fedotov, the head of the Presidential Council on the Development of Civil Society and Human Rights, during a 14 October 2014 meeting of the council seconds Mr Gontmakher's statement. Mr Fedotov noted that legislators largely ignore public input and hurry bills through the State Duma (President, 14 October 2014).

As I noted in Chapter 1, Russia's court system is not a primary source of risk governance rules. Judicial precedents are not considered binding sources of law in Russia (Alekseev, *et al.*, 2004). In addition, my review of relevant court decisions (albeit a cursory one) did not identify a single successful challenge to large oil and gas projects in the Arctic or Subarctic based on the alleged risks and impacts that these projects pose.

Finally, I turned to mechanisms of broad public participation, such as public comments, in shaping organizational and institutional capacity for risk governance. The fact that Russia has a comprehensive platform for soliciting and tracking public comments on pending legislation might also come as a surprise to many in the West. Pursuant to Presidential Order No. 601 dated as of 7 May 2012 (Order N601, 2012), the RF Government promulgated decree No. 851 on 25 August 2012, to set up a public comment platform, entitled 'Federal Portal of Pending Legal and Regulatory Acts' at regulation.gov.ru, the government Internet site (Decree N851, 2012). In addition, the RF Government promulgated decree No. 96, dated as of 26 February 2012, 'On Anticorruption Expert Review of Legal Acts and Pending Legislation and Regulations' (Decree N96, 2012). The anticorruption expert review is aimed at identifying 'corruption-genic' (*korruptstionnogenicheskie*) factors, such as broad administrative discretion, vague descriptions of official powers, and even linguistic ambiguity (*Id.*). Along with the 'appraisal of actual effect of legislative and regulatory acts' (*otsenka fakticheskogo vozdeistviya normativnyh pravovyh aktov*), the anticorruption expert review is part of the public review and comments process (*Id.*). This process, which will become effective as of 30 July 2016, replaces the equally curious process aimed at 'identification of provisions [contained in laws and regulations] that pose unreasonable barriers to business and investment activities' (Decree N83, 2015) (Ministry of Economic Development, 2016).

The Federal Portal is intuitive, easy to use, and extremely informative. As Figure 19 shows, one can easily obtain a wealth of information. My inquiry into pending legislation and regulations regarding economic activity related to 'fossil fuel extraction' yielded 218 various documents, including two sets of amendments to the 'On Subsoil Resources' (Law N2395-I, 1992) (shaded in light grey). In order to leave a comment, one merely needs to complete a straightforward registration process.

Figure 19: Federal portal of pending legal and regulatory acts (Ministry of Economic Development, 2016a)



The public participation opportunities presented by the Federal Portal of Pending Legal and Regulatory Acts rival and even surpass those of advanced democratic states. Perhaps the Transparent Government policy is too new to judge in terms of its effect on inclusive governance of public affairs. However, Russia's position near the bottom of the Transparency International Index (2016) does not instil much optimism. In addition, in my review of the amendments of the legislation principally responsible for governing risks in the oil and gas sector, I came across only one instance where stakeholder input (from an environmental NGO) resulted in a real legislative change to the way risk is handled in the energy sector. This change came in the form of the amendments to the laws 'On the Continental Shelf' (Article 22.2) (Law N187-FZ, 1995) and 'On Inland Sea Waters' (Article 16.1) (Law N155-FZ, 1998) that require companies to prepare oil spill contingency plans for offshore operations .

As I have and will continue to observe in this thesis, the RF Government and the President are the parties with the greatest influence over *ex-ante* processes that result in threshold decisions regarding oil and gas development in the Russian Arctic and Subarctic. Because the President holds a superior position in the Russian State hierarchy, he is the ultimate decision-maker on such matters.

Despite Dmitry Medvedev's 2008-2012 Russian presidency, the Office of the President of the Russian Federation has been associated in this millennium with it current holder, Vladimir Putin. *Time* magazine's Person of the Year in 2007, President Putin, his policies, and his model of governance have received a gargantuan amount of criticism in the West. Dawisha (2015, p. 36) summarizes Vladimir Putin's reign as follows: 'By his third term, he had created a highly controlled security system able to use laws, the media, and the security forces as a means of intimidating, and critically balancing, rival economic elites. Others have called it a "corporation", "Kremlin, Inc.", "a Sistema", or a "corporatist-kleptocratic regime".'

Contrary to the popular view portrayed in the West, in my view, President Putin does not exercise absolute control over all facets of political life in the country. As I note in the remainder of this thesis, President Putin's influence is best described as 'first among equals'

(Chatham House, 2015). Gregory Yavlinsky, a former presidential candidate and leader of an opposition to the Kremlin party, describes Vladimir Putin as an effective representative of the Russian power elite who is capable of negotiating often divergent interests (Yavlinsky, 2014). I describe a few examples of such negotiations and mutual lobbying in the next three chapters. These chapters are predominately devoted to analysing the organizational and institutional capacity of the Russian State to handle threshold decisions involving risk in the oil and gas sector.

4.3. Conclusion

A discussion about risk governance of oil and gas activities must feature the government and the means by which it ought to govern – law. Although there are instances in which risk is and can be governed without government intervention, these instances are nonetheless part of the overarching policy, legal, and regulatory regime in which the government plays a central role. This role reaches its apogee during the PA and C&E phases of risk governance, especially in *ex-ante* decision-making involving threshold matters such as opening new areas for oil and gas development and incentivizing hydrocarbon activities. Because Russia follows the prescriptive model of regulation, the government's involvement transcends all phases of risk governance. The President and RF Government, along with a handful of administrative agencies, maintain a tight grip on setting rules of risk governance from broad programmatic policy statements to technical regulations. Although recent actions by the Russian leadership created opportunities for public participation in creating risk governance rules, Russia's poor track record in inclusive policy-making raises doubts about the effectiveness of these measures.

Similarly to Chapter 3, I argued in favour of the contextual approach, this time, in defining the role of government in governance. I thereby added oil and gas to the list of sectors of which comprehensive governance cannot be analysed without examining the role that governments play. I highlighted the importance of conceptual rather than literal translation in studying non-Western national and regional governance systems. Whereas I attribute these contributions to governance literature, in this chapter I also contributed to Russian studies and risk governance literatures. I contributed to the former by showing why focusing on the local impacts of oil and gas projects (Yakovleva, 2011) (Yakovleva, 2011a) (Yakovleva, 2014) (Novikova & Martynova, 2011) and overlooking the *ex-ante* decision-making processes involving threshold matters is hardly sufficient for obtaining a comprehensive picture of the Russian oil and gas sector and its role in the Russian economy and society. I also articulated the dominant approach to handling risk in the Russian oil and gas sector by using data from legal sources, official transcripts, and semi-structured interviews. In addition, in furtherance of the proposed agenda for the development of the socio-legal aspect of risk governance (Sidortsov, 2014), I identified the key parts of the Russian policy, legal, and regulatory regime employed in handling risks in the national oil and gas sector. I contributed to risk governance literature by arguing the utmost importance of risk PA and C&E for making decisions involving new oil and gas projects, as well as identifying the legal sources and mechanisms, pursuant to which these phases are implemented in the context of oil and gas development. I thus made a case that the IRGC framework can serve as a foundation for analysing non-Western risk regimes. Also, I advanced Klinke and Renn's (2012) additions to the IRGC framework that emphasise capacities for dealing with risk by showing the complexity of actors involved in the process. More importantly, I determined the principal legal sources and mechanisms to be examined in greater depth in Chapters 5, 6, and 7.

5. The Concept of Power in Risk Governance

5.1. The power knowledge dynamic

I noted in Chapter 3 that handling and dealing with risk in the context of collective decision-making is not just about obtaining knowledge about risk, but about *who* gets to decide *what to do* about risk. In other words, risk governance is also about *power relations* among people involved in making decisions about risk. In this chapter, I begin my investigation of the substance and nature of power relations that shape the generation and application of knowledge about risk.

My principal goal in this chapter is not to critique existing theories of risk or attempt to offer an alternative one. It is to find a conceptual explanation of the risk governance processes captured in the data that I collected over the course of the study. Therefore, in this chapter, I aim to establish and develop a link between risk governance and the social concept of power by examining the power-knowledge interrelation, and thus contribute to the risk governance literature. Because I bring risk governance into the social power realm, I also aim to contribute to this body of literature through providing the largely underdeveloped risk governance context. In addition, due to the wide use of legal data in this study, I aim to contribute to the socio-legal literature focused on the intersection of the concepts of law and social power.

The general idea of power-knowledge interrelation is far from new. Foucault (1994, p. 32) eloquently captures the myth of 'sanctity of knowledge' in the following quote:

> The West would be dominated by the great myth according to which truth never belongs to political power: political power is blind—the real knowledge is that which one possesses when one is in contact with the gods or when one remembers things, when one looks at the great eternal Sun or one opens one's eyes to what came to pass. With Plato there began a great Western myth: that there is enmity between knowledge and power. If there is knowledge, it must renounce power. Where knowledge and science are found in their pure truth, there can no longer be any political power.

> This great myth needs to be dispelled. It is this myth which Nietzsche began to demolish by showing, in the numerous texts already cited, that, behind all knowledge [savoir], behind all attainment of knowledge [connaissance], what is involved is a struggle for power. Political power is not absent from knowledge, it is woven together with it.

I consider this mutually reinforcing feedback loop foundational in the process of handling risk. Below, I examine this dynamic through the process of environmental assessment (EA) and ethnological review (ER) in relation to the Power of Siberia pipeline.

5.1.1. Assessing Power of Siberia's environmental risks

The law 'On Environmental Review' (Law N175-FZ, 1995) sets forth the process of environmental expert review or *ekologicheskaya ekspertiza*. Article 1 of the statute defines it as 'the determination of whether documents or documentation that support an economic or other activity comply with the environmental requirements set forth in technical regulations and legislation in the area of environmental protection for the purposes of prevention of negative impact of said activity on the environment.' In addition to verbosity and lack of coherency, the definition reveals a narrow scope of the environmental expert review, effectively limiting it to a review of project documentation by a group of professionals thought to have relevant expertise. The nature of this process lies in the title of the statute that governs it '*Ob Ekologicheskoy Ekspertize*'. '*Expertiza*' translates from Russian as 'expert review'. The statute differentiates between a 'state environmental expert review' (SEER) (Articles 10-18) and 'public environmental expert review' (Articles 20-25). Only SEER is mandatory, provided that the activity in question falls under the purview of the statute (Law N175-FZ, 1995, art. 10).

As of June 2016, oil and gas activities occurring offshore, pursuant to PSAs, and located in highly protected environmental areas are subject to SEER (*Id.* art. 11). In addition, oil and gas activities might be affected by the SEER process by virtue of being part of federal goal-oriented programs, being impacted by new environmental administrative regulations, or involving construction waste disposal or recycling facilities. In the latter case, only documentation related to such facilities is subject to SEER. Therefore, the vast majority of oil and up-, mid- and downstream activities and facilities do not require SEER despite being major sources of environmental risks.

Unsurprisingly, the Power of Siberia project as a whole did not receive an environmental review. Several supporting infrastructure units are subject to mandatory environmental assessment, but these units have only secondary bearing on the pipeline's successful operation. At the time of writing this thesis, seven waste disposal sites near the pumping stations (compressor stations) have undergone SEER (Rosprirodnadzor, 2015).

SEER is the second step of a two-step environmental assessment process under Russian law. The first step is environmental impact assessment, or *otsenka vozdeystviya na okruzhaiyschuiy sredu* (OVOS). 'On Environmental Review' does not specify the mechanics of OVOS, nor does it clearly connect OVOS to SEER. In fact, 'On Environmental Review' mentions OVOS only once, in Article 3, where it sets forth OVOS comprehensiveness as one of the principles of SEER in Russia.[46] The 16 May 2000 Order of the Committee of the Russian Federation on Protection of the Environment ('Order 372') establishes a much tighter connection between OVOS and SEER by requiring the documents reviewed during SEER to be based on OVOS (Order N732, 2000). The brevity with which 'On Environmental Review' treats OVOS is puzzling as it the only source of data and analysis for the documents that state experts review during SEER.

The lack of cohesion between 'On Environmental Review' and Order 372 affects risk governance. Article 3 of Order 372 mandates OVOS to include the assessment of 'risk probability', as well as the assessment of adverse environmental, social, and economic impacts of the proposed activity. However, because 'On Environmental Review' does not mention risk or social and economic impacts as part of SEER, experts are not required to include these items in their analysis.

Although far from perfect, Order 372 creates some procedural opportunities for inclusive and comprehensive risk governance. During the initial OVOS stage under Order 372, the proponent prepares and submits to the authorities a notice of the planned activity along with preliminary information about the planned OVOS. During the following stages, the

[46] To avoid confusion, I utilize the Russian acronym for the preparation of an environmental impact assessment, OVOS (*otsenka vozdeystviya na okruzhaiyschuiy sredu*), and I utilize English acronyms for the second step of the process, state environmental review (SEER), and for the entire process, environmental assessment (EA).

proponent conducts all the necessary studies and gathers all the necessary information and performs analysis thereof (Order N732, 2000, art. 3).

OVOS begins when the proponent of an activity submits a notice to government authorities. This notice includes preliminary information about the planned activity, including the so-called *tekhnicheskoe zadanie* (technical assignment) (*Id.*). The proponent then undertakes the necessary research and compiles the relevant data. Although 'On Environmental Review' does not overtly create a right for the public to participate in the environmental assessment process, it does require that materials sent to the SEER commission reflect public opinion (Law N175-FZ, 1995, art. 14). This mandate indirectly requires public discussions, or *obschestvennoe obsuzhdeniya*. Order 372 places the responsibility for organizing these public discussions on the proponent of the activity. Under Order 372, the developer conducts 'public discussions' with the municipal government, which makes the process more inclusive, at least in theory (Order N732, 2000, art. 3) (Sidortsov, et. al., 2016).

Order 372 states that public discussion must follow two principal objectives. It must (1) inform the public of the proposed activity; and (2) identify public preferences. The second objective can be interpreted as a statutory requirement to take public preferences into account during the decision-making process (*Id.*). However, neither Order 372 nor 'On Environmental Review' clarify the extent to and ways in which the preferences must be considered.

Because surveys and referendums may be used to inform the public and determine its preferences, public hearings are not mandatory. The proponent of the proposed activity must record survey and referendum results, submit them with the draft OVOS materials, and permit the public to review and comment on the draft (Order N732, 2000). Though these other modes of discussion may replace a public meeting, it is still customary for a public meeting to be conducted. In fact, developers face significant backlash and opposition if they do not follow this practice. This is evidenced by the campaign launched by Sakha NGOs when Transneft' decided to move public discussion of the East Siberia–Pacific Ocean (ESPO) pipeline to the federal and provincial halls of power (Yakutia Commercial Bulletin, 2006). Syvatoslav Zabelin, a former member of Presidential Council on the Promotion of

Civil Society and Human Rights, explained Transneft's actions in the context of OVOS in the following sharp remark:

> Strange things happen with environmental review. Here we are faced with organized industry that pursuant to the law must take reasonable steps to discuss industrial projects with the public and to ensure that public and government interests were taken into account. Today, this does not happen. I will spare you details, but the most important thing is that companies with a high share of state ownership are the worst offenders. Unfortunately, you have heard rumours about the situation with the pipeline from Eastern Siberia to the Pacific Ocean, where a certain known company is demonstrating amazing creativity. This almost sounds like a joke: in order to conduct public environmental assessment, it founded its own NGO and registered it in Moscow. This NGO made decisions about what Primoryans, Irkutians, and Buryats need to do and what pipeline route would be better for them (President, 20 July 2005).

Apparently, learning from Transneft's mistake, Gazprom organized public hearings as part of the Power of Siberia's OVOS.[47] Although the public hearings were conducted in Sakha (Yakutiya), they did not attract the same amount of attention as that of the ESPO pipeline. The following factors contributed to the low public interest to the meetings. First, as noted above, only the isolated waste disposal sites located near compressor stations were subject to OVOS. The pipeline itself and its compressor stations and supporting infrastructure were not. Second, the Power of Siberia route in the areas where the meetings were conducted ran parallel to that of ESPO (Stammler & Ivanova, 2016a) (Sidortsov, et. al., 2016). Third, although the notice and format of the public hearings were technically in compliance with legal requirements, they had significant shortcomings. For example, notice for a meeting to discuss two waste disposal sites at the Amginskaya and Nimnyrskaya compressor stations was published in two issues of the national newspaper '*Transport Rossii*' (Russian Transport), one issue of the regional 'Yakutia' newspaper, two issues of local '*Munitsipalny Vestnik*' newspaper, and on the local government's website (Aldanskiy District, 2013). While the notice no doubt reached certain segments of the local population, it was not disseminated in a way so as to reach the indigenous people, who were busy in the forest with hunting, fishing, and tending their reindeer (Stammler & Ivanova, 2016a) (Sidortsov, et. al., 2016). Unsurprisingly, no indigenous peoples attended the meeting. In fact, only one person

[47] The meetings were organized and conducted by a Gazprom subsidiary, OAO VNIPIgazdobycha. For purposes of this discussion, I refer to both the parent company and the subsidiary as Gazprom. (Aldanskiy District, 2013) (Stammler & Ivanova, 2016a)

representing the public was present – the head of a local library (Aldanskiy District, 2013) (Sidortsov, et. al., 2016).

After finalizing the OVOS documentation, the process moves to the SEER stage. The Federal Service for Oversight of Natural Resources (*Rosprirodnadzor*) or its regional branch forms an expert commission from staff and invited experts on an *ad hoc* basis for each individual project (Law N175-FZ, 1995, art. 15). The process is not inclusive at this stage, as only provincial and municipal governments have the right to recommend their own experts to serve as observers at an expert commission meeting, and deliberation is limited to a discussion among experts (*Id.*). Dmitry Kobylkin, the governor of Yamal-Nenets Autonomous District, provided the following assessment of the process: 'Unfortunately, according to federal law, only federal-level facilities and activities are subject to environmental assessment. The mechanism by which regions can recommend their experts to serve as observers at federal expert commission meetings simply does not work.' (President, 9 June 2011) Therefore, regions are effectively excluded from EA of oil and gas activities.

At the Project of Siberia's SEER stage, none of the seven associated waste disposal facilities was found to have any issues. Interestingly, expert commissions for all seven sites were formed on the same date, and all seven facilities were approved on the same date as well, just before the deadline (Rosprirodnadzor, 2015).

5.1.2. Reviewing the Power of Siberia's risks to indigenous communities

The Sakha (Yakutia) Law 'On Ethnological Review in the Areas Traditionally Occupied and Utilized by Indigenous Small-numbered People of the Republic Sakha's (Yakutia) North' ('On Ethnological Review') intends to identify, avoid, or mitigate risks that industrial activities such as oil and gas projects pose to indigenous communities (Law 820-Z N537-IV, 2010). The law also mandates that potential impacts be offset with monetary compensation when appropriate (*Id.* arts. 3, 1, 5, 8).

'On Ethnological Review' is triggered when a project or activity is proposed to take place in traditionally indigenous areas and it affects the indigenous peoples' socio-cultural status quo or the environment in the area that they have traditionally inhabited (*Id.* art. 5). Indigenous communities have the right to appoint representatives to participate in an ethnological expert commission. The representatives have the right to participate directly in the assessment only of federal and regional programs directed at environmental protection and natural resource development (*Id.*). This participatory right is especially important because it gives indigenous people access to strategic decision-making. At least in theory, 'On Ethnological Review' provides indigenous communities with real legal power because all projects and activities subject to the assessment must have ethnological expert commission approval (*Id.* art. 8).

Unfortunately, the statute's implementation is hampered by significant formal shortcomings. These shortcomings originate from a federal pre-emption similar to the pre-emption applied to regional environmental legislation, as noted in Chapter 4. The pre-emption provides developers with a strong argument against any additional restraints imposed by provincial law. For example, a decision to designate an area for traditional use made under provincial law can be trumped by a decision to deed an area for recreational use under the federal Forest Code (Sleptsov, 2013) (Sidortsov, et. al., 2016).

The Power of Siberia pipeline traverses areas that have traditionally been occupied by indigenous hunters, reindeer herders, and fishermen (Stammler, 2014). Those impacted have expressed concerns over how areas used as traditional reindeer pastures and hunting grounds will be allocated for the pipeline construction. The influx of temporary workers and the lasting socio-economic changes that such migration brings have also been flagged as concerns. For these reasons, the Power of Siberia project unquestionably falls within the purview of the 'On Ethnological Review' and therefore requires an ethnological assessment (Stammler & Ivanova, 2016a).

However, despite the fact that the pipeline construction commenced in September 2014, an ethnological assessment is yet to occur. I am not familiar with any formal discourse regarding this obvious omission. However, according to Stammler and Ivanova (2016a) whom I interviewed in February 2016, Gazprom's informal position is premised on the argument that because the Power of Siberia will run parallel to the ESPO pipeline, it will not create new impacts and will thus not need a new ethnological assessment. Additionally, because some of the affected areas have not been formally designated as those for the traditional habitation and subsistence of indigenous peoples, it is all the more difficult for the regional government to compel a powerful developer to conduct an ethnological assessment (Il Tymen, 2015). The regional government instead engages with developers on an *ad hoc* basis in an effort to persuade them into carrying out an assessment. For example, Pavel Marynychev, a provincial deputy prime minister, stated that the regional government 'almost reached an agreement' with Gazprom to conduct an ethnological assessment of an area located at the Chayandinskoe gas field (GTRK Sakha, 2015).

5.1.3. Distilling the risk power-knowledge dynamic in environmental assessment and ethnological review

In EA, generating knowledge of environmental risks is a two stage-process under Russian law. During the first stage (OVOS), the proponent of the activity collects the data about potential impacts on the environment and converts it into qualitative categories, concentrations, ratios, and probabilities. During the second stage (SEER), an expert commission assesses the fallibility of the knowledge put forward by the proponent and decides whether the activity can proceed. In this sense, the expert commission brings what Walsh (2013) calls a political certainty to the matter.

In contrast, 'On Ethnological Review' does not elaborate on the details of the ER process when generating knowledge of socio-economic risks to impacted indigenous communities. Article 5, which is supposed to describe the process, states that the regional government is responsible for organizing and facilitating ER. Pursuant to Article 8, the data regarding the project and its analysis expressed in concentrations, ratios, and probabilities comes from the proponent of the activity. The expert commission assesses this knowledge in light of the knowledge possessed by its expert and generates new knowledge about socio-economic risks to indigenous communities. The commission's decision (*zaklychenie*) also creates political certainty by either allowing the activity, usually subject to risk mitigation and avoidance measures, or prohibiting it (Law 820-Z N537-IV, 2010, art. 8).

Therefore, on the most primitive level, this power-knowledge dynamic occurs between an actor who is content with allowing a potentially risk-laden activity to proceed and an actor who is not. Activity is of course a relative term, as it frequently emanates from the use of an object or substance. For example, the main reason for EAs in relation to the Power of Siberia is concern over handling hazardous substances in waste disposal facilities.

On a macro level, in both EA and ER, the dynamic for generating knowledge about risks (environmental and socio-economic, respectively) consists of two stages. The first stage is the adoption of a designated framework, and the second stage is implementing it. 'On Environmental Review' and 'On Ethnological Review' serve as the legislative cornerstones of the legal framework. Adopting the framework involves generation of knowledge about risk and the actors that attempt to influence such generation. For example, before the enactment of the federal City Building Code on 18 December 2006, pipelines were subject to EA in their entirety (Law N232-FZ, 2006). However, pressure from the industry under the guise of removing administrative obstacles resulted in the effective removal of oil and gas trunk pipelines from the purview of 'On Environmental Review' (President, 27 May 2010). In other words, the economic benefits of the streamlined permitting process superseded concerns over whether the City Building Code's project documentation review would address the environmental risks associated with oil and gas trunk pipelines.

The EA of the seven waste disposal sites exemplifies the implementation of a legal and regulatory framework aimed at handling environmental risks. The actor that is content with the activity is its proponent – Gazprom. The actor charged with scrutinizing the activity is *Rosprirodnadzor*. The knowledge creation at the second stage would be centred on the risks and benefits of the waste disposal sites.

Both actors are driven by seemingly divergent interests – *Rosprirodnadzor* acts on behalf of the public and Gazprom acts on behalf of its shareholders.[48] Sometimes these two sets of interests converge. For example, it is not uncommon for Gazprom subsidiaries to engage in outreach and consultations with the local population even though the law does not explicitly require it (Stammler & Ivanova, 2016a) (Stammler, 2014). However, a business entity has little incentive to consider environmental or social implications unless overlooking them

[48] As I demonstrate in the forthcoming chapters, this seemingly bright line is often blurred. Some companies, especially state companies, act in furtherance of state interests, and governmental officials often pursue their personal interests over the public ones.

would pose regulatory or reputational risks. It is true that Gazprom organized public hearings when not required to do so under Russian law. However, the manner in which the meetings were conducted raises doubts as to Gazprom's sincerity in wanting to obtain knowledge about potential risks from the people who would be exposed to them. This exemplifies the importance of public risk governance and the dangers of relying on private entities to handle risk.

5.2. Defining social power

In the previous section, I stated that power relations impact generation of knowledge about risk. However, I did not follow this observation with a definition of power. Weber's statement that the 'concept of power is sociologically amorphous' is a testament to the difficulty of deriving a universally accepted definition of power in the social context (Weber, 1978, p. 53). Power, according to Weber, is 'the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests' (*Id.*). Weber appears to be mainly concerned with achieving precision of social analysis. For this reason, he outright rejects the concept of power as a useful one and instead adopts the concept of domination, which he defines as 'the probability that a command will be obeyed' (*Id.*).

Indeed, if the overarching goal of an analysis is the precise measurement of the relational link between the 'dominator' and 'dominated', Weber is indubitably correct. This approach puts an emphasis on the dominated party and provides a snapshot of power or, keeping true to Weber's preferred terminology, domination in action. But what if the overarching goal is to *survey* the power landscape and put *some* precision on it? In addition, does such a quest for precision in social analysis exclude power relations where the probability that a command will be obeyed is uncertain?

Because the principal goal of this study is to determine the extent and ways in which risk governance is mandated and/or allowed under the Russian policy, legal, and regulatory regime, my foremost priority is to explore the power landscape, i.e. the multitude of actors and institutions involved in the power/counter-power relations. This is not to say that I am not concerned with the mechanics of power relations. As the foregoing empirical analysis shows, I certainly am, but I do not place priority on the precision coveted by Weber.

For this reason, I am not quite ready to abandon the imperfect concept of power. There is general agreement on the concept's basic elements. Castells, who considers power relations foundational to the organization of a human society, defines the power as follows: 'Power is the relational capacity of a social actor to influence asymmetrically the decisions of other social actors in ways that favour that power actor's will, interests, and values.' (Castells, 2011) He adds that such power cannot exist without resistance or counter-power of the dominated agent (*Id.*). Castells admits that he follows the 'standard' definition of power, which is not very far from what Weber offers in Economy and Society in 1922 (*Id.*).

Although Weber emphasises the importance of probability, the two scholars (and many more) agree that the definition of power revolves around the following three elements: (1) the presence of at least two social agents, which Scott (2001) labels principal and subaltern; (2) a casual link between these two agents; and (3) a wilful act or the ability of the principal to act wilfully and the resistance or ability of the subaltern to resist. I will elaborate on each of these three elements below.

A principal is the dominant agent and a subaltern is the subordinate. There can be many principals and many subalterns in a single power relationship. Moreover, the agents can switch their position, and a principal in one relationship can become a subaltern in another and vice versa. In the previous section's EA and ER examples, the federal and Sakha governments ostensibly held the power to protect the environment and the livelihoods of indigenous peoples on the territory of the Russian Federation and the Sakha Republic, respectively. Thus, the *Rosprirodnadzor* and the government of Sakha, which are tasked with implementing EA and ER, act as the principals, whereas Gazprom acts as a subaltern. However, in the ER process, Gazprom appears to have the upper hand and therefore holds power over the Sakha government. The Sakha government has not yet attempted to compel the company to conduct ER. Instead, it is in the process of negotiating ER in relation to the Chayandinskoe field. Although Gazprom conducted OVOS of the waste disposal sites and received SEER approval, a negative EA decision did not appear to be in the realm of real possibility. As noted in Chapter 2, the political and geopolitical importance of the Power of Siberia made Gazprom the *de facto* principal in this relationship and a positive EA outcome is all but certain.

Power is a causal relation (Isaac, 1992). As Scott notes (2001, p. 1), '[i]n its most general sense, power is the production of causal effects.' Thus, the concept of power forms the foundation of human agency because by definition human agency is the ability of a human actor to generate effects in the world (*Id.*). Yet as I elaborate below, the casualty should not be confused with intentionality, or mental state of a subject toward the object.

However, not all scholars build their view of social power around a human agent. According to Grewal (2008, p. 131), the failure to recognize the role of agency in the concept of power hindered works of many structuralists, as they were unsuccessful at dissecting the mechanisms by which power is exercised. Although not constrained by structural determinism, Foucault (1980, p. 90) is also not willing to give full credit to human agency. He builds his idea of disciplinary power, by concentrating on the effects of power and all but rejecting the value of examining the 'global relation of dominators and dominated' (Taylor, 1984, p. 166). Thus, Foucault (1980, p. 93) describes his view of the concept of power as follows: 'power is not an institution, and not a structure; neither is it a certain strength we are endowed with; it is the name that one attributes to a complex strategical situation in a particular society.' Giddens (1995) criticises this approach as leading to 'subject-less history' and Taylor disparages Foucault for not even attempting to create a systematic account of micro reactions that constitute his interdisciplinary power (Taylor, 1984, p. 169).

The Foucauldian concept of disciplinary power along with the concept of hegemony developed by Gramsci are two notable examples of the so-called heterodox theories of power (Grewal, 2008). Gramsci showed how socialization in schools, churches, and factories could be as effective as coercion in securing the consent of the subordinate classes. Interestingly, Gramsci considered hegemony the most prevalent form of power in the post-feudal Western society (*Id.* p.132).

Also known as the 'second stream' of social power research, these theories diverge from the mainstream exemplified above by the work of Weber. Whereas the mainstream theories focus on the organizations of power, the second stream theories emphasize power strategies and techniques (Scott, 2001, p. 9). The 'power without agency problem' of at least some second stream theories (Foucault's and Gramsci's for example) comes from the view of power as the collective property of the entire system of actors linked by a multitude of social relations (*Id.*).

Grewal (2008), whose theory of network power belongs to the second stream, solves this problem in a creative and convincing manner. First, as I noted above, he does not preoccupy himself with finding the single source of power and identifying the 'super agent'. Second, he employs a theory of structuration, which, if examined at the most basic level, is reduced to an integrated account of agency and structure. Although he highlights works of Giddens as the pioneer of the structuration theory, he does not follow Giddens' or other scholars', such as Bourdieu and Habermas, exact interpretations of it. Instead, he uses a theory of structuration, or as he puts it, 'theories of structuration as a group' as a guiding principle to 'avoid falling into one of two extremes' in his analysis (*Id.* p. 56).

The third element of the aforementioned definition of social power needs further explanation. An act compared to an ability to act is one of the main points of contention among power scholars or as Dahl (1968) described it, the difference between holding and exercising power. Morriss (2012, pp. xvi-xvii) rejects the latter as power, noting that holding or *capacity* to exercise power can be realized without an overt act of a principal. Continuing with the EA and ER example, Gazprom was not ordered by *Rosprirodnadzor* to conduct public hearings. It did so likely because holding public hearings is a customary practice that usually diminishes opposition to an industrial project (Stammler, 2014). It is true that the company did not technically need to conduct public hearings under Russian law. However, the comprehensiveness of the OVOS principle set forth in Article 3 of 'On Environmental Review' created the capacity for the government to deem public input from sources other than public hearings to be in violation of this principle (Law N175-FZ, 1995).

I did not aim to resolve this long-standing scholarly argument in this study. Rather, I chose to focus on the epistemic value of exercising power. Due to my training as a lawyer, I am partial to the view that power is akin to law and has some enduring quality to it. However, I found that identifying instances where a principal exercises power overtly is useful for identifying its power capacity. In a sense, these instances partially comprise what Scott (2001 p. 15) calls elementary forms of power 'from which more fully developed power relations may be built.'

Whilst describing the act or ability to act above, I stopped short of using the term 'intentional'. I also attribute this choice to my legal background – law pays particular attention to differences between intent, negligence, recklessness, and other mental states of a subject toward an object. In the common law tradition, *mens rea* (guilty mind) and *actus reus* (criminal act) are the two necessary elements of a crime (Black's Law Dictionary, 2014). The Russian legal tradition, which is based on the continental law system, differentiates between the *subektivnaya storona* (the subjective side) and *obyektivnaya storona* (the objective side) of an unlawful act. The subjective side represents the mental connection between the actor and the result of his or her actions, whereas the objective side shows the 'outer' representation of the unlawful act (Alekseev, *et al.*, 2004, p. 263).

I found bifurcating causality into the objective and subjective sides extremely helpful. In fact, viewing power in its strongest sense as an agent's *intentional* use of causal relations largely excludes legislation and administrative rules and regulations from the analysis. When 'On Environmental Review' first came into effect in 1995, virtually all new oil and gas activities and facilities, including oil and gas pipelines, became subject to EA (Law N175-FZ, 1995). Hence, the purview of the statute extended to all oil and gas companies, including Russia's largest natural gas company, Gazprom, that proposed activities and facilities that could impact the environment. But if we view power in the strongest sense, unless the Russian legislators *intended* 'On Environmental Review' to apply specifically to Gazprom, the company should be left out of the power relation. For this reason, I thought that using the broader term 'wilful', implying some degree of deliberation, would be a more accurate and inclusive way of describing social power in the context of this study.

The ability of a subaltern to resist a principal's power is a far less controversial element of the definition of social power. 'Resistance', 'counter-power', and 'counteraction' are often used interchangeably to describe such an act or an ability (capacity) to act. Foucault (1982, found that identifying instances where a principal exercises power overtly is useful for identifying its power capacity. In a sense, these instances partially comprise what Scott (2001 p. 15) calls elementary forms of power 'from which more fully developed power relations may be built.'

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p. 229), for example, limits the reach of social power to 'free subjects', 'so far as they are free'. However, similar to the interchangeable principal/subaltern nature of an actor, the power/resistance dynamics are also fluid. With Gazprom getting the upper hand due to the Power of Siberia's political and geopolitical implications, it also found itself in a position of power to which the government was balanced with a great deal of counter-power. In fact, the EA and ER example presents a plethora of instances in which both Gazprom and the federal and Sakha governments held power whilst resisting each other's power. One of such instances occurred when Gazprom was forced to begin constructing the pipeline at the time of Vladimir Putin's visit to Yakutsk on 1 September (Figure 20), which was before it received SEER approval for the waste disposal sites (President, 1 September 2014). Another instance would be Gazprom's stalemate with the Sakha government regarding ER, in which the company seemed to be conceding ER of the Chayandinskoe field whilst overpowering the government regarding ER for the pipeline. Scott (2001, p.3) captures the essence of such a non-linear power dynamic as follows: '[t]he exercise of power and the possibility of resistance to it establish a dialectic of control and autonomy, a balance of power that limits the action of the participants in their interplay with each other.'

Figure 20 President Putin at the Power of Siberia construction commencement ceremony in Yakutsk on 1 September 2014 (President of Russia, 2016)

5.3. Forms, mechanisms, and categories of power

In addition to the aforementioned difference between the mainstream and second stream approaches to power, Scott (2001) notes another important characteristic in which these approaches differ from one another. The mainstream theories of social power are based predominately on research targeting corrective influence whereas second stream theories are premised predominately on exploring persuasive influence. He explains that '[c]orrective influence operates through the use of resources that can serve as punitive and remunerative sanctions that are able to work directly on the interests of subalterns in power relations.' (Scott, 2001, p. 13) In contrast, persuasive influence 'operates through the offering and acceptance of reasons for acting in one way rather than another.' (*Id.*)

Force and manipulation are the two elementary forms of power that comprise corrective influence. Force is the most direct way of making a subaltern do what a principal desires, typically through negative sanctions (*Id.* p. 13). In the EA and ER example, *Rosprirodnadzor* had the power to render a negative SEER decision, thereby physically preventing Gazprom from proceeding with the project.

Manipulation has both negative and positive sanctions in its arsenal.[49] (*Id.*) Manipulation by a principal affects the bases from which a subaltern chooses to act. For example, if Gazprom deviates from the documentation approved by the SEER commission whilst constructing the waste disposal sites, the government will have the ability to manipulate Gazprom's behaviour by imposing a fine under Part Two, Article 8.4 of the Administrative Code (Law N195-FZ, 2001).[50] The Russian government also incentivized construction of the Power of Siberia and development of the Chayandinskoe and Kovyktinskoe fields by offering the following tax incentives: (i) a zero real property tax rate on the entire Power of Siberia infrastructure (Law N117-FZ, 2000, art. 380); and (ii) a zero mineral extraction tax for the first 15 years on the natural gas produced from these fields (*Id.* art. 342.4). Neither example involves a physical

[49] It is important to note that in the Russian legal tradition, the term "sanction" is usually associated with its negative application. Positive sanctions are limited to a few specific instances. For example, a "prosecutorial sanction" (*sanctsiya prokurora*) is a permission given by a prosecutor's office to a law enforcement agency to conduct a search, seizure, or arrest. (Alekseev, et al., 2004)

[50] The full title of the Administrative Code is the Code of the Russian Federation on Administrative Offenses.

interference with the operator's activities. However, under certain circumstances such mechanisms can lead to more significant long-term results.[51]

Scott explains persuasive influence as working through 'cognitive symbols' and through 'value commitments'. He therefore differentiates between signification and legitimation as the two principal forms of persuasion. One does not need to go further than the official discourse surrounding the signing of the Power of Siberia contract to see how both forms of persuasion work. As I noted in Chapter 2, Vladimir Putin used ostensibly impressive numbers to suggest the socio-economic importance of the deal whilst engaging in political and geopolitical pandering to appeal to Russian citizen's values.

Because mainstream scholars largely focus on corrective influence, it should not come as a surprise that they often tap into sovereign power for the empirical base of their research. Naturally, they have targeted the power of the ultimate sovereign, the state, as the prime example of their investigations. However, some mainstream scholars, including the 'father' of the mainstream, Weber, also included non-state organizations like corporate entities and churches in the scope of their research. Second stream scholars, on the other hand, accentuate persuasive influence as the core area of their research. Thus, they often look beyond sovereign structures to find empirical support (Scott, 2001, pp. 6,12).

Second stream scholars find it in what Grewal (2008, p. 8) terms relations based on *sociability*. He describes the key feature of sociability as follows: '[i]n this case, aggregate outcomes emerge not from an act of collective decision-making, but through the accumulation of decentralized, individual decisions that, taken together, nonetheless conduce to a circumstance that affects the entire group.' In contrast, *sovereignty* harnesses political will and enables collective decision-making (*Id.*). Although an individual, a government bureaucrat, CEO, or a pastor for example, often makes a final decision, he or she acts on behalf of a group of people. It might not feel to a citizen, shareholder, or parishioner that this individual decision-maker acts in furtherance of his or her beliefs, values, and choices.

[51] I elaborate further in Chapter 6 on the power of tax incentives for oil and gas development.

However, what matters here is the procedure and order that turns the plethora of divergent individual choices into one collective choice, which all the individuals are supposed to obey.

Remarkably, one of the first scholars to articulate the idea of sociability-premised power was Weber, whose name is associated with developing the theory of sovereignty-grounded power relations. The so-called Weberian idea of power, or as Weber calls it, domination, exists by 'virtue of authority'. Such domination comprises of 'patriarchal, magisterial, or princely power' (Weber, 1978, p. 943). The other form of domination exists 'by virtue of constellation of interests' (*Id.*). Weber uses a monopolist's position on the market as an ideal type of such domination. However, he goes beyond a monopoly example and sees domination 'by virtue of constellation of interests' also as 'derived exclusively from the possession of goods or marketable skills guaranteed in some way and acting upon the conduct of those dominated, who remain, however, formally free and are motivated simply by the pursuit of their own interests.' (*Id.*) He provides several examples, including the relationship between lenders and borrowers where the latter have little choice than to accept the financial institution's terms (Grewal, 2008, p. 117).

A further theoretical foray into the nature and origins of sovereignty, especially as it relates to the concept of risk governance, is tempting. However, in order to stay within the scope of this study, I have limited it to a brief inquiry of a sovereign power of a state and the Russian state in particular. The theories that explain the origin of a state (*teorii proishozheniya gosudarstva*) occupy a significant portion of Russia's legal theory scholarship and its law school curriculum. Students are presented with several theories, including theological, patriarchal, conquest (*nasiliya*), Marxist (materialist), psychological, and social contract. Interestingly, post-Soviet textbooks do not favour one theory over another (Alekseev, *et al.*, 2004).

Such a pluralistic view on the origin of a state perhaps foreshadows the understanding in Russian society that sovereignty is not necessary associated with a democratic decision-making process.[52] 'Orthodoxy, Autocracy, Nationality' (*Pravoslavie, Samoderzhavie, Narodnost*), the official ideology of Russian absolutism articulated by the Minister of Public

[52] I explore public attitudes toward democratic institutions in Russia below.

Education Uvarov in 1832 connected the theological, patriarchal, and conquest theories and proclaimed the unquestionable authority of a God-connected, Viking-rooted father of all Russian people (Serov, 2003).

The reason why I took this seemingly irrelevant historic detour is two-fold. First, such a view of a sovereign makes sovereignty and sociability in the context of decision-making virtually indistinguishable. In a democratic society, a government bureaucrat is deemed to represent the public interest determined through the process of collective decision-making. His or her choice as an individual actor cannot contradict the collective choice when he or she is engaged in so-called public service. If such a conflict exists, the bureaucrat must remove himself or herself from the position of an official decision-maker. Judges recuse themselves and legislators abstain from the vote. Under the Orthodoxy, Autocracy, Nationality ideology, such conflicts of interest do not and cannot exist because of *l'état, c'est moi* – the monarch is the state and the state is the monarch (Caplan, 1999). This means that the choices that a monarch makes individually, to engage in a war or join a trade treaty, for example, are also the choices of the people, regardless of whether they were consulted in that regard. Moreover, under extreme absolutism, the monarch is not accountable for his or her decisions unless the people revolt and overthrow the monarch.

The second reason for the historic detour is the merger of sovereignty and sociability in the risk governance of the oil and gas activities that I observed in the course of this study and expand on in Chapter 6. Instances of such merger are not unique to Russia – no country is immune to private interests permeating the public realm. A form of the merger, corruption, which Transparency International (Transparency International, 2016) defines as the 'abuse of entrusted power for private gain', has even affected Norway, a country atop its list. The fact that corruption is endemic in Russia is not unique either – there are many countries where corrupt practices are seen as a fact of social life (Ledeneva, 2013, p. 1136). What is remarkable about Russia is that many Russians see the modern day version of the Orthodoxy, Autocracy, Nationality ideology as the only way of confronting the ills that this very ideology brings, including the ills of corruption. This feedback loop questions the very existence of meaningful and balanced risk governance where collective public interests can be ambushed by overwhelming private interests at any moment.

5.4. Law as demarcation of sovereign power

The purpose of this detour related to sovereign power is to put a key component of this study, law within the theoretical framework of social power. Similar to power, law is not an easy concept to define. Legal scholars have been arguing about the meaning of law since ancient times and are yet to reach consensus. Yet understanding different views on the concept of law is critical for the locating its place and role *vis-à-vis* the concept of social power and determining what empirical sources need to be analysed. It would have been impossible to provide a comprehensive account of a single major legal theory let alone all major legal theories in this study. For this reason, I will limit my investigation of conveying the essence of the following four most common theories in the contemporary legal scholarship – positivism, natural law, realism, and pluralism.

Positivist scholars see law as a 'matter of what has been posited (ordered, decided, practiced, tolerated, etc.)' and thus as a social construction (Green, 2009). The biggest criticism of positivism arises from the fact the theory does not premise the *existence* of law on its merits, for example on the ideals of justice and democracy. Many anti-positivists misinterpret this view as a justification for law that is unjust and undemocratic (*Id.*). Although this criticism is defensible regarding early branches of positivism such as imperatival theories, it is less so in the case of modern positivism. Bentham and Austin, who are regarded as the founders of legal positivism, view law as a compilation of commands that come from a sovereign. These commands come from implicit sovereign authority and therefore are *valid* and not subject to moral scrutiny (*Id.*).

Hart, a legal philosopher responsible for modernizing positivism, brought a normative element to the theory by recognizing the root of a legal system's normative power of social custom (Lacey, 2004). In addition, in the first addition of his seminal book, *The Concept of Law*, Hart makes the following remark: 'No "positivist" could deny that these are facts, or that the stability of legal systems depends in part upon such types of correspondence with morals. If this is what is meant by the necessary connection of law and morals, its existence should be conceded.' (Hart, 1994, p. 204) This line of thinking opened the door for what Hart

(1958) calls 'soft positivism'. Also known as 'inclusive positivism' this branch of positivism allows for a wider inclusion of moral principles into legal analysis.[53]

Many view legal positivism as an antipode of the natural law theory. Black's Law Dictionary describes natural law as '[a] philosophical system of legal and moral principles purportedly deriving from a universalized conception of human nature or divine justice rather than from legislative or judicial action; moral law embodied in principles of right and wrong.' (Black's Law Dictionary, 2014) Natural law theories go back to works of Thomas Aquinas who defined law as: 'an ordinance of reason made by him who has care of the community for the common good and promulgated.' (Finnis, 2015) Dworkin, who is regarded as one of the most vocal critics of positivism, is also seen as one the key scholars behind the development of legal interpretivism, a contemporary branch of the natural law theory. He premises his view of law on an abstract set of conditions under which the government can use force over its citizens (*Id.*). Such conditions must be determined in advance and honoured by society as a whole. In order to identify what the law is in a given jurisdiction, one must not go to a particular source, a legislature for example. Rather, one should engage in a political and moral analysis comparing the existing legal practices to the predetermined and honoured set of conditions (*Id.*).

Whereas the natural law theory takes a high philosophical ground to oppose legal positivism, legal realism fights it in legal 'trenches'. Realism in its purest form is a theory of adjudication, as Leiter puts it 'a theory about what it is judges really do when they decide cases.' (Leiter, 2001, p. 279) The best way to explain the essence of realism is by referring to the famous American case of *Riggs v. Palmer*. In this case, the beneficiary who murdered the decedent was set to benefit from the crime had the court adhered to the text of the will. The court however, followed the moral principle that an heir should not benefit from his or her wrongdoing and denied the inheritance (Ambrosio, 2000, p. 31). Similar to inclusive positivism, legal realism separates the descriptive and the normative sides of law, drawing a sharp boundary between 'the is and the ought'. Some realists believe that because of its focus

[53] The question of whether the validity of law is predicated on its conformity with certain moral principles is subject to a scholarly debate. Yet further investigation of this debate requires a more extensive discussion that is only tangentially related to the principal topic of this study.

on the descriptive end, it is close or even complimentary to positivism (Leiter, 2001). Others point at the origins of realism in the rebellion against formalism, and thus consider realism to be closer to natural law theories (Ambrosio, 2000, p. 32).

Legal pluralism unlike the natural law theory and legal realism takes a somewhat reconciliatory approach. It emerged in the wake of anthropological investigations of indigenous ways of governance in remote parts of Africa and Oceania. Anthropologists were interested in the ways these communities maintained social order without the genius of conventional (continental or common law) legal systems. The concept caught on and was utilized to study 'advanced' societies in the United Kingdom, France, and the United States. Legal pluralism has been especially helpful in researching complex multi-level legal systems governing resource extraction in the Arctic (Merry, 1988). Novikova (2014), for example, includes in her studies not only the indigenous customary law traditions of the Russian Arctic but also corporate norms and the national law of the Russian Federation. Griffiths (1986, p. 1) defines legal pluralism as the 'state of affairs for any social field, in which behaviour pursuant to more than one legal order occurs.' He distinguishes between the 'social science' and the 'juristic' notions of legal pluralism. The former is concerned with the coexistence of different legal systems within a single social group. The latter is reduced to a problem when one legal system is placed over an already functioning legal system (Merry, 1988).

Unsurprisingly, there is no agreement among social power scholars on what constitutes law. Foucault's view is a surprising outlier here given his major contribution to the second stream of social power research. He builds his concept of disciplinary power through the critique of the juridico-political model of power, and sees law as one of the main power mechanisms of this model (Foucault M. , 1977). Foucault's view is on the extreme end of the aforementioned imperatival positivist theories with law as a top-down, obey-or-die weapon wielded by a supreme sovereign capable of crushing skulls and bending social will with direct, as well the threat of, physical force.

Hunt asserts and Silbey (1992) joins him in justifying Foucault's analysis as based on the distinction between classical and modern societies. However, this approach ignores the existence of what is known in modern jurisprudence as private law, the law of contracts, for example. Ancient Babylonians, Greeks, and Romans were entering into transactions without much interference from a king, the Assembly, or the Senate and sought sovereign's input only in relation to *disputes* over such transactions. Yet, as Green (2009) points out, this view persists among some Foucauldians despite the plentiful evidence of the contrary.

Those who did not read past page 34 of *Economy and Society* are likely to think that Weber's and Foucault's views on law in the context of social power are not that far apart. The definition that Weber provides – law as an organized threat of coercion – has made its way into many scholarly works. This oversimplification is due to Weber using the term law to describe a range of concepts in his works. Trubek (1972, p. 727), through an analysis of his arguments in the aforementioned treatises, deciphers the following Weberian view of law, premising his view on the following three elements:

> [T]he essential elements of Weber's broad concept of 'law' are that it be a system of standards, maxims, principles, or rules of conduct, to some degree accepted as obligatory by the persons to whom it is addressed, and backed by a specialized enforcement agency employing coercive sanctions. To the extent that sanctions are applied in accord with a system of rules, law is said to be 'rational.' By highlighting the elements of coercion, legitimacy, and rationality, Weber puts law into the category of sovereign power or as he refers to it 'domination by virtue of authority.'

Bourdieu, who in my view provides one of the most encompassing and cohesive accounts of law within the social power framework, builds on the Weberian idea of 'formal rationality' by recognizing law's 'power of form' (Bourdieu, 1986-1987, p. 809). Bourdieu's inclusiveness comes from his visualization of law as the 'juridical field' that he sees as 'an area of structured, socially patterned activity or "practice," in this case disciplinarily and professionally defined.' (*Id.* p. 806) These economic, psychological, social, and linguistic practices possess power that determines how law operates in the society. They are carried out within habitus, behavioural structures formed via tradition, professional custom, and education (*Id.* 807). Bourdieu is not completely satisfied with either excessive formalism (usually associated with exclusive positivism) or the extreme instrumentalism of some realist scholars. The genius of Bourdieu's approach is that he recognizes each theory's strongest points. He gives instrumentalists their due for connecting the juridical field with 'the exercise of power in other social realms and through other mechanisms'. Bourdieu also tips his hat to formalists for deciphering the law's special feature, the aforementioned 'power of form' (*Id.*).

I found this duality of law – its close substantive connection with social power and its special 'power of form' – to be of critical importance to this study. First, law delimits the boundaries of social power and counter-power by establishing visible and socially significant markers. These markers are akin to physical boundary markers – some are set in stone and some are not. However, even some of the 'set-in-stone' markers that at first glance instil the sense of stability can and often are moved after a short while. Second, law delimits these social power boundaries in a special way. It employs special mechanisms such as language, reasoning, and organization, which amounts to what Riles (2011) calls a legal technology. For these reasons, I employed inclusive positivism as the theoretical basis of my legal analysis because it enabled me to use conventional legal sources such as statutes, rules, and regulations, as well as policy statements that do not possess the formal force of law.

Cotterrell (1995, p. 6) notes that: 'the theoretical analysis of law reveals many forms of power at work through law, or related to it in intricate ways.' Correspondingly, analysis of Russell's theoretical take on social power leads to the same conclusion. Russell (1937) relies on law in many examples to illustrate how different forms of power – priestly, kingly, economic, organizational, state, and the form where force is absent, or as he terms it, 'naked power' – work in the society. Thus, contrary to the views of many Marxist philosophers and imperatival positivists, Russell does not appear to be willing to make law an exclusive prerogative of the state. This view is in line with Weber's analysis of sovereign power that, as I noted above, included large organizations such as churches and companies (Grewal, 2008). For example, both the Catholic (Boudinhon, 1910) and Russian Orthodox Churches (Brokgaus & Effron, 1890-1907) have leaned on Canon law, as demonstrated by their own codified sets of laws for governing activities of clergy and church members, as well as their relationship with the secular governments.

5.5. Legal, regulatory, and policy regimes and structures of domination

This chapter began with a real-life risk governance example. I have referred back to the example to illustrate how the law governing generation of knowledge about risk works in the context of social power. I close this chapter by connecting these theoretical points together and presenting the policy, legal, and regulatory regime that governs risk in connection with oil and gas activities in Russia as a structure of sovereign power.

The policy, legal, and regulatory framework reviewed in Chapter 4 represents the boundaries in which it can exercise authority over handling risk posed by oil and gas development in Russia. Blomley (2014, p. 135), who draws upon Callon's concept of 'framing the states of the world', calls the creation of these boundaries 'bracketing'. He explains the purpose of bracketing as an attempt to draw a boundary within which interactions occur with some degree of independence of the surrounding factors.

Legal brackets, even in relation to a particular activity, are rarely created by one piece of legislation. Rather they are built from the existing pieces, some of which may constitute a significant portion of a bracket structure. 'On Environmental Review', 'On Ethnological Review', and Order 372, which I reviewed in relation to the EA and ER of the Power of Siberia, lie within these brackets of the framework that I reviewed in Chapter 4, which in turn lies within the brackets of the Russian legal system. Many legal brackets that are part of a legal subsystem, energy law for example, overlap. Blomley (2014, p. 137) describes this phenomenon as 'brackets themselves becom[ing] inserted in other legal brackets'. The 'bracket overlap' as well as 'bracketing' itself does not happen by virtue of concerted legislative action and rulemaking by administrative agencies. Blomley notes the 'mechanism of legal precedent' as one of such pathways (*Id.*).

Blomley (2015) develops his account of bracketing by studying the treaty process between provincial and federal governments on one side and First Nations on the other. One of the aims of the Canadian government is to clarify its relationship with indigenous communities by extinguishing the disordered to the common law aboriginal title and replacing it with the straightforward fee simple category (*Id.*). This process is in some ways analogous to the process of issuing a licence for oil and gas prospecting, exploration, and/or extraction reviewed in more detail in Chapter 7. There, the government sets the terms and conditions for a potential 'subsoil deposit user' regarding the oil and gas deposit. The process is not one sided as the Federal Law 'On Subsoil Resources' suggests (Law N2395-I , 1992, art. 9). Companies often play an active role in determining terms and conditions under such a licence (Senior Russian NOC Manager, 2014). Therefore, licensing is bracketing within the legislative and rulemaking bracketing that has already occurred.

If exercised on an *ad hoc* basis, the aforementioned instances of force, manipulation, signification, and legitimation, would classify as what Scott (2001) terms as elementary forms of power. However, if these elementary forms of power are channelled through the institutional framework of a legal system and take the form of 'stable and enduring' social relations, they may transform into what Scott (2001, pp. 15-16) calls structures of domination. Scott aligns corrective influence with domination through constraint and persuasive influence with domination through discursive formation. The former is achieved through coercion and inducement whereas the latter is through expertise and command. Because his main concern is with 'domination as the basis of *leadership*', he builds his terminology accordingly. Thus, he associates coercion with 'lions', inducement with 'foxes', expertise with 'owls', and command with 'bears'. He also separates the patterns of resistance, or 'counteraction' as he calls it, from the aforementioned structures of domination, distinguishing between 'protest' and 'pressure' (*Id.*).

It would have been amusing to use Scott's animal kingdom terminology in this thesis. It also would have been intriguing to examine the data that I collected through the lenses of counteraction structures. However, because this study does not focus on leadership, I found no utility in examining structures of counter-power separately. Thus, I studied the power and counter-power dynamics as part of the same power structure. For the same reason, I refrained from designating actors and groups of actors as lions, foxes, owls, and bears.

Another element of Scott's structure of domination definition that I chose to forego is its large scale. For example, Order 372, which creates brackets for conducting OVOS, is a stable and enduring structure. Unlike constantly changing 'On Environmental Review', Order 372 remained largely the same since its adoption in 2000. Many other structures working through Russian formal and informal institutions are not necessarily large-scale. Most of the smaller-scale structures, the licensing regime for example, were part of larger structures.

This Matryoshka (Russian nesting doll) model enabled me to zoom in and out of a particular structure depending on the question at hand. This model is also consistent with Blomley's aforementioned observation regarding smaller legal brackets inserted into larger legal brackets. Thus, when sovereign power is channelled through law and forms a stable and enduring pattern, it can be described as a power structure demarcated by legal brackets. In this respect, it is similar to Eisner's concept of regulatory regime that identifies as 'marked by the "configuration of policies and institutions" structuring relations between social interests, state and economic actors in the economy.' (Eisner, 2000, p. 1)

Hood, Rothstein, and Baldwin's (2003) definition of the term of regime in relation to regulation of risk is substantially similar to that of Eisner. These scholars use the term 'to denote the complex of institutional geography, rules, practice, and animating ideas that are associated with the regulation of a particular risk or hazard.' (*Id.* p. 9) They distinguish the following three characteristics of a risk regulation regime: (i) a systemic nature, (ii) temporal continuity, and (iii) bounds 'that can be specified at different levels of breadth' (*Id.*). Because of these definitional similarities, I use the terms 'regime' and 'power structure' interchangeably.

Blomley (2015, pp. 169-170) draws on Callon's idea that although brackets provide some separation between the more stable inside and less stable outside, they do not sever one from the other. He also makes an astute observation about particular brackets, property boundaries, classifying them as 'only a line of separation, but also a zone of connection' (Blomley, 2014, p. 138). It is precisely at the legal brackets that some power relations encounter legally delimited power structures. This is where Gazprom's decision to develop the *Chayandinskoe* and *Kovyktinskoe* fields met the power or, depending on one's perspective, the resistance of a state in the form EA. This is an instance when sociability and sovereignty-based power structures start interacting, sometimes inside the legal brackets and sometimes outside of them.

A legitimate question arises – what happens inside the legal brackets of a particular power structure? Depending on the power structure and the scale of inquiry, one might find one or more additional power structures. In addition, a stable and enduring power structure provides room for agency. Under Article 3 of Order 372, Gazprom had a choice of soliciting public preferences via several pathways, including public hearings. Gazprom's agency in soliciting public input can be further limited by structural constraints of accepted business practices, which in the case of the Power of Siberia called for public hearings (Order N732, 2000).

'On Environmental Review', 'On Ethnological Review', and Order 372, as well as any source of law intended to demarcate power structures, are also by-products of both human agency and political structures. Structural constraints of the Russian political system might have influenced the agency of the government officials responsible for promulgating these laws but these constraints did not draft or revise these instruments, nor did they vote for or sign them. Thus, law-making and rulemaking serve as crude but straightforward examples of structuration, where structure and human agency work together.

Thus far, I have largely omitted generation of risk knowledge from the discussion of the concept of power. The omission was intentional – my foremost goal in this section was to flesh out the policy, legal, and regulatory regime that governs risk in connection with oil and gas activities in Russia as a structure of sovereign power. Having accomplished this goal, I can now segue back to where this section started, the discussion of knowledge about risk in the context of the EA and ER of the Power of Siberia pipeline.

In order to do this, I will utilize the three-dimensional view of power developed by Lukes (1974). According to the Minutes of Public Hearings (Discussion) of Project Documentation in relation to the waste disposal sites for pump stations KS-3 '*Amginskaya*' and KS-4 '*Nimnyrskaya*' (the 'Minutes'), the hearing took place on 25 October 2013 in the Sakha city of Aldan (Aldanskiy District, 2013). Twenty people participated in the meeting, including the Gazprom subsidiary's managers, local officials, and employees of Gazprom's sub-contractors responsible for the design of the facilities in question. Project documentation for the aforementioned facilities served as the principal topic of the hearing. The meeting featured an introductory address and concluding remarks by the head of the local government and two presentations by sub-contractor representatives. The Minutes also mention 15 questions from the audience and a discussion. In addition, the Minutes state that as the result of the hearing, the project materials were approved subject to 'suggestions and comments' that should be incorporated in the project documentation 'if necessary' (*Id.*).

The outcome of the hearing is what Lukes (1974, pp. 11-15) describes as the one-dimensional view of power. The decision was made as a result of the opinions of what appeared to be the majority of hearing participants. According to Lukes, this conception of power developed by Dahl, Polsby, Wolfinger, and other scholars, is hardly complete (*Id.*). Thus, he adds another 'dimension' associated with the work of Bachrach and Baratz into his analysis of power in collective decision-making.

The essence of this power dimension is 'control of the agenda' (*Id.* p. 21). The hearing discussed two waste disposal sites, which according to Stammler (2014) are usually not atop the local people's list of concerns. Local people are not necessarily worried about one industrial facility. Rather, they are concerned about the *en masse* development that comes in the form of roads, quarries, and the actual pipeline that disturbs traditional reindeer migration routes, hunting and fishing grounds, and reindeer pastures (*Id.*). However, because 'On Environmental Review' limits EA in relation to trunk pipelines to waste disposal issues, these more pressing issues were not on the hearing agenda (Law N175-FZ, 1995, art. 11). Thus, law is especially useful for bracketing agenda-setting power, as statutes, regulations, and precedents pay particular attention to jurisdictional and administrative discretion matters.

The third dimension is exemplified by the fact that no one at the hearing questioned *the very idea* of the pipeline in the Aldanskiy district of Sakha. It is highly unlikely that the local official chairing the meeting would have allowed this issue for discussion, and if he did, the outcome of this discussion would have been only symbolic under the applicable law. Yet the absence of a single question about the underlying reason of the meeting shows the state of powerlessness and indifference. Lukes (1974, p. 25) categorizes the power to create such a state as the least transparent and the strongest dimension of power.

It is difficult to pinpoint the exact reasons for the utter resignation to a decision that will affect many lives in the Aldanskiy district, Sakha, and the Eastern Siberia and the Far East regions. However, the source of the resignation is a strong belief among Russian people in the competence and superiority of central power. For example, only 6% of Russians attribute the rise of economic prosperity in 2000s to efforts by regional and local governments (Levada-Centre, 2014, p. 87). In contrast, 62% believe the rise is due to Vladimir Putin's leadership (*Id.*). Only 19% of Russian citizens believe that regional and local legislators should be free of executive control, whereas 25% believe think that they should be fully and 35% under partial control of the executive branch (*Id.*). This attitude is exemplified by the statement that a family member of mine made in response to my question about the ever-increasing 'vertical of power' in Russia: 'Roma, did you forget what kind of country you came from? Without a strong leader, Russia will fall apart. It has always been this way.' (Family Member, 2014)

While perusing Levada public polls under the impression of this conversation, I remembered the following passage from Nikolay Nekrasov's poem that I read in the secondary school:

> Grandma Nenila asked village head Vlas
> To give her some lumber to fix her hut
> He answered: 'We don't have any, and don't wait for it to come'
> 'When the lord comes, he will settle this,
> He will see that the hut is bad
> And will order to provide lumber', thinks the grandma (Nekrasov, 1856).

I was surprised to come across a reference to Nekrasov's poem whilst reviewing the transcript of a 9 June 2011 State Council meeting (President, 9 June 2011). President Medvedev commented on a list of directives given to federal agencies in response to a flood of complaints voiced by environmental NGOs during a meeting that took place a day earlier (President, 8 June 2011). The Russian President was not completely certain about the veracity and credibility of the complaints and asked the Administration to verify the claims: 'Let them check. Let "the lord come and will settle this".' (President, 9 June 2011) In Russian society, the propensity to resign to the strong central power is hardly a secret to both the principals and the subalterns.

5.6. Conclusion

I began this Chapter with examining the *conceptual* underpinning of the risk governance theory and its 'proto-foundation' – the mutually reinforcing feedback loop between power and knowledge. Analysing of the Power of Siberia example revealed that in the context of hydrocarbon development the power-knowledge dynamic occurs in two stages: creation of the general power structure and implementation within the structure. This analysis also revealed the importance of recognizing two opposing sides in the risk governance process that represent potentially divergent private and public interests. Most importantly, the social concept of power emerged as the common denominator for analysing how these two sides interact with each other in appraising, evaluating, managing, and communicating risk. The side charged with representing public interest relies on sovereign power structures that are demarcated by legal brackets. These power structures are best understood through a theory of structuration, which provides insight regarding the compliance with and ongoing changes of legal and regulatory landscapes.

Unlike Beck, Giddens, and Luhmann, I did not aim to develop a universal theory of risk. My task was far less ambitious, as I searched for conceptual understanding of the decision-making processes that I observed. I found an answer in the most fundamental of social theory concepts – power and knowledge. I therefore contributed to risk governance literature by offering a simple yet compatible approach to examination of risk governance processes on a micro (in comparison to Beck's, Gidden's, and Luhmann's) scale. I also identified a theoretical pathway for the risk governance researchers willing to explore beyond the existing risk theories – the complex but rich and diverse universe of the social power concept. I made another contribution to risk governance literature by showing (through the EA and ER mechanisms) the adversarial nature of risk governance when private and public interests are involved. In addition, my investigation of EA and ER as risk governance processes contributed to applied risk governance literature. These contributions also added to literature on the social concept of power. I illustrated through the Power of Siberia example how various forms of power are capable of explaining social phenomena in the context of risk governance of the oil and gas sector. Because I tied the example to the legal and regulatory requirements, my observations extend to other projects as a matter of law's general applicability. The multiplicity of social power forms, streams, and dimensions that I located throughout the example also confirmed Russell's (1937) postulate about the foundational nature of power in social sciences. In addition, I built on the work of Blomley (2014) (2015) and re-sketched the Bourdieusian duality of law as overlapping sovereign power structures delimited by brackets forged by legal technology. This set the stage for the development of the risk governance power framework, provided conceptual justification for using legal texts in analysis of power relations, and contributed to the socio-legal literature on the legal aspect of power.

6. Who Governs Whom? The Power of the Oil Standard

6.1. Conceptualizing the power of oil and gas

In the previous chapter, I focused my analysis on the origin of power behind those who govern risk posed by oil and gas activities. In this chapter, I shift my focus to the *governed.* My overarching goal here is to find underlying reasons behind challenges of governing such risks in Russia. With this overarching objective in mind, I commence the development of the Risk Governance Power Framework by first examining the hazardous activity at issue. In particular, I aim to contribute to risk governance literature by shifting away from the universal theories of risk offered by the aforementioned scholars and examining the qualities of the oil and gas sector that might influence the risk governance process. I also aim to contribute to the heterodox power theory literature and to the development of the network power theory by examining it in the context of the oil and gas sector. In addition, because of the empirical grounding in the Russian policy, legal, and regulatory regime, I aim to contribute to the literature regarding policy-making in the Russian oil and gas sector.

6.1.1.1. Sociability and sovereignty in risk governance

As I noted in the introduction, one of the limitations of this study is the difficulty of incorporating an in-depth analysis of all theories capable of explaining the collected data. For this reason, I restrained my examination of resource curse, path dependence, and social network theories to a cursory literature overview. Initially, I subjected the concept of network power to a review of similar depth. Yet even a cursory overview confirmed that the concept of network power was not only able to provide a compatible theoretical foundation for analysing power relations, it also possessed a great deal of explanatory capacity for the task at hand.

In the simplest terms, network power is the power of a standard that coordinates social relations in a network (Castells, 2011a, p. 773). Perhaps the most straightforward example of a standard is language. As I discovered after arriving in the United States on an exchange program in 1997, not speaking the English language at the level expected for certain types of social interactions may become problematic. As my American former girlfriend explained, the reason why she went on dates with me in October, and not in August when we first met, was because earlier I was not fluent enough to have a romantic conversation.

Grewal develops the idea of network power in the context of globalization. The principal object of his investigation is the drive behind the globalization phenomenon, which he attributes to the standards that coordinate it:

> The standards that enable such global coordination display what I call network power. The notion of network power consists in the joining of two ideas: first, that coordinating standards are more valuable when greater numbers of people use them, and second, that this dynamic – which I describe as a form of power – can lead to the progressive elimination of the alternatives over which otherwise free choice can effectively be exercised. It is support for, and criticism of, both of these elements, in various guises, combinations, and degrees of self-consciousness, that fuels contemporary debates over globalization (Grewal, 2008, p. 4).

Because the Russian oil and gas sector is an indispensable part of the global energy system, Grewal's focus on globalization creates many parallels with the subject of my investigation. Yet the parallels do not end at the geographic scope. Grewal examines relationships and processes that orthodox theories of power fail to explain. After all, it is unheard of for a national leader or his or her state apparatus outside the United States to coerce the citizens into eating at McDonald's or manipulating them into going to see *Star Wars*. Similarly, there is no apparent coercion or manipulation in purchasing an automobile or living in a dwelling connected to the electrical grid. Yet the concept of network power can explain how these actions – based on ostensibly free but in reality often-forced individual choices – are a product of 'convergence on a dominant standard' (Grewal, 2008, p. 106).

In Chapter 5, I noted the ontological difference between the mainstream and the second stream power theories, with the former grounded in the relations of sovereignty and the latter in those of sociability. Whereas the regulatory mechanisms described in Chapters 4 and 5 rely largely on sovereign power, the counter-power of the regulated community is, at its core, premised on the relations of sociability. Network power is premised largely on the latter. Yet, as the Power of Siberia example suggests, in risk governance it is often difficult to determine which end of the power-resistance spectrum each side occupies. Thus, the power dynamics between the sovereign-backed regulator charged with protecting the collective public interest, and the sociability-driven regulated community advancing individual interests, resemble two opposing lines constantly firing at each other. As I show in the remainder of the thesis, in the case of oil and gas development in Russia, the sovereign side is all but waving the white flag.

This is a significant paradox considering the immense power of the Russian sovereign in regulating risk posed by oil and gas activities. Yet this paradox has a simple explanation. The practical effect of the Kremlin's modern-day version of the *l'état, c'est moi* ideology translates, among other things, into control over the distribution of the immense benefits that oil and gas extraction brings. As I show in Chapter 7, the endemic abuse of sovereign power for private gain results in the diversion of a sizeable part of these benefits into the pockets of the Russian elite, including the Russian leadership. Because risk governance is as much about identifying and assessing risks as it is about weighing them against benefits, in the case of Russia, the sovereign regulator becomes more of a promoter and protector of the sociability-driven regulated community. In this situation, unless the risks posed by oil and gas development threaten the development itself, the product of what happens in the risk lab is unlikely to be free of bias. And if by chance it is, the likelihood of it impacting risk governance, particularly at the characterization and evaluation (C&E) stage, is low.

Yet attributing the network power of oil and gas to the benefits it brings without explaining their nature and origin does not elucidate the particular challenge that hydrocarbon-related activities pose for risk governance. However, these challenges become clearer through examining a conglomeration of standards upon which up-, middle-, and downstream oil and gas companies, as well as government officials, motorists, homemakers, and pensioners, converge.

6.1.1.2. The three ontologies of the Oil Standard

In Chapter 2, I described the Russian oil and gas sector through three dimensions: (1) based on the technology and the size of the resource base; (2) based on the political and geopolitical ties it creates; and (3) based on the socioeconomic bonds it forms. Oil and gas standards can be characterized based on the same taxonomy.

In the oil and gas sector, the term standard is usually associated with technical standards that set parameters for implementation of certain technologies or activities. Examples of such highly technical standards include NORSOK D-001 (drilling facilities) or IEC 60079, IEC 61892, and IEC 80079 (ignition source control) (Barents 2020, 2012, p. 115). Such standards possess some network power, as a company that has chosen one standard over another will likely have to invest in certain equipment and in training its management and personnel. This means that it is unlikely to switch to a different technical standard because of the sunk cost.

However, the network power of such standards is negligible in comparison to a standard that powers technology used by billions of people around the world. As noted in Chapter 2, global mobility runs overwhelmingly on oil. Oil-based petroleum products power the internal combustion engines of everything from an auto rickshaw on the streets of Mumbai to an A380 taking off from Heathrow airport. Natural gas has gained and continues to gain prominence in the power sector and as a heating fuel, but its penetration has not reached the scale of oil. However, due to the technological configuration of the systems that transport, store, and convert natural gas into heat and electricity under certain circumstances dependence on this commodity is much more pronounced than dependence on oil. Vivid examples of such dependence include the California energy crisis of 2000, caused in part by natural gas shortages (Yergin, 2011), and the freezing Eastern European cities in the winter of 2009 due to Gazprom's supply interruption through Ukraine (Kramer, 2009).

Thus, oil is a standard of global mobility and natural gas is a standard of a significant part of the world's heating and electrical generation. In this sense, the vast oil- and natural-gas-powered infrastructure reveals the ontologies of oil and gas's network power in *technological dependence*. And it is not just planes, trains, and automobiles, or furnaces and water heaters, that require oil and natural gas to operate. Serving them is a vast network of drilling rigs, tankers, pipelines, storage facilities, refineries, petrol stations, and power plants.

Grewal notes that a standard that has network power can become a universal standard. Such a standard resembles 'a convention on which all members of a network have settled' (Grewal, 2008, p. 10). There is little doubt that oil has reached this status given its 93% share in the transportation sector (IEA, 2015a, p. 33). Natural gas, however, is not a straightforward case. Not all electricity is generated through combustion of natural gas. However, because of the convergence of natural gas and electricity production, many electrical power systems around the world have incorporated natural gas as an integral part of the energy mix. Thus, the industrial, commercial, and individual consumers whom these systems serve settled on natural gas as one of the universal standards of electrical power. Similarly, when natural gas is used as the primary or the only fuel in district heating systems, the convergence on it as a 'heating standard' is universal. Even in the case of furnaces and boilers serving individual residences, the cost of switching to a heating system powered by a different fuel all but ensures the universal acceptance of natural gas within the network of such furnace and boiler users.

Grewal differentiates between two kinds of standards: mediating and membership. He defines the former as 'a standard that governs access to others by its very nature; some particular social activity is inherently regulated by it.' (Grewal, 2008, p. 21) In the case of oil, access to social mobility lies through oil, whether in the form of fuelling a car with gasoline or buying an airplane ticket. A membership standard 'usually requires enforcement by some actor or set of actors to exclude all but those who adopt particular norms.' (*Id.* p. 22) Perhaps the two most recognized entities in the oil and gas world are the Organization of the Petroleum Exporting Countries (OPEC) and the International Energy Agency (IEA). These two energy clubs epitomize the world's divide of into the oil and gas producing half and the consuming half. Russia, although not a member of OPEC, belongs to the producing half.[54]

[54] Other "outliers" constitute a diverse group including Canada, Norway, Brazil, and Mexico. (Johnson, 2008)

The division is not completely accurate, however. Some members of the IEA are also major oil producers. For example, at the time of writing this thesis, the United States was the world's largest petroleum and natural gas producer (EIA, 2016). What really matters here is whether a country is a net oil and gas exporter. Net exporters belong to what Fesharaki (2013) calls the 'House of Oil', a network of nations that compete and at the same time often coordinate each other's policy initiatives.

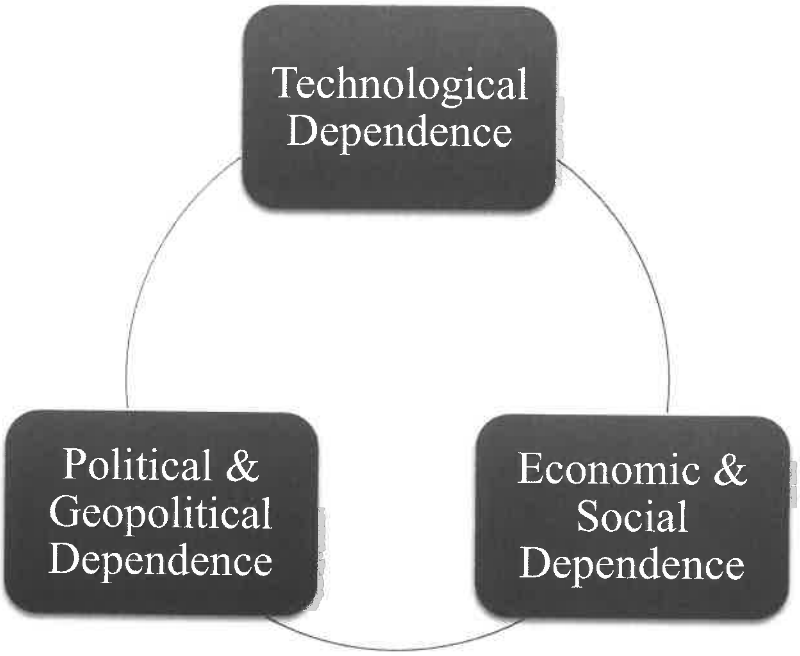
Dominance of a single sector in a nation's economy leads to Dutch disease and resource curse (Karl, 2007), and creates *economic and social dependence,* which is the second origin of oil and gas's network power. An oil- and gas-related activity – prospecting, production, and manufacturing of drilling equipment, among many others – serves as a standard here. The economic and social dependence on oil and gas exploration, production, transportation, and refining is what drives the best and the brightest to the oil and gas sector. The former lawyer for a large Russian oil company had the following to say about Moscow State University's law students: 'Most of them dream of obtaining their degrees and going to work for Gazprom or Rosneft.' (Former Russian IOC Lawyer, 2014) The economic and social dependence on oil and gas also makes other economic sectors subservient to the oil and gas sector, sometimes with the help of the government. For example, as noted above, the Kremlin's particular interest in bringing Northern Sea Route navigation back to its former glory is attributed to the development of the hydrocarbon resource base in the Arctic (President, 17 September 2008).

The quantitative dominance and qualitative penetration of the oil and gas sector in the Russian economy and society suggest its near universal acceptance as such among Russian citizens. This makes oil- and gas-related activities a convention premised on what Hume (1998, p. 98) calls 'a sense of common interest'. This perception of common interest drives the economy and impacts significantly the social life of the nation.

Conceptualizing oil and gas activities as a dominant socio-economic standard is not as straightforward as the language example given above. It is even less so regarding the impact that oil and gas have on political life. After all, the political manoeuvring that I described in Chapter 2 was by the head of the Russian state and thus had the flavour of a sovereign defending government policy. However, President Putin's remarks pandered largely to the domestic audience enamoured by the common interest associated with Russia's 'sacred cow'. Judging by the questionable economics of the Power of Siberia deal, the remarks were not directed at advancing common interest but protecting the individual interests of the Russian governing elite. This exemplifies the *political and geopolitical dependence* on oil and gas, which I see as the third origin of oil and gas's network power. Here, the standard is the sense or perception of common interest, which often drives political and geopolitical decisions.

Although the technological dependence serves as an overarching ontology of the oil and gas sector's network power, it is not necessarily the initial phase through which the standard emerges. For example, as I noted in Chapter 2, after the collapse of the Soviet Union, the national oil and gas sector entered a period of decline. The decline lasted until the early 2000s, when surging oil and natural gas prices combined with the pro-extraction policies of the Putin administration led to the Russian oil miracle (Gustafson, 2012). This created a strong perception among Russian citizens of a correlation between oil and gas production and improved quality of life. As the official discourse surrounding the Power of Siberia deal suggests, the public perception of the socio-economic benefit – and not necessarily the technological dependence – served as the main reason why the Russian leadership pursued this risk-laden project. Therefore, it is reasonable to conclude that the technological, socioeconomic, political, and geopolitical dependences are locked in a non-directional feedback loop as Figure 21 illustrates.

Figure 21: Three origins of oil and gas sector's network power



6.1.1.3. <u>Conceptual challenges of the Oil Standard</u>

Perhaps the biggest challenge of conceptualizing oil and gas as having network power is that there is not just one standard. The easiest standards to pinpoint are related to the technological dependence created by the use of hydrocarbons. The standards that are premised on socio-economic and political dependence do not always apparently display the gravitational pull of network power. Grewal (2008) confronts the same problem while examining neoliberalism, also known as the Washington Consensus, as a standard of globalization. He concludes that neoliberalism is not a single standard but 'a host of related standards, the network properties of which are not generally configured to provide them with network power' (Grewal, 2008, p. 14). He further elaborates that neoliberalism-based economic policies provide access to membership in certain 'clubs' such as the Word Trade Organization. However, often governments adopt such policies because their leadership finds them persuasive or because they are manipulated by a more powerful state or an alliance of states (*Id.*).

Neoliberalism, as Grewal (2008, p. 15) concludes, is not a 'take it or leave it' standard and 'it can be broken down, adopted piecemeal, and revised, as many successful economies have managed to do.' Oil and gas is not a 'take it or leave it' standard either, even though the world runs, drives, and flies on oil, and powers and heats itself with natural gas. Internal combustion engines, including turbo fan jet engines, can run on biofuels, and an electrical grid can be powered by other types of generation. A few oil and gas net exporting countries, Norway for example, have largely avoided socioeconomic and political dependence.

Therefore, the scope and scale of a network, as well as the degree of a network power's strength, serve as important qualifiers of a standard. Although bio fuels can be used to power internal combustion engines, they currently cannot and likely can never be used on a global scale, at least in the nearest future (Yergin, 2011). Similarly, although natural gas might not be indispensable for electrical power generation mid- and long term, it certainly is in the short term. In addition, in certain national grids and locales, natural gas will remain the standard fuel of electrical power generation and heating. Thus, in terms of technological dependence, both oil and gas remain conventions of the current energy system.

Although Norway's economic dependence on oil and natural exports is numerically similar to Russia's, the oil and gas sector does not have the same kind of social and economic pull as it does in Russia (EIA, 2015a). The quantitative and qualitative difference in the level of social anxiety in these two countries over falling oil prices serves as one example. The housing price and consumer confidence data cited by Koranyi and Skonnord (2014) confirms that an average Norwegian was not worried about the impact on 20% of his or her country's GDP. And although my Norwegian interviewees, including a few connected to the oil and gas sector, showed some concern about the plummeting oil prices, it was not nearly at the same level as Russian citizens.

This is not to say that the network of Norwegian politicians is completely free from the influence of the oil and gas sector. Røstvik (2015), for example, declares Norway to be the most corrupt Scandinavian country, due in large part to the regulatory capture by the oil and gas sector. Although Røstvik's accounts belong more to the category of conspiracy theory than to academic investigation, the Norwegian leadership does not shy from highlighting its oil and gas sector as a significant part of the national economy (Solberg, 2014) (Solberg, *et al.*, 2015). The degree to which Oslo politicians use oil and gas to advance their agendas on the national scale cannot defensibly be compared with the Russian leadership's public relations campaigns. However, a local politician in a region and municipality with heavy oil and gas industry presence, Finnmark or Nordland, for example, would lean more on the alleged benefits of hydrocarbon development to score political points (Nilsen, 2016).

Conceptualizing the gravitational pull of oil and gas through a multitude of standards does not yield a precise and all-inclusive answer. The oil and gas sector is a complex conglomeration of overlapping multi-layered networks of different scopes and scales, some of which are closely connected with each other while others are more loosely so. Yet, they all have at least one common denominator, oil and (or) natural gas. Proliferation of oil and natural gas to every corner of the world turned the multitude of standards upon which members of these networks converge into technological, socioeconomic, and political conventions with global reach.

The complexity and multitude of different standards spanning technological, socioeconomic, and political dimensions makes it tempting to explore more precise second-stream power forms exercised in the networks. Castells (2011a, p. 773) adds the following three more forms of such power:

> *Networking Power*: the power of the actors and organizations included in the networks that constitute the core of the global network society over human collectives and individuals who are not included in these global networks.
>
> . . .
>
> *Networked Power*: the power of social actors over other social actors in the network. The forms and processes of networked power are specific to each network.
>
> . . .
>
> *Network-making Power*: the power to program specific networks according to the interests and values of the programmers, and the power to switch different networks following the strategic alliances between the dominant actors of various networks.

Yet I find that the three proposed ontologies of oil and gas network power provide a sufficiently nuanced explanation of the ways in which oil and gas affects the risk governance process. In addition, the aforementioned common denominators provide yet another reason to keep the analysis under the same conceptual umbrella.

Determining the event or occurrence that gave birth to the network power of oil and gas presents the same set of challenges as deciphering the standards and identifying the networks. There is likely not a single event that brought oil and gas to its current prominence. Rather it is a combination of such events and occurrences that by virtue of reason, force, and chance contributed to the rise of hydrocarbons in the twentieth and twenty-first centuries (Grewal, 2008, p. 10).

Grewal (2008, pp. 38-40) differentiates two tipping points, or what he calls thresholds of network power: the threshold of visibility and the threshold of inevitability. He describes the former as 'the point past which a network is sufficiently large to become attractive to non-users' (*Id.* p. 39) and the latter as 'the point past which a network has become so dominant that we can expect virtually all non-users to adopt its standard' (*Id.* p. 40). Yergin's (2011) masterful description of the history of personal transportation identifies the meeting of entrepreneur Eugene Langen and the brilliant self-taught mechanic Nikolaus Otto as the event that lead to the invention of the 'Otto cycle' internal combustion engine in 1876 and the birth of the auto industry in Germany in 1890. Collaboration between Langen and Otto gave visibility to the internal combustion engine and to petrol as its fuel (*Id.* p. 10864). However, it was not until the release of the Ford Model T in 1908, followed by 'Horseless Carriage fever', that the internal combustion engine-powered automobile and petrol started their accent to the threshold of inevitability (*Id.* p. 10936).

According to Henry Ford, the man who is principally responsible for this accent, his August 1896 conversation with Thomas Edison, the father of electrification, is what emboldened the young engineer from Dearborn, Michigan to pick an internal combustion engine over an electric motor to power his 'quadricycle' (Yergin, 2011). After asking Ford, who at the time worked for the Detroit Edison Company, a number of questions regarding his design, Edison banged his fist on the table and exclaimed, 'You have the thing, keep at it!' (*Id.* p. 10813)

The odds were stacked against Ford – in 1898, gasoline-powered cars were not even among the top five types of vehicles on the streets of New York. Electric and steam-powered cars were much more popular. However, by 1910, global conversion to the personal vehicle with an internal combustion engine was all but inevitable (Yergin, 2011).

In contrast, the story of natural gas ascendance as a critical fuel for electrical power generation and heating lacks such events. And as mentioned above, natural gas owes its demand to capital-intensive infrastructure, such as pipelines, power plants, and LNG terminals. However, both oil and natural gas did not become dominant transportation, heating, and electrical generation fuels completely by chance. Oil and natural gas possess high energy density, which made them attractive fuels for such uses (Hanania, *et al.*, 2016). These intrinsic qualities, as Grewal calls them, pushed hydrocarbon to the threshold of visibility (Grewal, 2008, p. 32). Sir Winston Churchill, for example, argued for the British Navy's switch from coal to petrol on the basis of higher energy density of the latter, resulting in increased battleship armour and speed (Yergin, 2011, p. 4307). However, extrinsic reasons, such as the widespread use of powered cars and the availability of fuelling stations, caused doctors and women – who initially preferred electric vehicles – to switch (*Id.* p. 10913) (Grewal, 2008, p. 32).

In risk governance of oil and gas activities, recognizing the difference between intrinsic and extrinsic reasons for proceeding with an activity is especially important. Oil and gas development is frequently portrayed as superior to other activities in meeting goals such as mobility, energy security, and economic development. In reality, however, it is largely extrinsic reasons – the size of the existing oil- and natural gas-powered transportation, power generation, and heating networks and thus the demand for hydrocarbons – that all but determine the decisions made in relation to oil and gas development.

This is not to say that intrinsic qualities of oil and gas become irrelevant – oil and natural gas remain dense packets of chemical energy. However, their conventional value outweighs any intrinsic merits or demerits. Therefore, risk governance has a difficult task in scrutinizing what is known as 'conventional energy systems' adopted on the global scale (Sovacool, *et al.*, 2013).

Unsurprisingly, the richest person in the history of humanity, John D. Rockefeller, amassed his wealth by conventionalizing the oil and gas business. What was initially an effort to deliver a lighting kerosene of standard quality turned into all-out domination of the global oil and gas industry through control of the budding U.S. oil and gas sector (Doran, 2010). Thus, it is only fitting that Rockefeller named his company 'Standard Oil'. In addition, it is only fitting that I refer to the network power of the oil and gas sector as the power of the Oil Standard.[55]

One does not need to look further than the turn of the twentieth century to see the technological, socioeconomic, and political origins of Standard Oil's network power. From dominance in transporting and refining crude oil to mercilessly wiping out his competitors and leaving behind oil ghost towns, Standard Oil kept a tight grip on the U.S. economy and society for many decades (Doran, 2010). Standard Oil also skilfully penetrated the political realm, deploying an army of lawyers and lobbyists in Congress and state legislatures. It took the enactment of the Sherman Antitrust Act (the landmark anti-monopoly statute), twenty-one years of hard effort, and a decision by the U.S. Supreme Court to break up Standard Oil into smaller companies (Doran, 2010a). When Rockefeller was told about the court's decision, he seemed unfazed. In fact, he encouraged the bearer of the news to buy Standard Oil's stock, predicting that the power of the company would only grow stronger (*Id.*).

As the turn-of-the-twentieth-century cartoon below depicts, the sociability-premised Oil Standard (or Standard Oil in this case) has had a complicated relationship with sovereign power.

[55] In some respects, the Oil Standard is similar to the gold standard used in the late nineteenth and early twentieth centuries. The gold standard elevated the intrinsic value of gold as a precious metal to the extrinsic value of the legal tender. (Grewal, 2008)

Figure 22: A cartoon from the 23 May 1906 Edition of Puck *magazine depicting U.S. President Theodore Roosevelt as a toddler Hercules wrestling with the two-headed Standard Oil serpent, Nelson W. Alsrich and John Rockefeller (Nankivell, 1906)*

This is hardly surprising – Grewal (2008, p. 45) notes that in real-life decision-making, the line between sociability and sovereignty is blurred:

> [A]ny actual social structure may well be constituted by relations of both sociability and sovereignty. Indeed, these relations are intertwined in a rather deep way. Excepting perhaps the most elementary or fleeting forms, the relations of sociability usually depend upon background conditions determined and enforced by the relations of sovereignty. Similarly, without the sociability that renders us mutually intelligible, we would not be able to assemble ourselves into larger decision-making bodies— that is, we would not be able to constitute our sovereignty.

Such convergence poses another challenge for conceptualizing the network power of oil and gas because it clouds the identity of the principal and the elementary form of the relation. For example, an adoption of an aggressive hydrocarbon exploration policy might be presented as a product of deliberate government decision-making. However, in reality, it is driven by individual choices of the governing elites whose individual interests are intermingled with those of the industry. As I have highlighted in this section and will elaborate further below in the remainder of the chapter, intermingling individual interests with entrusted responsibilities to advance common interests distorts the very purpose of risk governance.

6.2. The life of the Oil Standard

6.2.1. Unquestionable benefits of the Oil Standard

Having conceptualized the gravitational pull of the oil and gas sector through network power, I continue with examining the Oil Standard in the Russian Federation in the context of risk governance. In the rest of the chapter, I explore how the power of the Oil Standard interacts with the Russian state's sovereign power. In this section, I focus on the manner in which the benefits of oil and gas development are presented in the risk PA and C&E setting.

In most instances, the discussion of oil and gas development benefits precedes the discussion of risks. This should not be surprising, because risks of oil and gas development should not be discussed absent the source of the hazard, the development itself. Thus, it is not necessarily the order in which risks and benefits are presented, but the combination of the order, extent, and precision with which benefits are described that elevates them (the benefits) over risks, which are frequently mentioned as an afterthought. As a result, the incumbent, expansive, and ostensibly certain knowledge of benefits creates a power dynamic that negatively affects the creation of new bias-free knowledge about risks.

The Russian leadership likes to focus on occurring and potential benefits of oil and gas development. Every reviewed presentation or speech made at a meeting or press conference related to oil and gas development began with a great deal of discussion about the realized and unrealized resource potential. For example, President Medvedev began his speech at the 17 September 2008 Security Council meeting, which was devoted to Russia's interests in the Arctic, with emphasizing the region's importance for maintaining Russia's competitive advantage on global commodity markets. He immediately drew attention to the scale of the on-going mineral resource extraction and concluded his introduction with the following statement: 'Of course, our foremost goal is to transform the Arctic into Russia's resource base in the 21st century. . . .' (President, 17 September 2008)

As I elaborated in Chapter 2, the Russian leadership is concerned with the shrinking oil reserves and thus the real possibility of declining oil production. According to the head of Federal Agency for Mineral Resources *(Rosnedra)*, Alexander Popov, if already-explored fields were not developed, the rate of production would start declining in 2020, reaching 360 million tonnes a year by 2030 (President, 13 February 2013). This would represent a nearly 35% drop from the 2014 level of 540 million tons (EIA, 2016). However, the rate of extraction of already explored oil fields is an even bigger problem. Not only does the Russian leadership encourage extraction, but it also requires the subsoil deposit users (oil and gas operators) to produce. Under this scenario, the acquisition of benefits becomes a foregone conclusion regardless of the risks that stand in its way (President, 13 February 2013).

In contrast, a discussion of risks does not always take place, and when it does, it almost always follows the discussion of benefits. When risks are considered, they are frequently manipulated in order to highlight the overall value and supremacy of benefits. At the same September 2008 meeting when President Medvedev set transformation of the Arctic into Russia's resource base as the nation's foremost goal, he also briefly acknowledged that 'resolution of environmental problems of the North remains a priority.' (President, 17 September 2008) Considering that this was the eighth item on his agenda list, following a discussion of airport modernization and development of the Northern Sea Route, doubts arise as to whether addressing environmental risks is indeed a Kremlin priority (*Id.*).

The Russian leadership has made several other references to the risks posed by oil and gas development, and each was just as laconic, if not more so. The following two-sentence remark by President Medvedev captures this extreme brevity: 'The effect of the fuel and energy sector remains rather negative. It is what it is.' (President, 13 December 2010) Perhaps the brevity can be attributed to the fact that Russian leadership does not give such risks as much as an afterthought. In a meeting that took place on 9 June 2011, Dmitry Kobylkin, the governor of the Yamal National Autonomous District, started his presentation about on-going and planned oil and gas projects in the Russian Arctic by emphasizing that they are aimed at strengthening Russia's economic presence and potential in the region. He switched to the environmental part of his presentation by stating that a 'thorough thought must be given as to how to avoid a negative impact on the environment.' (President, 9 June 2011)

Mr Kobylkin's statement is concerning because he suggests that *no* thought has been given to environmental risks despite a great deal of planned and occurring oil and gas activities in the region. At the same time, oil and gas extraction is perceived as unavoidable and as part of human nature. As President Putin pointed out, humans have always used nature for subsistence, and hydrocarbon extraction is the modern day subsistence. 'Is it possible to stop it? Of course not. It is impossible to stop it', said Mr Putin at the plenary session of the international Arctic forum, 'The Arctic, Territory of Dialogue' (President, 25 September 2013). In contrast, although minimizing environmental risks is something that the Kremlin aspires to do, doing so 'now is difficult' (*Id.*).

The 'impossible to stop' oil and gas development is presented via benefits expressed in real numbers. In contrast, the presentation of risks is usually made in less certain terms. Paradoxically, in speeches and meetings, the overarching topic of which was energy development, Slovic's (1987, p. 281) uncertain risk factor was utilized to *ease* and not emphasize fears about potentially negative impacts of the development. The meeting participants and the Russian leadership framed unknown risks as insignificant, especially in comparison to significant, substantial, and concrete benefits. Omitting references to potentially catastrophic spills in Arctic waters and catastrophic changes in demand for oil and gas certainly helped to accomplish this goal.

For example, during a 26 September 2013 (President) meeting regarding the Yamal LNG project, Mr Putin highlighted the 1.3 tcm resource potential of the Yuzhno-Tambeyskoe natural gas field and 53% increase in the Northern Sea Route (NSR) passage traffic as two strong reasons for proceeding with the project and for the Russian government's investment in the project's infrastructure. As to the risks, they were to be determined later per the president's directive. However, whatever these risks would turn out to be, they were not going to reverse the decision to proceed with Yamal LNG (*Id.*).

Presenting oil and gas reserves and resources as certain benefits is misleading. According to the Society of Petroleum Engineers (SPE) (2016), proved reserves, offer '90% probability that the quantities actually recovered will equal or exceed the estimate'. Probable reserves offer 50% of such probability and possible reserves offer 10% (*Id.*). Russia does not follow the widely accepted SPE classification and does not use probabilities of recovery that are similar to the SPEs (Order N477, 2013). In particular, it lacks the analysis of the quality and economics of deposit recovery (President, 13 February 2013). According to the Head of *Rosnedra*, these shortcomings of the reserve classification system lead to international financial auditors underestimating the true resource potential of the Russian Federation by 30% (*Id.*). An oil and gas professor in the United States who worked on a legislative bill of Russia's first petroleum law in the 1990s made the following remark: 'I never trust what the Russians say about their reserves.' (U.S. Oil and Gas Professor, 2014) Her comment is clearly much harsher than 'underestimate', but she is not alone in her assessment of the veracity of Russia's official reserve information. For example, Smil (2010, p. 99) notes that the accuracy of the Soviet and Russian reserve data 'has always been questionable'.

Mr Putin's remark about the NSR traffic was also misleading because it did not represent the trend in Arctic shipping. In 2014, the NSR traffic dropped by 75% from 2013, and in 2015 it dropped by 86% from 2014 (Rodova & Geller, 2016). There were no oil and gas transit cargoes in 2014 or 2015 (*Id.*). However, the President had *firm* numbers for the benefits and *slight* concerns for the risks. In this scenario, numbers win handily making the decision to proceed with Yamal LNG appear perfectly rational.

A 5 June 2014 (President) meeting, with the officially designated topic of 'on effective and safe development of the Arctic' (Figure 23), epitomizes the deafening primacy of oil and gas activities in the Russian energy policy discourse. The meeting began on a surprising environmental note with President Putin signifying its coincidence with the World Environment Day. The President emphasized the importance of environmental protection for the region's fragile flora and fauna, and noted the devastating 'consumer-like' attitude of the past (*Id.*). He summarized the first half of his address with a call not to make the same environmental mistakes in the future.

Figure 23: President Putin flanked by the Minister of Natural Resource and the Environment Donskoy and Emergency Situations Minister Puchkov at the 5 June 2014 meeting (President of Russia, 2016)

After this atypical introduction, the president's address and the following presentations took a 180-degree turn. The World Environment Day meeting, the main topic of which was supposed to be systemic risks *posed by oil and gas* development in the Arctic, turned into a meeting about handling risks *threatening oil and gas* development in the Arctic. One after another, participants discussed what various government agencies, the scientific community, and civil society could do to aid oil and gas development in the Arctic.

Some of the remarks were related to mitigating the risks of oil and gas development in the Arctic. For example, the head of the Russian branch of the World Wildlife Federation (WWF) Alexey Knizhnikov touched on his organization's cooperation with the industry on matters such as oil spill prevention in Arctic waters and endangered species protection during hydrocarbon activities (*Id.*). However, none of the participants questioned the supremacy of oil and gas in the economic development of the Arctic region over all other policy concerns. None of the presenters scrutinized the perceived grand benefits of turning the Arctic into Russia's resource base for the twenty-first century. Additionally, no one at the meeting wondered whether the risks of oil and gas development in the Arctic might outweigh its ostensible benefits. The World Environment Day meeting began and ended with oil and gas development in the Arctic being a foregone conclusion and the risk discourse centred on mitigating the potential adverse impacts to oil and gas activities.

An argument could be made that if this meeting were to be run by Greenpeace, which unequivocally opposes hydrocarbon development in the Arctic, the scenario under which oil and gas development in the Arctic could proceed would not have been on the table. The difference, however, lies in the forum where the discourse takes place, as well as in the practical outcomes of the discourse. The 5 June 2014 meeting was not the gathering of a stakeholder group in which the group refined its position and strategies. This was a meeting organized and run by the ultimate sovereign decision-maker with agenda-setting power. The sovereign framed the discourse so that acquisition of oil and gas benefits was the only option, whereas an analysis of the risks posed was reduced to determining the ways of fostering acquisition.

6.2.2. Subsidizing the Oil Standard

Inflating benefits of oil and gas development while downplaying the risks that come with it is an indirect way of manipulating risk governance. Doing so on the scale of the Russian oil and gas sector requires a systemic approach, the underpinnings of which I will explore in the following chapter. In this section, I examine the subsidies that create a direct path for ensuring that oil and gas development remains an attractive and desirable option regardless of the risks that it poses. Because subsidies traditionally are not considered part of the risk governance ecosystem, they are not viewed as capable of influencing decisions involving risks. As I show in this section, the opposite is true.

The World Trade Organization's (WTO) Agreement on Subsidies and Countervailing Measures (ASCM) (1999, art. 1), to which Russia and 149 other countries have agreed, defines a subsidy as follows:

> (i) a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees);
>
> (ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits);
>
> (iii) a government provides goods or services other than general infrastructure, or purchases goods;

(iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments.

Article 2 of ASCM clarifies that such a measure must be specific to 'an enterprise or industry or group of enterprises or industries' to qualify as a subsidy. Article 2 further clarifies that a measure does not need to be specific on 'its face'. It can have an effect of a subsidy, for example, if the economy is dominated by a single sector (*Id.*).

To say that the Russian leadership subsidizes oil and gas activities in the Arctic would be an understatement. For example, according to Gerasimchuk (2012), there were 30 federal subsidies schemes for the oil and gas sector in 2009 and 2010. She had sufficient data to quantify 17 out of 30 schemes, concluding that the Russian government conferred $8.1 billion in 2009 and $14.4 billion in 2010. Table 13 depicts the ten largest oil and gas subsidies in 2010.

Table 13: Top ten subsidies conferred to the Russian oil and gas sector in 2010 (Gerasimchuk, 2012)

Subsidy	**Approximate Amount in U.S. Dollars**
The export duty exemption for East Siberian oil	$4 billion
Tax holidays with respect to the mineral extraction tax on East Siberian oil	$2 billion
The property-tax exemption for trunk oil and gas pipelines	$1.9 billion
Tax holidays with respect to the mineral extraction tax on oil produced at new onshore fields in the Nenets Autonomous Okrug and of the Yamal Peninsula in the Yamalo-Nenets Autonomous Okrug	$1.5 billion
The reduced tariff for transportation of oil through the East Siberia-Pacific Ocean pipeline	$1.1 billion
The reduced rate of mineral extraction tax on oil from mature fields	$1 billion

The export-customs duty exemption for natural gas exported through the Blue Stream pipeline to Turkey	$0.8 billion
The deduction of R&D and exploration costs from taxable profits	$0.6 billion
The accelerated depreciation allowance	$0.6 billion
Federal budget spending on oil and gas exploration	$284 million

Lunden and Fjærtoft (2014) conducted an in-depth review of subsidies for the Prirazlomnoe and Yamal LNG projects. Table 14 lists categories of subsidies that principal owners of the projects, Gazprom Neft' and Novatek, respectively, received from the Russian government.

Table 14: Main subsidies for the Yamal LNG and Prirazlomnoe projects (Lunden & Fjaertoft, 2014)

Yamal LNG	**Prirazlomnoe**
Direct and indirect transfer of funds and liabilities	
Construction and operation of the following infrastructure: • Administrative facilities • Ice-protection construction • Port harbour • Approach channel • Seaway channel Substantial investment in the following facilities: • Sabetta seaport • Icebreaking fleet through state-owned company Atomflot • LNG tanker fleet through state-owned company Sovcomflot Payment of compensation for environmental harm due to industrial activities including dredging State bank (Vneshekonombank) involvement in the financing of the LNG tanker fleet	Financing of the project through Gazprom budget partially funded by the Russian government 'Legacy' benefits and on-going government support of the construction contractors, Sevmash, Morneftegazproekt, Rubin, and Corral

Yamal LNG	Prirazlomnoe
Tax Subsidies	
Mineral Extraction Tax (MET) exemption for natural gas for up to 250 bcm during initial 12 years of production and for natural gas liquids (NGLs) for up to 20 Mt during initial 12 years of production Exemption for export duties (ED) for LNG and Stable Gas Condensate Exemption for property tax until 250 bcm of gas has been produced, but during 12 years from the time the property was put into service Reduced profit tax rate, 13.5% (from 18%) for the first 250 bcm of gas production during the initial 12 years of production Immediate accelerated depreciation allowance for up to 30% for fixed assets Accelerated (double the regular rate) depreciation for the assets located in the Arctic zone	MET exemption up to 35 million tonnes for 7 years starting 1 January 2015 Exemption from property tax (normally assessed at 2.2% on the annual value of the assets) Initial 44.6% of usual ED rate Immediate accelerated depreciation allowance for up to 30% for fixed assets Accelerated (double the regular rate) depreciation for the assets located in the Arctic zone
Other Subsidies	
The Yuzhno-Tambeyskoe natural gas field initial exploration and development costs were borne by the Soviet government when the field was first discovered in 1974 Licence to Novatek subsidiary, Tambeyneftegaz, was issued on uncertain terms Changes in the natural gas export legislation, allowing Yamal LNG to contract with foreign customers directly	The Prirazlomnoe field initial exploration costs were borne by the Soviet government when the field was first discovered in 1989 Virtually no development cost to Gazprom Neft' prior to 2006; a significant part of development cost was borne by the Russian government

Lunden and Fjærtoft (2014) estimate the total quantifiable value of the Russian government investment in the Yamal LNG project to be $7.4 billion including $3.3 billion in seaway dredging costs and $4.1 billion for the Sabetta area development (President, 26 September 2013). Remarkably, at the very minimum, $5.75 billion would be a *de facto* gift to Novatek and its partners (*Id.*). Lunden and Fjærtoft also estimate a government take decrease from 77% to 24% due to tax subsidies (*Id.*). This drop would translate into a near $15 billion tax revenue loss at the natural gas price of $12 per MMBtu, condensate price of $100 per barrel, and the exchange rate of 30 rubles per U.S. dollar (*Id.*) (Gerasimchuk, 2012).

As Table 14 suggests, the Prirazlomnoe project did not enjoy nearly the same level of support in terms of direct government investment in the project's infrastructure. However, it is important to note that the project was marred by numerous delays and cost overruns. For example, as of 2008, the construction costs of the infamous Prirazlomnaya platform neared $3 billion (*Id.*). Because Gazprom did not enter the project until 2006, it did not have to bear a significant portion of these costs, whereas the Russian government did. Due to the tax subsidies given to Gazprom Neft', the Russian state's take in the Prirazlomnoe revenue dropped from 92% to 53%. With the assumed price of oil at $100 per barrel and the exchange rate at 30 rubles per U.S. dollar, the tax subsidies amount to a nearly $4 billion loss in tax revenue (*Id.*).

Considering the more than two-fold decrease in the price of oil and two-fold devaluation of the Russian ruble compared to the rates used by Lunden and Fjærtoft (2014), the effect of the government subsidies conferred to Yamal LNG and Prirazlomnoe might not seem as drastic. However, because of the profound shrinking of its primary revenue base, the Russian government is currently in dire need of revenue, especially foreign currency funds. In addition, a great deal of equipment and materials was purchased and financed abroad, and thus was not offset by the corresponding (to the drop in oil price) devaluation of the ruble. This is all contrary to maximizing tax revenue and achieving an economic 'multiplication effect', the official primary goals of Russia's new Arctic projects (President, 13 February 2013).

Yamal LNG and Prirazlomnoe are not isolated examples of subsidizing the oil and gas sector. Although the Russian leadership praises 'pinpoint [*tochechnoe*] tuning of the delicate oil and gas sector', it also employs a systematic and programmatic approach to supporting Russia's 'sacred cow' (President, 21 June 2012). The goal-oriented government programs reviewed in Chapter 4 are one of the primary means though which such support is dispensed (President, 17 September 2008).

These programs serve as a prime example of the preferential treatment of the oil and gas sector within the Russian economy. One could argue that Russia *should* have programs aimed at protecting the hydrocarbon sector because it is the largest sector of its economy. However, such logic creates a perpetual vicious cycle: the larger the economic sector, the more support it deserves. As a result, the other sectors have less opportunity to challenge the Oil Standard on economic, environmental, and social grounds.

Nothing is completely off the table for the Russian government to support oil and gas projects – assistance with obtaining 'cheap money' financing (President, 10 July 2012) or financing private projects (Yamal LNG) with transfers from the National Welfare Fund (President, 31 October 2014) – especially during the initial phase (President, 6 September 2013). However, the Kremlin finds its biggest arsenal for pinpoint 'tuning' of the energy sector in the Tax Code. Not only does the system provide enough flexibility to manipulate the effective tax rate and create 'tax holidays', but the Kremlin's control of the Federation Council ensures that amendments to the Tax Code are passed at will.

Oil and gas companies operating in Russia are subject to the following taxes: (i) profit tax, (ii) value added tax, (iii) licence fees, (iv) corporate property tax, (v) social security taxes, (vi) excises, (vii) MET, and (viii) ED (EY, 2013). As noted in Chapter 2, the latter two taxes comprise the backbone of Russia's fiscal system. For example, in 2013, MET and ED accounted for more than 90% of all taxes paid by upstream oil and gas companies in Russia (EY, 2013). Downstream companies do not pay MET; they are, however, subject to excises on the petroleum products they sell domestically and internationally (*Id.*).

Russia is the only Arctic littoral state with the so-called revenue-based system of hydrocarbon taxation (EY, 2012). This is frequently seen as a deterrent to development of new projects, because a company becomes subject to tax liability the moment it starts producing oil and gas regardless of whether the company is actually making profit (*Id.*) (Russia Director, Consulting Company, 2014). In addition, ED liability commences when extracted oil and gas are exported. MET is calculated by multiplying the base rate by several coefficients, including the world oil price dynamics coefficient, reservoir depletion coefficient, deposit size coefficient, and extraction difficulty coefficient. The base rate and some coefficients are set forth legislatively by amending the Tax Code, and some coefficients are set jointly by tax authorities and the taxpayer. ED rates are set in the tax code and by the RF Government (EY, 2013). This allows the Kremlin to grant some oil and gas subsidies 'in-house' and avoid a few weeks of legislative process delay.

A federal law dated as of 21 July 2011, amended Part II of the Tax Code and gave Novatek the aforementioned 12-year MET, and thus serves as an example of a legislative act granting an individual subsidy (Law N258-FZ, 2011). Federal Law dated as of 30 September 2013 is an example of a 'tax manoeuvre', a sweeping amendment aimed at reconfiguring the system of hydrocarbon incentives (Law N268-FZ, 2013). As a result of the September tax manoeuvre, a series of substantial subsidies for exploration and development of Arctic oil and gas fields were created, including:

- Gradually inclining MET base rate and declining ED rate for crude oil and declining ED for light petroleum products;
- A full MET exemption for Arctic and some Subarctic onshore and offshore fields if developed in 7-10 years and until the total production of approximately 250 mbo has been reached;
- Reduced MET for offshore Arctic oil and gas until 2032, 2037, or 2042 depending on the location of the deposit;
- A full ED exemption for offshore Arctic oil and gas until 2032 or 2042 depending on the location of the deposit; and
- Lower tax rates for corporate assets located in the Arctic continental shelf (*Id.*).

These changes were first proposed in a 12 April 2012 directive signed by then Prime Minister Vladimir Putin (Directive N443-r, 2012) (Donskoy, 2012) (President, 13 February 2013). President Putin signed the measures into law as part of the Tax Code in September 2013.

The most recent tax manoeuvre was adopted in December 2014 (EY, 2014a). Its key elements included raising the base MET rate and lowering the crude oil ED rate. They also included lowering the ED rate for light oil petroleum products and raising the ED rate for heavy oil petroleum products (*Id.*). Faced with plummeting oil prices and U.S. and E.U. economic sanctions, the Kremlin had little alternative than to maximize the government's take of oil and gas revenues. According to Fjærtoft and Lunden, (2015) the December 2014 manoeuvre has largely failed to meet this goal.

The main reason Russia adopted the current revenue-based system of taxation in the early 2000s was to increase simplicity, thereby masking the systemic deficiencies of poor tax collection and enforcement. These deficiencies negated the advantages of the profit-based system that existed during the 1990s and during which companies routinely inflated their costs and underreported their profits (*Id.*). However, as of May 2016, Part II of the Tax Code that includes the section on mineral resource taxation has been amended 401 times since the Code's inception in July 2000. The result of such 'over-manoeuvring' is the loss of simplicity and creation of fertile ground for extensive lobbying for individual subsidies.

Jockeying for individual subsidies is a frequent occurrence of presidential energy-focused meetings. For example, even after receiving generous tax breaks for the Yamal LNG project, Novatek lobbied for more, including further regional subsidies (President, 13 February 2013). There are two distinct camps: one supporting profit-based taxation reform and another favouring the revenue-based status quo. The first camp is numerous and features powerful figures, such as Rosneft's Igor Sechin, energy minister Alexander Novak, and the environmental minister Sergey Donskoy (CSIS, 2015). During a 4 June 2014 (President) energy commission meeting, Sechin provided a bleak forecast for Rosneft's plans in the Arctic should the 2014 tax manoeuvre be allowed to proceed. He stated that Yurubcheno-Takhomskoe and Kuyumbinskoe field developments, as well as the modernization of the Angarsk Petrochemical Plant, would have to be put on hold (*Id.*). Moreover, he argued for adopting the profit-based model of taxation and praised the stability of the arrangements that the Production Sharing Agreements of 1990s had created. He promised a $400 billion investment in the Russian continental shelf over the next 20 years and multiple projects that would span 30 to 50 years, provided Russia reforms its petroleum taxation framework (*Id.*).

However, Camp Sechin, Novak, and Donskoy have very stern and currently insurmountable opposition – the Ministry of Finance and President Putin himself (CSIS, 2015). With revenue either lost due to generous tax breaks and/or delayed due to new projects that have yet to produce, Russia might soon end up with bare coffers, a position it has not been in since the default of 1998. In addition, despite seemingly airtight control on the energy sector, Vladimir Putin simply does not trust either the oil and gas companies to report their true profits and losses, or the Federal Tax Service to do its job, as evidenced by the following quote:

> [Addressing Mr. Novak] Aleksandr Valentinovich, regarding the profit tax – to what extent is it possible to administer it? Financial result is not a tonne, it is a very fluid thing. We have very experienced people here [acknowledging heads of energy companies present at the meeting] and they employ excellent specialists whose skills are well above yours and definitely mine. I would not even understand what they tell us and the profit would always be minimal and the tax base negligible (President, 4 June 2014).

Mr Novak then tried to persuade the President by proposing pilot projects, citing Western experience with the profit-based model, to which Mr Putin replied: 'Fine, let's talk later.' (*Id.*)

However, tax revenue concerns exacerbated by low oil prices and Western sanctions and President Putin's distrust of the Russian oil executives, including a few members of his inner circle, appear to be the only barriers to even more rapid and extensive adoption of tax subsidies for oil and gas development. The only record of openly querying subsidies for systemic risk-laden projects that I found was a question during the final G20 meeting press conference in September 2013:

> A question regarding 'green' economy and energy: Will the decision to consolidate state budgets impact our country's tax policy regarding giving oil and gas companies subsidies to develop deposits located on the continental shelf, including the Arctic continental shelf? Considering that risks are high, especially the economics ones, is the risk of losing this investment high as well? What about risks for the state budget – they are, of course, colossal?
>
> . . .
>
> V. Putin
>
> You have to understand that these are very capital-intensive projects with unknown final results. For this reason, it is necessary to conduct geological prospecting and development work. Even at the initial stage, these activities will take place in hard-to-reach regions, with the use of cutting-edge technologies, often far away from the shore and at significant depth. All of it makes these projects expensive. And, without government support at least at the initial stage, these projects will not materialise. Regarding the environmental side of this issue, I must tell you that we will not allow a single project to proceed without subjecting it to very serious, if not the utmost serious environmental assessment (President, 6 September 2013).

As I demonstrated in Chapter 5, Russia is yet to create a framework for 'serious' environmental assessments. In addition, the socioeconomic benefits of both projects, especially considering the loss of tax revenue due to the subsidies granted to Gazprom Neft' and Novatek are marginal at best (Lunden & Fjaertoft, 2014). Most importantly, it was subsidies that lifted the economics of both projects to the point where they became profitable options (albeit at $100 per barrel), despite significant risks and severely reduced societal benefits.

6.3. Conclusion

The theory of network power provides a comprehensive conceptual explanation of the oil and gas sector's resistance to risk governance. In addition, this theory brings a common denominator, the social concept of power, to an analysis of the interaction of those who govern risk and those whose risks are governed. The conceptualization of the oil and gas sector as having network power is complicated by the number of divergent standards that display network power properties. In order to confront this challenge, I offer three ontologies of hydrocarbon sector's network power: (i) technological dependence on oil and gas as fuels and all facilities and equipment involved; (ii) economic and social dependence on oil and gas activities that overwhelm other sectors of a nation's economy; and (iii) political and geopolitical dependence premised on the perception of common interest among the leadership and citizenry. The network power of the oil and gas sector, which I termed the 'Oil Standard', becomes particularly potent if it receives help from sovereign power structures. In the context of the Russian oil and gas sector, such assistance is especially visible in prioritizing benefits of oil and gas extraction in the policy discourse and subsidizing oil and gas exploration, development, and extraction.

Pursuant to the overarching objective stated in the beginning of this chapter, I focused on the hazardous activity that is subject to risk assessment, appraisal, characterization, estimation, management, and communication. I departed from the 'grand narrative' universal theory of risk reviewed above and argued for an approach that presumes that the outcome of risk governance might be influenced by the nature of hazardous activity and the influence that this activity has in the socio-economic and political realms. Therefore, I contributed to the risk governance literature by emphasising the importance of looking beyond the universal theories of risk and by developing a three-dimensional feedback loop, the analysis of which can lead to measuring the resistance of such activity to risk governance. I also contributed to this body of literature by illustrating how sovereign power structures representing the public interest might distort the risk governance process through prioritising a hazardous activity in an official policy discourse and directly and indirectly subsidising it. This analysis also highlighted an instance of sovereign- and sociability-derived power forms working together and furthered Grewal's (2008) argument regarding the lack of either power structure type existing in a pure form. I built my conceptual model of the Oil Standard on Grewal's theory of network power and therefore contributed to supporting its validity. However, I also argued against Grewal's narrow definition of a standard and presented an argument and an alternative to such a narrow view. In addition, because I made these contributions by using the applicable Russian policy, legal, and regulatory regime as a case study, I also contributed to the literature regarding Russia's oil and gas sector and, in particular, to the role of risk and benefits discourse in the federal policy-making and policy implementation.

7. Governing Risk in a Petrostate: Sovereign Power Structures and Allocation of Risks and Benefits

7.1. Acquisition and distribution of benefits as part of risk governance

I began Chapter 5 with demonstrating how risk governance of oil and gas activities occurs in the context of environmental and ethnological assessments. In Chapter 6, I showed how sovereign power structures aid acquisition of benefits associated with oil and gas production. In this chapter, I continue the analysis of how sovereign power structures approach handling risks posed by oil and gas activities.

I have maintained throughout this thesis that in the context of oil and gas development, understanding the benefits that drive it is as critical for risk governance analysis as understanding risks that accompany the development. Therefore, I begin this chapter with investigating distribution of the right to the resource, as well as the right to convert the extracted resource into financial benefit. Because Russia consumes only one quarter of the oil that it produces and because it has been trying to find a way to export its vast natural gas resources, I focus on transportation and access to the foreign markets (EIA, 2015).

Therefore, my overarching objective in this chapter is to complete the Risk Governance Power Framework and provide perhaps this study's most important contribution to risk governance literature. In addition, due to the abundance of empirical data, I also aim to contribute to Russian energy and environmental policy literature. More specifically, I aim to locate additional (to environmental assessment and ethnological review) risk governance regulatory mechanisms. I also aim to explore the role that personal benefits to public officials play in the energy and environmental policy-making and implementation in the Russian Federation.

7.1.1. Access to subsoil resources

Pursuant to 'On Subsoil Resources', there are two categories of mineral deposits. The first category comprises deposits 'of federal significance' that are designated as such for 'the purposes of defence and security of the state' (Law N2395-I , 1992, art. 2.1). Whether a hydrocarbon deposit belongs to this category is determined by its size and location. This category includes the following type of hydrocarbon resources: (i) all deposits with recoverable reserves of seventy million tonnes or more of oil or fifty billion cubic meters (bcm) or more of natural gas; and (ii) all mineral deposits (regardless of their size) located on the territory of internal sea waters, territorial sea, and continental shelf (*Id.*). This means that every large onshore oil or natural gas field (per U.S. EIA classification) and every offshore field fall into this category (Budzik, 2009). The second category comprises mineral deposits not included in the category of federally significant deposits.

The April 2008 amendments to 'On Subsoil Resources' and 'On the Continental Shelf' expanded the RF Government's already broad authority regarding access to and management of deposits of federal significance (Law N58-FZ, 2008). All subsoil users must be entities formed under the Laws of the Russian Federation, and the RF Government may restrict access to licensing auctions to entities with foreign ownership (Law N2395-I, 1992, art. 9). The RF Government bestows the right to use an onshore subsoil deposit of federal significance pursuant to the results of an auction or on an *ad hoc* basis (*Id.* art. 10.1). The RF Government may forego auctions in respect to any deposit of federal significance and include it on the 'List of Federal Significance Deposit Areas That are Granted without Auctions' (the 'List of Federal Significance') (Law N2395-I , 1992, art. 10) (Directive N873-r, 2016). In this case, the right to use such a deposit is reflected in an RF Directive amending the previous list (Directive N873-r, 2016). For example, the 11 May 2016 amendment to the List of Federal Significance confirmed transfer to Rosneft' of the Bogatinsky deposit located on the Sakhalin Island (*Id.*). Beyond this, the *ad hoc* process and the criteria used for bestowing the right thereunder are vague.

Access to continental shelf deposits is further restricted. In addition to the requirement of formation under the laws of the Russian Federation, an entity allowed to access the areas, which are at least in part located on the continental shelf, needs to meet the following two conditions. First, such an entity needs to have five or more years of experience operating on the Russian continental shelf. Second, more than 50% of its voting stock has to be under control of the Russian state (Law N2395-I, 1992, art. 9). As a result, only two companies, Rosneft' and Gazprom, had met and continue to meet these criteria.

The second category of deposits (not included in the category of federally significant deposits) is distributed via auctions and tenders, which are organized by the Federal Agency for Mineral Resources (*Rosnedra*). A tender involves evaluation of numerous factors, including the quality of the proposed development program, recovery rate, contribution to the socio-economic development of the surrounding area, proposed duration of the development and production, effectiveness of the measures aimed at mitigating and preventing environmental damage, and national security considerations (Law N2395-I, 1992, art. 13.1). In contrast, an auction involves only one criteria – financial as the highest bidder receives the rights to the deposit (*Id.*). Vladimir Putin criticised tenders for their lack of transparency and 'low effectiveness' for the state budget (President, 10 July 2012). Mr Putin's criticism is surprising given the degree of control the federal government exercises over the organization of tenders and auctions, and the transparency safeguards set forth in Article 13.1 of 'On Subsoils'.

Once an entity is granted the rights to a mineral deposit, *Rosnedra* formalizes it by issuing a licence. Pursuant to 'On Subsoil Resources' (Law N2395-I, 1992) and 'On the Continental Shelf' (Law N187-FZ, 1995), regional prospecting, prospecting, and exploration and extraction are the types of subsoil deposit uses for which a mineral licence is required.[56] Accordingly, *Rosnedra* can issue licences for all three uses. It may also issue a 'combined' licence that permits prospecting and exploration and extraction, but a combined licence does not automatically give the right to explore and extract hydrocarbons once prospecting has been completed (Law N2395-I, 1992, arts. 6, 10.1) (Law N187-FZ, 1995, art. 7). As mentioned above, to increase control over exploration and exploitation activities on the continental shelf, Article 6 of 'On Subsoil Resources' was amended in April 2008 to require

[56] The principal difference between regional prospecting and prospecting is that the latter has a smaller spatial scale and a higher degree of invasiveness.

a separate authorization from the RF Government before proceeding with such activities upon completing the prospecting phase, even in the case of a combined licence that includes all three phases (Law N58-FZ, 2008).

It might appear that issuing a licence is a purely formal step because the right to a deposit has already been granted. This is not the case. A licence includes important economic and environmental requirements, including the term for completing the allowed activities. The content of the licences is not publicly available, and Gazprom, Rosneft', and *Rosnedra* are all unwilling to share it. I attempted to obtain a sample *Rosnedra* licence through my industry-insider interviewees, but was unsuccessful.

Based on the requirements stated in 'On Subsoil Resources' and 'On the Continental Shelf', a licence typically allows for several activities that are associated with the principal phase for which the licence is issued. For example, a licence issued for exploration and extraction would likely also allow for reinjection of associated water and gas (Law N2395-I, 1992, art. 11). Article 9 of 'On the Continental Shelf' distinguishes the licensing procedure related to subsoil uses from the process for issuing permits for drilling operations (Law N187-FZ, 1995). Thus, some activities essential to oil and gas development, such as drilling and waste disposal, are subject to a separate permitting process.

Under 'On Production Sharing Agreements' ('On PSAs') (Law N225-FZ, 1995), the role of RF Government as the principal decision-maker in matters concerning major oil and gas deposits is diminished in comparison to the regime created by 'On Subsoil Resources' and 'On the Continental Shelf'. Pursuant to Article 2 of the statute, the State Duma determines which areas can be licenced pursuant to PSAs. Despite several amendments diminishing the Duma's authority, 'On PSAs' remains the most transparent legal instrument for allocating significant hydrocarbon deposits for exploration and production. Not only does it make the allocation process more transparent by moving it to a legislative body, but it also expands opportunities for public participation. For example, if a deposit is located in an area occupied by indigenous people, 'On PSAs' mandates a decision by the provincial legislature and the local government that oversees the interests of the indigenous population (*Id.*, art. 2). Although the statute does not elaborate on the exact legal impact of such a decision, 'On

PSAs' nonetheless creates opportunities for provincial, local, and indigenous input that other federal laws lack.

Paradoxically, despite PSAs popularity with foreign investors and, as of late, Igor Sechin, the Russian government rarely utilizes it. As noted above, to date, only three PSAs had been entered into – all three prior to the enactment of the statute (Minenergo, 2011) (Mazkov, 2008, p. 66). It appears that the Kremlin values *absolute* control over distribution of large hydrocarbon deposits above *near-absolute* control. As a result, the opportunities under 'On PSAs' for early identification of risks associated with developing such deposits and determination of their tolerability and acceptability at the regional and local levels have remained unrealised.

The departure from tenders is another lost opportunity for commencing risk PA and C&E before the decision to proceed with an activity has been made. The comprehensive criteria listed in Article 13.1 of 'On Subsoil Resources' can weed out entities that lack capacity and motivation to handle risks associated with developing the tendered oil and gas deposit. In addition, *Rosnedra* can utilize the data regarding the potential environmental and socio-economic risks to design conditions on the mineral deposit use during the licensing process or restrict and even withdraw the deposit from the pool offered for the development. Meanwhile, deposits containing significant reserves, akin to the deposits of federal significance, usually come with systemic risks that require timely, comprehensive, and inclusive risk governance. Therefore, the current process of granting rights to develop oil and gas deposits does not provide for this. Instead, it is built upon closed-door decision-making that favours a few industry actors who are close to the Kremlin.

7.1.2. Pipelines, tankers, and railway carts: access to foreign markets

As I noted in Chapter 5, state-owned Transneft' is responsible for transporting 80% of all oil produced in Russia. Transportation of oil and petroleum products via trunk pipelines is considered a natural monopoly under Russian law (Law N147-FZ, 1995, art. 4). For this reason, Transneft' is the lone owner and operator of the centralized oil pipeline transportation system, most of which was built during Soviet times (Perchik, 2005). The Russian legal system lacks a statute devoted to pipeline transportation of oil. As a result, producers, brokers, consumers, and Transneft' rely on a patchwork of laws and regulations (*Id.*).

In contrast to natural gas, oil and petroleum products are more flexible in terms of their transportation to the market. Therefore, in theory, most Russian producers are not tied to the Transneft' pipeline system, as they can ship oil to their foreign customers by rail, sea, and even road. However, this ability is restricted by the current sea terminal allocation system. The Ministry of Energy grants producers and their parent companies access to the terminals, but in proportion to the volumes delivered to the Transneft' pipeline system and not in proportion to the production volumes (King & Spalding, 2012). This quota system appears to be the main reason behind Lukoil's decision to build Varandey oil export terminal in the Arctic waters (Lukoil, 2016).

The Ministry of Energy also allocates quotas and sets the schedule for pumping oil through the Transneft' system. Producers are usually allowed to assign their access rights to third parties, which makes the access rights a valuable commodity and good relationships with the Ministry of Energy an important part of an oil producer's business strategy (King & Spalding, 2012). Petroleum products are transported by another state monopoly, Transnefteprodukt. The Federal Tariff Service sets tariffs for Transneft' and Transnefteprodukt (*Id.*). Because tariffs apply equally to all producers and thus do not restrict access to Transnefteprodukt's pipelines, the Federal Tariff Service has little capacity for preferential treatment of producers (Order N223-e/1, 2014).

Transportation of natural gas via trunk pipelines, much like that of oil, is considered a natural monopoly (Law N147-FZ, 1995, art. 4). Natural gas trunk pipelines are part of the Unified Gas Supply System ('UGSS'), a centralized system for natural gas production, transportation, storage, and supply throughout Russia (Law N69-FZ, 1999). Gazprom owns the UGSS and is responsible for the operation, maintenance, and safety of the UGSS (Gazprom, 2016g). Gazprom is required to allow independent suppliers to access the UGSS as long as: (i) the pipeline system has spare capacity; (ii) the natural gas meets certain quality requirements; and (iii) there are available distribution pipelines leading to consumers (King & Spalding, 2012).

However, this semi-open access policy is only relevant for the domestic market because, under 'On Exports of Natural Gas' (Law N117-FZ, 2013) and 'On the Foundations of the State Regulation of Foreign Commerce' ('On Foreign Commerce') (Law N164-FZ, 2003), the owner and operator of the UGSS (i.e. Gazprom) has a monopoly over pipeline gas exports. This leaves only LNG as the sole route for independent producers to reach foreign markets. Until late November 2013, access to this route was open only to Gazprom as the owner of the UGSS. However, on 30 November 2013, 'On Exports of Natural Gas' and 'On Foreign Commerce' were amended to expand the right to export LNG to two additional categories of entities (the 'LNG Export Amendments') (Law N318-FZ, 2013).

The first category consists of entities whose subsoil use licence complies with three criteria. First, the licence must cover deposits of 'federal significance' (*Id.*, art. 2). Second, the licence must allow construction of a natural gas liquefaction plant; alternatively, it may allow for transmission of the extracted natural gas to a natural gas liquefaction plant (*Id.*). Third, the licence must have contained this provision prior to 1 January 2013 (*Id.*).

The second category comprises entities that are allowed to access hydrocarbon offshore resources under Russian law, provided they meet either of the following two sets of conditions. Under the first set, the users of offshore subsoil resources must produce LNG from the gas that they extract or from the gas produced by another entity pursuant to a PSA. However, the Russian state must own more than 50% of such an entity's common stock and/or control more than 50% of the voting stock (*Id.*). Under the second set, the users of offshore subsoil resources must be subsidiaries of the entities that produce LNG from the gas extracted pursuant to a PSA and must otherwise satisfy the first set of conditions. In addition, an eligible parent company must own more than 50% of the subsidiary's voting stock (*Id.*).

To understand this rather confusing pile of conditions that the LNG Export Amendments created, we must examine the planned and ongoing LNG projects in Russia. Russia's lone operating LNG project, Sakhalin LNG, falls into the second group of entities under the LNG Export Amendments and meets the second set of conditions. First, its parent company, Gazprom, is one of two entities with the right to use mineral deposits found on the Russian continental shelf. The government owns 50.23% of Gazprom's stock, and Gazprom has at least five years' experience working on the Russian continental shelf (Gazprom, 2016f) (Gazprom, 2016k). Second, Sakhalin LNG operates under a PSA and Gazprom owns more than half of the project.[57] This is not to say that Sakhalin LNG had been operating in violation of Russian law prior to the enactment of the LNG Export Amendments. Gazprom's ownership of the UGSS ensured such compliance. However, the LNG Export Amendments cemented the Russian government's control over the project and its possible expansion.

The first set of conditions applied to entities eligible to access offshore hydrocarbon deposits opened the door for Shtokman Development AG, the Shtokman project operator, to obtain an LNG export licence, because Gazprom owns 75% of its stock (provided this maligned projects ever gets off the ground) (Shtokman, 2016). Additionally, this set of conditions puts Rosneft' in a position to carry out its LNG plans, such as the *Dalnevostochnyj* SPG (Far Eastern LNG) project developed jointly with ExxonMobil (Rosneft', 2016).

The first category of entities is subject to a rather curious condition – the 1 January 2013 cut-off date (Law N318-FZ, 2013, art. 2). It turns out that Novatek was the *only* entity with a pre-2013 licence to develop a natural gas deposit of federal significance and that allowed construction of a natural gas liquefaction plant (or transmission of the extracted natural gas to a natural gas liquefaction plant) (Novatek, 2016a).

The Russian state exercises tight control over exports of both oil and natural gas. In the case of oil, it controls access to export sea terminals and trunk pipelines. In the case of natural gas, it eliminated all competition to export via pipeline by granting exclusive rights to Gazprom, and to three companies, two of which are state-owned, it granted exclusive rights to export LNG.

7.1.3. Rebracketing the rules of benefit acquisition and distribution

I noted in Chapter 4 that contrary to popular belief, Vladimir Putin does not rule the country the same way the Rurikids and Romanovs did prior to 1917. Instead, Mr Putin must work

[57] Sakhalin LNG current ownership structure is as follows: (i) Gazprom Sakhalin Holdings B.V., 50% + 1 share; (ii) Shell Sakhalin Holdings B.V., 27.50%; (iii) Mitsui Sakhalin Holdings B.V., 12.50%; and (iv) Diamond Gas Sakhalin B.V., 10% (Gazprom, 2016f).

within power structures, boundaries of which are often delimited by law. The process of rebracketing of the power structure in which benefits of oil and gas development are distributed did not happen overnight. It took time and effort for the actors through their agency to build on the existing structure and for the structure to shape the agency of the dominating actors, resulting in near-absolute control of the oil and gas sector by the Kremlin. As I elaborate in this chapter's ensuing sections, this near-absolute control is one of the main barriers to inclusive and comprehensive risk governance of oil and gas activities in the Russian Federation. Therefore, examining how the current power structure came about may shed light on how it can be rebracketed towards a more balanced risk governance framework.

The foundation of the current Kremlin-controlled sector was formed as the Russian Federation transitioned out of Soviet rule. Gustafson describes the process in relation to the oil sector as such:

> Despite the weakening of the state control in the first half of the 1990s and the appearance of near-total privatization that followed, the state never fully exited from ownership and control of the oil industry. It retained legal rights over every part of the system: from ownership of oil in the ground to ownership of the pipeline systems; from licensing of exploration and development to regulation of reserves and field development plans; from control over the allocation of export quotas and access to export capacity, to control (by municipal governments) over much of domestic distribution and sales. In legal terms, all that the emerging private sector actually owned was the oil that had been extracted, together with the revenues from it, and even that was subject to major restrictions. There was never a clear delimitation of private property rights and state regulatory powers.
>
> What was built in the first half of the 1990s, in other words, was a system of quasi-private property that restricted the ownership rights of the companies to junior roles vis-à-vis the state. This was not apparent at the time. Indeed, so weak and disorganized was the sate at all levels – especially at the centre – that it appeared to contemporary observers, even to the major players themselves, as though the oil industry had genuinely escaped from state control. But it had not. All that had happened was that the system of state controls had gone dormant. It retained large power over the industry in theory, but in practice that power became largely latent, present mainly as an invitation to evasion (Gustafson, 2012, pp. 96-97).

This explains the rapid return to near-total government control over the oil and gas sector when the current regime led by Mr Putin came to power (*Id.* pp. 95-96). The manner by which private actors acquired rights to oil and gas assets aided the current leadership in legitimizing its case for reclaiming them. Hoffman (2011), Dawisha (2015), and Gustafson (2012) provide multiple accounts of manipulation and even outright coercion that accompanied transfer of pipelines, refineries, export terminals, and oil fields into private hands. The infamous 'loans for shares' program by which Mikhail Khodokovsky and Roman Abramovich, among others, acquired much of their oil and gas assets resembled more of a divvying up of loot by gang members than a privatization auction, the principal official aim of which was maximizing the financial return for the struggling state (Hoffman, 2011). For this reason, when Yukos was forced into bankruptcy and its leader, Mr Khodorkovsky, was tried for fraud and tax evasion, approximately the same percentage of Russian citizens supported his prosecution and the government's takeover of Yukos as the percentage who opposed it (Levada-Centre, 2008). Remarkably, the vast majority of people were simply indifferent to the fate of one of Russia's most successful oil and gas companies and its leaders (*Id.*).

While battles often literally raged over the Soviet oil industry's assets, the Soviet natural gas production, transportation, processing, and distribution system stayed largely together under the canopy of Gazprom. Although the state's ownership of Gazprom had gone from 100% at the Soviet Union's collapse to 40.875% in 1996 and 1997, and 38.37% in 1998 through 2004, the state never lost ownership of the controlling share (Gazprom, 2016k). Thus, the reinstatement of the Russian state's majority ownership of Gazprom in 2005 lacked the drama of a *de facto* expropriation of Yukos in the aftermath of Mr Khodorkovsky's arrest (Gustafson, 2012).

Given the constraints of this thesis, it would be impossible to track all of the structural changes since the 1990s within the framework that governs access to Oil Standard benefits. However, the two notable examples that I consider below provide a representative view of the interests involved and structural barriers and opportunities for balanced risk governance.

The first example would be the April 2008 amendments in the legal framework governing access to Russia's continental shelf that made Rosneft' and Gazprom the only eligible entities to do so. Prior to the April 2008 amendments, generally, any entity or person had the right to access the Russian Federation's subsoil deposits (Law N2395-I, 1992a). Pursuant to Article 9 of 'On Subsoil Resources', the RF Government was able to restrict access deposits under very limited circumstances (*Id.*). The April 2008 amendments, spearheaded by Deputy Prime

Minister Igor Sechin and supported by soon-to-be President Medvedev, turned this exception into the rule. As a result of the support, the April 2008 amendments did not encounter any opposition in the Russian Parliament (President, 18 July 2008). In July 2008, 'On Subsoil Resources' was further amended to eliminate tenders as a means of distributing access to mineral deposits located on the continental shelf and to give the RF Government the authority to forego auctions (Law N2395-I , 1992).

Notably, while serving in his government post, Mr Sechin also served as Rosneft's Head of the Board of Directors from 2004 until 2011, when he became the company's full-time CEO (Rosneft', 2016b). Dmitry Medvedev served as Gazprom's Deputy Head of the Board of Directors and Head of the Board of Directors in 2000-2002 (RF Government, 2016). Moreover, according to Dawisha (2015), Mr Medvedev was instrumental in Gazprom's takeover by members of Vladimir Putin's inner circle.

Mr Sechin and President Medvedev met on 18 July 2008 to discuss both sets of amendments (Figure 24). The transcript of the meeting leaves little doubt that it was more of a public relations event than a substantive conversation regarding the April and July 2008 amendments (President, 18 July 2008). During the meeting, Mr Sechin recited the access restrictions imposed by the April 2008 amendments and emphasized the RF Government's role in carrying the legislative bill through to the Federal Assembly when Mr Medvedev was still at the helm of the RF Government. Yet both men also noted the ostensible policy reasons for enacting the amendments. Mr Sechin pointed to the simplified procedure and hence the increased expediency in decisions regarding development of the Russian continental shelf (*Id.*). Whereas Mr Sechin's statement holds truth – after the July 2008 amendments, the RF Government had no external barriers regarding access to Russia's continental shelf – the logic of the President's statement praising 'targeted solutions' for in 'exploiting Russia's national treasure' is less clear:

> The continental shelf is our national treasure. For this reason, this is a special law that contains special procedures. It does not have tenders and auctions that are a common practice; instead, we have a targeted solution. This was done consciously, to exploit the national treasure in a rational manner (*Id.*).

Figure 24: President Medvedev and Deputy Prime Minister Sechin meeting on 18 July 2008 to discuss amendments to the legal framework governing access to the continental shelf (President of Russia, 2016)

Rosneft's and Gazprom's lack of true experience in offshore exploration and extraction is yet another reason why the 'targeted solution' is based on reasons other than merit. Both entities satisfied the five-year Russian continental shelf experience condition by virtue of being part of joint ventures with foreign companies. However, two Russian companies that actually have the requisite offshore experience have been excluded from the continental shelf.

The first entity, Zarubezhneft', is a state-owned company. It has more than five years' experience operating on the foreign continental shelve, but not on that of Russia. This company has been unsuccessful in getting access to the Russian continental shelf, the Arctic section in particular (Zarybezhneft', 2016). The company went as far as to acquire another state company, Artikmoreneftegazrazvedka, that held licences to the Russian continental shelf in the 2000s for over five years yet ultimately failed to gain access to offshore deposits (OilCapital, 2013).

The second company, Lukoil, has experience operating the Varandey offshore oil-loading terminal in the Russian Arctic (Lukoil, 2016). Since 1999, it has been operating offshore in several parts of the world, including in the Black, Baltic, and Caspian Seas, but none of these formally qualify as the Russian continental shelf (Lukoil, 2015). Additionally, Lukoil is a privately owned company, and this disqualifies it under Article 9 of 'On Subsoil Resources'. Vagit Alikperov, the head of Lukoil, suggested that President Medvedev substitute the state-ownership requirement with the designation of a 'national oil company' (President, 11 February 2010). However, despite Lukoil's significant contribution to the country's economy and support from the Minister of the Environment and Natural Resources, the Russian continental shelf remains in the hands of Rosneft' and Gazprom (Donskoy, 2012).

The second example of rebracketing comes from the LNG Export Amendments. Both Novatek and Rosneft' actively lobbied for the LNG Export Amendments' enactment (Barsukov, *et al.*, 2013). Some believe that President Putin adopted the idea during an official meeting in February 2013 regarding energy sector issues (*Id.*). During this meeting, Mr Sechin, as head of Rosneft', asked the President to consider expanding the right to export natural gas to companies that have access to the Russian continental shelf's hydrocarbon resources:

> Taking into account . . . the fact that Article 23 of the statute 'On Subsoil Resources' requires comprehensive development of oil and gas deposits located on the continental shelf, we are asking you to consider liberalizing gas exports. What is meant here is only liquefied gas. The timing of these decisions is of strategic importance, as they need to be made in response to the opportunities presented by the global markets and the development of the global economy.
>
> Creating economic and regulatory conditions for LNG exports from deposits located on the continental shelf is not only a question of the development of the natural gas industry; it is a question of the effectiveness and appropriateness of the continental shelf development. In the end, it is a question of the energy industry's future and our national economic development (President, 13 February 2013).

Mr Sechin also noted that the 'liberalization proposed by us' will not hurt Gazprom, 'our main gas producer' (*Id.*). He pointed to the different markets that its beneficiaries would reach and confirmed that the LNG Export Amendments were drafted with both predetermined entities and predetermined projects in mind (*Id.*).

A legislative note accompanying the proposed LNG Export Amendments cited concerns over the adequacy of domestic supply as justification for the 1 January 2013 cut-off date for the subsoil use licence (State Duma, 2013). Given Russia's slumping domestic demand and spare production and pipeline capacity, the justification appears rather puzzling (CSIS, 2015a). However, this was not the most bewildering part of the note. It stated that the government had decided that not *all* qualified subsoil use licence holders would automatically receive the right to export LNG (State Duma, 2013). The RF Government introduced the LNG Export Amendment bill to the State Duma on 6 November 2013 (Medvedev, 2013). Thus, it was certainly aware which entities held eligible licences by 1 January 2013. Yet 'not *all* qualified entities' turned out to be just *one* company, Novatek (Ishmukhametov, 2013).

During my February 2014 fieldwork trip to Moscow, I met with a former law school classmate who at the time worked as a lawyer and a government relations specialist in a foreign company. When I uttered the word 'liberalization' in relation to the Russian LNG sector, an ironic smile appeared on her face. 'That was for the friend,' she replied cryptically. 'What friend?' I asked. 'Putin's,' she said. 'Everyone knows that.' (Russian Lawyer, Foreign Company, 2014) The person to whom my former classmate was referring is Gennady Timchenko, a Novatek board member and the owner of 23.5% of the company's stock (Dolgov, 2014). Mr Timchenko's fortune is estimated at $15.3 billion, and he is believed to have close personal and financial ties to President Putin (*Id.*) (Dawisha, 2015). In fact, in the aftermath of the March 2014 referendum in Crimea on whether the region should leave Ukraine and join Russia, the U.S. Department of the Treasury imposed economic sanctions on companies and individuals. The sanctions designated Mr Timchenko as the top member of Mr Putin's inner circle in the imposing of economic sanctions on select Russian individuals and companies (U.S. Department of the Treasury, 2014). The agency explained its decision thusly:

> Gennady Timchenko is one of the founders of Gunvor, one of the world's largest independent commodity trading companies involved in the oil and energy markets. Timchenko's activities in the energy sector have been directly linked to Putin. Putin has investments in Gunvor and may have access to Gunvor funds (*Id.*).

A day before the sanctions were announced, Gunvor announced that Mr Timchenko had sold his 43% share of the company (Dolgov, 2014). Gunvor labelled reports of a purported connection with Mr Putin as 'fundamentally misinformed and outrageous', emphasizing that the Russian President had never directly or indirectly been a beneficiary of Gunvor (*Id.*). However, based on a thorough investigation by Dawisha (2015), this statement does not appear to be true.

As noted in Chapter 4, the LNG Export Amendments bill took only a few weeks to become law. During this rather brief legislative process, an additional amendment was made that brought Lukoil into the fold (Barsukov, 2013). However, legislators rejected the amendment, as well as a later stand-alone bill that would have moved the cut-off date of the subsoil use licence from 1 January 2013 to 1 July 2014 (Legislative Bill N531218-6, 2013) (State Duma, 2013a). This forced another company, ALLTEK, which was allegedly behind the subsequent amendments, to sell its majority share in the Pechora LNG project in May 2014 to Rosneft' (Pechora LNG, 2013). In anticipation of the deal, *Rosnedra* amended ALLTEK's licence to cover LNG-related activities (*Id.*). As a result, all proposed and ongoing LNG projects in Russia that are eligible for an export licence are controlled by company heads who belong to Vladimir Putin's inner circle.

Concentration of access to oil and gas sector benefits in the hands of a few decision-makers, combined with their close personal relationships with Russia's ultimate policy-makers, has created significant agency for pursuing the benefits of oil and gas development, regardless of the risks it presents. However, these actors have displayed surprising commitment to exercising their power within the bounds of the legal structure. When the structure could no longer accommodate their interests, they followed the procedural rules to rebracket it. Although it is unclear whether the Kremlin would have gone outside the legal framework if the State Duma refused to rubberstamp the aforementioned amendments, the Kremlin's respect for the legitimacy of a legislative process is a promising sign.

7.2. Appearance of sovereign checks and balances on the Oil Standard

The significant power of the Oil Standard aided by government policies and efforts by government officials can be counterbalanced by the power of sovereign structures—government institutions—tasked with handling risks to public interests. As I concluded in in the previous section, the process by which access to oil and gas benefits is distributed offers very limited opportunities for the counterbalance. Programmatic policy statements, especially the goal-oriented programs aimed at advancing socio-economic development that I reviewed in Chapter 4 can serve as the foundation for such institutional controls. However, they are predominately concerned with maximization of resource extraction and not ensuring that the extraction is not contrary to public interest. The legal and regulatory framework aimed at environmental protection appears to be the most formidable 'line of defence', the counter-power capable to balance individual interests advanced by the Oil Standard. Another line of defence, although not as formidable is the system of technical regulating and standardisation that allows the government influence the ways by which companies handle risk.

7.2.1. The state of checks and balances

7.2.1.1. Environmental protection

The basic principles of environmental protection in the Russian Federation include: (i) the right to a healthy environment; (ii) a science-based approach to ensure sustainable development of natural resources; (iii) compensation for environmental harm; a presumption of hazard to the environment associated with economic activity; (iv) a preventive provision to reduce the negative impact of economic and other activities through the use of best available technologies; (v) the mandatory participation of business and government actors in environmental protection; the right to information about the health of the environment; public participation in the process; and international cooperation in the field of environmental protection (Law N7-FZ, 2002, art. 3).

Although these basic principles provide a strong foundation overall, 'On Environmental Protection' is hampered by a number of inconsistent and underdeveloped provisions. For example, Article 1 entitled 'Main Definitions' includes a definition of environmental risk. However, the statute fails to incorporate environmental risk into any substantive mechanisms thereunder and mentions it only once in relation with virtually non-existent in practice environmental insurance (Law N7-FZ, 2002, art. 18). Another example is environmental audit. Aside from a definition of the term in Article 1, 'On Environmental Protection' does not mention environmental audit anywhere else in its text.

State environmental control serves as the main mechanism of environmental protection in Russia. Article 1 of 'On Environmental Protection' defines state environmental control as:

'the system of measures aimed at prevention, identification, and enforcement environmental protection legislation and ensuring compliance of business entities and sole business owners with regulatory requirements in the area of environmental protection.' (Law N7-FZ, 2002) State environmental oversight is a type of state environmental control. It focuses on ensuring compliance of government agencies and business entities with environmental laws and regulations (Law N7-FZ, 2002, art. 65). Environmental monitoring is another type of environmental control that received much attention in 'On Environmental Protection' (Law N7-FZ, 2002, Ch. 10). The main purpose of environmental monitoring is gathering and systematizing environmental data. It is important to note that both environmental oversight and environmental monitoring designate mineral subsoil deposits as a focal area (Law N7-FZ, 2002, arts. 63 & 65).

As to the state of the legal and regulatory framework governing environmental protection *as implemented*, President Medvedev described it as follows:

> Today, activities aimed at protecting the environment and environmental protection as a whole are governed by series of incoherent, often contradictory statutes, codes, and of course sub-statutory acts. Mechanisms that provide economic incentives are not always put on paper and supported by legislation. And very often, laws do not work for years because of the lack of supporting regulations (President, 27 May 2010).

According to Dmitry Kobylkin environmental controls applied to oil and gas activities in the Arctic are not immune from the problems that hinder the entire system of environmental protection:

> The problem of the weak legal and regulatory regime must be resolved immediately on a national level in the interest of environmental protection of the Arctic zone. This problem is due to poor legal framework governing environmental requirements for developing and exploiting Arctic offshore oil and gas deposits, and due to the lack of fast-response facilities in the proximity of such deposits (President, 9 June 2011).

Mr. Kobylkin's statement is particularly important because oil and gas activities represent the main source of environmental risks, as acknowledged by the Russian leadership (*Id.*).

Archaic emission standards and maximum allowable concentrations, the aforementioned PDK, as well as the rules that mandate them, are specific examples of lagging environmental protection in Russia. According to President Medvedev, Russian environmental enforcement agencies were still using PDK developed in the 1940s and 1950s (President, 27 May 2010).

Kirsan Ilumzhinov, former President of the Kalmyk Republic and member of the State Council, noted that this outdated framework is subjective and creates opportunities for uncurbed environmental pollution (*Id.*). Yuri Trutnev added that as of May 2010 the maximum fines for non-compliance have not been indexed since 1991 (*Id.*). Article 8 of the Administrative Code confirms that it was still the case as of May 2016 (Law N195-FZ, 2001).

As result, non-compliance had become an institutionalized business practice. Because the fines have been set so low, the majority of industrial enterprises have been exceeding maximum allowed emissions for decades (President, 27 May 2010). In addition, Mr. Trutnev indicated that because the enforcement is subjective, and because the list of pollutants contains over 2,000 items, some of which Minprirody cannot even measure, it is not difficult for a bureaucrat to find a violation (*Id.*). This eliminates any remaining incentives for businesses to reduce their negative impact on the environment while creating opportunities for 'feeding' local and original officials (*Id.*). Unsurprisingly, Mr Medvedev acknowledged poor compliance with environmental laws and regulations by Russian companies during a 30 January 2008 presentation while serving as Prime Minister (President, 30 January 2008).

Russian government agencies appear to be a long way from effective monitoring of the nation's environmental situation. According to Mr Medvedev, as of 2010, Russia lacked a system for collecting and systematizing environmental data. As a result, Mr Medvedev said, 'state environmental control lacked objective and instrumental environmental data' (President, 27 May 2010).

Unlike government financing of exploration and prospecting activities, state environmental control has not enjoyed the same level of funding. For example, in 2010 the Ministry of the Environment and Natural Resources (*Minprirody*) had developed seven pilot projects to target regions and areas marred by environmental pollution problems. Yet, it was unable to proceed due to lack of funding. This prompted Mr Trutnev to ask publicly President Medvedev for money:

D. Medvedev: Got it. So there is no activity in any of [the pilot projects]?

Y. Trutnev: Dmitry Anatolyevich, unfortunately, that is the case. We need some money.

D. Medvedev: What numbers are we talking about?

Y. Trutnev: If we were to receive about two to three billion rubles [approximately $70–100 million U.S. in 2010], we can start working this year (*Id.*).

Moreover, when the funds are available, sometimes they cannot be properly allocated due to a lack of appropriate budgetary mechanisms (*Id.*). As are result, environmental protection for now remains an afterthought of the Russian state.

Perhaps the most anticipated changes in the environmental protection system came in July 2014, in the form of amendments to a series of environmental statutes, including 'On Environmental Protection' (Law N219-FZ, 2015) (Lamikhova, 2015). Pursuant to these amendments, which do not come into full effect until 1 January 2019, all activities and facilities are grouped into four categories depending on the level of harm they pose to the environment: 'significant impact' (Category I), 'moderate impact' (Category II), 'insignificant impact' (Category III), and 'minimal impact' (Category IV) (Decree N1029, 2015).[58] A 28 September 2015 RF Government Decree entitled 'On Affirmation of Criteria for Categorization of Facilities Impacting the Environment Into Facilities of Categories I, II, III and IV' ('Decree 1029'), included both upstream and downstream (refining) oil and gas facilities into Category I. However, oil, natural gas, and petroleum products pipelines are included in Category II (*Id.*).

Entities operating Category I facilities will be required to obtain a comprehensive environmental permit, or *kompleksnoe ekologicheskoe razreshenie*, which due to its inclusiveness can potentially turn into the most comprehensive mechanism of handling environmental risks on the operational level in Russia. In contrast, entities operating Category II facilities will not need to obtain permission (Law N219-FZ, 2015, art. 31.1). Instead, they will be required to file a declaration of environmental impact (Law N219-FZ,

[58] The July 2014 amendments affecting categories of facilities and activities subject to environmental review enter into force on 1 January 2018.

2015, art. 31.2). A declaration of environmental impact is premised on self-assessment of the activities negatively impacting the environment and measures aimed at mitigating the impact (*Id.*).

7.2.1.2. Environmental assessment

Until the July 2014 amendments take full effect, 'On Environmental Protection' largely fails to put state environmental control in the context of the actual responsibilities and activities of *Minprirody* and its sub-agencies. It does, however, refer to assessment of an economic activity in terms of its 'direct or indirect' impact on the environment under Article 32 (OVOS) and to a state environmental expert review (SEER) under Article 33. As I noted in Chapter 5, internationally, these two mechanisms are usually part of one process, environmental assessment (EA). However, in Russia, they are two distinct processes that are stitched together largely with the help of administrative regulations.

The state of EA, the mechanics of which I reviewed in Chapter 5 through the Power of Siberia example, is indicative of the state of Russian environmental protection overall. The former Minister of Environment and Natural Resources Yuri Trutnev listed 'termination of environmental assessment' as the leading environmental protection problem in Russia (President, 27 May 2010). The minister clarified that the scope of EA had been reduced to the point where it covered only 5% of activities that were originally in the purview of 'On Environmental Review' (*Id.*). Although Mr Trutnev made this observation in 2010, judging by a lack of progress in relation to the action items identified in several presidential meetings dedicated to the environment, EA in Russia remains in a sad state.

As I noted in Chapter 5, SEER is only required for oil and gas activities occurring offshore, pursuant to PSAs, and located in highly protected environmental areas (Law N175-FZ, 1995, art. 11). However, pursuant to the July 2014 amendments, the situation is set to change as of 1 January 2018 when all Category I facilities, including upstream oil and gas and refineries, become subject to SEER (Law N219-FZ, 2015). Oil and gas pipelines, however, will remain excluded from the purview of 'On Environmental Review' (*Id.*).

Another significant positive change in environmental risk governance of oil and gas exploration, development, and extraction, albeit one that affects only offshore activities, came into effect on 30 December 2012 (Law N287-FZ, 2012), when amendments to 'On the Continental Shelf' and 'On Inland Sea Waters' required proponents of offshore projects to include oil spill contingency plans in the documentation reviewed as part of SEER.[59]

In addition to SEER, 'On Environmental Review' sets forth the public environmental expert review (PEER), a more inclusive mechanism that offers perhaps the most opportunity for deliberation (Law N175-FZ, 1995, arts. 20-25). PEER is not mandatory. It can be initiated by citizens, local governments, and NGOs (*Id.*). A party wishing to conduct a public environmental assessment must seek permission from the local government (*Id.*, art. 23). Permission may be denied on several grounds. For example, government officials may decline to permit the public environmental assessment if information about the project or a related activity contains 'commercial secrets.' (*Id.*, art. 24) This gives government officials an easy out, so to speak, as virtually every project or economic activity contains sensitive information.

Although PEER is not mandatory, it creates a pathway for a developer to gain a social licence to operate, an example of which would be the NGO Sakhalin Environmental Watch assessing the Exxon Negtegaz Limited project in Sakhalin Island's Piltun Bay (Baker, *et al.*, 2011). On the other hand, if a developer is uncooperative, as in the case of Gazprom during the Prirazlomnoe project, the process may be derailed, thereby elevating public anxieties about the proposed activity (WWF, 2016). The results of PEER are not binding, which weakens its practical effects. The only requirement posed by 'On Environmental Review' is that the results of any permitted public environmental assessment must be considered during the mandatory SEER process (Law N175-FZ, 1995).

Russia does not have a framework for performing strategic environmental assessments (SEAs), despite Russian and international environmental NGOs and academia advocating for the adoption of such since the 1990s (Bogolybov, 2013). Thus, the two-step EA process

[59] 'On the Continental Shelf' Article 22.2 and 'On Inland Sea Waters' Article 16.1 'On the Continental Shelf' Article 31 and 'On Inland Sea Waters' Article 34 (Law N287-FZ, 2012).

serves as the main mechanism for environmental risk governance of hydrocarbon activities. To borrow from Yuri Trutnev, EA will remain in a largely 'terminated' state at least until 2018.

7.2.1.3. Technical regulating

'On Technical Regulating', enacted in 2002, introduced technical regulations (*tekhnicheskie reglamenty*) intended to organize technical standards into coherent groups (Law N184-FZ, 2002, art. 2). Technical regulations also set the minimum standards for products, processes, and facilities (*Id.*). The minimum requirements are developed pursuant to acceptable and tolerable risk, which the statute defines as 'probability and severity of harm to life or health of citizens, personal, corporate, state, and municipal property, environment, life or health of flora and fauna.' (*Id.*) The scale upon which 'On Technical Regulating' utilizes risk to shape regulatory requirements makes it *de jure* the most innovative law in terms of risk governance.

A technical regulation can take the form of statute, sub-statute, or even an international treaty (Law N184-FZ, 2002, art. 2). This means that it is the government that determines the tolerability and acceptability of the risk at issue, which is in line with Russia's historic approach to risk. This also means that all technical standards that fall under a technical regulation must comply with the regulation. In addition, these standards cannot contradict other administrative regulations such as the 2014 'Federal Industrial Safety Regulations "Offshore Oil and Gas Safety Rules"' ('Offshore Oil and Gas Safety Rules') and tens and even hundreds of other administrative regulations (Order N105, 2014).

Such regulatory ambiguity creates a great deal of 'grey space' between compliance and non-compliance, and effectively expands the 'administrative discretion' within which a government official or agency is allowed to act. In the words of social theory, this creates a great deal of agency for government actors to function, and often not necessarily in the public interest. This was a major source of anxiety for Team Russia members during the September 2013 workshop in Oslo (Oslo Event, 2013). According to a manager with project experience in the country, the foreign partners in the joint venture tasked the Russian partner with handling permitting and compliance matters due to their concerns over regulatory ambiguity and broad administrative discretion. It was assumed that the Russian partner had more experience in dealing with the Russian regulatory system. However, based on questions and remarks from workshop participants, the manner in which the Russian partner engaged with the government lacked transparency, which in turn raised fears of illicit behaviour (*Id.*).

Comprehensive technical regulations can address some of these types of concerns, as they are expected to bring order to the multitude of technical standards and ensure that administrative regulations, such as the Offshore Oil and Gas Safety Rules, do not send contradictory messages to companies. Unfortunately, Russia is a long way from reaching this goal. President Medvedev described the state technical regulations in early 2010 as follows:

> I am talking about the technical regulating legislation. The law as it was enacted had proven to be completely ineffective. As a result, we had to take immediate measures to bring it in compliance with today's requirements (President, 20 January 2010).

The Russian President was puzzled that in 2010, *eight* years after 'On Technical Regulating' was enacted, the RF Government was still unsure how many technical regulations were necessary for its full implementation. 'At first they said 40 to 50. After that, some other number emerged; and after that I was told 400.' (*Id.*) The Russian leadership remarked that this not only represents a significant gap between technical standardization in the Western countries and Russia, it also indicates a marked decline in the quality of technical regulation since the collapse of the Soviet Union (President, 13 February 2013).

The situation remains largely the same in 2016. The only technical regulation adopted by the RF Government since the enactment of 'On Technical Regulating' that directly relates to the oil and gas sector is a regulation concerning distribution of natural gas pipelines (Rosstandard, 2016). Thus, in the foreseeable future, instead of receiving clarification regarding the parameters of acceptable and tolerable risk, oil and gas companies are exposed to regulatory risks created by legal ambiguity.

7.2.1.4. Arctic ready?

One of the best ways to determine the effectiveness of a particular public policy is to examine a policy-maker's 'to do' list, which usually reveals items that need urgent attention because they have not been addressed satisfactorily, if at all.

In 2014, after the meeting on World Environment Day, President Putin issued through his administration the 'List of Directives in Following the Meeting on the Effective and Safe Development of the Arctic' (Directive List PR-1530, 2014). The list of directives included the following items related to environmental controls on hydrocarbon development in the Russian Arctic: (i) development of measures aimed at protecting biodiversity, including prevention of wildlife loss because of oil and petroleum products spills; (ii) compiling of a list of flora and fauna species that can serve as indicators of marine ecosystems sustainable development; (iii) creation of a pilot project for comprehensive environmental management of offshore oil and gas activities and implementation of this project in the Russian portion of the Barents Sea; and (iv) recommend that oil and gas companies developing offshore deposits adopt programs aimed at protection of biodiversity (*Id.*).

None of the above items has come to fruition. Therefore, the Russian leadership's directive for the RF Government to work with 'scientific institutions and environmental NGOs' on 'the prevention and mitigation of negative impacts of economic activities on the environment in the Arctic zone' remains an aspiration (*Id.*). Of even greater cause for concern is the fact that the Russian leadership raised these issues seven months *after* the Prirazlomnoe field started production and *after* decades of oil and gas exploration in the Russian Arctic offshore. Meanwhile, according to the head of WWF, oil spills presented a serious problem well before the 2014 World Environment Day meeting, and the industry lacked the capacity to address it:

> Our negotiations with oil companies indicate that, unfortunately, not a single one of them has the technology to handle oil spills on ice. They just do not have such technologies. Many invest in developing them. BP is working on them, so is Shell. Our companies are trying to come up with a solution as well (President, 9 June 2011).

In September 2013 while attending the Oslo workshop, I witnessed a conversation between two Norwegian scientists, one representing a university and another representing a company that was working on oil dispersants for ice conditions. Their heated exchange made it clear that the necessary technology is yet to emerge. This conclusion was shored up by other presentations related to oil spills in ice waters and the lack of any breakthrough in response (Oslo Event, 2013). Notwithstanding this concern, with the blessing of the Russian government, the industry has plunged headlong into icy waters in pursuit of the benefits and regardless of the risks, or even the consideration thereof.

7.2.2. Rebracketing of checks and balances

Peterson and Bielke (2001), Bobylev (2005), and Bykov (2005) attribute the demise of environmental protection in Russia to the policy of reviving the extractive sector. This process, termed by Mol (2009) as 'environmental deinstitutionalization', began with the absorption of the State Committee of the Russian Federation for the Protection of the Environment (*Goskomekologia*) into the Ministry of Natural Resources (*Minresursov*). As a result of this 'environmental coup' (IQ HSE, 2002), *Minresursov*, which is currently known as *Minprirody*, subjugated environmental protection to the interests of mineral resource development (Crotty & Rodgers, 2012).

The next round of changes came in 2003 and 2004 in the form of 'recentralization' when environmental enforcement, permitting, and monitoring were transferred from regional agencies to five federal agencies mentioned in Chapter 4: *Rosprirodnazdor*, *Rostekhnadzor*, *Rosnedra*, *Rosvodnadzor*, and *Rosgydromet* (Crotty & Rodgers, 2012, p. 17). This left regions largely in the role of observers to oil and gas projects occurring in their territory.

Yet the Kremlin was not quite done with administrative reform in the environmental sector. Its next target was EA. As noted above, EA received the most significant blow in December 2006 when the enactment of the federal City Building Code prompted comprehensive changes in environmental legislation (Law N232-FZ, 2006). According to Mr Truntev, Dmitry Kozak, who is a member of Mr Putin's inner circle (Dawisha, 2015) and currently a Deputy Prime Minister, spearheaded the changes, citing administrative inefficiency and promising an all-inclusive assessment of facilities under construction (President, 27 May 2010). Remarkably, I did not find any official statements criticising Vladimir Putin, who presided over the dismemberment of environmental protection in Russia during his first stint as Russia's President, though I did come across a few references to the RF Government and the State Duma as potential culprits, in addition to Mr Kozak, behind the 'environmental deinstitutionalization'. However, as a general rule, meeting attendees described the situation without attributing it to a specific actor.

Igor Chestin, the head of WWF Russia, provided a few details on the manner in which these and other less significant changes were made:

> During the last few years, we have witnessed a situation when environmental laws are destroyed or weakened and this process occurs as follows: the amendments are drafted and passed in literally a month without any consultation or discussion. Environmental assessment has been wiped out and the legal status has been changed, and all of it was done very quickly with no discussion (President, 27 May 2010).

Mr Chestin also noted that every structural change that in theory was supposed to strengthen state environmental control actually weakened it. He added: 'At the some point, we, with the leadership of our country, need to decide what the system of environmental control should look like in for the next five to seven years, and let this system to establish itself in terms of its expertise and personnel.' (*Id.*)

The July 2014 amendments into environmental legislation signalled the reversal of a trend that had been devastating for environmental protection. However, the changes that are set come to force in 2018 and 2019 are incremental. In contrast, Kirsan Ilumzhinov proposed the following comprehensive yet simple solution to jumpstart the reversal as early as in May 2010:

> First: resurrection of the original definition of environmental assessment.
>
> Second: mandatory comprehensive environmental assessment for all facilities and activities that are subject to state assessment that includes public deliberation.
>
> Third: expanding the scope of environmental review (*Id.*).

Mr Ilumzhinov's first point is particularly important considering the original definition of environmental expert review under 'On Environmental Review' for the following reasons.[60] First, as Table 15 depicts, it transforms a document review into an assessment of an actual activity. Second, it focuses on risk, i.e. 'potential adverse consequences of the activity'. Third, it includes social and economic risks in the purview of EA.

Table 15: Definition of Environmental Assessment Under Article 1 of 'On Environmental Review' (Law N175-FZ, 1995)

Current Definition (last amended on 29 December 2015)	**Original Definition** (as of 23 November 1995)
The determination of whether documents or documentation that support an economic or other activity comply with the environmental requirements set forth in in technical regulations and legislation in the area of environmental protection for the purposes of prevention of negative impact of said activity on the environment	The determination of whether a planned economic or other activity meets environmental requirements and determination of whether the activity can proceed considering the goals of prevention of potential adverse consequences of the activity on the environment and related social and economic and other consequences of the activity.

However, judging by the level of resistance to such efforts, bringing to life meaningful checks and balances of the Oil Standard will not be easy. As the State Council's 27 May 2010 meeting drew to its end, President Medvedev shifted the discussion to the action items. Mr Chestin warned the President about the challenges ahead:

> When we are talking about proposed legislation that can move us forward in terms of environmental protection, it remains dormant for years if not decades. Therefore, in my view, the main point here is not what makes the directives list but your political will, Dmitry Anatolyevich, of making sure that this legislation is actually enacted (President, 27 May 2010).

These remarks served more than a reminder than a piece of new information. Mr Medvedev oversaw a great deal of legislative proposals by the RF Government whilst serving as Russia's Prime Minister. In addition, according to Mr Truntnev, *Minprirody* began working on improving the legal framework for environmental protection pursuant to Mr Medvedev's first orders as Russian President in the summer of 2008. In two years, the ministry promulgated over 100 regulations to address the 'accumulated issues'. However, the State

[60] I have stressed the importance of EA's scope and inclusiveness above.

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Duma refused to act on any of the ministry's recommendations and did not prepare a single piece of legislation in time (*Id.*). Yet, unlike Mr Putin, Mr Medvedev appeared to have the political will to reverse his predecessor's policies. He proposed a long list of directives, including reversing some of the changes to 'On Environmental Review' (*Id.*).

A year later, the State Council convened a follow-up meeting, the day before which President Medvedev had held a meeting with environmental NGOs that turned into one collective grievance hearing (President, 8 June 2011). With this meeting fresh in his mind, Mr Medvedev opened the State Council meeting by following up on the directives made after the May 2010 gathering. In response, he met with systemic institutionalized resistance in both the RF Government and the State Duma, and no real results. This resistance was hidden behind a smokescreen of speeches that recognized the problem, described in general terms the great amount of work that had been done, and sketched an ambitious agenda (President, 9 June 2011).

7.3. Allocation of risks and benefits

7.3.1. The merger of beneficiaries and gatekeepers of the Oil Standard

Minprirody resembles a 'cross-purpose' regulator, an agency responsible for distinct and conflicting functions: advancing and managing resource extraction whilst subjecting it to stringent environmental and safety checks and balances.[61] In addition to a clear conflict of interest, the resource acquisition function steamrolls virtually any sovereign checks and balances that stand in its way. Therefore, at the project and operational levels, the sovereign power structures responsible for representing public interest become subservient to the network power of the oil and gas sector aided by the sovereign structures that support oil and gas extraction in Russia.

[61] This term was used by the National Commission (2011, p. 57) on the BP Deepwater Horizon Oil Spill and Offshore Drilling to describe the Minerals Management Service (MMS).

This all but eliminates a plurality of viewpoints in the risk governance process. Meanwhile, Renn and Schweizer (2009, p. 179), who build their case for inclusive risk governance on the Habermasian discourse theory, note that '[m]odern societies are characterized by a plurality of values and world views'. They further observe that: 'Discursive decision making is oriented towards the common good and seeks the rational competition of arguments. It looks for diversity in participants and perspectives in the sense that all potentially affected parties should be able to agree with its outcome.' (*Id.* p. 178) The risk governance processes occurring under *Minprirody*'s roof involve little discourse, thereby diminishing the chances of arriving at a decision that advances public interest.

The pro-extraction orientation of *Minprirody* is the effect of a much bigger problem. Russia is governed by pro-extraction *vlast'*, elites led by Vladimir Putin that have virtually unlimited power over sovereign institutions that in theory should advance the common good. The origins of the current leadership's pro-extraction orientation can be traced to Vladimir Putin's dissertation as a Candidate of Sciences in Economics.[62] Entitled (in Russian) 'Strategic Planning for the Regeneration of the Regional Mineral Resource Base during the Formation of Market Relations in St. Petersburg and Leningrad Region' (Putin, 1997), the dissertation was written and successfully defended midway through Mr Putin's career in 1997 (Vladimir Putin, 2016). He asserted that his dissertation's main practical application was to provide a basis for designing policy recommendations that create a strategic planning system for achieving goals in the development of the mineral resource sector (Putin, 1997, p. 175). The strategic planning to which Vladimir Putin referred was a stark departure from the Soviet-style five-year planning system, as it was largely based on theories and concepts applied in large Western companies and other organizations (Gaddy & Kuchins, 2008, p. 118).

Mr Putin's dissertation has been labelled a blueprint for Russia's economic policy (Goldman, 2010, p. 97). Indeed, Mr Putin used his scholarly work as an opportunity to expound upon some of the cornerstones of said policy – for instance, the significance of mineral resources to economic development and of systematic strategic planning in mineral resource development (Balzer, 2006). He did not apply the results of his work, however, to Russia's

[62] The "Candidate of Sciences" degree awarded by Russian universities falls between the master's and doctorate degrees awarded by universities the United Kingdom.

economy as a whole until 1999, when he published an article entitled 'Mineral Resources in the Strategy for Development of the Russian Economy' (Putin, 2000). In the article, Putin – a member of Boris Yeltsin's government at the time – outlined the rationale, methodology, and recommendations that have since predominately served as the foundation for Russia's policies. Of course, the extractive sector was central to Mr. Putin's vision, as it is the driving force of the Russian economy, the vehicle of Russia's integration into the global economy, and the basis for the nation's transition to a post-resource-based model (*Id.* p. 2).

In recent years, Russian opposition leaders and politicians have referred to the Russian oil and gas sector as 'Kremlin Incorporated', and it is hard to disagree with such a title (Klubmann, 2006). Gazprom, Rosneft', and Transneft' comprise the vast majority of the Russian oil and gas sector and are run, respectively, by Mr Putin's friend and St. Petersburg colleague Alexey Miller, close friend Igor Sechin, and former KGB colleague in Germany and friend Nikolai Tokarev (Forbes, 2016) (Dawisha, 2015). All of these men have at some point held high positions within the Russian government and have been awarded state medals for their service to Russia (Forbes, 2016) (Rosneft', 2016b) (Gazprom, 2016l).

However, as mentioned above, Vladimir Putin does not have an absolute monarch's power. His inner circle consists of powerful people that amassed great wealth. For this reason, while remaining the first among equals, he often mediates conflicting groups within state companies, the Presidential Administration, and the RF Government. According to a Russian energy analyst, Gazprom's top management consists of three clans: economists from the St. Petersburg City Administration, Yeltsin-era Gazprom managers, and former St. Petersburg KGB officers (Russian Energy Analyst, 2013). These people rarely possess the necessary skills, experience, and knowledge for the positions that they occupy. Nepotism is also prevalent – for example, Sechin's son Ivan is a deputy director of Rosneft's joint venture department; and Andrey Patrushev, the 34-year-old son of Mr Putin's Leningrad KGB colleague and former head of the Security Council Nikolay Patrushev, was recently appointed to lead the offshore arm of Gazprom Neft' (Tretyakov, 2015).

This model of *vlast'*, which Ledeneva (2013a) calls '*Sistema*', is not very effective at public or corporate governance. As a result, Presidential directives are frequently mismanaged, stalled, or outright ignored, which explains why generally benign technical regulations are yet to emerge, even though they would often benefit the oil and gas industry. In the corporate realm, cost overruns are staggering (*Id.*). For example, the cost of Nord Stream pipeline construction on the German side was 2.1 million euros per kilometre. On the Russian side, it was three times higher – 5.8 million euros per kilometre (Dawisha, 2015, p. 306). This paradox has a very simple explanation – 'In Russia, money is not made on profits, it is made on costs.' (CSIS, 2015a)

Effective public and corporate governance is not *Sistema*'s main objective—its main objective is enrichment of its members. It certainly pays to run Kremlin Inc., as evidenced by the total compensation for Rosneft's and Gazprom's heads, Mr Sechin and Mr Miller. According to Forbes, the former netted $50 million in 2013 and between $37 and $25 million in 2014 and the latter $25 million in 2013 and 2014 (Forbes, 2014).

Sistema is built on extractive institutions. Acemoglu and Robinson capture the essence of such institutions as follows:

> Extractive political institutions concentrate power in the hands of a narrow elite and place few constraints on the exercise of this power. Economic institutions are then often structured by this elite to extract resources from the rest of the society. Extractive economic institutions thus naturally accompany extractive political institutions. In fact, they must inherently depend on extractive political institutions for their survival (Acemoglu & Robinson, 2012, p. 75).

As I noted in Chapter 6, a merger of Oil Standard beneficiaries and gatekeepers results in a situation in which risk governance posed by oil and gas development extends only to the risks threatening the development itself. In addition, this not a theoretical observation – when I asked a senior government relations manager at one of Russia's NOCs what type of risks his company considers in its Arctic operations, he said without any hesitation: 'Economic.' I followed up by asking whether he meant risks posed to the regional and national economies. 'No,' he replied, 'to the company.' (Senior Russian NOC Manager, 2014)

7.3.2. Spatial allocation of risks and benefits

One of the common arguments in favour of mineral resource development is the ostensible prosperity that it brings to the areas where minerals are extracted. The Russian leadership uses this argument extensively whilst pointing north or east in the area of resource base expansion. This argument is also used to justify the development against the significant risks that oil and gas development brings.

A study by National Bureau of Economic Research (NBER) (Gennaioli, *et al.*, 2013) found Russia among the three worst countries in the world in terms of regional inequality (Gennaioli, *et al.*, 2013). NBER researchers attributed the country's low ratings to its expansive mineral extractive sector, as regions where mineral resources are extracted are among that country's wealthiest (*Id.* p. 13). Another report lists two hydrocarbon-producing regions, Tyumen and Sakhalin, among the wealthiest in terms of GDP per capita (Oxfam, 2014, p. 13).

Having a large GDP per capita due to oil and gas activities does not necessary mean that the actual financial benefits stay where the extraction occurs. As I stated in Chapters 2 and 6, the two main taxes on oil and gas production are the mineral extraction tax (MET) and export duty (ED). Both are federal taxes that go directly to the federal budget. Pursuant to Article 14 of the Tax Code, the regions are left with the corporate asset (property) tax and the road tax, and per Article 15 of the Tax Code, municipalities are left with the land tax and the personal property tax (Law N146-FZ, 1998). MET and ED dwarf these taxes in terms of the collected revenue. Additionally, oil and gas companies frequently lobby for regional tax breaks. As I noted in Chapter 6, both Yamal LNG and Prirazlomnoe received significant regional tax incentives. In addition, a practice called transfer pricing that allows extraction companies to allocate their profits to the location of their headquarters. As a result, 10% of all Russia's energy production and fossil fuel extraction is statistically 'allocated' to Moscow. This brings a large surplus to the city budget, even though no oil or gas is extracted there in meaningful quantities (Sovacool, *et al.*, 2013, p. 146).

A high level of wealth inequality further exacerbates the spatial allocation of oil and gas revenues. In its 2014 report, Credit Suisse (2014, p. 53) ranks Russia well ahead of the world in percentage of wealth controlled by the top decile (85%), a category that is considered the most indicative of allocation of wealth in society. Indeed, Russia was seven percentage points ahead of the next country, Turkey (*Id.* p. 33). In addition, the report notes that 111 people control 19% of the country's wealth (*Id.* p. 53). According to *Rosstat*, in 2012, the average Russian earned between $4,000 and $10,000, a far cry from the salaries of Mr Sechin and Mr Miller (Breslow, 2015). Therefore, although the per capita GDP in hydrocarbon-producing regions is tantamount to that of Norway and Hong Kong, (Oxfam, 2014, p. 13) the average *income* per capita is only one-third higher than in the rest of Russia (Breslow, 2015).

Kremlin Inc. allocates the financial benefits of oil and gas extraction from the producing regions to Moscow, where Gazprom (2016m), Rosneft' (2016c), Transneft' (2016a), Lukoil (2016a), and Novatek (2016a) headquarters are located. Meanwhile, the environmental, social, and economic risks largely remain with the land. Taleb (2014) describes this situation as the absence of 'skin in the game', meaning that the actor gets all the benefits of the activity without facing the risks it poses.

The immense environmental and social damage of past oil and gas activities demonstrates unequivocally that the risks are real, probable, and severe. To describe such impacts in any meaningful detail will take many volumes and reams of paper. As I mentioned in the introduction, there have been many studies capturing the environmental and socio-economic legacy of the Russian production. The following excerpt form a 2001 study conducted by Iwaco, an independent Dutch consulting group, and Greenpeace regarding the impact of oil and gas activities in the Nizhnevartovsk region is indicative of the situation in West Siberia, which is where 62% of oil and 89% of natural gas was produced in 2013 (EIA, 2014):

> The activities of the oil sector have consequently resulted in significant direct environmental impacts and a number of direct and indirect socio-economic impacts in the Nizhnevartovsk region. It can be concluded, with caution, that particularly environmental impacts to soil, surface water, groundwater, and terrestrial biology have similar impacts in a wider area of in West Siberia, resulting in widespread but unquantified oil and chemical polluted soils, groundwater and surface water that among others, contaminates drinking water, inducing human health risks and affects fish. Oil spills have caused some of the

> most significant, widespread negative impacts to the environment in West Siberia and affected all environmental media. Both past and new spills continue to have a major impact the present environment. The industry has also had widespread indirect effects on local ecosystems and native cultures. The sector's most notable positive impacts have been socio-economic, including employment and infrastructure development in urban areas in the main oil fields (IWACO, 2001).

To give this excerpt a quantitative perspective, here are some numerically expressed findings from the Iwaco report:

> Between at least 700,000 to 840,000 hectares of polluted soil in West Siberia and around 2% of land in the oil fields in the Nizhnevartovsk Region are polluted by oil
>
> . . . .
>
> Surface water pollution in West Siberia, particularly in water bodies around oil fields, and especially older fields in the Nizhnevartovsk Region . . . reaching between 5 to 50 times the Russian PDK norm
>
> . . .
>
> 97% of drinking water extracted from the River Vakh over a five-year period was polluted with oil exceeding the PDK norm.
>
> . . .
>
> Over 50% of fished rivers in the region is contaminated with oil products, resulting in reduced health, breeding ability, changed spawning behaviour and possibly linked to declining fish catches (*Id.*).

According to Greenpeace's ongoing monitoring of oil and gas activities in the Russian Arctic and Subarctic, the situation remains largely the same. The organization estimates that over 10,000 oil spills occur in Russian fields each year, totalling 5 million tonnes (Greenpeace, 2016). This figure is six times the amount of oil spilled into the Gulf of Mexico due to the BP Deepwater Horizon accident (*Id.*). Greenpeace also estimates that least 10% of this oil ends up in the Arctic Ocean (*Id.*).

Although the Russian leadership may object to some of these numbers, it does not deny the gravity of what it frequently refers as the 'accumulated environmental damage' and its primary sources – the oil and gas sector (President, 9 June 2011). Yet its initiatives to address these problems have been mainly limited to the 'deep cleaning' (*generalnaya uborka*) of

Russia's Arctic islands (President, 27 May 2010). Despite its promising title, the 'deep cleaning' resembled removal of old fuel oil barrels left from Soviet times (President, 30 July 2012). In comparison to the more pressing problems mentioned above, it amounted to the removal of an obvious eyesore rather than a serious solution to an environmental problem (President, 25 September 2013).

7.3.3. Temporal allocation of risks and benefits

Not all risks associated with oil and gas exploration and extraction are bound to the locales there the development occurs. Although it is widely believed that climate change will affect people differently based on their location and socioeconomic status (Global Humanitarian Forum, 2009), the cumulative and systemic negative impact has the potential to cause global 'ruin' (Taleb, *et al.*, 2014).

Judging solely by the Russian Federation's official actions in response to the United Nations Framework Convention on Climate Change, the Russian leadership recognized the gravity of the global threat posed by climate change. Russia ratified the Kyoto Protocol on 18 November 2004 (UNFCCC, 2006). Russia made a commitment to reducing its emissions by 15-25% from 1990 by 2020, subject to '[a]ppproprate accounting of the potential of Russia's forestry in frame of contribution in meeting the obligations of the anthropogenic emissions reduction' (Frolov, 2010).

Although Russia did not adopt a national climate change statute, it nonetheless took several legislative and regulatory steps to further UN Framework Convention on Climate Change (UNFCCC) and the Kyoto protocol domestically. The President approved the 'Climate Doctrine of the Russian Federation' (the 'Climate Doctrine') in 2009 (Directive N861-rp, 2009) and the RF Government approved the 'Plan of Implementation of the Climate Doctrine of the Russian Federation' (the 'Climate Plan') in 2011 (Directive N730-r, 2011). RF Government Directive No. 278 and the Order of the Russian Meteorological Service No. 141 established the national GHG inventory, pursuant to Article 12(1)(a) of the UNFCCC and a series of other directives and orders set forth the national GHG registry pursuant to Article

7(4) of the Kyoto Protocol (Directive N278-r, 2006) (Order N141, 2006) (Climate Change, 2016).

President Medvedev even acknowledged its contribution to global climate change as a major fossil fuel producer and recognized the importance of making corresponding changes to its energy system:

> According to experts, Russia currently produces 10% of the world's primary energy. Our energy sector remains not only the source of the benefits that we receive but also the source of pollution and greenhouse gas emissions. This unquestionably, leads to the necessity of coordination of energy development and problems associated with climate change, which is one of the issues that we are currently working on (President, 14 December 2009).

The ratification of the Kyoto Protocol, the adoption the administrative regulations in its furtherance, and even the ostensibly ambitious 15-25% reduction goal did not mean that the Russian Federation would have to actually cut its current emissions let alone change its energy system. Russia entered into the Kyoto Protocol with a great deal of spare capacity, referred to as 'hot air', which is the difference between the baseline from which it was supposed to reduce its carbon emissions (1990) and the actual emissions (Nielson, 2009). In 2008, the peak year of Russia's economic growth, Russia's emissions were 33.4% below the 1990 baseline (Russian Federation, 2006) (Minprirody, 2010). In 2009, the emissions fell to about 35.6% of the 1990 level (*Id.*). Several modelling studies conducted around that time concluded that Russia's emissions would remain in the 20-25% range under the 1990 baseline without any significant changes and cost to the Russian economy (Novikova, *et al.*, 2009). Unsurprisingly, no actual changes were made to the oil and gas exploration and extraction policies (Sidortsov, 2012).

It is doubtful that the Russian leadership ever intended to take any meaningful action on climate change. Russia entered the Kyoto Protocol in exchange for the EU's promise not to object to Russia's application for membership in the World Trade Organization (WTO) (ICTSD, 2004). However, Russia's ratification of the Kyoto Protocol allowed it to reach the requisite number of signatories (55) and percentage of global emissions (55%), which in turn effectively put the Protocol into full effect (Paton Walsh, 2004).

Russia became part of the global climate change regime not to prevent and mitigate the risks associated with it, but to reap the accidental economic benefits. Although President Medvedev mentioned the 'difficult obligations' that came with ratifying the Kyoto Protocol and the Russian leadership's awareness of the dangers posed by climate change, he did not hide economic benefits as the main reason behind joining Kyoto:

> We definitely need to utilize mechanisms under the Kyoto Protocol. . . . They come with significant funds. But the Kyoto Protocol is nearing its end. I must be honest with you, judging by the way the negotiations are proceeding in G8 and G20 countries, I am not sure if the majority of states will come to agreement [to extend the Protocol]. We will then either get nothing or we will be left with what we have right now, which is not a lot (President, 9 June 2011).

It is often difficult to compare a specific actor's palpable benefits with uncertain, complex, and ambiguous risks shifted to society as a whole. In this case, such benefits can be understood through what I call the 'risk-benefit flip', i.e. when a benefit of an activity is 'flipped' into the risk of not receiving the benefit (if, for example, the activity is delayed). President Medvedev's remarks reveal that he is concerned with the risk of not acting fast enough on the Kyoto Protocol mechanisms that come with 'significant funds'.

Examining the history of the Russian oil and gas sector through the risk-benefit flip also reveals why only a few projects under the Kyoto Protocol were implemented in Russia. The tens of millions of dollars that they brought in were dwarfed by the tens of billions of dollars that were made in the oil and gas sector. Rosneft', for example went from a minor player in 2000 to the largest publicly traded oil producer in 2013 (Rapoza, 2013). As I noted earlier in this chapter, the Russian oil and gas sector has seen one of the greatest distributions and redistributions of assets in history. The failure to recognize the risk of a fast disappearing opportunity to acquire a multi-billion dollar oil and gas asset dwarfed the risk of missing an opportunity to capitalize on a multi-million dollar Kyoto project (President, 9 June 2011).

A Russian law professor and permanent member Gazprom's internal arbitration body made the following statement at a meeting of the U.S.-Russia Bilateral Presidential Commission's Energy Scholarship Working Group: 'Don't get me wrong, I love the environment and nature very much. However, we should not say "no" to the great certain benefits that the oil and gas industry creates just because of a distant possibility of uncertain climate change risks'

(Lakhno, 2012). This remark provides insight on several points made in this chapter, including on why Kyoto Protocol never had a chance in Russia – a bird in hand that can disappear at any time is worth more than two in the bush, even though ignoring the two will probably destroy everything around them.

7.4. Conclusion

The Russian policy, legal, and regulatory regime currently lacks real capacity for timely, inclusive, and comprehensive risk governance of oil and gas activities. The mechanisms that distribute access to subsoil resources have been stripped of checks and balances. Meanwhile, continuous legislative rebracketing further increased concentration of the benefits of oil and gas production into the hands of the country's government and business elites. Environmental and technical standardization legislation has suffered from rebracketing aimed at prioritizing mineral resource extraction. The result of these legislative and regulatory initiatives is a *de facto* merger of the direct beneficiaries and gatekeepers of the Oil Standard. A few positive signs include the Russian leadership's respect for the legitimacy that the formal bracketing brings, an attempt to bring some life to the otherwise toothless system of environmental protection, and an attempt to increase transparency and public participation in law- and administrative rule-making. The practical effect of these attempts remains to be seen but the outlook does not provide many reasons for optimism. The benefits of oil and gas extraction are personalized, imminent, and generally concentrated where their recipients reside. The risks, in contrast, are largely shifted away from the recipients both spatially and temporally creating little incentive for developing a capacity for timely, inclusive, and comprehensive risk governance of oil and gas activities in the Russian Arctic and Subarctic.

In this chapter, I added two factors impacting the power relations that shape risk governance of oil and gas activities in the Russian oil and gas sector, the capacity of risk governance structures and actors, and allocation of risks and benefits. Correspondingly I added two remaining elements to the Risk Governance Power Framework. The completed analytical framework serves as the biggest contribution of this study to the risk governance literature. En route to developing the Risk Governance Power Framework, I made additional contributions to this body of literature. Namely, I identified regulatory mechanisms, such as mineral resource tenders, that normally are not associated with dealing with risks that have a potential to play an important role in the governance of oil and gas activities. I also reviewed the process of rebracketing of sovereign structures involved in the risk governance process, therefore providing a methodology for forecasting changes in risk governance's organizational and institutional capacity. These two contributions advanced the development of applied risk governance away from a narrow view of the legal and regulatory mechanisms involved in the process toward a more holistic and encompassing view. The rest of my findings in this chapter contributed to literatures on the oil and gas and environmental policies. In particular, I identified a legislative pathway to the current model governance and argued about the importance of the legislative process for strengthening the Kremlin's grip on distribution of wealth in Russia. I also argued that despite overwhelming and often unchecked presidential power in Russia, structural barriers and opportunities are critical for advancing presidential initiatives and policies. In addition, I noted the state of Russia's preparedness for offshore oil and gas development in the Arctic, and the country's timid attempts to halt the trend of weakening environmental protection. Finally, I provided further support to Dawisha's (2015) argument about personal benefits sought by public officials as the key consideration in energy policy-making in Russia. I strengthened this argument by utilizing Taleb's (2014) insight and demonstrating that acquisition of such benefits is rarely accompanied by assumption of risks.

8. Concluding Remarks

8.1. Research question revisited

In this study, I aimed to answer the following research question: 'In what ways and to what extent is risk governance of oil and gas activities in the Arctic and Subarctic region mandated and/or allowed by the Russian policy, legal, and regulatory regime?' In order to answer this question, I viewed risk governance as an approach and an observation (van Asselt & Renn, 2011, p. 435). I utilized the risk governance approach to identify the scope of the empirical field and categorize the relevant processes and structures. I also utilized the texts of official policy statements, laws, and regulations, as well as official government and policy discourse data, to observe how risks posed by oil and gas activities in the Arctic and Subarctic are governed in Russia. The most interesting part of my investigation was comparing my observations to the theoretical model I used as the approach.

Therefore, my answer to the research question is two-fold. First, I have *observed* that risk governance as described in the IRGC framework (2008a) is *mandated* under the programmatic policy statements, statutes, and administrative regulations listed in Chapter 4. The federal agencies responsible for implementing the programmatic policy statements are mandated to take into account risks posed by oil and gas development in the Arctic and Subarctic. The practical effect of these requirements is uncertain, as I was unable to find sufficient evidence of their implementation. Risk governance of oil and gas activities under 'On Environmental Review' is limited to projects located offshore and in highly protected areas, as well as to development occurring under PSAs (Law N175-FZ, 1995, art. 11). 'On Environmental Protection' offers little in addition (to 'On Environmental Review'), although recent changes in Russia's environmental legislation are likely to bring oil and gas exploration, development, and extraction back into the purview of 'On Environmental Review'. On the resource acquisition side, the risk governance mechanisms provided by 'On Subsoil Resources' (Law N2395-I, 1992) have all but vanished due to a series of legislative amendments since Vladimir Putin's accent to the presidency. Mandatory risk governance in the form of technical standardization has been hampered by the slow implementation of 'On

Technical Regulating' (Law N184-FZ, 2002) and the almost complete absence of technical regulations that should set acceptable and tolerable risk limits for oil and gas activities.

Second, other than requirements to conduct prospecting, exploration, and development under licences issued by *Rosnedra*, the Russian policy, legal, and regulatory regime does not impose any formal restrictions on risk governance of oil and gas activities. However, because of the *de facto* merger of the direct beneficiaries and gatekeepers of the Russian oil and gas sector and astronomical financial benefits that the sector creates, risk governance of oil and gas activities in the Arctic and Subarctic is *allowed* to the extent that it does not threaten these activities. In addition, because all major decisions regarding oil and gas development in the region are either made in or approved by the Kremlin, risk governance is allowed to the extent that it does not contradict such decisions. This elevates the Kremlin to the position of ultimate arbiter on threshold decisions regarding risk in the oil and gas sector and establishes the Russian President as the country's Risk-Governor-in-Chief.

8.2. Literature contributions

The results of my analysis reveal that the current risk governance literature pays insufficient attention to power relations, even though such relations are in large part responsible for the outcome of the risk governance process. Conceptualizing risk analysis as generation of knowledge about risk, and following Foucault's (1994, p. 32) insight on inseparability of power and knowledge, allows one to deduce this shortcoming. My inductive analysis of the empirical data in this study not only confirmed this theoretical insight but also highlighted the need for filling this scholarship gap. Unfortunately, the literature on the social concept of power does little to compensate for this gap. Risk, let alone risk governance, of a particular sector has not been a feature of any research endeavours known to me.

The socio-legal aspect of risk governance represents another significant gap in this body of literature. More specifically, this gap exists between the aforementioned 'grand narratives' of risk, which are epitomised by the work of Beck and rules and regulations that usually govern the risk analysis, risk management, and risk communication. This means that with the exception of a few chapters in the volume edited by Lindoe, Baram, and Renn (2014) and in

Aven and Renn's (2012) article, policy, legal, and regulatory mechanisms akin to environmental assessment, ethnological review, oil and gas license tenders, and production-sharing agreements remain largely disconnected from risk governance literature.

The quest for a universal theory of risk on one hand and the pursuit of regulatory solutions to technical risk analysis and risk management on the other shifted attention from an important factor in risk governance analysis – sectorial characteristics of a hazardous activity. As I showed above, not all risks are alike. Correspondingly, the technological, socio-economic, and political settings in which risks arise differ. My focus on the oil and gas sector allowed me to recognize this shortcoming and make sectorial characteristics the centrepiece of the Risk Governance Power Framework.

Although there is a sizable body of academic and analytical literature featuring the Russian oil and gas sector and providing great insights on the industry, such literature generally lacks theoretical orientation. Another shortcoming of this literature is the underdeveloped comprehensive and holistic view of the Russian oil and gas sector featuring its technological, socioeconomic, and political dimensions. With the exception of the Nazarova's (2016) study, the concept of risk in the context of the Russian oil and gas sector remains unexplored. This concept is also yet to be explored in both Russian- and English-language literatures regarding contemporary Russian law and public policy. The energy and environmental law-themed part of this body of literature generally leans toward either technical legal analysis or the development of legal theory, thereby showing little connection to the social theory and the concept of power in particular.

The last decade has seen a surge in the literature on the Arctic region, including literature regarding oil and gas development. However, except for the aforementioned scholarly works, the discussion of risk in the Arctic has focused on the descriptive side of risks arising in the context of industrial activities in the region and with little effort to enrich the risk and risk governance theory. As I determined in this study, similar to sectorial particularities, regional characteristics provide insights capable of contributing to better conceptual understanding of risk and risk governance.

Therefore, this study presented an opportunity to not only answer a research question with significant public policy implications, but it is also allowed me to contribute to several bodies of literature. Although the overall objective of Chapter 2 was to provide a multidimensional background on the Russian oil and gas sector, and more specifically set the stage for the network power analysis in Chapter 6, I also contributed to academic and analytical literature on the Russian oil and gas sector. In particular, I concluded that the Petrostate is not only a state of a national economy captured in statistical averages, it is also a state of mind of its citizenry, those lives directly involved in and impacted by the economy. Therefore, accounting for the interlocked physical and technological, political and geopolitical, social and economic dimensions of the Russian oil and gas sector will likely lead to a more accurate analysis of the Russian energy policy.

Similarly to Chapter 2, the main purpose of Chapter of 3 was to provide the necessary background for the ensuing analysis. As I went through the risk and risk governance inventory of theoretical tools, I made the following observations and suggestions. First, I bolstered Horlick-Jones and Sime's (2004) argument regarding the importance of a contextual approach to studying risk governance. Second, I identified three reasons for the prevalence of systemic risks in the energy sector: the prerequisite nature of energy as a good, uneven geographic distribution of primary energy producers and consumers, and high concentration and centralization of modern energy systems. Third, I incorporated Walsh's concept of political certainty in collective decision-making to the risk governance phases under the IRGC framework. Fourth, I conceptualized risk governance process as generation of knowledge about risk.

In Chapter 4, my overarching objective was to ground the theoretical observations from Chapter 3 in the data that I collected throughout the study. I advanced the research agenda set in the early stages of this study (Sidortsov, 2014) and identified the scope of the applicable Russian policy, legal, and regulatory regime. More specifically, I made the following contributions to governance and risk governance literatures. First, I concluded that the analysis of governance in the oil and gas sector must include the analysis of the role that the government plays in the process, in the context of the given national jurisdiction. Second, I concluded that *ex-ante* decisions regarding threshold matters, such as allocation of rights to develop oil and gas deposits, are best analysed through the lenses of the risk pre-assessment (PA) and risk characterisation and evaluation (C&E) phases of the IRGC framework. Third, I strengthened Klinke and Renn's (2012) argument regarding the critical importance of organizational and institutional capacity in risk governance. In addition, I made the following contributions to literature on the Russian oil and gas sector. First, I determined the dominant approach – prescriptive – to handling risk in this sector of the Russian economy. Second, I provided a description of the Russian legal system through the lenses of risk and risk governance.

In Chapter 5, I turned to two regulatory risk governance mechanisms identified in the previous chapter, environmental assessment (EA) and ethnological review (ER), and the notion of risk governance as knowledge generation. I analysed it through the lenses of the power/knowledge interrelation. This analysis led me to an in-depth discussion of the social power concept in the context of oil and gas governance under the Russian policy, legal, and regulatory regime, which in turn enabled me to contribute to the development of the risk governance theory as follows. First, I offered a simple yet fundamental approach to studying risk governance – through the lenses of the concept of social power. Second, I suggested that risk governance of oil and gas activities can be understood as an adversarial process with a proponent of the activity advancing individual interest and the government protecting public interest involved in a power-resistance (counter power) relationship. Third, I concluded that this process has two stages: first, the creation of a structure, a legislative or regulatory framework, and second, implementation within the structural bounds of the existing framework. Fourth, the government's power in the risk government process originates from sovereignty, whereas the power of a proponent of a potentially hazardous activity arises in sociability. My scholarly contributions in this chapter were not limited to risk governance literature. I showed the explanatory capacity of the social power concept in relation to risk, and thus further supported Russel's (1937) argument about the nature of the power concept, which is fundamental to social sciences. In addition, I contributed to socio-legal literature by building on Blomley's (2014) (2015) concept of rebracketing and conceptualizing law as overlapping sovereign power structures delimited by legal brackets.

The groundwork laid in Chapters 2 through 5 provided a solid foundation for the most significant scholarly contribution of this study - the Risk Governance Power Framework (RGPF). This foundation enabled me to make the following contributions to risk governance literature in Chapter 6. First, I showed that understanding the social power setting of a hazardous activity can be instrumental for governing risks associated with it. Second, sovereign power structures and actors may negatively impact the risk governance process by propping up the benefits of the activity in the official policy discourse and by providing subsidies. This foundation also enabled me to contribute to the development of the network theory as I offered an alternative to Grewal's narrow view of a network power standard. I also contributed to literature on heterodox theories of power by presenting a conceptual model of the oil and gas sector's network power, or as I termed it, the Oil Standard. In addition, I enriched scholarly and analytical literature on the Russian oil and gas sector by highlighting the role of official discourse regarding risk in policy-making and implementation.

In the final Chapter of this thesis, I completed the RGPF development. I introduced two more elements – the capacity of risk governance structures and actors, and allocation of risks and benefits. En route to finalizing the RGPF, I made the following contributions to risk governance literature. First, I demonstrated that laws and regulations governing allocation of mineral resources can contain risk governance mechanisms. Second, I showed how law- and rule-making processes can be used to forecast the changes in organizational and institutional capacity to govern risks. I also made the following contributions to the literature on the Russian oil and gas and environmental policies. First, I tracked the legislative changes that lead to the current governance of the oil and gas sector. Second, I demonstrated the importance of legitimisation of the Kremlin's policies through duly enacted legislation. Third, I identified structural limits to a Russian President's power in relation to energy and environmental policy matters. Fourth, I provided evidence as to the Russian government's lack of readiness for offshore oil and gas development in the Arctic. Fifth, I analysed the forthcoming changes in the Russian environmental protection legislation, which may stop the current trend of diminishing environmental controls on mineral resource development.

8.3. Risk Governance Power Framework

As I noted above, I consider the RGPF to be the most important contribution of this study. My analysis left little doubt that power relations play a critical role in the ways and extent to which risks are governed in the oil and gas sector. Yet the concept of social power is difficult to define let alone apply in a consistent and systemic manner. This observation served as the principal reason for development of a framework (RGPF) that would enable me to do so. As a preliminary matter, I concluded that an agnostic approach to theories of power provides the necessary breadth to the real-life problem of this study. In particular, I recognized the importance of two origins of power in the context of collective decision-making: sociability and sovereignty. In addition, I found that a theory of structuration in its simplest sense aids examining government and corporate actors attempting to govern risks posed by oil and gas activities. Accordingly, I contend that the following three factors are critical for understanding power relations in risk governance of oil and gas activities.

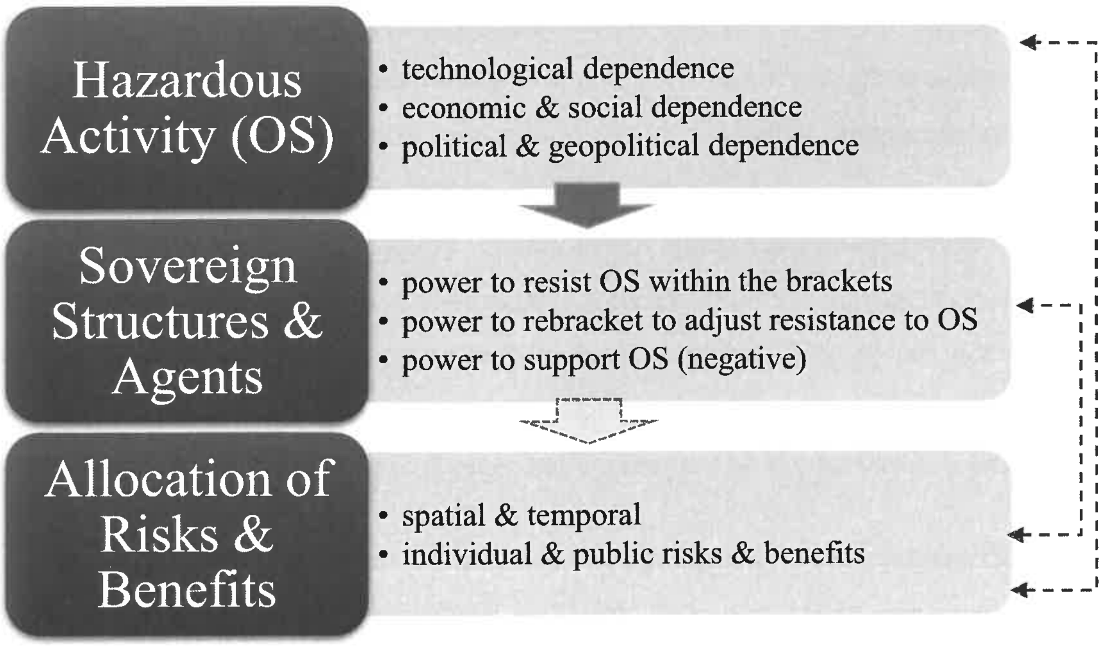
The *first factor* is the strength of network power behind the hazardous activity. This strength is grounded in the following three origins of the oil and gas sector: (i) technological dependence on oil and gas as fuels and all equipment and facilities involved; (ii) economic and social dependence on oil and gas activities that overwhelm other sectors of a nation's economy; and (iii) political and geopolitical dependence premised on the leadership and citizenry's perception of common interest. I titled the network of the oil and gas sector the 'Oil Standard' (OS), the strength of which increases if it receives preferential treatment from sovereign power structures, including financial subsidies.

The *second factor* is the capacity of the sovereign power structures and agents responsible for governing risks related to the activity to counter-balance the OS. These actors and structures charged with representing public environmental, social, and economic interests employ sovereign power as demarcated by legal brackets. Therefore, the ability to respond to creation of new legal brackets and the agency allowed within the structure are both important for counter-balancing the power of the OS. This ability all but disappears when the same actors and structures become responsible for pursuing acquisition of benefits and providing necessary checks and balances on such activities.

The *third factor* is the spatial and temporal allocation of individual and public risks and benefits. Little incentive exists to develop a timely, inclusive, and comprehensive risk governance process if the benefits of oil and gas extraction are personalized, imminent, and generally concentrated where their recipients reside and risks are largely shifted away, both spatially and temporally, from the beneficiaries. Put another way, the beneficiaries reap all the benefits without having any 'skin in the game'.

These three factors comprise RGPF's three elements. As Figure 25 below shows, the analytical framework can be applied sequentially, akin to the approach I took in this thesis. Correspondingly, the first step would be determining the network power of the hazardous activity at issue. In this study, I examined the oil and gas sector on a national scale. This, however, does not preclude scaling the analysis up or down depending on the research task. Because of the interconnectedness of the energy global energy system, it is important to factor in the place of the sector analysed within the more encompassing sector. For example, for an analysis of the oil and gas sector of a particular U.S. state, it is important to account for its relationship with the national and global oil and gas sectors.

Figure 25: Risk Governance Power Framework (RGPF) in the context of the Oil Standard



The second step in the RGPF's application is determining the power of risk governance structures and agents to resist the network power behind the hazardous activity. This power can be undermined by sovereign support of the hazardous activity, the analysis of which I performed in Chapter 6. Although I analysed these structures and agents prior to those directly responsible for governing risk in the Russian oil and gas sector, it does not mean that the RGPF must be applied in the same sequence.[63] In the analysis of both structures and agent types it is important to take into account their capacity rebracket in response to the hazardous activity's network power. The capacity to rebracket should be analysed in terms of its resilience to the network power: to create additional safeguards with the increase of the network power and to resist rebracketing when there is pressure to modify or remove them. In this study, I showed that the increase of Russia's Oil Standard in the 2000s did not correspond with the adoption of additional sovereign controls. In fact, as I showed in Chapter 7, several sovereign risk governance mechanisms under the environmental and mineral resource legislation were weakened as a result of pro-extraction policies from the Putin administration. This is not to say that the first and second steps in the RGPF analysis cannot be reversed. In fact, this would be a prudent move, if the research task were to evaluate the institutional and organizational capacity that is applied across several economic sectors.

The third step is the comparative analysis of the network power behind the hazardous activity and the power of sovereign structures and agents involved in risk governance. This analysis aims to answer perhaps the most important question – whether comprehensive, timely, and inclusive risk governance, the results of which the society accepts, is possible under the current policy, legal, and regulatory regime. In this study, I found a perverse lack of balance as the Russian Oil Standard overwhelms the sovereign structures and agents that are supposed to counter it. However, the opposite scenario is conceivable. Risk governance structures and agents can become too restrictive and overpower initiatives premised on aggregation of individual choices, despite these choices being accepted by the society as a whole.

A researcher concerned mainly with evaluating the capacity of risk governance to handle a hazardous activity can end the analysis with these three steps. However, an inquiry as to the

[63] As I mentioned above, the main reason for this sequence was to show the intertwined existence of sovereign- and sociability-premised power forms.

reasons for the network power's strength behind the hazardous activity and capacity of the risk structures and agents to handle it would require an inquiry into the spatial and temporal allocation of individual and public risks and benefits. Such inquiry is particularly important for the rebracketing analysis, because it is likely to reveal incentives for keeping or changing the status quo.

I used a sequential perforated arrow extending from the RGPF's second to its third element in the Figure 25 diagram to designate the fourth step as a discretionary one. I also used perforated arrows connecting the first and the third and the first and the second of RGPF's elements to indicate that the third element can be used for independent inquiries regarding the strength of the hazardous activity's network power or sovereign structures and agents' capacity for risk governance.

The RGPF does not replace or amend the IRGC framework or IRGC-based frameworks akin to the one proposed by Klinke and Renn (2012). The RGPF complements and enhances these risk governance frameworks by providing a set of conceptual lenses for more insightful and in-depth analysis of the setting in which risk governance occurs. Although this study focused on risk PA and C&E, it does not mean that RGPF cannot be applied to other phases of risk governance. In fact, the entire risk governance process or individual phases, especially those laden with social context, can be analysed with the RGPF help (IRGC, 2005). For example, a RGPF analysis of risk management, a traditional risk analysis element, can reveal the extent to which the process is shaped by the industry's interests.

In addition, the RGPF provides yet another argument in favour of the constructivist epistemology of risk because it asserts that people's approach to handling risk is not only a product of a subjective perception thereof, it is also a product of power relations. Accordingly, the RGPF further undermines the ostensibly objective probability and severity position of a risk realist by providing a comprehensive explanation of how both categories can change depending on the sector of a hazardous activity, the mechanism upon which it is evaluated, and the spatial and temporal allocation of potential adverse consequences.

Yet the RGPF's value does not end with theoretical contributions to theories of risk and risk governance. I believe that taking these encompassing and transcending characteristics of the oil and gas sector into account can contribute to comprehensive energy policy design in which technological, socioeconomic, and political considerations do not compete with but *complement* each other. In the context of the Arctic region, a RGPF-aided analysis can help explain the continuous push for oil and gas development and public acceptance of the development despite widely recognized risks and ostensibly strong institutions charged with representing the public interest.

The RGPF can also find application in the industry. The aforementioned characteristics can serve as indicators for oil and gas companies to diversify their activities and prepare for the decline of the Oil Standard. The world has seen a few energy transitions (Sovacool, *et.al*, 2013), thus there is little reason to believe that the Oil Standard will dominate the global energy system in perpetuity. Technological innovations alone cannot accurately predict an energy transition; after all, commercially scalable cost-competitive non-fossil fuel technologies already exist (NREL, 2012). When such energy technologies arrive at a visible scale and their arrival is combined with the shift in the perception of this technology's socio-economic value and politicians sense this shift, the oil and gas industry as we know it is likely to experience a rapid contraction. Therefore, oil and gas companies need analytical tools like RGPF, to paraphrase Sir David King, in order to be.

In this section, I have identified potential applications and uses of RGPF. Yet these applications and uses are largely hypotheses and therefore need to be tested and supported. The current Russian policy, legal, and regulatory regime, as well as its political landscape and data-rich policy discourse, provided fertile ground for the study. The non-Russia examples used in this study indicate that the RGPF is also transferrable to regimes where power over decisions involving risk is exercised in a seemingly more inclusive and subtle manner. More in-depth investigations are needed. Therefore, in future research, I plan to apply the RGPF to risk governance in connection with the following Arctic oil and gas projects:

- The Goliat project in Norway;

- The First Nations opposition to oil sands development in the Canadian Subarctic;
- Cairn Energy's unsuccessful campaign in the Greenlandic Arctic waters; and
- The Chukchi Sea lease sale 193 and the impact of the U.S. Ninth Circuit Court of Appeals decision in *Native Village of Point Hope v. Jewell.*

Following these investigations, I plan to expand the RGPF scope to other energy subsectors. I am particularly intrigued by the proliferation of distributed solar photovoltaics in the European Union and the United States.

Whether I will expand application of the RGPF beyond the energy sector will depend on the results of these investigations. I feel inspired by what I have learned in the span of the last four years and by the foundation that this study created. Although my study is now complete, I feel I am just beginning my research.

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Appendices

Appendix I: Legal sources

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7. Law N187-FZ. (1995). *Dated as of 30 November 1995, 'On the Continental Shelf of the Russian Federation', as amended on 2 May 2015.*

8. Law N225-FZ. (1995). *Dated as of 30 December 1995, 'On Production Sharing Agreements', as amended on 29 June 2015.*

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11. Directive N861-rp. (2009). *Dated as of 17 December 2009, 'On Climate Doctrine of the Russian Federation'.* RF President.

12. Directive N1715-r. (2009). *Dated as of 13 November 2009, 'On the Energy Strategy of Russia for the Period Ending in 2030'.* RF Government.

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Appendix II: Official transcripts

No.	Date	Subject	Location
1.	4 June 2003	Address at the meeting of the State Council regarding improvement of the environmental situation	Moscow
2.	20 July 2005	Meeting of the Council on the Development of Civil society and human rights	Moscow
3.	7 April 2006	Meeting with the President of Transneft' Semyon Vayshtock	Moscow
4.	17 October 2006	Meeting of the Presidential Council on Science, Technology, and Education	Zelenograd
5.	19 February 2007	Meeting of the State Council's Presidium on the support of industrial development in the Russian Federation	Volgograd
6.	4 June2007	Meeting the members of the RF Government	Moscow
7.	16 January 2008	Meeting with the President of Lukoil Vagit Alikperov	Moscow
8.	30 January 2008	Meeting of the Security Council on environmental security.	Moscow
9.	14 February 2008	Annual press conference	Moscow
10.	18 July 2008	Working meeting with Deputy Prime Minister Igor Sechin	Moscow Oblast
11.	17 September 2008	Address at the Security Council, 'On the Protection of Russia's National Interests in the Arctic'	Moscow
12.	14 December 2009	Meeting regarding issues related to the development of the energy sector	Moscow Oblast
13.	20 April 2009	Press conference after Russian-Finish summit	Helsinki
14.	18 June 2009	Address at a meeting of the Commission on Modernization and Technological Development of the Economy	Moscow

No.	Date	Subject	Location
15.	22 June 2009	Meeting of the Commission on Modernization and Technological Development of the Economy	Sarov
16.	31 August 2009	Address at a meeting of the Commission on Modernization and Technological Development of the Economy	Pokrov
17.	11 September 2009	Meeting of the interregional forum on cooperation between the Russian Federation and Republic of Kazakhstan	Orenburg
18.	30 September 2009	Joint meeting of the Commission on Modernization and Technological Development of the Economy and the Presidential Council on Science, Technology, and Education	Moscow
19.	28 October 2009	Address at a meeting of the Commission on Modernization and Technological Development of the Economy	MoscowOblast
20.	25 November 2009	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow
21.	14 December 2009	Meeting on the development of the energy sector	Moscow Oblast
22.	25 December 2009	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow
23.	20 January 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Lipetsk
24.	11 February 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Tomsk
25.	23 March 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Khanty-Mansiysk
26.	29 April 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Obninsk
27.	13 May 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow Oblast
28.	27 May 2010	Meeting of the State Council's Presidium on the issues relating to improving state oversight of environmental protection	Moscow

No.	Date	Subject	Location
29.	28 May 2010	Meeting with the core of the United Russia party	Moscow Oblast
30.	19 June 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	St. Petersburg
31.	27 July 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow
32.	31 August 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow
33.	22 September 2010	Meeting of the Commission on Modernization and Technological Development of the Economy on the issue of innovations in the arms manufacturing sector	Ramenskoe
34.	26 October 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Naberezhnye Chelny
35.	29 November 2010	Meeting of the Commission on Modernization and Technological Development of the Economy on the issue of legal regulation of innovations	Moscow Oblast
36.	13 December 2010	Meeting of the Security Council regarding the status of energy security in Russia	Moscow
37.	14 December 2010	Meeting of the Commission on Modernization and Technological Development of the Economy	Skolkovo
38.	31 January 2011	Meeting of the Commission on Modernization and Technological Development of the Economy	Arzamas
39.	28 February 2011	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow
40.	2 March 2011	Meeting with the Chairman of Total, Christopher de Margerie	Moscow Oblast
41.	11 March 2001	Meeting of the Commission on Modernization and Technological Development of the Economy	Magnitogorsk
42.	25 April 2011	Joint meeting of the Commission on Modernization and Technological Development of the Economy and Skolkovo foundation's advisory boards	Moscow
43.	24 May 2011	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow

No.	Date	Subject	Location
44.	8 June 2011	Meeting with environmental NGO representatives	Moscow
45.	9 June 2011	Meeting of the State Council on environmental security matters	Dzherzhinsk
46.	27 June 2011	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow Oblast
47.	26 September 2011	Meeting of the Commission on Modernization and Technological Development of the Economy	Dimitrovgrad
48.	26 November 2011	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow
49.	24 January 2012	Meeting of the Commission on Modernization and Technological Development of the Economy	Moscow Oblast
50.	21 March 2012	Meeting of the Commission on Modernization and Technological Development of the Economy	Vladimir Oblast
51.	21 June 2012	Meeting with heads of energy companies	St. Petersburg
52.	10 July 2012	Meeting of the Commission on the Development of the Fuel and Energy Sector and Environmental Security	Moscow
53.	30 July 2012	Meeting with members of environmental expedition to the Land of Franz-Joseph	Archangelsk
54.	15 October 2012	Meeting regarding development of administration of the transmission and distribution sector	Moscow Oblast
55.	22 October 2012	Meeting with the head of Rosneft' Igor Sechin	Moscow Oblast
56.	23 October 2012	Meeting of the Commission on the Development of the Fuel and Energy Sector and Environmental Security	Moscow Oblast
57.	21 November 2012	Meeting of the Security Council	Moscow
58.	13 February 2013	Meeting of the Commission on the Development of the Fuel and Energy Sector and Environmental Security	Moscow Oblast
59.	10 April 2013	Meeting on government support of industrial waste disposal activities	Moscow Oblast

No.	Date	Subject	Location
60.	22 April 2013	Meeting on economic matters	Sochi
61.	16 July 2013	Video conference with Orlan drilling rig	Yuzhno-Sakhalinsk
62.	26 August 2013	Meeting of the Commission on the Development of the Fuel and Energy Sector and Environmental Security	Kemerovo
63.	6 September 2013	Vladimir Putin post-G20 meeting press conference	St. Petersburg
64.	25 September 2013	Address at the international Arctic forum, 'The Arctic: Territory of Dialogue'	Salekhard
65.	26 September 2013	Meeting regarding implementation of the Yamal LNG project and construction of the Sabeta seaport	Salekhard
66.	10 October 2013	Meeting with the President of Lukoil Vagit Alikperov	Moscow Oblast
67.	19 December 2013	Vladimir Putin's press conference	Moscow
68.	9 January 2014	Working meeting with the Minister of Energy Alexander Novak	Moscow Oblast
69.	4 April 2014	Meeting with the Minister of Natural Resources and the Environment Sergey Donskoy	Moscow Oblast
70.	18 April 2014	Video conference with the Prirazlomnaya platform	Moscow Oblast
71.	18 April 2014	Meeting with the head of Shell Ben van Beurden	Moscow Oblast
72.	22 April 2014	Meeting of the Security Council regarding on the government's policy in the Arctic	Moscow
73.	5 May 2014	Working meeting with the governor of Murmansk Oblast Marina Kovtyn	Moscow
74.	23 May 2014	Meeting with the participants of the World Business Leaders Summit	St. Petersburg

No.	Date	Subject	Location
75.	24 May 2014	Remarks at the St. Petersburg Economic Forums' session 'Oil and Gas Companies as the "Engine of Changes" in the World Economy"'	St. Petersburg
76.	24 May 2014a	Meeting with heads of global news outlets	St. Petersburg
77.	4 June 2014	Meeting of the Commission on the Development of the Fuel and Energy Sector and Environmental Security	Astrakhan
78.	5 June 2014	Meeting on matters relating to effective and safe development of the Arctic	St. Petersburg
79.	16 June 2014	Address to the participants of the World Oil Congress	Moscow
80.	20 June 2014	Working meeting with the Governor of Khanty-Mansi Autonomous District, Natalya Komarova	Moscow
81.	27 June 2014	Video conference with Berkut drilling platform	Moscow
82.	9 August 2014	Video conference with the West Alpha platform in the Kara Sea	Sochi
83.	29 August 2014	Meeting at the national youth forum 'Seliger'	Tverskaya Oblast
84.	1 September 2014	Meeting with the students and faculty of the Northeastern Federal University	Yakutsk
85.	4 September 2014	Video conference with Igor Sechin regarding commencing production at the Northern Chaivo field	Gorno-Altaysk
86.	17 September 2014	Meeting with the Chairman of Gazprom's Board of Directors, Alexei Miller	Moscow
87.	19 September 2014	Meeting with young nuclear scientists	Sarov
88.	27 September 2014	Greeting to participants in the Tiger Day celebration	Unknown
89.	23 September 2014	Interview with Around the World magazine	Unknown

No.	Date	Subject	Location
90.	1 October 2014	Security Council meeting	Moscow
91.	2 October 2014	Address at the investment forum, 'Russia is Calling!'	Moscow
92.	3 October 2014	Meeting with members of the RF Government	Moscow Oblast
93.	13 October	Meeting with members of the RF Government	Moscow Oblast
94.	14 October 2014	Meeting of the Council on the Development of Civil Society and Human Rights	Moscow
95.	24 October 2014	Meeting of the Valdai International Discussion Club	Sochi
96.	31 October 2014	Meeting with the Chairman of Novatek's Board of Directors, Leonid Mikhelson	Moscow
97.	6 November 2014	Interview with leading Chinese news outlets	Unknown
98.	7 November 2014	Address at the 15th Meeting of the Russian Geographic Society	Moscow
99.	18 November 2014	Address at a gathering of the All-Russia People's Front	Moscow
100.	28 November 2014	Meeting with CEO of Total, Patrick Pouyanné	Sochi
101.	4 December 2014	Address to the Federation Council	Moscow
102.	2 February 2015	Meeting with Lukoil's President Vagit Alikperov	Moscow Oblast
103.	2 March 2015	Working meeting with the Minister of Energy, Alexander Novak	Moscow Oblast
104.	8 April 2015	Press conference after meeting with Greek Prime Minister Alexis Cypras	Moscow
105.	8 April 2015	Meeting with the head of Gazprom's Board of Directors Alexey Miller	Moscow

Appendix III: Codes and code groups used in the analysis of official transcripts

Code Group	Codes
Activity	Background, Russian Oil and Gas Benefits Known Before Risks Dependence, Crisis (historic path, rationalization) Dependence, Modernization Financial Incentives
Actors & Structures	Acquisition of Benefits, Law Acquisition of Benefits, Rebracketing Background, Russian Industry Checks and Balances, Law, Environmental and Ethnological Assessment Checks and Balances, Law, Rebracketing Culture, Petrostate Merger and Komandy (Teams) Effect, Individual Benefits Effect, Weak Analysis of Risks
Allocation	Background, Russian Oil Legacy Fast and Reckless Development Spatial, Resignation Effect Spatial, More Power and Less Control Spatial, Verticalization of Power Centralization of Wealth Temporal, Disappearing Benefits Temporal, Uncertain Climate Risks

Appendix IV: Interviews and notes from fieldwork

Semi-structured interviews

No.	Interviewee	Date	Subject	Location
1.	Classmate, Russian Law School	17 June 2015	Petrochemical refinery in Angarsk, Russia	via Skype from Angarsk, Russia and Cambridge, United Kingdom
2.	Family Member	15 September 2014	Response to the U.S. and E.U. sanctions	via phone from Irkutsk, Russia and Cambridge, United Kingdom
3.	Former Russian IOC Lawyer	20 January 2013	Access to Russian oil and gas companies	via Skype from Moscow, Russia and Cambridge, United Kingdom
4.	Former Russian IOC Lawyer	28 February 2014	Handling of risk in Russian energy companies, corporate culture of Russian energy companies	Moscow, Russia
5.	Former Russian IOC Lawyer	8 August 2014	Government support of Russian oil and gas companies under goal-oriented programs	via Skype from Moscow, Russia and Cambridge, United Kingdom
6.	Norwegian Oil and Gas Trade Association Representatives	21 March 2013	Operational aspects of risk management of oil and gas activities on the Russian sector of the Barents Sea	Bodø, Norway
7.	Russia Director, Consulting Company	20 January 2014	Licensing, permitting, and taxation of oil and gas activities in Russia	Tromsø, Norway

No.	Interviewee	Date	Subject	Location
8.	Russian Energy Analyst	26 March 2013	Gazprom's corporate structure	London
9.	Russian Lawyer, Foreign Company	28 February 2014	Novatek and LNG export amendments	Moscow, Russia
10.	Senior Manager, Consulting Company	17 September 2013	Gazprom's and Rosneft's risk analysis practices	Oslo, Norway
11.	Senior Manager, HSE Russia	24 January 2014a	Evolution of risk in the Russian legal and regulatory framework	Tromsø, Norway
12.	Senior Manager, HSE Russia	29 January 2014	Risk management in Russian and Norwegian energy and transportation companies operating in the Arctic	via Skype Tromsø, Norway and Cambridge, United Kingdom
13.	Senior Manager, IOC	21 March 2013	Risk regulatory models employed by oil supermajors	Bodø, Norway
14.	Senior Manager, Russian NOC	27 February 2014	Company's risk practices, licensing, government relations, and regulatory response to the Prirazlomnoe protest by Greenpeace	Moscow, Russia
15.	Stammler, F. (anthropologist)	22 October 2014	Russian oil and gas companies' relationships with indigenous communities Power of Siberia and ESPO	Cambridge, United Kingdom
16.	Stammler, F. (anthropologist)	18 February 2015	Russian oil and gas companies' practices during environmental assessment and ethnographic review in Yamal and Sakha	Cambridge, United Kingdom
17.	Stammler, F. (anthropologist), & Ivanova, A. (Russian lawyer and legal scholar)	12 February 2016a	Power of Siberia's impact on local communities in Sakha, Yakutia	Cambridge, United Kingdom

No.	Interviewee	Date	Subject	Location
18.	Rouillard, R. (anthropologist)	10 December 2014	Environmental situation in the Komi Republic. Environmental assessment of oil and gas projects in Nenets Autonomous District.	Cambridge, United Kingdom
19.	Novikova, N. (anthropologist)	25 February 2014	Russian oil and gas companies' practices during environmental assessment and ethnographic review in Yamal and Sakhalin	Moscow, Russia
20.	Russian Environmental and Indigenous Rights Lawyer	25 February 2014	Oil and gas sector's influence over environmental and indigenous rights legislation Changes in the legislation on the territories of traditional subsistence	Moscow, Russia
21.	U.S. Oil and Gas Professor	20 November 2014	Transparency in Russian oil and gas industry's activities	via phone from Lubbock, TX, United States and Houston, TX, United States
22.	Employee of the Russian Geographic Society	22 January 2014	The Prirazlomnaya protest by Greenpeace	Tromsø, Norway
23.	Program Director at the Russian Branch of International Environmental NGO	26 September 2014	Oil spill risks in the Russian Arctic and Subarctic Cooperation between environmental NGOs and Russian government officials	via Skype from Moscow, Russia and Cambridge, United Kingdom
24.	Business Journalists from Murmansk	24 April 2014	Oil and gas industry cooperation after the first round of the E.U. and U.S. economic sanctions Subsidies from the national government for the infrastructure supporting the Prirazlomnoe project	via Skype from Murmansk, Russia and Cambridge, United Kingdom

No.	Interviewee	Date	Subject	Location
25.	Business Journalists from Murmansk	17 March 2015	The state of the oil and gas industry in Murmansk six months after the E.U. and U.S. economic sanctions	Bodø, Norway
26.	Russian oil and gas professor, consultant, and frequent SEER expert	19 March 2015	The SEER process	Bodø, Norway
27.	Environmental Specialist at a Norwegian Consulting Company	19 September 2013	Environmental data about the Arctic and Subarctic accumulated in Russia	Oslo, Norway
28.	Engineer, Norwegian Consulting Company	22 January 2014	Public perception of oil spills in the Arctic and the Prirazlomnaya protest by Greenpeace. Prirazlomnaya design and oil spill preparedness	Tromsø, Norway
29.	Aide to a Murmansk Oblast legislator	22 January 2014	Perception of the Prirazlomnaya protest by Greenpeace in Murmansk. Russian government's support of Arctic research	Tromsø, Norway

Notable observations from fieldwork

No.	Interviewee	Date	Subject	Location
1.	Vasiliev, A. R., Russia's Ambassador at Large and Representative to the Arctic Council	20 January 2014	Remarks from the Arctic Frontiers conference	Tromsø, Norway
2.	Lakhno, P., energy law professor at Moscow State University	24 October 2012	Remarks at the meeting of the U.S.-Russia Bilateral Presidential Commission's Energy Scholarship Working Group in Moscow	Moscow, Russia

No.	Interviewee	Date	Subject	Location
3.	Participants at the Oslo Industry Event	17-19 September 2013	Remarks and comments made during group projects	Oslo, Norway
4.	Masvie, N.A. DNV GL	19 March 2013	Address at the Arctic Dialogue conference	Bodø, Norway

Appendix V: Figures and tables

Appendix VI: Definitions of risk (EPA, 2016)

No.	Source (EPA Vocabulary)	Definition
1.	Environmental Monitoring and Assessment Program Master Glossary	'A measure of the probability that damage to life, health, property, and/or the environment will occur as a result of a given hazard' (EPA 1992, 25). In statistics, 'the expected loss due to the use of a given decision procedure'. (QAMS 1993, 20).
2.	Environmental Insurance & Risk Mgmt Tools Glossary	A chance of loss with respect to person, liability, or the property of the insured.
3.	Pesticides Glossary	A measure of the chance that damage to life, health, property, or the environment will occur.
4.	Terms of Environment	A measure of the probability that damage to life, health, property, and/or the environment will occur as a result of a given hazard.
5.	Safety, Health, and Environmental Management Systems Terms and Definitions	Combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health that can be caused by the event or exposure(s).
6.	Community-Based Air Pollution Projects Glossary	In the context of human health, the probability of injury, disease, or death from exposure to a chemical agent or a mixture of chemicals. In quantitative terms, risk is expressed as values ranging from zero (representing the certainty that harm will not occur) to one (representing the certainty that harm will occur).
7.	Superfund for Students and Teachers Glossary	Likelihood or probability of injury, disease, or death.
8.	Benchmark Dose Software Glossary	Probability that an animal or individual exhibits a particular adverse effect for a specified exposure, expressed on a probability scale of 0 to 1. May be expressed as the proportion of a population effected and often converted to the percent effected.

No.	Source (EPA Vocabulary)	Definition
9.	Waste and Cleanup Risk Assessment Glossary	The expected frequency or probability of undesirable effects resulting from exposure to known or expected stressors.
10.	Check Up Program for Small Systems Glossary	The potential for realization of unwanted adverse consequences or events.
11.	Exposure Factors Handbook Glossary	The probability of an adverse effect in an organism, system, or population caused under specified circumstances by exposure to an agent.
12.	Radiation Protection Program - Radiation Glossary	The probability of injury, disease or death from exposure to a hazard. Radiation risk may refer to all excess cancers caused by radiation exposure (incidence risk) or only excess fatal cancers (mortality risk). Risk may be expressed as a percent, a fraction, or a decimal value. For example, a 1% excess risk of cancer incidence is the same as a 1 in a hundred (1/100) risk.
13.	RadTown Glossary	The probability of injury, disease, or death under specific circumstances.
14.	I-BEAM Glossary of Terms	The probability of injury, disease, or death under specific circumstances. In quantitative terms, risk is expressed in values ranging from zero, which represents the certainty that harm will not occur, to one, which represents the certainty that harm will occur.
15.	Environmental Management System Glossary	This is the probability that something undesirable will happen from exposure to a hazard.