

CROSS-BORDER OIL AND GAS PIPELINES: THE INTERSECTION OF
POLITICS, GEOGRAPHY, AND ENERGY MARKETS

by
Miyeon Oh

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ABSTRACT

The emerging trend of cross-border oil and gas pipelines in Eurasia has immense geopolitical and energy market implications. With the changing landscape of global energy markets, both key consuming and producing states have strategic reasons to forge new transit routes and diversify supply lines with new overland (or undersea) pipelines. This dissertation examines what brings countries into binding cross-border oil and gas pipeline deals and why some proposed pipeline projects materialize quickly while others do not. It aims to provide a more systematic explanation of how politics and energy markets are interconnected in the choice of supply routes and of how political and economic factors play out interactively in decisions regarding cross-border pipeline projects. The dissertation employs statistical analysis and case studies to advance the hypothesis that, in addition to market considerations, the successful launch of a cross-border pipeline project and the speed of the deal depend on geopolitical factors, political alignment between host country governments, and pipeline ownership structure. The statistical analysis tests this argument through the dataset I constructed of all existing and proposed cross-border oil and gas pipelines in the world. The dissertation then examines four case studies: (1) the completed *Eastern-Siberia Pacific Ocean (ESPO)* oil pipeline from Russia to China; (2) the planned *Altai* and *Power of Siberia* pipelines, designed to bring gas from Russia to China; (3) the completed *Baku-Tbilisi-Ceyhan (BTC)* pipeline carrying Caspian oil to West from Azerbaijan via Georgia and Turkey; and (4) the planned *Southern Gas Corridor (SGC)* pipelines, designed to bring Caspian gas to Europe from Azerbaijan via Georgia, Turkey, Greece, Albania, and Italy. The dissertation finds that geopolitical factors profoundly shape energy relations and affect the likelihood

of successful pipeline deals and their speed regardless of the degree of economic incentives involved in the project. Second, the degree of political alignment between host countries and the ownership structure of pipelines likely determine the success of cross-border pipeline deals. Third, the political-economic arrangements among host countries affect the likelihood of successful pipeline deals and their speed more significantly in the field of natural gas than in oil.

Dissertation Committee Members:

Dr. Charles F. Doran, Ph.D. (Johns Hopkins University, SAIS) – primary reader

Dr. Andrew Cheon, Ph.D. (Johns Hopkins University, SAIS) – secondary reader

Dr. David M. Lampton, Ph.D. (Johns Hopkins University, SAIS) –committee chairman

Dr. Charles Ebinger, Ph.D. (Brookings Institution)

Dr. Keun-Wook Paik, Ph.D. (Oxford Institute for Energy Studies)

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LIST OF ABBREVIATIONS

ACG	Azeri-Chirag-Gunashli
AIOC	Azerbaijan International Operating Company
BCM	Billion Cubic Meter
BTC	Baku-Tbilisi-Ceyhan
BTE	Baku-Tbilisi-Erzerum
BP	British Petroleum
BPD	Barrels Per Day
CDB	China Development Bank
CIS	Commonwealth of Independent States
CNOOC	China National Offshore Oil Corporation
CNPC	China National Petroleum Corporation
DESFA	Greek Natural Gas System Operator
DOE	Department of Energy
EBRD	European Bank of Reconstruction and Development
ECT	Energy Charter Treaty
ESPO	Eastern-Siberia Pacific Ocean
FDI	Foreign Direct Investment
FID	Final Investment Decision

HGA	Host-Country Government Agreement
IEA	International Energy Agency
IFC	International Finance Corporation
IGA	Intergovernmental Agreement
IOC	International Oil Company
ITGI	Interconnector Turkey–Greece–Italy
JV	Joint Venture
LNG	Liquefied Natural Gas
MEP	Main Export Pipeline
MOU	Memorandum of Understanding
NATO	North Atlantic Treaty Organization
NDRC	National Development and Reform Commission
NOC	National Oil Company
OPEC	Organization of the Petroleum Exporting Countries
OSCE	Organization for Security and Cooperation in Europe
POS	Power of Siberia
PSA	Product Sharing Agreement
RFE	Russian Far East
SCO	Shanghai Cooperation Organization

SCP	South Caucasus Pipeline
SD	Shah-Deniz
SDPC	State Development Planning Commission
SEEP	South East Europe Pipeline
SETC	State Economic and Trade Commission
SGC	Southern Gas Corridor
Sinopec	China Petrochemical Corporation
SOCAR	State Oil Company of Azerbaijan Republic
SOE	State Owned Enterprise
TANAP	Trans Anatolian Pipeline
TAP	Trans Adriatic Pipeline
TCGP	Trans-Caspian Gas Pipeline
TEP	Third Energy Package
TPAO	Turkish Petroleum Corporation
WTO	World Trade Organization

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CHAPTER ONE
INTRODUCTION

WHY STUDY CROSS-BORDER OIL AND GAS PIPELINES IN EURASIA?

The landscape of global energy markets and geopolitics is changing. The locus of global energy demand has shifted from Western industrial countries to developing countries in Asia, mainly due to economic growth in China and India¹, and stagnation in European economies. Along with the accelerated declines in existing low-cost reserves, the rise in oil and gas production from non-OPEC countries will likely change the rules of the game in global energy supply markets in coming decades. The breakup of the former Soviet Union has not only released enormous new potential reserves of oil and gas in landlocked Central Asia, but has also opened the potential for scaled-up oil and gas production in the Russian Far East. In addition, the U.S. shale gas revolution and the development of East African natural gas will likely change the global energy supply equation significantly in the long term. The plunge in crude prices since the summer of 2014, on the other hand, has prompted major energy firms' to defer new oil and gas projects around the globe in order to protect investors' dividends, which is affecting the global energy supply markets in the short-term.²

With all of these combined factors, the transformation of the global energy supply-demand structure is powerfully influencing regional energy market dynamics and geopolitical relationships. At the nexus of these changing dynamics is a growing

¹ The International Energy Agency (IEA) forecasts that in the two decades leading up to 2030, China and India combined are likely to account for more than 50 percent of total world energy demand growth, 60 percent of world oil demand growth, 20 percent of world natural gas demand growth, and 85 percent of world coal growth. World Energy Outlook 2013.

² The world's big energy groups have shelved \$200bn of spending on new projects due to low oil prices. Christopher Adams, "Oil groups have shelved \$200bn in new projects as low prices bite," *Financial Times*, July 26, 2015.

competition to develop a number of major Asian and Eurasian³ pipelines to transport oil and gas across the region.⁴ With the boom in Asia's demand for oil and natural gas, access to and control over future oil and gas supplies, as well as control of oil and gas transportation links and transit infrastructure, has become a major priority for both consuming and producing countries in Eurasia. Both Eurasian key producers and consumers have strategic reasons to forge new transit routes and diversify supply lines with new overland and undersea pipelines.

Three main factors are driving the emerging trend of cross-border pipeline networks in Eurasia. First, in order to meet Asia's rising energy demand in coming decades, an increasing share of Asia's oil and liquefied natural gas (LNG) supplies must transit the Indian Ocean, Malacca Strait, and the South China Sea, to bring energy resources from the Middle East and Africa. This has raised new concerns for regional power over the growing risk of major maritime supply disruptions. China has been especially eager to diversify its oil imports away from these sea lanes, where more than 85 percent of its crude oil imports flow, because of their vulnerability to disruption by various modern navies.⁵ China has relied on one particular sea lane, the Persian Gulf, for almost half of its crude imports. Pipelines, therefore, are becoming more attractive as a means to circumvent major maritime chokepoints and congested waterways. These circumstances

³ "Eurasia" is used here to denote all the nations of the Asian continent, plus the territory of the former Soviet Union in its entirety, including all of the Russian Federation. "Asia" denotes the Asian continent, minus all the constituent parts of the former USSR. Kent E. Calder, *The New Continentalism : Energy and Twenty-First-Century Eurasian Geopolitics* (New Haven: Yale University Press, 2012). See page 305 for the definition of Eurasia and Asia.

⁴ Mikal Herberg et al, "Pipeline Politics in Asia: The Intersection of Demand, Energy Markets, and Supply Routes," in *NBR Special Report* (National Bureau of Asian Research, 2010).

⁵ Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in James Bellacqua, ed. *The Future of China-Russia Relations* (Lexington: University Press of Kentucky, 2010).

are driving regional powers to diversify supply routes with new overland (and sometimes undersea) pipeline routes.

Second, the collapse of the former Soviet Union freed up enormous potential reserves of oil and gas in Central Asia, and the volume of production and export from these landlocked, non-OPEC countries is rising. Sustained high oil prices (with exceptions during the 1990s, the Global Financial Crisis and the current decline in global oil prices since the late 2014), technological advancement, as well as increased world demand for oil and gas has rendered production from such landlocked states commercially viable.

Third, transcontinental political-economic interdependence is rising across Eurasia, due to the breakup of the former Soviet Union and the economic reforms and rapid growth in China and India. These trends have led to intensify transcontinental trade between energy producer and consumer countries and the emergence of trans-regional oil and gas pipeline networks. These transnational pipelines are becoming a more attractive means of energy transport in Eurasia, and an increasing number of cross-border pipelines and transit routes are under consideration across the continent.

This emerging trend of developing transnational pipelines across Eurasia has drawn increased attention from academic and policy communities. However, existing studies have not sufficiently examined their important geopolitical and energy market implications. Transnational oil and gas pipelines are considered as an emerging type of strategic energy partnership that enhance the security of energy supply in Eurasia, a region where the institutional basis for multilateral cooperation is not yet solidified and where heterogeneous cultures, economies, and political regimes co-exist. Transnational pipelines that cross borders of two or more countries not only require long-term

investment and huge upfront capital costs; they also introduce a host of jurisdictional challenges for construction, operation, and maintenance. In this respect, the nature of emerging energy relations in Eurasia as well as the region's changing supply-demand structure must be systematically explored in order to fully understand geopolitical and energy market implications of transnational pipeline development.

EMPIRICAL PUZZLE

The choice of one pipeline route among various options reflects energy security priorities and the state of political relations of countries participating in the project. In choosing routes to export their commodities and import their energy supplies, states consider and promote the political ramifications of various route options.⁶ From industry perspectives, meanwhile, cross-border pipelines are commercially driven, and political support is merely a way to help guarantee economic profits. Yet while the market can provide energy supplies, it does not create energy security. Nor does the market inherently seek diversification of energy supply sources and transportation routes, which can enhance energy security. Beyond market reasons, there are strategic reasons to develop cross-border pipelines between key producing and consuming states. In this respect, it is frequently observed that not all cross-border pipelines driven by economic and commercial motivations necessarily align with strong political motivations. Some cross-border pipeline projects that are seemingly less economically justifiable become implemented because of strong political motivations among host country governments. Conversely, some commercially viable pipeline projects are delayed for more than a couple of decades or never materialize due to lack of political motivations. My

⁶ Brenda Shaffer, *Energy Politics* (Philadelphia: University of Pennsylvania Press, 2011).

dissertation focuses on the cross-border pipeline projects where market incentives are inversely related to political considerations. Neither economic nor political incentives can be the dominant factor in every pipeline case. Emerging types of strategic energy cooperation for cross-border pipeline development in Eurasia are much more complex than energy partnerships in other regions, because these are cases where states with different cultures, economies, and political regimes are developing energy ties.

My dissertation aims to answer the three following research questions: 1) What brings countries into binding cross-border oil and gas pipeline deals and at what speed?; 2) How do political and economic factors play out interactively in the decision-making of cross-border pipeline projects?; and 3) To what extent is the strategic framework of calculations regarding oil pipeline development different from natural gas pipeline development?

This project seeks to shed light on these puzzles by examining variations among cross-border oil and gas pipeline projects in Eurasia in terms of deal success and speed, by providing a systematic understanding of how politics and energy markets are interconnected. I explore political and economic factors at both the international and domestic levels in order to explain the international political economy as well as comparative political economy of cross-border pipeline development. At the international level, I examine political and commercial alignment between pipeline host countries, in addition to geopolitical and geo-economic factors. At the domestic level, I investigate political and economic considerations in individual host countries that affect decisions about particular pipeline projects. I also examine underlying interactive political and economic factors in both internal and external (cross-border pipeline) project levels.

Political and commercial alignment between host countries of pipeline projects is evaluated in the internal project level. Finally, this dissertation examines geopolitical changes that occur due to crisis situations, and the subnational political-economic dynamics influencing decisions about pipeline development.

To answer my research questions, I advance the following hypothesis: beyond the market considerations that directly relate to the economic cost and benefit incurred from cross-border pipeline development, the successful launch of a proposed cross-border pipeline project and the speed of the deal depend on three underlying factors: (1) geopolitical (and external crisis) factors (i.e., whether a pipeline project is supported or opposed by third-party countries, and/or goes through external shock or crisis situations); (2) political trust between host country governments (i.e., political alignment)⁷; and (3) pipeline ownership structure (i.e., commercial alignment between host countries). I focus on these three explanatory variables, which are explained in detail in the next chapter, in order to examine how the successful development of transnational pipeline projects depends on the interaction between underlying economic and political factors. This dissertation posits that political factors significantly affect the commercial viability of large-scale cross-border infrastructure projects of pipeline networks in Eurasia, and that economic factors are conditioned on the nature of political arrangements of participating states regarding these pipeline projects. Moreover, I hypothesize that the effect of these three identified factors is more pronounced in natural gas than in oil pipeline projects. The dependent

⁷ My political trust variable represents how host country governments involved in cross-border pipeline projects align politically and trust one another. I use “political trust” and “political alignment” interchangeably throughout my dissertation. Although the concept of political alignment provides a better explanation of this issue of cross-border oil and pipeline development (in the sense that political alignment means states are moving in the same direction), I assume that a certain degree of political trust is necessary to have political alignment. See Chapter 2’s Theoretical Framework section for a more detailed explanation of this political trust variable.

variable (successful launch of a proposed pipeline project and its deal speed) and key independent variables are explained in greater detail in Chapter 2.

RESEARCH DESIGN

Overview of Research Design

This dissertation seeks to understand what brings countries into binding cross-border oil and gas pipeline deals and why some proposed pipeline projects move quickly through the negotiation and decision-making process while others do not. In order to achieve this goal, I employ combined methods of statistical analysis and case studies. The statistical analysis explains the international political economy of cross-border pipelines by identifying the key political and economic factors affecting the deal speed for successful pipeline projects. It quantitatively demonstrates how political trust between host country governments, geopolitical factors, and pipeline ownership structure affect the deal speed of successful cross-border oil and gas pipeline projects. The purpose of this statistical analysis is to enable a structural understanding of the commonality of international political economy of cross-border oil and gas pipelines, which has been neglected in the existing studies.

After this quantitative analysis provides a brief overview of proposed and existing cross-border pipelines around the world, I conduct four case studies that focus on two regions, China-Russia and the Caspian Sea: (1) the completed *Eastern-Siberia Pacific Ocean (ESPO)* oil pipeline from Russia to China; (2) the planned *Altai Pipeline* and *the Power of Siberia Pipeline*, designed to bring gas from Russia to China; (3) the completed *Baku-Tbilisi-Ceyhan (BTC) pipeline*, which has brought Caspian oil to West from Azerbaijan,

via Georgia and Turkey, since 2006; and (4) the planned *Southern Gas Corridor (SGC)* pipelines,⁸ designed to bring Caspian gas to Europe from Azerbaijan, via Georgia, Turkey, Greece, Albania, and Italy. Through these four case studies, I examine the comparative political economies of host countries in planned or existing cross-border pipelines. By focusing on detailed subnational analysis, these case studies explain both internal and external political-economic dynamics that lead countries to reach cooperative trans-border pipeline development agreements.

Statistical Analysis

Through independent research, I have constructed a dataset on all existing and prospective cross-border oil and gas pipelines in the world, which includes approximately 200 pipeline projects. Because this dataset has many missing values in dependent and independent variables due to the limited accessibility to industry data sources, I have constrained the final sample to realized pipelines that are operational or the pipelines whose cross-border agreements are signed/finalized. A total of 77 cross-border pipeline projects are selected for statistical regressions.⁹ Despite these limitations in sample size,

⁸ The Southern Gas Corridor includes the expansion of the South Caucasus Gas Pipeline to Turkey from Azerbaijan, the construction of the Trans Anatolian Gas Pipeline (TANAP) across Turkey, and the Trans Adriatic Pipeline (TAP) across Greece, Albania, and into Italy. The Southern Gas Corridor will bring Caspian gas from the Shah Deniz field to a major European gas market for the first time in 2018.

⁹ The reason why I only have cases of successful pipelines as a final sample (a subset of 77 out of 200) is because (1) I have limited access to the industry data, thus difficult to have a larger size of final sample, and (2) only successful pipelines have a full range of observations containing a brief description of four explanatory variables (geopolitical factors, the level of political trust, pipeline ownership structure, and fuel type), control variables (a number of participating countries, pipeline length), a dependent variable (the year that a pipeline is proposed, signed, and operated) and other indicators (throughput, total capital cost, etc.). I tested if I have same statistical results for my explanatory variables (that do not include the 'pipeline ownership structure' variable as final investment decision (FID) is made at the last stage for deal finalization) with the dataset that has pipelines that are successful, failed, and under considerations. I confirmed they lend the same statistical results with those of my final sample. Therefore, I can test success or failure even if I have only cases of successful pipelines in my final sample.

this quantitative exercise forms the basis for the more in-depth qualitative case discussions that follow.

As I am studying cross-border oil and gas pipeline projects over time, the unit of analysis is a cross-border pipeline project in a given year (project-year). To avoid selecting on the dependent variable, I have included all cross-border pipeline projects, regardless of whether they are in Eurasia or not. This part of the research design reflects the heterogeneity that exists among cross-border pipeline projects and how quickly their deals are finalized (i.e., deal speed). While my case studies investigate key determining factors both for deal success and the deal speed, the statistical analysis focuses on the deal speed due to the limitations of my current dataset. In order to operationalize my dependent variable of deal speed, I aggregated the number of years of a successful pipeline project from its initial proposal to its deal finalization. For the explanatory variables of geopolitical factors, pipeline ownership structure and fuel type, I created categorical or binary variables depending on my definitions, which will be explained in Chapter 3. For the independent variable of political trust between host countries, I relied on the *Affinity of Nations* index to construct a continuous variable, whose unit of analysis is the country dyad in a given year; I take the average values of all pairs of participating states in a certain pipeline project in the year that the deal is finalized. I use the maximum likelihood estimation method since the classical linear model is not suited to explaining how my discrete explanatory variables depend on (or are associated) with other quantitative or qualitative variables. Because endogenous qualitative variables take a

small number of values with strictly positive probabilities given postulated categorization, the shape of observation set does not correspond to a linear model.¹⁰

Case Studies

I chose my four cases for the following reasons. First, they show variations in terms of pipeline type and the number of host countries, allowing me to differentiate between multi-state export pipelines and direct link pipelines. Intuitively, international pipelines that cross borders of multiple states and therefore involve transit state(s), incur more risks than pipelines that link exporting and importing states directly. Multi-state export pipelines are not only longer, more expensive, and technologically more complicated than direct-link pipelines, but they also involve multiple parties including transit states without overarching jurisdictions. The more parties involved in a cross-border pipeline project, the harder it is to negotiate, reach investment decisions, and finalize intergovernmental agreements. Developing cross-border pipeline projects creates an environment in which no overarching legal jurisdiction exists to manage conflicts that may result due to cross-border trade, the use of transit infrastructure, and the use of pipeline itself. Different parties have different interests, and the project generates profit and rent to be shared between various parties. Given that the interests of transit state(s) are fundamentally different from those of an exporting or importing state, the difficulties of dealing with cross-border pipelines magnifies with each new party engaged in a pipeline project.¹¹

However, I find that this assumption does not adequately explain why some bilateral

¹⁰ Scott Long, *Regression Models for Categorical and Limited Dependent Variables* (Thousand Oaks: Sage Publications, 1997). Christian Gourieroux, Alain Monfort, and Alain Trognon, "Pseudo Maximum Likelihood Methods: Theory," *Econometrica: Journal of the Econometric Society* (1984): 681-700.

¹¹ Paul Stevens, "Cross-Border Oil and Gas Pipelines: Problems and Prospects," (Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP), 2003).

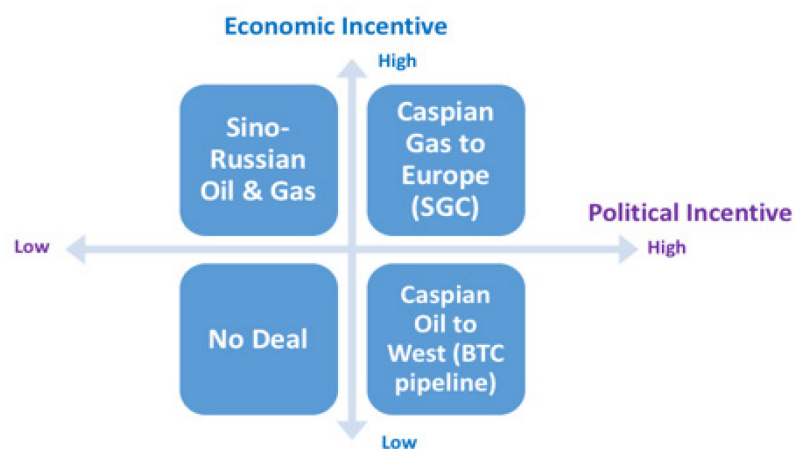
direct-link pipelines face or have faced many more obstacles than multi-state export pipelines in Eurasia. I challenge the conventional understanding that bilateral energy ties tend to be easier to establish than multilateral energy ties.¹² By examining four case studies that do not support the prevailing assumption, I aim to better explain what drives successful cross-border pipeline projects in Eurasia as well as how the nature of energy relations in Eurasia is different from that in other parts of the world.

Second, I chose my four case studies because they show variations in terms of the relationship between economic incentives and political alignments between host country governments (see Figure 1). This approach reflects the methodological considerations of my project, since the research objective is to explain variations rather than similarities in the dependent variable (the likelihood of successful launch of a proposed cross-border pipeline project and its deal speed), and therefore the postulated independent variable should take on values as different from each other as possible. The two cases of China-Russian oil and natural gas pipelines have high economic incentives to proceed, but low political trust between the two states. The BTC oil pipeline is a case where high political trust exists between host countries but where there are few economic incentives, while the SGC pipeline project to bring Caspian gas to Western Europe demonstrates how the deal proceeds when there are high-medium levels of political trust and high-medium economic incentives. I did not include the case where a pipeline project had both low levels of political trust and low economic incentives because it is self-evident that such a project is unlikely to materialize. My analysis focuses on the different arrangements

¹² Some existing studies emphasize that energy relations in Asia have been mainly bilateral because the basis of multilateral cooperation has not been solidified and the institutional framework has not been set in the region. See: Jae-Seung Lee, "Energy Security and Cooperation in Northeast Asia," *Korean Journal of Defense Analysis* 22, no. 2 (2010).

between interconnected political and economic factors in these four cases, which enable me to explain why some proposed cross-border pipeline projects succeed while others fail, as well as why some proposed ones materialize quickly while others do so slowly.

Figure 1. Case Selection: Political-Economic Matrix



Third, I selected these cases because they are representative of other cross-border pipeline projects in Eurasia that fall within my own postulated categories of ownership structure and fuel type. China-Russian pipelines represent the type of pipeline ownership and financing that is driven solely by national oil and gas companies, whereas the pipelines from the Caspian Sea represent the combined pipeline ownership structure between national and international oil companies, which creates a joint venture (JV) consortium for the financing, construction, and operation of pipelines. The ESPO pipeline from Russia to China and the BTC pipeline from the Caspian to the West represent cross-border oil pipelines, while the POS and Altai pipelines from Russia to China and the SGC pipeline network from the Caspian to Italy represent cross-border gas pipelines.

Because this research examines cross-border pipeline projects that involve decision-making at both international and domestic levels, small-N case studies are crucial in accounting for contextual idiosyncrasies that each pipeline project has depending on domestic political and economic considerations, which a large-N statistical analysis does not capture. Targeted small-N studies allow research to access complex casual mechanisms in detailed cases, thus helping elucidate specific concepts that can lead to better theory building.¹³ Each pipeline has a different and complex story depending on domestic political and economic arrangements, including a host country's energy bureaucracy and industry structure, its national and foreign policies of energy security, and the geopolitical environments and international political-economic factors a country faces. The commercial viability of the pipeline project, the security of energy supply, and the choice of one supply routes among several options are embedded in such domestic arrangements. Through the case studies, my dissertation aims to explain these domestic factors that are not assessed in the statistical analysis, as well as the international factors that influence domestic political economies of host countries. In terms of methodology, I employ process-tracing research techniques to uncover the decision-making process by which the outcome – deal success and speed for successful cross-border pipeline projects – is produced.¹⁴

This study marshals evidence from archival documents, speeches, interviews, and surveys, as well as from attendance at energy-related conferences that were open to public or off-the-record. My research excluded fieldwork, given the fact that my cases

¹³ Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge, MA: MIT Press, 2005).

¹⁴ Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research* (Princeton, NJ: Princeton University Press, 1994).

cover more than ten countries; traveling to those countries was not feasible for a dissertation research project due to limitations of time and resources, as well as language barriers. To overcome such limitations, I mostly relied on secondary sources written in English for archival research to observe and track the process and history of decision-making and negotiations of selected pipeline projects. I relied on the LexusNexis database of the Brookings Institution's library, which keeps track of selected pipeline projects on a daily basis with both industry sources and major newspapers.¹⁵ The industry sources I consulted include *The Oil & Gas Journal*, *The Platts Energy Economist*, *The Platts Oilgram News*, *The International Oil Daily*, *UPI Energy*, *The Russia & CIS Energy Newswire*, *The Trend Oil & Gas*, *The Interfax Natural Gas Daily*, *The Interfax Russia & CIS Oil and Gas Weekly*, *The Russia & CIS Oil and Gas Weekly*, and *The Kazakhstan Oil & Gas Weekly*. Major newspapers include not only *The New York Times*, *The Financial Times*, Reuters, the BBC, and Bloomberg Business, but also the local newspapers on particular countries or regions that have an English-language version, such as *China Daily*, *Xinhua News*, *The Central Asia & Caucasus Business Weekly*, *The Russia & CIS Business and Financial Newswire*, and *The Moscow Times*. I also utilized resources that are energy-specific and open to the public, which include research institutions such as the Oxford Institute of Energy Studies, Institut Français des Relations Internationales (IFRI, French Institute of International Relations), the Jamestown Foundation, and Natural Gas Europe. Publications or reports from government-affiliated agencies such as the U.S. Energy Information Administration (EIA) and the Congressional Research Service (CRS), as well as intergovernmental organizations such

¹⁵ I had access to the Brookings Institution's database while I was a pre-doctoral research fellow for the institution's foreign policy program during the academic year of 2014 and 2015.

as the World Bank, the International Energy Agency (IEA), the Energy Charter Treaty (ECT)'s secretariat were also consulted. Websites of the energy-related ministries in the host countries of selected pipeline projects, of international oil companies (IOCs) such as Shell and British Petroleum (BP), and of national oil companies (NOCs) such as Gazprom and China National Petroleum Corporation (CNPC) were also included in the analysis.

I also conducted in-depth interviews in English with government officials, scholars from academia and think tanks, experts from the oil and gas industry, and analysts from energy consulting companies or international organizations. Interviewees include both Americans and citizens of host countries of selected pipeline projects. Despite the limitations that I have due to language barriers and the exclusion of fieldwork, my location in Washington D.C. enabled me to overcome these obstacles. A large number of scholars and experts from host countries of the selected pipeline projects visited Washington to participate in and speak at energy-related conferences, which enabled me to interview them. Given that the selected pipelines were actively discussed within the DC policy community during my period of study, a large number of conferences were held on the specific pipeline projects I studied.

Interviews with government officials—including at the U.S. Department of Energy (DOE), the Energy Bureau in the U.S. State Department, and the energy-related ministries of foreign states—provided me with broader foreign policy perspectives in understanding cross-border energy trade and infrastructure development. Interviews with foreign government officials or scholars in the foreign government-affiliated research institutions, in particular, revealed different perceptions and understandings of regional

dynamics and geopolitics involved in cross-border pipeline projects. Interviewing individuals in various academic, corporate, and non-academic positions also enabled me to crosscheck the information that I obtained in my interviews and archival research.

FINDINGS

By focusing on cross-border oil and gas pipeline projects, my dissertation examines the underlying mechanism of interactive political and economic factors (at both the international and domestic levels) as a determinant for energy cooperation in Eurasia.

Through an investigation of intergovernmental and financial decision-making processes regarding cross-border pipelines, the dissertation sought to explain what brings countries into binding cross-border oil and gas pipeline deals and why some proposed pipeline projects materialize quickly while others move slowly through the process of negotiation and decision-making. In explaining the variations in deal success and speed of negotiations, the dissertation employs combined methods of statistical analysis and case studies, whose empirical results demonstrate four key findings.

First, geopolitical changes due to crisis situations profoundly shape energy relations and affect the likelihood and speed of successful pipeline deals, regardless of the degree of economic incentives involved in the project. For example, Sino-Russian agreements for cross-border oil and gas pipelines were signed 1) when Russian-Western relations were at odds – during Russia’s invasion of Georgia in 2008 and Russia’s annexation of Crimea in 2014 – and/or 2) when unexpected external factors, such as the Global Financial Crisis and the collapse of oil prices (in 2008–2009 and since the summer 2014), compelled Russia to rely on Chinese capital. Russia decided to make concessions with China only as part of efforts to preserve its geopolitical leverage at critical historical points, while China

has strong market and strategic incentives to diversify its energy import portfolio with Russian oil and gas.

The BTC pipeline provides another example of how geopolitical changes can affect a pipeline project. After the collapse of the former Soviet Union, the geopolitical goal of enhancing Western involvement in the energy and security sectors of the Caspian region was a key factor driving commercial decisions in the BTC pipeline development – the first oil pipeline transporting Caspian oil to international markets without crossing through Russia. In another case involving geopolitical considerations, competition over the SGC pipeline project to transport Caspian gas to Europe illustrates the rivalry between the EU and Russia, as well as changing dynamics of regional power politics. Russia tries hard to maintain its control over the European market against the EU's quest for supply diversification of natural gas, both in terms of sources and transit routes. The EU wants to reduce its dependence on Russia due to Russia's gas disputes with key transit countries, which lead to unpredictable and consequential supply disruptions in Europe. With Russia's stronger role in the region today than when the BTC was built in the 2000s, the SGC proceeded much differently than the earlier pipeline. Azerbaijan and Turkey, U.S. allies that worked with Washington on the BTC pipeline, now desired to avoid direct competition with Russia and maintain pragmatic, strategic relations with Moscow. These new geopolitical dynamics are considered to be one of the key elements in choosing Trans Adriatic Pipeline and the Trans Anatolian Pipeline over other pipeline routes in the SGC competition.

Second, the level of political trust between host countries affects the deal success and speed of cross-border pipeline projects. Looking beyond clear market reasons for a

project, including oil and gas prices and equity stakes in the upstream, an examination of political alignment offers more nuanced and sophisticated explanations as to why Sino-Russian pipeline development took many years to materialize despite clear economic incentives of supply-demand complementarity.¹⁶ This stands in contrast to the Caspian case, where pipelines transporting oil and gas to Europe were realized much faster despite their less substantial economic incentives (Figure 2). In explaining such differences, I argue that the low level of political trust (i.e., political alignment) between Russia and China is one of the key elements that delayed the finalization of the oil and gas deals, whereas relatively high levels of political trust among host countries helped expedite the Caspian pipelines. Both case studies and statistical results support my argument that the level of political trust between host countries is one of the key determinants explaining why some bilateral direct-link pipelines face more obstacles than multi-state export pipelines in Eurasia, which challenges the conventional understanding that bilateral energy ties are easier to establish than multilateral ones.

Third, I contend that pipeline ownership structure also affects the success and speed of cross-border pipeline projects. Sino-Russian pipelines represent the type of ownership structure where pipelines are owned only by national oil companies (NOCs) and where there is no joint venture (JV) consortium for construction and operation. In contrast, Caspian pipelines represent the combined ownership structure where both NOCs and international oil companies (IOCs) are shareholders in the pipeline JVs. In the BTC pipeline case, British Petroleum (BP), as principal shareholder and project operator, took

¹⁶ China is the world's second-largest oil consumer (behind the United States) and became the largest global energy consumer in 2010. Russia is a major producer and exporter of oil and natural gas; Russia was the world's third-largest producer of oil (after Saudi Arabia and the United States) in 2013 and the second-largest producer of natural gas in 2012 (after the United States).

the lead in establishing a JV consortium that consists of seven countries and eleven companies¹⁷, including Azerbaijan's state oil company SOCAR. The Trans Adriatic Pipeline (TAP) and Trans Anatolian Pipeline (TANAP), which are main components of the SGC, have also established JVs, composed of both IOC and NOC shareholder members.¹⁸ I argue that the IOC-NOC combined ownership helps facilitate the successful materialization of cross-border pipeline deals, even though such an ownership structure engages a larger number of actors, including companies from non-host countries, than pipelines owned exclusively by NOCs or host-country firms.

Fourth, political-economic arrangements in host countries have a greater impact on the speed and success of cross-border pipeline projects for natural gas than for oil. In particular, when a pipeline's fuel type is natural gas, the effect of geopolitical factors on the deal speed is more pronounced, as my statistical results demonstrate. In other words, gas pipelines are more vulnerable in geopolitical and external crises than oil pipelines. My case studies also confirmed that gas pipeline projects tend to take longer to materialize than oil pipelines. In explaining the distinction between oil and gas, the case studies provided more in-depth analysis by examining subnational political-economic dynamics, in addition to geopolitical and other international factors. For instance, case studies revealed the full impact of power dynamics in the Russian oil industry and the

¹⁷ The principal stakeholder of the JV is British Petroleum (BP) of having 30.1 percent of shares (the project operator), followed by Azerbaijan's state oil company SOCAR (25 percent). Other consortium members include American UNOCAL (8.9 percent), Norwegian Statoil (8.71 percent), Turkish TPAO (6.53 percent), Italian ENI (5 percent), French Total (5 percent), Japanese Itochu (3.4 percent), Japanese Inpex (2.5 percent), American ConocoPhillips (2.5 percent) and American Hess (2.36 percent).

¹⁸ Shareholders of the TAP JV include Azerbaijan's state-owned SOCAR (58 percent), Turkey's state-owned BOTAS (30 percent), and British multinational BP (12 percent). Shareholders of the TANAP JV are BP (20 percent), SOCAR (20 percent), Norway's multinational Statoil (20 percent), Belgium's public utility Fluxys (16 percent), French multinational Total (10 percent), Germany's electricity utility E.ON (9 percent), and Switzerland's energy utility Axpo (Switzerland, 5 percent).

rise of state-owned oil company Rosneft, as well as of China's sharp decline in oil production and "loans for oil" import diversification strategy, on Sino-Russian oil cooperation. Case studies also allowed for a deeper examination of the impact of Russia's invasion of Georgia and the Global Financial Crisis on the oil deal with China. Likewise, case studies provided analyses to illuminate how Sino-Russian gas cooperation was shaped by factors as diverse as the competition between Rosneft and Gazprom in line with the Russian government's "eastward strategy," China's increasing concerns about air pollution and anti-corruption investigations into NOCs, the impact of the 2014 Ukraine crisis and resulting Western sanctions against Russia, and the impact of falling global oil prices.

In closing, both case studies and statistical results support my argument that, when looking beyond market incentives, the successful launch and deal speed of a cross-border pipeline project depend on three underlying factors: geopolitical change, political trust between host country governments, and pipeline ownership structure, and that the effect of these three factors is more pronounced in natural gas than in oil pipeline projects. Notwithstanding the limitations of the quantitative analysis in my dissertation, it forms the basis for the more in-depth qualitative analysis of case studies. This qualitative analysis demonstrates that geopolitical factors are likely to delay cross-border pipeline developments, whereas a higher level of political trust and a pipeline ownership structure that includes NOCs and IOCs are likely to expedite projects. Case studies offer the detailed subnational analysis of changing internal political-economic dynamics that lead countries to reach cooperative trans-border arrangements for pipeline development, as

well as analysis of relevant external political-economic factors. A summary of these case study findings is provided in Figure 2 and Table 1 below.

Figure 2. Deal Speed: History of Sino-Russian Oil and Gas Pipelines and Caspian Oil and Gas Pipelines to Europe

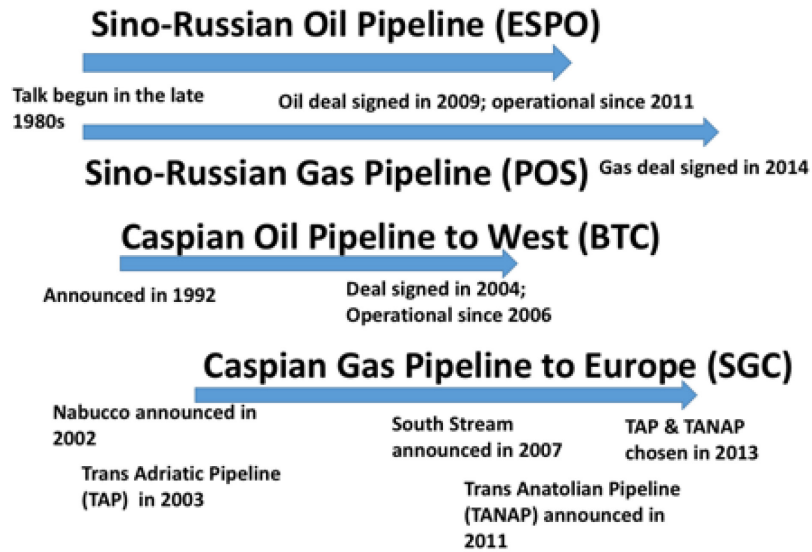


Table 1. Case Selection and Summary

	Caspian to Europe (multi-state export pipelines)		China-Russia (direct-link pipelines)	
Pipelines	BTC Oil	SGC (TAP & TANAP)	ESPO Oil	POS Gas
Deal Speed	Fast	Fast	Slow	Slow
Number of Actors	Many	Many	Few	Few
Economic	Low	Medium	High	High-Medium

Incentives				
Political Trust	High	Medium-High	Low	Low
Ownership Structure	IOC-NOC combined JV	IOC-NOC combined JVs	NOCs only (not JV)	NOCs only (not JV)
Geopolitical Factors	U.S. involvement (for post-Soviet transition)	EU-Russia rivalry (Russian gas disputes w/ Ukraine & Belarus)	Russia's Georgia invasion; Global Financial Crisis	Ukraine crisis
Subnational / External Project Factors	Nagorno-Karabakh conflict; FDI in the ACG* field and SOCAR (Azerbaijan)	SOCAR-BP partnership (SD consortium)**; SOCAR- Greek DESFA*** partnership; Turkey-EU tensions	Rosneft vs. Yukos; China's decline in oil production; China's "loans-for-oil" strategy	Rosneft vs. Gazprom; China's air pollution and anti-corruption campaign

(Notes: *Azeri-Chirag-Gunashli (ACG) oil field; ** Shah-Deniz (SD) consortium; *** Greek Natural Gas System Operator (DESFA))

ORGANIZATION OF THE DISSERTATION

Chapter 2 outlines my conceptual framework as well as theoretical context. I provide a detailed formulation of my dependent variable (likelihood of successful launch of a proposed pipeline project and how quickly its deal is concluded), three explanatory variables (geopolitical (and external crisis) factors; political trust between host country governments; and pipeline ownership structure), and explain why examining the variations on the dependent variable through analysis of explanatory variables matters. I also evaluate the effect of the three explanatory variables on the different fuel types (oil versus natural gas) of cross-border pipeline projects. The chapter also reviews the

emerging trend of cross-border pipeline networks in Eurasia within the scholarly literature on energy security, strategic partnership, international joint ventures (JVs), state owned enterprises (SOEs), and international oil companies. I revisit the existing international relations (IR) literature of neorealist and liberal paradigms in order to derive my hypotheses, since the paradigms help to situate my project in the IR literature and, incidentally, the current debate on the emerging trend of pipeline networks across Eurasian continent in policy circles.

Chapter 3 comprises the dissertation's statistical analysis. It illustrates the statistical design with a detailed explanation of data, as well as a measurement and operationalization of dependent, independent, and control variables. It then describes how my statistical findings reinforce the hypotheses.

Chapters 4 through 7 analyze my four in-depth case studies of cross-border pipeline projects. Chapter 4 and 5 focus on the pipeline development between China and Russia, whereas Chapter 6 and 7 examine the developing energy transportation networks from the Caspian Sea to Europe.

Chapter 4 introduces the case of the completed *Eastern-Siberia Pacific Ocean (ESPO)* pipeline carrying oil from Russia to China, while Chapter 5 traces the planned *Altai Pipeline* and the proposed *Power of Siberia Pipeline* designed to bring gas from Russia to China.

Chapter 6 introduces *the Baku-Tbilisi-Ceyhan (BTC) pipeline* that has brought Caspian oil to West from Azerbaijan, via Georgia and Turkey, since 2006, and Chapter 7 examines the planned *Southern Gas Corridor (SGC) development* designed to bring Caspian gas to Europe from Azerbaijan, via Georgia, Turkey, Greece, Albania, and Italy.

Lastly, Chapter 8 revisits my findings in light of underlying interactive political and economic factors determining the deal success and speed for cross-border pipeline projects. Given that both Sino-Russian gas pipeline development and the Caspian gas transportation network of the SGC are ongoing planned projects, the chapter updates changes in geopolitics that occurred after the deal was finalized. The updates include the impact of Western sanctions and low oil prices on the Russian political economy, the suspension of the Altai gas pipeline between China and Russia, Russia's cancellation of the South Stream pipeline, and the proposal of the Turkish Stream pipeline. The chapter then discusses how U.S. energy policy will be affected by Russia's strengthening energy ties with China and Turkey. And finally, by inviting discussion on the nature of strategic energy partnerships, I introduce my ideas for future research.

CHAPTER TWO
LITERATURE REVIEW AND THEORETICAL FRAMEWORK

INTRODUCTION

In explaining rising political-economic interdependence across Eurasia, deepening inter- and intra-regional energy ties are certainly a key driver. Transcontinental trade between energy producer and consumer states has intensified, and trans-regional oil and natural gas pipeline networks have emerged. One of the distinct features of the new transcontinental configuration is that countries with different cultural, social, political, and/or economic backgrounds are developing relationships in the sectors where they share complementarity such as energy. Since existing energy ties are systematic yet less formal, and transcontinental integration still remains at an early stage¹⁹, it is analytically compelling to examine the nature of emerging energy relations in Eurasia, which is underexplored in the existing political science literature. This dissertation focuses on the emerging trend of cross-border oil and gas pipeline development in order to explain systematically the nature of energy relations, as well as the changing geopolitics and supply-demand structure of energy markets in Eurasia.

The topic of cross-border oil and gas pipelines across the Eurasia continent is drawing increased attention from the academic and policy communities, as they are considered as signs of emerging strategic energy partnerships that enhance energy security. However, most of the existing studies on pipelines are in the areas of economics, environmental studies, engineering, and the sciences, as the topic has not received much attention in the international relations (IR) and political science literature. While some contemporary IR studies of pipelines target audiences in either policy circles or energy industries, they

¹⁹ Kent E. Calder, *The New Continentalism: Energy and Twenty First-Century Eurasian Geopolitics* (New Haven, CT: Yale University Press, 2012).

have not yet sufficiently examined pipelines' important geopolitical and energy market implications from either a theoretical or empirical perspective.

This dissertation examines the emerging trend of cross-border oil and gas pipeline networks across the Eurasian continent as a way to provide a more systematic understanding of how politics and energy markets are interconnected in reaching binding cross-border agreements and how political factors significantly affect the commercial viability of large-scale cross-border energy infrastructure projects. This chapter is divided into two sections: literature review and theoretical framework. The literature review section begins by probing existing studies of cross-border oil and gas pipelines. It explores the studies that directly discuss selected cases of cross-border pipelines from a policy-oriented perspective. It also examines the literature that briefly discusses cross-border pipelines as part of a comprehensive explanation of energy security and the political economy of energy. The chapter then explores the literature that is highly relevant to explaining the planning, decision-making processes, construction, and security of cross-border pipelines. The literature reviewed includes scholarship regarding international energy security, the political economy of energy, strategic partnership, and the traditional IR theories of neorealism and liberalism. By incorporating the existing studies on cross-border pipelines with the relevant literature in political science, the dissertation offers a more integrative approach.

The second section outlines my conceptual framework. I detail my dependent variable (likelihood of successful launch of a proposed pipeline project and its deal speed), three explanatory variables (geopolitical (and external crisis) factor(s); political trust between host country governments; and pipeline ownership structure), and explain my four

working hypotheses through which I examine the variations in the dependent variable through explanatory variables. I also evaluate the effect of my three explanatory variables on the difference between oil and natural gas cross-border pipeline projects. First, I examine existing studies that focus on international pipelines and then other studies of international energy security and geopolitics that are relevant to cross-border pipeline development.

LITERATURE REVIEW

Existing Studies on Pipelines

Intergovernmental organizations, think tanks, research institutions, and energy consulting firms have published many special reports on cross-border pipelines.²⁰ The World Bank published a report on “Cross-Border Oil and Gas Pipelines: Problems and Prospects” in 2003.²¹ This report explains cross-border pipelines’ inherent risks involving high financing costs and vulnerability to supply disruption, as well as the differences between oil and natural gas pipelines. It introduces twelve pipeline projects that differ in terms of roles of the private and public sectors (i.e., the degree of private sector involvement) in stages ranging from pipeline planning, financing, construction, and operation. The report concludes there are fewer problems when governments are primarily concerned with

²⁰ Special reports on cross-border pipelines include: Stevens, Paul. “Cross-Border Oil and Gas Pipelines: Problems and Prospects.” Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP), 2003; Herberg, Mikkal et al. “Pipeline Politics in Asia: The Intersection of Demand, Energy Markets, and Supply Routes.” In *NBR Special Report*: National Bureau of Asian Research, 2010. Research institutions such as the Oxford Institute of Energy Studies, the Jamestown Foundation, and the French Institute of International Relations (IFRI) have publications, reports, or brief analyses on cross-border oil and gas pipelines. Private consulting firms such as IHS Inc. which acquired Cambridge Energy Research Associates (CERA) and PFC Energy also have analysis on pipelines, which is only provided to its clients in business and government.

²¹ Paul Stevens, “Cross-Border Oil and Gas Pipelines: Problems and Prospects.” Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP), 2003.

commercial rather than political or strategic factors.

Another exemplary work on cross-border pipelines is the National Bureau of Asian Research (NBR)'s special report, "Pipeline Politics in Asia: The Intersection of Demand, Energy Markets, and Supply Routes."²² The report has five essays that focus on the broad geopolitics of cross-border pipeline development, the progress in development of new oil and gas pipelines from Russia's East Siberia to China and Northeast Asia, prospects for Central Asian oil and gas pipelines to East Asia, India's pipeline dilemmas and challenges, and the implications of new oil and gas pipelines being built by China across Myanmar into Southeastern China. Based on these essays, the report draws conclusions regarding U.S. energy security and strategic interests in East Asia and Eurasia.

Research institutions such as the Oxford Institute of Energy Studies, the Jamestown Foundation, and the French Institute of International Relations (IFRI) have publications, reports, or brief analyses on cross-border oil and gas pipelines. While they tend to offer analytical frameworks for micro-level understandings of individual oil and gas pipelines,²³ the emerging trend of cross-border pipeline networks in Eurasia is still underexplored and must be examined through a more integrative approach in order to fully understand these developments' important geopolitical and energy market implications.

Another group of studies include a discussion of cross-border oil and gas pipelines as a

²² Herberg, Mikkal et al. "Pipeline Politics in Asia: The Intersection of Demand, Energy Markets, and Supply Routes." In *NBR Special Report: National Bureau of Asian Research*, 2010.

²³ Jonathan Stern among others who specialize in the Russian oil and gas industry and the European gas market has published books and reports that include brief analyses of oil and gas pipelines. See James and Pirani Henderson, Simon, ed. *The Russian Gas Matrix: How Markets Are Driving Change* (New York: Oxford University Press, 2014); Jonathan Stern et al, *Natural Gas in Asia: Challenges of Growth in China, India, Japan and Korea*, second edition (New York: Oxford University Press, 2008).

part of their analyses of energy security. In *Sea Lanes and Pipelines*, Bernard D. Cole investigates military aspects of energy security in maritime Asia and discusses pipelines as a way to ameliorate the threats to the security of the sea lines of communications over which tankers travel.²⁴ Through a brief analysis of existing and planned cross-border pipelines in Asia, he argues that both overland and undersea pipelines offer relief from the costs and dangers of the seaborne delivery of energy resources, since tankers are susceptible to considerable risks, including navigational hazards, bad weather, dangers posed by maritime terrorism and piracy, and wartime attacks.

In *Energy & Security: Strategies for a World in Transition*, several chapters briefly discuss specific pipelines in Europe, North America, Russia, and Central Asia.²⁵ For instance, Julia Nanay and Jan H. Kalicki summarize competing natural gas pipelines in Russia and Eurasia, including the South Stream pipelines, the Southern Gas Corridor, the Trans-Caspian Gas Pipeline (TCGP), and the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline. In *The East Moves West*, Geoffrey Kemp briefly explores intra-Asian oil and gas pipelines that are existing, proposed, or under construction in order to explain Asia's growing presence and involvement in the Middle East through energy trade and transportation links.²⁶ He argues that infrastructure development in Eurasia has been plagued by regional rivalries and could be derailed in the future given the region's geopolitical and economic realities, while the development of new pipelines could relieve

²⁴ Bernard D Cole, *Sea Lanes and Pipelines: Energy Security in East Asia* (Praeger Security International, 2008).

²⁵ Jan H. Kalicki and David L. Goldwyn, eds. *Energy and Security: Strategies for a World in Transition*. Johns Hopkins University Press, 2013.

²⁶ Geoffrey Kemp, *The East Moves West: India, China, and Asia's Growing Presence in the Middle East* (Washington, DC: Brookings Institution Press, 2012).

some of China's and India's reliance on seaborne energy shipments.²⁷ Brenda Shaffer examines pipeline trends in her broader discussion of energy politics, arguing that infrastructure projects link states and reflect the current state of political and economic relations, especially when choosing routes to export commodities and import energy supplies.²⁸

Other studies also briefly discuss cross-border oil and/or gas pipelines as a way to provide a more integrative understanding of the political economy of energy. Thane Gustafson explores the Eastern Siberia Pacific Ocean (ESPO) oil pipeline between Russia and China in order to explain the Russian oil industry in *Wheel of Fortune: The Battle for Oil and Power in Russia*.²⁹ Arguing that the fate of the Russian oil industry parallels the collapse and revival of the Russian state, his analysis is divided into explaining the weakness of the Russian state vis-à-vis the privatized oil industry in the 1990s and then the resurgence of strong state power since 2000 with the growth of two power groups: the oil oligarchs and Putin's circle. Studies of Sino-Russia relations also sometimes examine oil and gas pipelines in order to explain the role of energy in bilateral relations. Keun-Wook Paik's *Sino-Russian Oil and Gas Cooperation: The Reality and Implications* is one of the exemplary studies that discuss oil and gas pipelines to provide a comprehensive explanation of the evolution of Sino-Russia energy relations.³⁰

²⁷ Ibid, p. 170-173.

²⁸ See "Pipeline Trends and International Politics," in Brenda Shaffer, *Energy Politics* (Philadelphia: University of Pennsylvania Press, 2009); Brenda Shaffer, "Natural gas supply stability and foreign policy," *Energy Policy* 56 (2013): 114-125; Avinoam Idan and Brenda Shaffer, "The Foreign Policies of Landlocked States," *Post-Soviet Affairs* 27.3 (2011): 1-37.

²⁹ Thane Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia* (Cambridge, MA: Belknap Press of Harvard University Press, 2012).

³⁰ Keun-Wook Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications* (Oxford: Oxford University Press, 2012). Other studies focusing on Sino-Russia energy relations include: Nina

In addition, the economics literature examines how economic theory captures the development and regulation of pipelines. Jeff Makhholm, in *the Political Economy of Pipelines*,³¹ introduces key elements to explain the world's pipeline industry, including high transaction costs,³² institutional evolution,³³ public goods, and transit tariff.³⁴ Focusing on pipelines' unique characteristics—they are capital-intensive, land-bound and immobile, and long-distance inland (sometimes undersea) forms of transportation—

Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft " *Russie.NEI.Visions* 70 (2013); Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in James Bellacqua, *The Future of China-Russia Relations* (2010); Morena Skalamera, "Booming Synergies in Sino-Russian Natural Gas Partnership," Paper, Belfer Center for Science and International Affairs, Harvard Kennedy School, May 2014.

³¹ Jeff D. Makhholm, *The Political Economy of Pipelines: A Century of Comparative Institutional Development* (Chicago: University of Chicago Press, 2012).

³² Makhholm builds on Oliver Williamson's *transaction cost economics* to explain pipelines. The theory explains why some economic transactions take place inside firms and others happen by contract in the marketplace. He brings in the concept of asset specificity to explain why certain kinds of investment are so sunk and dedicated to particular business relationships that they give rise to vertical integration. Makhholm says pipelines display great asset specificity: immobile assets of great length tied to fuel producers, oil refiners, power plants, or local gas distributors. Vertical integration ties the interests of those producers, pipeline companies, refineries, power plants, or gas distributors together. The problems with pipelines is that while asset specificity pulls pipelines to vertically integrate, their inherent economies of scale limit their number, thus concentrating fuel markets around a relatively small number of vertically integrated pipeline companies.

³³ Douglass North's institutional economics explains how economic governance institutions evolve to pursue profit. North used the developmental history of canals, railroads, and ocean shipping to illustrate the advances in transport systems are central to success of economies and depend on institutional foundations. Makhholm views pipelines as a specialized form of highly capital-intensive, long-distance inland transportation, descending from the older canal and railroad systems developed in Europe and America to transport commodities in the first half of the nineteenth century. He argues that the governance institutions surrounding pipelines are therefore complex products of relatively ancient social customs, public opinion, legislative action, and judicial precedent.

³⁴ Charges of Pipeline tariffs are imposed by an operating entity of a pipeline onto its users and buyers. There are two approaches to regulate tariffs: (1) The tariffs can either be negotiated; or (2) The tariffs are regulated. Normally tariffs are regulated by host-country government agreements (HGAs), but some intergovernmental agreements (IGAs) contain provisions on tariffs. The Transit Protocol only deals with those tariffs imposed for transit services. According to the Energy Charter Treaty (ECT), each contracting party shall take all necessary measures to ensure that transit tariffs are objective, reasonable, transparent and do not discriminate on the basis of origin, destination or ownership. Additionally, transit tariffs shall not be affected by market distortions and shall be based on operational and investment costs, including a reasonable rate of return. However, some existing pipeline agreements do not deal with tariff issues at all. *Intergovernmental Agreements and Host Government Agreements on Oil and Gas Pipelines: A Comparison*, Energy Charter Secretariat (2015). *Model Agreements for Cross-Border Pipelines* (2nd edition), Energy Charter Secretariat (2008).

Makholm provides a bridge between institutional economics³⁵ and traditional economic theories³⁶ to provide a broader explanation of the pipeline industry by integrating pipeline economics, regulatory policy, and historical evidence. In doing so, however, he only looks at investor-owned pipelines, such as those in Europe, North America, and South America. His analysis does not include state-owned pipelines, such as those in China, Russia, and Central Asia, and the discussion of pipeline tariff regimes for state-owned pipelines, which are integral parts of my dissertation.

Existing Studies Relevant to Pipelines

This dissertation focuses on existing studies in the IR literature that do not discuss cross-border pipelines directly, but are relevant to explaining the planning and development of cross-border oil and gas pipelines. They provide insights into important aspects of energy security as well as the political economy of energy, which enables a more systematic understanding of how politics and energy markets are interconnected and how political factors significantly affect the commercial viability of large-scale cross-border energy infrastructure projects. Building on the literature in energy security, the political economy of energy, and the traditional IR paradigms of neorealism and liberalism, the dissertation places its research puzzles in the IR literature and the current debate regarding the geopolitical and energy market implications of ongoing cross-border pipeline development across Eurasia.

Energy Security

³⁵ Different institutional foundations account for difference between state-owned pipeline systems, such as those in China and Russia, and investor-owned pipeline systems, such as those in Europe and America.

³⁶ Neoclassical economists focus on the economics of natural monopoly to explain why government attempts to limit anti-competitive behavior through price regulation.

Transnational or trans-regional pipelines that cross borders of two or more countries not only require long-term investment and huge upfront capital costs, but also introduce a host of jurisdictional challenges for construction, operation, and maintenance. It is frequently observed that some cross-border pipeline projects that are seemingly less economically justifiable are implemented because of strong political motivations. At the same time, some commercially viable pipeline projects never materialize or are delayed for more than a decade due to lack of political willingness. Major energy deals in Eurasia involving cross-border transactions often reveal that energy cooperation between states cannot be justified by purely economic considerations.

A systematic understanding of how politics and energy markets are interconnected contributes to the literature on energy security. A substantial amount of research has been done in various areas pertinent to energy security. Charles Doran discusses various types of supply disruptions in the international energy market as a way to analyze the motivations and mechanisms that drive oil markets.³⁷ He argues that true threats to energy security arise from political matters exogenous to the energy market itself and that the threat to supply disruption is not innate to the energy market, but merely uses that market for political purposes. In explaining how the world petroleum market operates, he maintains that the potential for energy supply disruption lies in the inner workings of the international energy market. Exporting countries such as Iran sometimes take advantage of fundamental vulnerabilities in major energy-importing countries and manipulate oil supply for commercial gain or foreign policy purposes. Supply disruption could range

³⁷ Charles F. Doran, "International Energy Security and North America," in *Requiem or Revival: The Promise of North American Integration*, eds. Isabel Studer and Carol Wise (Washington D.C.: Brookings Institution Press, 2007).

from supply reduction in Iran's own oil fields and pipelines to attacking pipelines, pumping facilities, refineries, and port facilities in neighboring states such as the United Arab Emirates and Saudi Arabia. The duration of crisis also influences the price of oil and the security of oil production and distribution in the Persian Gulf region.

By focusing on asymmetry in attitudes and strategies toward the management of oil prices and supplies, Doran explains that exporters might attempt to acquire the instruments of force that they believe will enhance their security as well as their political and military leverage. His discussion of supply disruption is highly relevant to understanding pipeline planning and construction in that cross-border pipelines in Eurasia are considered as a means to increase political and economic leverage, and states utilize different strategies in negotiating and implementing binding cross-border energy deals.

Another line of inquiry focuses on the multi-dimensional aspect of energy, as energy issues have both economic and political aspects that sometimes come into conflict. Jae-Seung Lee argues that energy issues in the realm of security have both "high politics" and "low politics" elements.³⁸ "High politics" elements represent the factors related to the function and maintenance of the nation-state, including sovereignty and security, whereas "low politics" elements indicate the factors related to low-level and practical issues.³⁹

Grand-scale energy infrastructure projects such as cross-border pipelines can be regarded as having both "high politics" and "low politics" dimensions, depending on the political,

³⁸ Jae-Seung Lee, "Energy Security and Northeast Asian Cooperation: High-Politics Approach toward Low-Politics Agenda," *International and Area Review* 14(1), 2005 (in Korean): 21-49; Jae-Seung Lee, "Energy Security and Cooperation in Northeast Asia," *The Korean Journal of Defense Analysis* 22(2), 2010: 217-233.

³⁹ Energy security issues including energy efficiency, joint stockpiling, joint R&D projects, climate change, and technology assistance tend to have "low politics" elements. Lee, "Energy Security and Cooperation in Northeast Asia."

economic, and geographical factors involved. However, “high politics” elements tend to prevail in the pipeline projects where governments function as active players, while “low politics” elements tend to predominate in relatively small-scale pipeline projects that are not politically sensitive.

Energy Competition or Cooperation?

In studying energy security, scholars have debated whether to view energy as a source of competition or as an instrument for cooperation. Those who view energy as a source of competition focus on state-to-state competition over access to and control of energy supplies and transportation routes, which tend to encourage the zero-sum mentality that one country’s energy security comes at another country’s expense.⁴⁰ These scholars argue that the underlying structure of energy markets in which vital resources are concentrated in a small number of geographical regions drive states to shape their energy policy through a geopolitical lens, which often becomes a key element in political distrust, rivalry, and potential military conflict. They find the evidence from history: the Roosevelt administration’s oil embargo against Japan followed by a Japanese attack on the oil fields of the Dutch East Indies during World War II (Sagan, 1988: 898); OPEC members’ oil embargo in response to U.S involvement in the Yom Kippur War in 1973; Germany’s drive to the oil fields in Caucasus and Romania during World War II; and contemporary energy-related disputes in the South and East China Sea⁴¹.

⁴⁰ Michael Klare, *Resource Wars: the New Landscape of Global Conflict* (Macmillan, 2001); Michael Klare, *Rising Powers, Shrinking Planet: the New Geopolitics of Energy* (Macmillan, 2009); Mikkal Herberg et al, "Pipeline Politics in Asia: The Intersection of Demand, Energy Markets, and Supply Routes."

⁴¹ The South China Sea (SCS) is one of the world’s largest semi-enclosed bodies of water, the maritime heart of Southeast Asia, and two-thirds the size of the combined land territory of all the ASEAN states. The sea lanes running through the SCS connect the Straits of Malacca and Singapore in Southeast Asia with China, Japan, and Korea, the main oil-importing industrial economies in Northeast Asia. These sea lanes

In contrast, those who perceive energy as an instrument for cooperation assert that market forces and non-state actors can help avert violence in many instances of resource scarcity.⁴² Given the rising interdependence of the global economy and international relations,⁴³ markets and non-state actors conceive energy resources as public goods and offer joint benefits from cooperation between consumers and producers, including the correcting of market failures, the lowering of transaction costs, and the setting of rules and standards. These scholars argue that state-centered energy policies disturb the efficient allocation of capital and decrease transparency in energy markets.

With the international increase in population and economic expansion since the Industrial Revolution, the global economy has continuously and heavily relied on hydrocarbon resources to fuel industrial growth and urbanization, resulting in an ever-growing worldwide energy demand and resource shortage. Since the end of the Cold War, moreover, the defining parameters of national power and influence have changed from military to economic and technological capacity.⁴⁴ Possession and control of vital

carry a large portion of the world's maritime trade and are frequently used by leading navies, specially the United States and increasingly by China (naval patrol and surveillance bases). It is also used to bolster claims to fisheries and offshore oil and gas resources. China, Taiwan, and Vietnam claim all of the Spratly Islands, their surrounding waters, and any resources they may contain. The Philippines and Malaysia assert sovereignty over small portions of this region.

In the East China Sea (ECS), China and Japan are involved with maritime disputes. The two states are engaged in a sovereignty dispute over the Daioyu/Senkaku Islands, as well as legal disputes over the continental shelf, mainly due to the issue of development of the Chunxiao oil and gas fields.

See Gabe Collins, and Andrew S. Erickson, "Energy Nationalism Goes to Sea in Asia," *National Bureau of Asian Research Special Report* 31 (2011).

⁴² Navroz K. Dubash, and Ann Florini, "Mapping Global Energy Governance," *Global Policy* 2, no. s1 (2011): 6-18; Andreas Goldthau, and Jan Martin Witte, eds., *Global Energy Governance: The New Rules of the Game* (Berlin: Global Public Policy Institute, 2010).

⁴³ Robert O. Keohane, and Joseph S. Nye, *Power and Interdependence* (New York: Longman Publishing Group, 2001).

⁴⁴ Charles P. Kindleberger, *The World Economy and National Finance in Historical Perspective* (Ann Arbor: University of Michigan Press, 1995).

economic commodities such as hydrocarbons, which fuel the engine of economic development, has been central to states' security and survival.⁴⁵ In particular, for major economies that are not energy self-sufficient, resource competition plays a major role in explaining the dynamics of global security affairs.⁴⁶ In this respect, those who view energy as a source of competition share the neo-realist perspective that security considerations consistently prevail in foreign policy-making and that trade in strategic resources is strictly determined by national interests.

The neorealist approach provides insight into how states promote their national interests through resource diplomacy, since it assumes that states seek to maximize their security and power to offset scarcity in capital, labor, and natural resources, and therefore that conflict or competition is pervasive. Energy resources have been a major tool for Russian foreign policy and its political maneuvering with its neighboring states of the former Soviet Union, as well as with great powers such as the European Union (EU) and China.⁴⁷ Some studies argue that China's quest for energy resources abroad has provoked intense competition over access to supplies, thus locking up international oil and gas reserves and militarizing key producing regions of the Persian Gulf, the Caspian Sea, and Africa,⁴⁸ while others contend that Chinese energy diplomacy is neither new nor unique.

⁴⁵ Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York: Simon and Schuster, 1991).

⁴⁶ Klare, *Resource Wars: The New Landscape of Global Conflict*.

⁴⁷ Yergin, *The Prize: The Epic Quest for Oil, Money, and Power*; Thane Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia*. (Cambridge, Massachusetts: Belknap Press of Harvard University Press, 2012); Fiona Hill and Clifford G. Gaddy, *Mr. Putin: Operative in the Kremlin* (Washington, D.C.: Brookings Institution Press, 2013).

⁴⁸ Mary Kaldor, Terry Lynn Karl, and Yahia Said, eds., *Oil Wars*, (Ann Arbor: Pluto Press, 2007); Philippe Le Billon, "The Political Ecology of War: Natural Resources and Armed Conflicts," *Political Geography* 20, no. 5 (2001): 561-584; Klare, *Rising Powers, Shrinking Planet: The New Geopolitics of Energy*.

These scholars argue almost all major Western industrial nations have historically used their leverage either to promote the interests of their national oil companies or to secure energy supplies.⁴⁹

The neorealist approach relies heavily on the notion that geopolitical rationales often outweigh economic profitability, since the position of a state in the international system and the state's influence in a region consistently prevail in foreign policy-making.

Geopolitics not only reflects the foreign policy implications of countries' geo-economic strategies,⁵⁰ but also provides a foreign policy framework by which local events and regional conflicts can be understood in all their global significance.⁵¹ Energy resources are often discussed as a "weapon" for geopolitical domination and manipulation, with a prominent example coming from Russian "pipeline diplomacy" of withholding oil and natural gas supplies in the Caucasus region and Central Asia in order to destabilize transit countries and dominate the European oil and gas market.⁵²

On the other hand, the liberal approach in IR provides insight into how states can cooperate even in the area of strategic resources, focusing on the economic fundamentals

Michael Klare demonstrates that China's growing energy ties with autocratic, oil-rich regimes challenge the West's interests. Highlighting China's and Russia's energy diplomacy ranging from development assistance to military cooperation and arms sales, he argues that states have established the two "protoblocs" – one with anti-American states of China, Russia, and the Central Asian members of the Shanghai Cooperation Organization (SCO), and the other with an anti-Chinese cast, centered around the United States and Japan.

⁴⁹ Bo Kong, *China's International Petroleum Policy* (ABC-CLIO, 2009); Leonardo Maugeri, *The Age of Oil: The Mythology, History, and Future of the World's Most Controversial Resource* (Westport, CT: Praeger Publishers, 2006).

⁵⁰ Ladis KD. Kristof, "The Origins and Evolution of Geopolitics," *Journal of Conflict Resolution* (1960): 15-51.

⁵¹ Gearoid O. Tuathail and Gerard Toal, "Problematizing Geopolitics: Survey, Statesmanship and Strategy," *Transactions of the Institute of British Geographers* (1994): 259-272.

⁵² David G. Victor, Amy Jaffe, and Mark H. Hayes, *Natural Gas and Geopolitics: From 1970 to 2040* (Cambridge: Cambridge University Press, 2006); Marshall I. Goldman, *Petrostate: Putin, Power, and the New Russia* (Oxford: Oxford University Press, 2008).

of trade. Stressing the benefits of cooperation through mutual gain, it assumes that states can cooperate and trade with each other for mutual benefit based on multifaceted interactions over time. Moreover, it not only emphasizes the rising importance of supra-national non-state actors in the international system such as the EU and the UN, but also focuses on subnational non-state actors in foreign policy-making.⁵³

A subset of liberalism includes political economy, which examines energy markets and trade mechanisms in their political contexts. Political economists explore how free trade influences domestic economies and political system; resource-rich countries have a greater chance to become wealthy if they commit to free trade.⁵⁴ These scholars' analyses focus on topics such as energy production, consumption, and distribution, as well as the financing of energy projects in a wide range of resources that includes coal, electricity, nuclear, oil, and natural gas. They tend to put more weight on economics and the mechanism of trade and investment than on politics, by providing historical and economic overviews. For instance, some of these scholars explained that Russia offered oil and gas to post-Soviet states at Soviet-era discounted prices in order to prevent these countries' economic collapse and social unrest,⁵⁵ rather than to maintain Moscow's geopolitical power. Scholars in IR liberalism also view China's "going out strategy" (focusing on cultivating relationships with autocratic and oil-rich regimes) as a holistic approach including a full package of trade and investment in social infrastructure, rather

⁵³ Interest groups and elites mobilize to gain access to policy, while bureaucrats and politicians respond to them for political support. The interaction between the two groups and their competition for political and economic capital is the core underlying logic of the liberal paradigm (Snyder, 2013; Cheon and Urpelainen, 2013).

⁵⁴ Jeffrey D. Sachs, and Andrew M. Warner, *Natural Resource Abundance and Economic Growth*, No. w5398, National Bureau of Economic Research, 1995.

⁵⁵ Timothy J. Colton, *Yeltsin: A Life* (New York: Basic Books, 2008); Joseph E. Stiglitz, *Globalization and its Discontents* (New York: W.W. Norton, 2002).

than a scenario where energy-hungry China is merely trying to lock up international oil and gas reserves and challenge the West.⁵⁶ They contend that economic development in the energy industry shapes energy markets that are dominated by energy companies and institutions. Their focus on non-state actors as well as trade and economic mechanisms clearly puts them in the liberalism domain.

In sum, the neorealist approach stresses geopolitical rationales, and argues that competition for strategic energy resources often outweighs economic incentives, while the liberal approach emphasizes the benefits of energy cooperation through mutual gain. However, there is an analytical gap between these two competing arguments. Neither line of inquiry explains the emerging types of energy relations in Eurasia, which include both cooperative and competitive characteristics. Energy relations tend to be competitive when the national interests of participating states clash or diverge. Under these conditions, energy relations are likely to be highly susceptible to conflicts over political and national security issues such as territorial disputes and political distrust between states.⁵⁷ In contrast, energy cooperation is likely when potential mutual benefits are visualized through developing a joint project, as well as when a sense of urgency is strong enough to develop a strategic partnership. Depending on how states view each other and design the direction of their bilateral relationships, strategic partnerships can either evolve into comprehensive and enduring relations or remain fragile and short-term in nature.

Strategic Partnership

⁵⁶ Kong, *China's International Petroleum Policy*.

⁵⁷ Lee, "Energy Security and Cooperation in Northeast Asia."

Cross-border oil and gas pipeline projects are considered to be emerging types of strategic energy partnerships in Eurasia. Countries with heterogeneous cultures, societies, economies, and political regimes are developing relationships in the energy sector where they share complementarity. These energy partnerships in Eurasia are considered “emerging” rather than “established”, however, since the institutional basis for multilateral cooperation has not been solidified.

While a small number of studies have explored the topic of strategic partnership, its definition, parameters, and purpose still remain vague and unclear. Focusing on contemporary postwar agreements between former adversaries, some scholars emphasize the institutional arrangements and incentives behind such cooperative strategic agreements,⁵⁸ as well as variations in their outcomes.⁵⁹ Others seek to provide a framework to explain the mechanisms of reconciliation between rivals. For example, Thomas Wright examines the difference between competitive and cooperative strategic engagement in explaining U.S. foreign policy with major powers that have significantly different views about the shape, purpose, and future direction of the international order.⁶⁰ Charles Kupchan explains how states generate new narratives of each other to change the identity of their adversary from a former rival to a friend.⁶¹

⁵⁸ John Ikenberry, *The Crisis of American Foreign Policy: Wilsonianism in the Twenty-First Century* (Princeton: Princeton University Press, 2009).

⁵⁹ Christian Watt, “Explaining Postwar Strategic Cooperation between the United States and its Former a=Adversaries,” Ph.D. diss., The University of North Carolina at Chapel Hill, 2014, <http://search.proquest.com/docview/1648172399?accountid=11752> (accessed August 18, 2015).

⁶⁰ Thomas Wright, "Strategic Engagement's Track Record," *The Washington Quarterly* 33, no. 3 (2010): 35-60.

⁶¹ Charles A. Kupchan, *How Enemies Become Friends: The Sources of Stable Peace: The Sources of Stable Peace* (Princeton: Princeton University Press, 2010), 16-50.

Strategic partnerships represent unique diplomatic instruments that allow states to pursue multidimensional bilateral, regional, and global issue agendas and diverse diplomatic goals without compromising freedom of action.⁶² The end of the Cold War in 1989, followed by the collapse of the Soviet Union in 1991, closed a chapter on an era where states' geopolitical strategies were largely derived from a bipolar ideological conflict. While the end of bipolarity left the United States in a position of global preeminence, secondary or regional powers such as Russia and China have been striving to expand their influence and pursue sustainable economic development in a globalizing world. States have not only adopted a pragmatic approach to foreign policy, but have also sought mutually reinforcing ties binding them in functionally cooperative arrangements. Strategic partnerships have emerged to allow countries to pursue opportunities for selective engagement with all major states (even former adversaries and rivals) in order to achieve domestic economic and security goals, because it allows for a degree of flexibility in interstate relations during a long period of uncertainty. Examples of this kind of strategic partnership include the post-World War II relationship between the United States and Germany, the Indo-Russian partnership established in 2000, and the Sino-Russian strategic partnership of the post-Cold War era.

Historical examples of strategic partnership show that it embodies both competitive and cooperative elements.⁶³ Strategic partnerships, therefore, demonstrate meaningful variations in terms of their depth and duration. Realist-oriented scholarly approaches to strategic partnership focus on the tenuous nature of a relationship that rests on an unstable

⁶² Vidya Nadkarni, *Strategic Partnership in Asia: Balancing without Alliances* (New York: Routledge, 2010), p. 201.

⁶³ Charles K. Ebinger, *Energy and Security In South Asia: Cooperation Or Conflict?* (Washington, D.C.: Brookings Institution Press, 2011).

and short-term convergence of tactical interests. In contrast, liberal and constructivist perspectives place greater emphasis on contingent future outcomes based on mutual learning through multifaceted interaction over time and on the course of domestic, regional, and global developments. They view the nature of strategic partnerships as comprehensive and enduring, whereas realist scholarship pays more attention to these relationships' instrumental and transactional nature. In *Strategic Partnerships in Asia*, Vidya Nadkarni explains how these theories offer different guidance in designing strategic partnerships and argues that emerging strategic partnerships exhibit hedging strategies between engagement and resistance for countries that are neither allies nor adversaries but share a range of both converging and diverging interests. Most of the extant literature provides historical overviews of particular strategic partnership cases, such as the Sino-Russian partnership⁶⁴, by investigating bilateral political and economic relations, as well as subnational political, economic, and social institutional arrangements. These accounts also explore states' positions in the international system and aspirations for global status, and examine political leaders' perceptions and abilities.

Political Economy of Energy

Since energy itself is a politicized and multi-faced concept, the notion of energy security is self-directed and hinges on perspectives that each society makes choices in balancing economic, political, national security, and environmental concerns, thus justifying actions

⁶⁴ Bobo Lo, *Axis of Convenience: Moscow, Beijing, and the New Geopolitics* (2008); James Bellacqua, *The Future of Chins-Russia Relations* (2010); Sherman Garnett, *Rapprochement or Rivalry? Russia-China Relations in a Changing Asia* (2000).

and policies on particular energy security grounds.⁶⁵ Due to the multi-dimensional nature of the energy agenda, a number of conflicting elements can often exist within the same issue. Moreover, the notion of energy security has evolved from the traditional notion of oil supply and politics to full consideration of all energy resources including natural gas, nuclear power, and renewable energy, and focuses not only on supply but also on demand. In addition, the meaning of energy security has extended to other dimensions of technology, investment, environment, and trade.

Robert Gilpin argues that “in a highly integrated global economy, states continue to use their power and to implement policies to channel economic forces in ways favorable to their national interest and the interests of their citizenry.” Assuming that free-market mechanisms are not sufficient to ensure the smooth operation of the world economic system, he stresses the role of nation-states. His definition of political economy—a “sociopolitical system composed of powerful economic actors or institutions such as giant firms, powerful labor unions, and large agribusiness that are competing with one another to formulate government politics”—is relevant to explaining the energy sector.⁶⁶ In particular, it is more relevant in accounting for major energy deals including upstream development of oil and natural gas and large-scale energy infrastructure projects.

Governments play active roles in setting the rules of the game regarding energy deals involving large-scale cross-border transactions, given that such deals are likely to have a

⁶⁵ Carlos Pascual and Jonathan Elkind, eds. *Energy Security: Economics, Politics, Strategies, and Implications*, Brookings Institution Press, 2010. Jan H. Kalicki and David L. Goldwyn, *Energy and Security: Toward a New Foreign Policy Strategy*, Johns Hopkins University Press, 2005. Alhajii, A. F., “Dimensions of Energy Security: Competition, Interaction and Maximization” in *Energy Security in the Gulf: Challenges and Perspectives* The Emirates Center for Strategic Studies and Research: 191-218 (2010).

⁶⁶ Robert Gilpin, *Global Political Economy: Understanding the International Economic Order* (Princeton: Princeton University Press, 2001), p. 21-38.

substantial impact on the function and maintenance of nation-states. My discussion of the political economy of energy not only shares the assumption that nation-states are the main actors that set the rules and norms, but also seeks to go beyond the neorealist focus on nation-states and foreign policy, by integrating liberal scholarship's emphasis on domestic politics (e.g., energy bureaucrats, interest groups) and non-state actors (e.g., national and multinational oil and gas companies).

Some existing studies provide valuable insights on understanding the political economy of energy in a more integrated perspective.⁶⁷ However, most of them focus on oil and have not updated their analyses with the current changing landscape of energy markets and geopolitics. I aim to not only broaden the analysis by adding the political economy of natural gas, but also by including the market and geopolitical implications of the changing structure of both energy relations and supply and demand.

THEORETICAL FRAMEWORK

My dissertation provides a systematic understanding of how politics and energy markets are interconnected by examining variations among cross-border oil and gas pipeline projects in Eurasia in terms of a deal's success and speed. By focusing on successful

⁶⁷ Ferdinand E. Banks, *The Political Economy of World Energy: An Introductory Textbook* (Hackensack: World Scientific, 2007); Charles F. Doran, *Myth, Oil, and Politics: Introduction to the Political Economy of Petroleum* (New York: Free Press, 1977); Charles K. Ebinger, *Energy and Security In South Asia: Cooperation Or Conflict?* (Washington, D.C.: Brookings Institution Press, 2011); Toyin Falola, and Ann Genova, *The Politics of the Global Oil Industry: An Introduction* (Westport: Greenwood Publishing Group, 2005); Leonardo Maugeri, *The Age of Oil: The Mythology, History, and Future of the World's Most Controversial Resource* (Westport: Praeger Publishers, 2006).

pipeline projects in which market reasons are inversely related to political considerations, I investigate how political and economic factors play out interactively in the decision-making regarding cross-border pipeline projects, as well as what brings countries into binding cross-border pipeline deals and at what speed. To answer these research questions, I advance three hypotheses about underlying interactive political and economic factors: (1) geopolitical (and external crisis) factor(s) (i.e., whether a pipeline project involves support or opposition from third-party countries and/or goes through an external shock or crisis situation); (2) political trust between host country governments (i.e., political alignment); and (3) pipeline ownership structure (i.e., commercial alignment between host countries). Then I advance additional hypothesis which tests the effect of the three underlying political-economic factors on the difference between oil pipeline development and natural gas development. I begin by explaining how I conceptualize my dependent and independent variables. Operationalization of these variables for large-n statistical analysis is explained separately in the next chapter.

Dependent Variable – Deal Success and Speed

The dependent variable (DV) of my dissertation is the successful launch of a proposed cross-border pipeline project and its deal speed (i.e., deal success and speed). The scope of study is all the proposed international oil and gas pipelines that cross borders of two or more sovereign states and that are successful, have failed, or are still under consideration. The dissertation assumes that a certain cross-border pipeline project has successfully materialized when it obtains both intergovernmental/host-country government agreements (IGA/HGA) and a final investment decision (FID). Pipelines either under construction or in operation are thus regarded as successful pipelines. Failed pipeline

projects are those that are no longer under consideration. Deal speed is measured as the number of years that pass between a successful pipeline project's proposal to its deal finalization.

My dissertation examines how the joint development of pipeline projects between (two or more) countries can vary in decisions about intergovernmental and financial arrangements. It notes that, when a pipeline project is proposed, it goes through a governmental decision-making process as well as a financial/investment decision-making process in order to reach cooperative trans-border arrangements – both intergovernmental and investment – and international treaties (Figure 1). Through an overview of all existing or proposed transnational pipelines, I confirmed that each pipeline project has a different story, which can be very complex depending on the political orientation and institutional arrangements of host countries, the market and political environment for investment in producer and transit states, issues regarding supply routes and geographical conditions, technological conditions related to fuel type (oil or gas) and transportation type (overland or undersea), and security and environmental issues. Therefore, it is not easy to tell which step in a process comes first (e.g., governmental or investment decisions) or to understand detailed decision-making processes in chronological order.

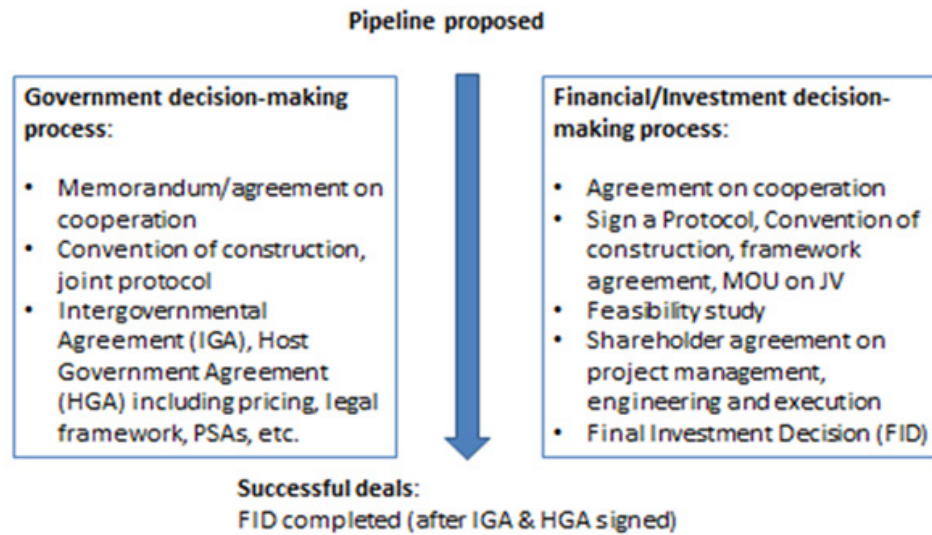
However, it can be assumed that the final investment decision (FID) for a pipeline is made after an intergovernmental agreement (IGA) and a host government agreement (HGA) are signed. Both IGA and HGA have important implications for the successful launch of a proposed pipeline project, since the nature of transnational pipelines present a host of international jurisdictional challenges in their construction, operation, and maintenance. Although the scope of my dissertation study does not include the operation

and maintenance of transnational pipelines, it is important to understand how and when the legal framework for a pipeline project is determined since the construction of a cross-border pipeline is made possible after IGA, HGA, and FID are made in chronological order. An IGA is signed by individual governments of participating states of a pipeline project and should be signed and ratified by the parliaments of all participating states. An HGA is signed between sponsor companies of a joint venture (JV) consortium that constructs a pipeline and the governments of participating countries. In other words, an HGA is an agreement between governments and investors, which accordingly comes after an IGA. The legal framework of pipeline projects—including pricing, tariff, and production sharing agreement (PSA)—is determined by the IGA and HGA, and the final investment decision is made afterwards. Therefore, once all the three decisions – IGA, HGA, and FID – are made, it can be regarded as representing a successful launch of a proposed pipeline project.

In explaining cross-border pipeline projects, my dissertation measures deal success through intergovernmental and investment decision-making processes, as well as deal speed measured by the total number of years from proposal to deal finalization. My case studies examine why a deal succeeds, why the deal's speed varies, and which internal and external political-economic dynamics lead countries to reach cooperative trans-border arrangements for pipeline development. Meanwhile, my statistical analysis examines the speed of pipeline deals⁶⁸ to illustrate the commonality of political and economic challenges of proposed transnational oil and gas pipelines in the world.

⁶⁸ I define the speed of the pipeline deal (i.e., deal speed) as the number of years between a successful pipeline project's proposal and its completion. See Chapter 3 for more detailed explanations.

Figure 3. Pipeline Decision-Making Process: from Proposal to Success⁶⁹



Independent Variables

This dissertation seeks to understand what brings countries into binding cross-border oil and gas pipeline deals and why some proposed pipeline projects materialize quickly in the process of decision-making and negotiations while others do not. My dissertation hypothesizes that, beyond market considerations that directly relate to economic costs and benefits incurred from cross-border pipeline development, the successful launch of a proposed cross-border pipeline project and its deal speed depend on three underlying factors: (1) geopolitical (and external crisis) factor(s) (i.e., whether a pipeline project involves support or opposition from third-party countries and/or goes through external

⁶⁹ Figure 1 is compiled and created by the author based on the Energy Charter Treaty documents.

“Intergovernmental and Host-Government Model Agreements for Cross-Border Pipelines,” 1st and 2nd edition, Energy Charter Secretariat, <http://international.energycharter.org/fileadmin/DocumentsMedia/Legal/ma2-en.pdf> ;

“Energy Transit Activities: Collection of Intergovernmental Agreements of Oil and Gas Transit Pipelines and Commentary” 2015, <http://www.energycharter.org/what-we-do/trade-and-transit/trade-and-transit-thematic-reports/energy-transit-activities-collection-of-intergovernmental-agreements-of-oil-and-gas-transit-pipelines-and-commentary-2015/>.

shock or crisis situations); (2) political trust between host country governments (i.e., political alignment); and (3) the pipeline's ownership structure (i.e., commercial alignment between host countries). Four hypotheses are derived from these explanatory variables in order to examine how successful development of transnational pipeline projects depends on underlying interactive economic and political factors.

Geopolitical and External Crisis Factor

I define that a cross-border oil and gas pipeline project has geopolitical (and external crisis) factor(s) when it (directly or indirectly) involves support or opposition from third-party countries (that are not host countries participating in the pipeline projects) and/or when the project goes through external shocks or crisis situations. I assume that changes in the geopolitical environment due to external crisis situations can alter the dynamics of energy relations between host countries. External shocks or crisis situations can be defined as any sudden and unexpected political and economic events that dramatically change the existing frameworks or prior assumptions regarding national policies and strategies. Examples include the Global Financial Crisis, oil shocks, and political crises such as the Ukraine Crisis with Russia's annexation in Crimea.

First, cross-border pipeline projects involving support or opposition from third-party countries are often observed in the cases where producer and transit states want to diversify supply routes by building new pipelines and where powerful third-party countries (e.g., the United States, Russia, or China) that have important political, strategic, and commercial interests express their political support or opposition to the cooperative development of regional pipelines. For instance, the Baku-Tbilisi-Ceyhan (BTC) pipeline that opened in 2006 is the first transnational pipeline that transports Caspian oil to the

Mediterranean without crossing Russia. Before commercial investors agreed to participate in the BTC, there was an unprecedented amount of political backing from the U.S. government. Despite pessimistic assessments by energy specialists and many non-U.S. policy-makers over the commercial viability of this project, the United States considered the new energy route as a tool to foster security and political ties with the landlocked and newly independent Caspian states that still remained vulnerable to Russia's hegemonic impulses. The United States and other Western countries supported the BTC project in order to counterbalance Russian and Iranian dominance in the region, and to increase U.S. influence in cementing a new geopolitical order in the Caspian region. Washington, in particular, believed that if Azerbaijan's energy resources were transported to market through Russia or Iran, Azerbaijan would not be able to adopt a pro-Western security and political orientation and NATO ally Turkey would not be able to increase its political influence in the region.

Second, it is often observed that any sudden, unexpected crisis situations and/or external political-economic shocks change the geopolitical environment of states involved in cross-border pipeline projects, thus altering the dynamics of their energy relations. I borrow the concept of crisis in order to explain the key drivers of cross-border pipeline deals outside of market reasons. Some scholars present the concept of crisis to account for national policies and leaders' choices at critical decision points.

I draw on insights from Charles Doran's model of crisis in international relations.⁷⁰ In *System in Crisis*, he explores how structural change leads to decision-making uncertainty

⁷⁰ For Doran's model of crisis and Power Cycle Theory, see the following: Charles F. Doran, *Systems in Crisis: New Imperatives of High Politics at Century's End*. No. 16. Cambridge University Press, 1991; Charles F. Doran, "Power Cycle Theory, the Shifting Tides of History, and Statecraft: Interpreting China's

in shaping foreign policy, and argues that “the sudden, massive increase in an uncertainty that holds high foreign policy stakes for the state affects foreign policy behavior through increased stress and anxiety.” Everything changes in security terms for the state and the international system at critical turning points, which leads to system transformation as a result of structural upheaval to state power cycles. Massive structural change causes decision-makers to miscalculate the strength of established expectations. Doran articulates that the probability of miscalculation in communications between states is greater during a crisis, given that “learned patterns from prior behavior” or “the government’s former expectations about foreign policy role, status, and security” are “suddenly proven wrong.”⁷¹ His emphasis on “conditional non-rationality” in crisis situations and system transformation is highly relevant to understanding the emerging trend of cross-border pipeline networks in Eurasia. A crisis with a major capacity to affect pipeline planning and construction is associated with system transformation. For instance, I argue that China and Russia signed binding agreements to build a cross-border gas pipeline when geopolitical changes due to the Ukraine crisis in 2014 shaped their energy relations; a declining Russia decided to make concessions to a rising China only as part of efforts to preserve its geopolitical leverage at critical points.⁷²

The emerging trend of cross-border pipeline networks in Eurasia between major importers and exporters is another representation of Doran’s system transformation. From

Rise,” *the SAIS Europe Journal*, April 1, 2012; Charles F. Doran, “Power Cycle Theory and the Ascendance of China: Peaceful or Stormy?,” *The SAIS Review of International Affairs* 32, (1) (Winter) 2012: 73-87; Charles F. Doran, “Economics, Philosophy of History, and the “Single Dynamic” of Power Cycle Theory: Expectations, Competition, and Statecraft,” in *Power Cycle Theory and Global Politics, International Political Science Review* Vol. 24, No. 1, 2003.

⁷¹ Doran, *Systems in Crisis*, pp. 27-29, 95-110.

⁷² Sino-Russian energy relations and oil and gas pipeline deals are discussed in greater detail in Chapter 3 & 4.

Doran's "power cycle" perspective, power is what government officials and diplomats perceive it to be, and perceptions of power are highly correlated with the national capability that facilitates a state's ability to carry out a foreign policy role. In addition to traditional measures of national capability—such as GDP, per capita wealth, size of armed forces, military spending, population size—transportation infrastructure to secure reliable supply and demand of hydrocarbons has become an important parameter to measure national capability. In this respect, Doran's model of crisis and theory of system transformation is very relevant to understanding how decision-makers design and implement energy policies concerning cross-border transactions and investment during external shocks, as well as the extent to which such external political-economic factors have an impact on different strategies and policies.

I also draw on insights from other scholars who discuss the notion of crisis. Building on the discussion of the relationship between crisis and the state, Peter Gourevitch argues that it is not easy to find coherence in decision-making when states choose a policy or a sequence of policies in crisis situations.⁷³ By applying the notion of crisis in explaining public policy profiles, Kent E. Calder specifies the critical juncture framework, and notes that a crisis changes the pre-existing bargaining context and creates opportunities for change, thus generating demands for new institutions.⁷⁴ His critical juncture framework explains how external shocks and crises can act as a catalyst that individual decision-

⁷³ Peter Gourevitch, *Politics in Hard Times: Comparative Responses to International Economic Crises*, Cornell Studies in Political Economy (Cornell University Press, 1986), p. 35.

⁷⁴ A critical juncture is defined here as a historical decision point at which there are distinct alternative paths to the future.

Kent E. Calder, *Crisis and Compensation: Public Policy and Political Stability in Japan, 1949-1986* (Princeton University Press, 1988); Kent Calder, and Min Ye, "Regionalism and Critical Junctures: Explaining the "Organization Gap" in Northeast Asia," *Journal of East Asian Studies* 4, no. 2 (2004): 191-226.

makers can use to create institutions, and what specific impact the decision-making process can have on outcomes. Assuming that intense time pressure is a crucial element in a critical juncture, Calder argues that decision-making takes place under severely bounded rationality during crises⁷⁵ and that decision-makers are forced into sudden, high-stakes decisions with inadequate information.⁷⁶ While his framework highlights the individual-level dynamics in negotiations and interactions at major turning points and the relative autonomy of individual decision-making, it maintains that domestic political-economic interests are an important background factor.

Given my own conceptualization of geopolitical (and external crisis) factors, which draw from existing studies on the notion of crisis and critical historical points, I derive the following hypothesis:

Hypothesis 1A: *Geopolitical factors are likely to have an effect on the likelihood of successful pipeline deals and the deal speed.*

Hypothesis 1B: *Geopolitical factors are likely to delay the deal's speed (i.e., geopolitical factors are likely to have negative effect on the deal's speed).*

Political Trust (i.e., Political Alignment)

My political trust variable represents how host country governments of cross-border pipeline projects align politically and trust one another. My dissertation posits that energy

⁷⁵ Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (Boston: Little, Brown, 1971).

⁷⁶ *The New Continentalism : Energy and Twenty-First-Century Eurasian Geopolitics* (New Haven: Yale University Press, 2012), 53 page. See also Graham T. Allison, *Essence of Decision : Explaining the Cuban Missile Crisis*, ed. Philip Zelikow (New York: Longman, 1999).

cooperation arising from cross-border oil and gas pipeline networks is associated with variations in the level of political trust between host countries. I thereby estimate the relationship between the level of political trust and the deal success/speed of cross-border pipeline projects. Political trust between states (i.e., political alignment) can be defined and measured by how pairs of states (dyads) trust each other and share similar political interests, preferences, and motivations. I refer to archival data for case studies, as well as the Affinity of Nations index data that will be explained in detail in Chapter 3.⁷⁷

Shared interests and reciprocity are what rationalists conceptualize as trust and cooperation. My dissertation borrows the rationalist conception of trust and cooperation to measure political alignment between states. A number of academic studies have focused on the security and economic dimensions of cross-border pipelines, but few have systematically addressed the issue of political alignment and trust. Charles E. Ziegler, who has pioneered this line of inquiry, argues that energy interdependence arising from oil and gas pipeline networks is associated with variable levels of trust within the EU and that variations in trust impact the EU's ability to make effective energy policy, which can erode foreign policy coherence and generate strains within the European community.⁷⁸

Although most mainstream approaches in international relations have little to say about

⁷⁷ The Affinity of Nations index captures the similarity of state preferences and motivations among pairs of states (dyads), based on voting positions of the dyads in the United Nations (UN) General Assembly votes from 1946 to 2012. The data can be found at:

<https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/12379>;
http://pages.ucsd.edu/~egartzke/data/affinity_codebook_03102006.pdf.

The index is calculated using "S", that current political scientists are developing statistical methods for analyzing strategic decision making. Affinity is similar to Bueno de Mesquita's t_B (which can be downloaded and generated using Bennett and Stam's [EUGene](#)). Affinity offers more information (variance) than the t_B index, and may also be less biased.

⁷⁸ Charles E. Ziegler, "Energy Pipeline Networks and Trust: The European Union and Russia in Comparative Perspective." *International Relations* 27, no. 1 (2013): 3-29.

trust among states, trust facilitates cooperation,⁷⁹ and higher levels of trust tend to reduce international tensions, lower transaction costs, help ensure compliance with contractual agreements, and overcome collective action problems.⁸⁰

My dissertation draws on the rationalist approach in explaining trust in international relations in order to define the notion of political alignment. Rationalists conceptualize trust as based on interests and reciprocity. If states acknowledge shared interests and act cooperatively rather than competitively, then a trusting relationship can develop. For them, cooperative interaction over time may lead to greater levels of rational trust, as actions become predictable. Rational trust involves an estimation of the degree of risk in interactions among actors as well as predictions about the behavior of other actors, which reduces transaction costs.

The successful launch of a cross-border pipeline project must constitute cooperative trans-border arrangements. The concept of shared interest and reciprocity is closely linked with the concept of cooperation, and energy cooperation such as cross-border infrastructure development requires a substantial level of political trust between host countries that can support and approve the joint development. Therefore, I derive the following hypothesis:

⁷⁹ Ken Booth and Nicholas Wheeler, *The Security Dilemma: Fear, Cooperation, and Trust in World Politics* (Basingstoke: Palgrave Macmillan, 2008).

⁸⁰ Deborah W. Larson, *Anatomy of Mistrust: U.S.-Soviet Relations During the Cold War* (Ithaca: Cornell University Press, 1997); Ziegler, "Energy Pipeline Networks and Trust: The European Union and Russia in Comparative Perspective."

Hypothesis 2: *When the level of political trust between host countries on a cross-border pipeline project is higher, it is more likely to increase the likelihood of a deal's success as well as its deal speed.*

Pipeline Ownership Structure

I include the variable of a pipeline's ownership structure, which captures commercial alignment between countries involved in cross-border pipeline deals. In many cases, investors create a pipeline consortium or joint venture (JV) to construct and operate the cross-border pipeline. While a cross-border pipeline JV includes corporate financing as well as funds from public (both national and intergovernmental) and commercial banks, my dissertation focuses exclusively on corporate financing when examining the ownership structure. Such an emphasis is designed to measure whether the pipeline ownership is shared by firms from host- and non-host countries (in many cases, whether the pipeline ownership is shared by state-owned enterprises and international oil companies). Loans from intergovernmental and commercial banks are excluded as I desire to examine commercial alignment at the country level. International oil companies (IOCs) and national oil companies (NOCs) are included, because their national origins are an important parameter for the country-level analysis. My dissertation research shows that pipeline ownership falls into three categories based on commercial alignment structure: (1) host-country firms only (either state-owned enterprises or multi-national corporations whose national origins belong to one of the host countries); or (2) non-host (foreign) country firms only (either state-owned enterprises or multi-national corporations whose national origins do not belong to any of host countries); and (3) a

combination of host-country firms and non-host (foreign) country firms. While constructing my dataset of all proposed and existing cross-border pipelines in the world for my statistical analysis, I learned that there are only a few pipelines owned exclusively by non-host (foreign) country firms. Therefore, I excluded this type of pipeline ownership from both my case studies and statistical analysis.

Whether ownership structure is diffused or concentrated has been the subject of much investigation in the fields of finance, management, and political economy. In addition, the role of ownership structure on the stability patterns of international JVs has been a classical issue in the field of international business; some scholars have suggested majority control (concentrated ownership) as the best option for maintaining stability and survival,⁸¹ while others have advocated equally shared ownership (diffused ownership).⁸² Those who put more weight on majority (concentrated) ownership argue that firms can exercise control to alleviate risks through the adoption of more hierarchical governance structures⁸³ and the holding of majority ownership control in joint ventures.⁸⁴ Majority ownership can help overcome friction that stems from disagreements between partners (shareholders of a JV consortium) about the best ways to allocate resources or responsibilities within an alliance.

⁸¹ J. Peter Killing, *Strategies for Joint Venture Success (RLE International Business)*. Hoboken, N.J.: Taylor and Francis, 2013.

⁸² P. Beamish, "The Characteristics of Joint Ventures in Developed and Developing Countries," *Transnational Corporations and Business Strategy* 20 (1985): 338.

⁸³ Ranjay Gulati, "Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances," *Academy of Management Journal* 38, no. 1 (1995): 85-112.

⁸⁴ J. Michael Geringer and Louis Hebert, "Control and Performance of International Joint Ventures," *Journal of International Business Studies* (1989): 235-254.

My dissertation attempts to borrow the concept of ownership structure (of firms or JVs) that is much discussed in the literature of other disciplines but has been overlooked in the literature of international relations and political science, in order to identify the effect of pipeline ownership structure on the successful completion of a pipeline and the speed at which it is built.

Hypothesis 3: *When pipeline ownership is shared between host-country firms (either state-owned enterprises or multi-national corporations whose national origins belong to one of the host countries) and non-host country firms (either state-owned enterprises or multi-national corporations whose national origins do not belong to any of host countries), it increases the likelihood of a deal's success and its speed.*

Fuel Type (Oil vs. Natural Gas)

My dissertation examines how political and economic factors play out differently in oil versus gas pipeline deals. The discussion of the difference between oil and natural gas is a relatively new topic and has less been explored in the fields of international relations and political science. A few studies introduce the discussion of the difference between oil and natural gas, arguing that gas trade is more vulnerable to political influence than the oil trade. Brenda Shaffer states that there is more opportunity for politics to affect energy supply relations in the current international system, due to the rise in the global use of natural gas and surging cross-border natural gas trade.⁸⁵ While pipelines are considered as the most economical way to transport large quantities of oil over land, natural gas

⁸⁵ Brenda Shaffer, *Energy Politics* (Philadelphia: University of Pennsylvania Press, 2009), p.4.

pipelines are less attractive than liquefied natural gas (LNG) tankers for shipping when the distance is greater than 3,000 miles (4,800 kilometers).⁸⁶ Building natural gas pipelines is also more technologically difficult, and more expensive, than developing oil pipelines.⁸⁷ In addition to the differences between oil and gas pipelines, natural gas itself displays a number of unique traits apart from oil. While oil is a global commodity, natural gas is produced, transported, and traded through fragmented regional markets. As its pricing mechanism reflects this regional differentiation, regional buyers and sellers exert more influence under both long-term and oil-indexed contracts.⁸⁸

Since natural gas involves a higher level of risk, investment, and sunk costs, gas transport via pipelines confronts barriers. However, with the North American shale gas boom, mounting concerns over energy security, and global climate change, natural gas is playing a more prominent role in the global energy mix.⁸⁹ Pipelines are even more compelling for natural gas, given that gas reserves close to market are declining, thus requiring the transport of gas further overland. For instance, some of the new natural gas

⁸⁶ Stevens, Paul. "Cross-Border Oil and Gas Pipelines: Problems and Prospects." Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP), 2003.

⁸⁷ Natural gas has to be lightly pressurized into liquids known as Natural Gas Liquids (NGLs) by compressor stations to transport via pipeline. NGL processing facility or facilities of compressor station(s) is/are located in gas fields in order to be shipped by pipeline. In addition to liquefaction, gas pipeline transport involves very different technical issues from those of oil, such as grid balancing. Moreover, security of supply is more important for gas than for oil, because gas outages involve much greater reconnection problems.

⁸⁸ Outside of North America, where deregulated Henry Hub pricing reigns, the majority of natural gas pricing in the world has been long-term and linked to oil prices. Under the long-term, oil-indexed contracts, buyers take the "market risk" and sellers take the "price risk" through the take-or-pay mechanism. Take-or-pay clauses specify a minimum, pre-set volume of gas per year that a buyer will pay for at the contract price, regardless of whether the volume is taken or not. As an effort to liberalize its energy market, Europe is changing its gas pricing mechanism to increase its share of spot indexation from long-term, oil indexation.

⁸⁹ Fatih Birol, "Are We Entering a Golden Age of Gas?" World energy outlook 2011 Special Report, *International Energy Agency* (2010).

basins, notably those of the Caspian region, are landlocked. The successful exploitation of many of these sources requires pipeline delivery.

I derive the following hypothesis in order to examine to what extent a strategic framework of calculations regarding oil pipeline development is different from natural gas pipeline development.

Hypothesis 4: *The effects of political trust, geopolitical factors, and pipeline ownership structure on the pipeline deal's success and speed are more pronounced in natural gas pipelines than oil pipelines.*

My dissertation empirically tests the four hypotheses illustrated above in order to examine whether and how underlying interactive political and economic factors determine a deal's success and speed on proposed cross-border pipeline projects. The dissertation employs both statistical analysis and in-depth case studies to test my working hypotheses. It seeks to explain whether and to what extent political factors significantly affect the commercial viability of large-scale cross-border infrastructure projects of pipeline networks in Eurasia, whether and how economic factors are conditioned on the nature of political alignments of participating states regarding these pipeline projects, and whether the trend of the joint development differs by fuel type. In particular, I focus on examining the geopolitical and external crisis factors that may outweigh either economic incentives or political alignment between host countries. While my statistical analysis focuses on examining the interactive political and economic factors at the international and project levels, case studies add the in-depth analysis at the subnational/domestic level in order to explain both internal and external political-economic dynamics that lead countries to reach cooperative trans-border arrangements for pipeline development.

Domestic political economies concerning cross-border oil and gas pipelines, including the political institutional configuration of governments, energy bureaucracy and industry structure, and national and foreign policies of energy security of host countries, are also investigated.

CHAPTER THREE
STATISTICAL ANALYSIS

INTRODUCTION

This dissertation seeks to understand what brings countries into binding cross-border oil and gas pipeline deals and why some proposed pipeline projects materialize quickly while others move slowly through the process of decision-making and negotiations. In order to achieve this goal, the dissertation employs two approaches by using combined methods of quantitative and qualitative analysis. The first is to understand the international political economy of transnational pipelines by identifying the key factors in the likelihood of successful pipeline projects quantitatively. The second part of my dissertation conducts four case studies that focus on two regions: China-Russia and the Caspian Sea. Through case studies, my dissertation examines the comparative political economies of participating countries in planned or existing cross-border pipelines. By focusing on detailed subnational analysis, the case studies attempt to understand both internal and external political dynamics that lead countries to reach cooperative trans-border arrangements of pipeline development.

This chapter quantitatively tests the working hypotheses that are described and explained in Chapter 2. It statistically tests how political trust between host country governments, geopolitical factors, and ownership structure of pipelines affect the deal speed of cross-border oil and gas pipeline projects. While existing studies tend to pay more attention to providing an in-depth understanding of individual cases of trans-border pipelines, this chapter intends to provide an overview of existing or planned cross-border oil and gas pipelines in the world through quantitative analysis. It focuses on the international level in examining the key political and economic factors for successful pipeline deals in order to study how joint development of cross-border pipeline projects between countries

proceeds differently in making decisions regarding intergovernmental and financial arrangements. By quantitatively showing the casual effects of the key explanatory variables on the successful launch of proposed pipeline projects, the chapter aims to enable a structural understanding of the commonality of the international political economy of cross-border pipelines.

DATA AND SAMPLE

I collected data on all existing and prospective cross-border oil and gas pipelines in the world. I have constructed my own dataset that includes approximately 200 transnational pipeline projects featuring the following information: throughput (both initial capacity and maximum capacity), total capital cost (USD in millions), pipeline length, pipeline diameter, the year that a pipeline project is proposed, signed, and/or operationalized, fuel type (oil or gas), who initiated the project (government or companies), type of pipelines (direct link between consumer and producer, or multi-state export pipeline), number of countries that a pipeline passes through, whether a pipeline has transit state(s) or not, whether a pipeline project has geopolitical factor(s), the level of political trust (i.e., political alignment) between host countries, and the ownership structure of pipeline joint ventures. Due to the limitations in terms of accessibility to industry data, I relied on resources that are open to the public or available on a subscription-basis, which include *The Oil & Gas Journal*, *Major Pipelines of the World Map of the Petroleum Economist*, *The Platts Energy Economist*, *The Platts Oilgram News*, major international newspapers such as *The Financial Times*, *Natural Gas Europe*, the Oxford Institute of Energy Studies website, the U.S. Energy Information Agency, the Economist Intelligence Unit, the Harriman Institute at Columbia University, ministry websites (in producer, consumer,

and transit countries), international oil companies' websites (e.g., BP, Shell, and Chevron), and major international and local press releases. I also relied on the LexisNexis database of the Brookings Institution's library, which keeps the track of both industry sources and major newspapers within a limited range depending on the institution's subscriptions.

As I have limited access to the industry data and mostly relied on publicly available data, my current data set has many missing values in my dependent and independent variables. Most of all, I found it difficult to collect the data on who proposed a pipeline project and when it was proposed, particularly in cases where pipelines were built or proposed a long time ago or where proposed pipeline projects have not witnessed much progress. It is not clearly defined who proposed a certain pipeline project between government(s) and firm(s) and when it was proposed. In order to operationalize my hypotheses statistically, therefore, I have constrained the data set to include only pipelines that are operational or pipelines whose binding cross-border agreements are all signed and finalized. A total of 77 cross-pipeline projects were selected for statistical regressions.

The scope of data covers all proposed cross-border oil and natural gas pipelines in the world that are still under consideration or in operation, and all deals that are either finalized or have failed (i.e., are no longer under consideration). It excludes pipelines that are no longer in operation due to their lifespan expiry. It also excludes domestic pipelines that are within one existing sovereign territory and subject to the laws and regulations of one territory. I have 200 observations of cross-border oil and gas pipelines whose observation contains a brief description of fuel type (oil vs. gas), external geopolitical-economic factor(s), level of political trust between host country governments, pipeline

ownership and financing structure, pipeline type (direct link vs. multi-state export pipeline), number of participating states, pipeline operator, pipeline project history (the year that a pipeline is proposed, signed, and operated), throughput (initial and maximum capacity)⁹⁰, pipeline length, and total capital cost. I am left with 77 cross-border oil and gas pipeline projects that are operational or have finalized the deals for the final sample.

MEASUREMENT

Dependent Variable

The dependent variable is deal speed of a cross-border pipeline project. It is measured as the number of years from when a pipeline project is proposed to when it is operational.

While my case studies in the next four chapters investigate key determining factors for both deal success and speed, my statistical analysis focuses on the deal speed due to the limitations of my current dataset described above. I have culled from the dataset of 200 observations of cross-border pipeline projects those agreements (intergovernmental, host-country governmental, and financing) that are finalized. I am left with 77 cross-border oil and natural gas pipelines, which is the final sample for my statistical analysis. Each observation contains values for fuel type (oil vs. gas), pipeline type (direct link vs. multi-state export pipeline), number of participating states, pipeline ownership structure and financing, pipeline operator, the history of pipeline project (the year that a pipeline is proposed, signed, and operated), throughput (initial and maximum capacity), pipeline length⁹¹, total capital cost⁹², the level of political trust between host country governments,

⁹⁰ Oil in thousand barrels per day; and natural gas in billion cubic meters per year.

⁹¹ In kilometers

⁹² Total capital cost is in USD millions.

geopolitical factor(s). Measurement and operationalization of variables of pipeline ownership structure, level of political trust, fuel type, and geopolitical factor(s) are explained in the next section on independent variables.

Deal Speed

= number of years of a successful pipeline project from proposal to completion

In order to operationalize my dependent variable of deal speed, I construct a count variable aggregating the number of years from a successful pipeline project's proposal to its deal finalization. The reason why I do not consider my dependent variable to be continuous is that whether it is successful or not is decided each year upon proposal. I intentionally do not implement a survival analysis to operationalize my dependent variable because the sample size is too small for robust estimation. Given that successful materialization of a pipeline project occurs randomly only once in time, I assume that most pipeline projects are likely to be determined to be a success or a failure within thirty years after proposal.⁹³ I define a pipeline project as a success in each year if it proceeds without failure or suspension, and then aggregate the total number of years until the deal finalization.

Independent Variables

Geopolitical and External Crisis Factor

I assume that a cross-border oil and gas pipeline project has geopolitical (and external crisis) factor(s) when the project (directly or indirectly) involves support or opposition

⁹³ The average lifespan of cross-border pipelines is approximately thirty years.

from third-party countries and/or when the project goes through external shock or crisis situations. I quantitatively estimate the relationship between geopolitical factors and the deal speed of cross-border pipeline projects, in order to test *Hypothesis 1*, which predicts that *geopolitical factors are likely to delay the deal speed (i.e., geopolitical factors are likely to have negative effect on deal speed)*. I construct a binary variable, which has a value of 1 if a pipeline project involves external geopolitical-economic factor(s) and a value of 0 if not. In order to measure the external geopolitical-economic factor(s), I conducted keyword searches in the LexisNexis and ProQuest Databases. I searched for news articles, books, conference papers and proceedings, dissertations and theses, wire feeds, and scholarly journals that contained the keywords of the name of a certain pipeline project, “geopolitics,” and/or “crisis.” If the search results produce multiple items—each of which contains the name of the pipeline project and “geopolitics” in its title, abstract, or full text—it is coded as 1. Likewise, the search results including the pipeline’s name and “crisis” are coded as 1. A cross-border pipeline project that does not come up in a search with the keywords of “geopolitics” and/or “crisis” is coded as 0, as it is considered not to involve any external geopolitical-economic factor(s). The database search shows that 28 cross-border pipelines out of total 77 are characterized by external geopolitical-economic factor(s) as I defined them.

Political Trust

My dissertation research posits that energy interdependence arising from cross-border oil and gas pipeline networks is associated with variations in the level of political trust between states. I intend to quantitatively estimate the relationship between the level of political trust and the deal speed of cross-border pipeline projects in order to test

Hypothesis 2, which predicts that *when the level of political trust between host countries of a cross-border pipeline project is higher, it is more likely to increase its deal speed*. In order to measure the level of political trust, I rely on the *Affinity of Nations* index data that captures the similarity of state preferences and motivations among pairs of states (dyads), based on voting positions of the dyads in the United Nations (UN) General Assembly votes from 1946 to 2012.⁹⁴ One of the major advantages of the Affinity index is that it shows variations in state preferences on bilateral terms and changes in preferences over time, which reflects how states perceive and trust each other, and align politically. As a proxy for the political trust variable, I rely on the “agree3un” variable of the Affinity index, which is a voting similarity index scaling from 0 to 1, computed using 3 category vote data.⁹⁵ Based on the agree3un index, I construct a continuous variable of political trust (ranging from 0 to 1) that takes the average of agree3un values of all pairs of participating states in a certain pipeline project in the year that the deal is finalized. For instance, I averaged the agree3un values of three pairs of states – Azerbaijan-Georgia, Azerbaijan-Turkey, and Georgia-Turkey – in 2004, in order to have a value of political trust among the three host states of the Baku-Tbilisi-Ceyhan pipeline that was signed in 2004.

⁹⁴ <https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/12379>; http://pages.ucsd.edu/~egartzke/data/affinity_codebook_03102006.pdf.

The index is calculated using "S", that current political scientists are developing statistical methods for analyzing strategic decision-making. Affinity is similar to Bueno de Mesquita's t_B (which can be downloaded and generated using Bennett and Stam's [EUGene](#)). Affinity offers more information (variance) than the t_B index, and may also be less biased.

⁹⁵ 1 = “yes” or approval for an issue; 2 = abstain; and 3 = “no” or disapproval for an issue. Abstention is counted as half-agreement with a yes or no vote. United Nations General Assembly Voting Data codebook. Also refer to: Voeten, Erik. "Data and analyses of voting in the UN general assembly." *Available at SSRN 2111149* (2012).

Pipeline Ownership Structure

I include an ownership structure of pipeline variable that captures commercial alignment between countries involved in cross-border pipeline deals. To test *Hypothesis 3*, which predicts that *when the ownership of a cross-border pipeline is combined by host-country firms (either state-owned enterprises or multinational corporations whose national origins belong to one of the host countries) and non-host country firms (either state-owned enterprises or multi-national corporations whose national origins do not belong to any of host countries), it is more likely to increase its deal speed*, I created a binary variable of ownership structure, which has a value of 1 if a pipeline has a combined ownership between host and non-host country firms, and a value of 0 if a pipeline is owned by host-country firms only. No single observation of the ownership type of non-host country firms only is included in the sample of my dataset.

Fuel Type (oil vs. natural gas)

To test *Hypothesis 4*, which predicts that *the effect of political trust, geopolitical factors, and pipeline ownership structure on pipeline deal speed is more pronounced in natural gas pipelines than oil pipelines*, I created a binary classification of oil and natural gas pipelines included in the sample. The fuel type variable has a value of 0 for an oil pipeline and 1 for natural gas.

Control Variables

I implement the following set of controls to address potential omitted variable bias. First, I include a control for pipeline length (in kilometers), because longer cross-border pipelines are likely to incur more capital costs to construct and maintain than shorter

pipelines. Longer pipelines tend to have lower economic incentives, which could be associated with the dependent variable (deal speed). As cross-border pipelines require long-term investment involving huge upfront capital costs, a negative association is expected between pipeline length and deal speed. A total capital expenditure for each pipeline construction may seem to be a desirable estimator, as an alternative to pipeline length, because capital expenditure can reflect the economic aspects of each pipeline more directly than pipeline length. However, I chose pipeline length as a control variable given that my dataset has many missing values for capital expenditure, whereas it has only one missing value for pipeline length. I also do not control for pipeline throughput, because the dataset includes both oil and natural gas pipelines and the unit measures between the two fuels are not inter-convertible.

I also control for the number of countries that a pipeline passes through. Cross-border pipeline projects bring a host of jurisdictional challenges for construction, operation, and maintenance, because no overarching legal jurisdiction exists to manage any conflicts that may result. The international pipelines that cross borders of multiple states, thereby involving transit state(s), are likely to incur more risks than pipelines that directly link an exporting and an importing state. The more parties that are involved in a cross-border pipeline project, the harder it is to negotiate and to reach investment decisions as well as intergovernmental agreements, which could be associated with the dependent variable of deal speed. A negative association between deal speed and the number of countries is expected.

Model Specification

Linear regression may not properly estimate parameters for my hypotheses, because the dependent variable (deal speed, or the number of years to a successful pipeline deal) is bounded by zero, takes on only integer values, and has a highly skewed frequency distribution. Linear regression, which cannot account for these constraints, can yield inefficient, inconsistent, and biased coefficient estimates.⁹⁶ Count models offer a better means of analyzing these data. Researchers often use Poisson models to analyze count data, but these models constrain the variance to equal the mean. However, most count data exhibit over-dispersion (i.e., the variance exceeds the mean). To accommodate this over-dispersion, researchers can use a negative binomial regression.⁹⁷ The negative binomial model introduces latent heterogeneity to the standard Poisson model, allowing the conditional variance and the conditional mean to differ.

The baseline regression model for my hypotheses is as follows:

$$\begin{aligned} & \textit{Pipeline Deal Speed}_i \\ &= \beta_0 + \beta_1 \textit{Geopolitics}_i + \beta_2 \textit{Political Trust}_i + \beta_3 \textit{Ownership}_i + \beta_4 \textit{PipeLength}_i \\ &+ \beta_5 \textit{CountryNumbers}_i + \varepsilon_i \end{aligned}$$

⁹⁶ Scott Long, "Regression Models for Categorical and Limited Dependent Variables." *Advanced Quantitative Techniques in the Social Sciences* 7 (1997).

⁹⁷ William Gardner, Edward P. Mulvey, and Esther C. Shaw, "Regression Analyses of Counts and Rates: Poisson, Overdispersed Poisson, and Negative Binomial Models." *Psychological Bulletin* 118, no. 3 (1995): 392.

where *Pipeline Deal Speed_i* is a number of years of a successful cross-border pipeline project *i* from proposal to completion;

Geopolitics_i is an indicator variable that takes a value of one when a cross-border pipeline project *i* has external geopolitical-economic factors (i.e., when a cross-border pipeline project directly or indirectly involves support or opposition from third-party countries, or when a pipeline project goes through external shock or crisis situations);

PoliticalTrust_i measures the level of political trust between host country governments, it ranges from 0 to 1;

Ownership_i is an indicator variable that takes a value of one if pipeline *i* has a combined ownership between host-country firms and non-host country firms;

PipeLength_i is the length of pipeline *i* (in kilometers);

CountryNumbers_i is the number of countries where pipeline *i* crosses borders of sovereign states; and epsilon *i* is an error term.

β is a vector of coefficients for the independent variables and control variables. The dependent variable *Pipeline Deal Speed_i* is the count of total years that pipeline project *i* takes from proposal to completion (i.e., finalization of deal). I expect the coefficient to be positive for geopolitics, pipeline length, and number of host countries, meaning that the effect of each of them is likely to increase the number of years of a pipeline project from proposal to materialization. I expect the coefficient to be negative for political trust and ownership structure, meaning that a higher level of political trust between host countries is likely to decrease the number of years to a successful pipeline deal, and that a combined pipeline ownership between host-country and non-host country firms is likely

to decrease the number of years to a successful pipeline deal. In the equation above, I do not assume the heterogeneity across fuel type (oil vs. natural gas). Instead, I run the same equation above for each type of fuel separately.

The summary statistics and the correlation matrix can also be found in the data description section of the supplementary appendix.

FINDINGS

Statistical findings generally support the hypotheses of my dissertation. The main results are presented in Table 1 (see below). Models 1-3 choose to implement the standard Poisson model, and Models 4-6 employ a negative binomial model. As mentioned earlier, the negative binomial model introduces latent heterogeneity to the standard Poisson model, allowing the conditional variance and the conditional mean to differ. Given that I was only able to construct the data set with a small-sized sample due to limited access to industry data, it is hard to tell if the population of my data is over-dispersed or not (i.e., if the variance exceeds the mean or not). In this respect, I implemented both Poisson and negative binomial models to test my hypotheses.

Statistical findings using the standard Poisson model support my hypotheses more strongly than the ones using the negative binomial model. Model 1 shows that empirical findings strongly support hypotheses 1, 2, and 3. The coefficients for pipeline ownership and political trust are negative and statistically significant, meaning that both combined ownership (between host-country and non-host country firms) and a higher level of political trust between host countries are likely to increase the deal speed (i.e., decrease the number of years to a successful pipeline deal). The coefficient for geopolitical

factor(s) is positive and statistically significant, meaning that geopolitical and external crisis factor(s) are likely to decrease the deal speed (i.e., increase the number of years to a successful pipeline deal). Models 2 and 3, also implementing the standard Poisson, introduce the effect of each fuel type and partially support hypothesis 4. The results show that the effects of geopolitical factor(s) and pipeline ownership are more pronounced in natural gas pipelines than oil pipelines. Although statistically significant, the effect of political trust between host countries is not easy to interpret, as the coefficient for oil pipelines contradicts that of all pipelines (both oil and gas) in terms of direction.

When employing the negative binomial method, the statistical results strongly support hypothesis 1. The coefficient for geopolitical factor(s) is positive and statistically significant, meaning that geopolitical factor(s) are likely to decrease the deal speed (i.e., increase the number of years to a successful pipeline deal). While the coefficients for pipeline ownership and political trust are in the direction expected by hypothesis 2 and 3, they are statistically insignificant. In addition, the effect of geopolitical factor(s) is more pronounced in natural gas pipelines than oil pipelines.

For the control variables, the coefficients for pipeline length and number of host countries are positive and statistically significant across both Poisson and negative binomial models. When a cross-border pipeline is longer and involves a larger number of host countries, it is more likely to decrease the deal speed (i.e., increase the number of years to a successful pipeline deal).

Overall, the statistical results reinforce my hypotheses in the following respects. First, the empirical findings offer strong evidence that geopolitical and external crisis factors are

likely to delay the deal speed of cross-border pipeline development regardless of political and commercial alignment between host countries. Second, a higher level of political trust and a combined pipeline ownership structure consisting of both host-country and non-host country firms are likely to expedite the deal speed of successful cross-border pipeline projects. Third, the effect of external geopolitical factors on the deal speed is more pronounced in natural gas pipelines than oil pipelines. In other words, cross-border natural gas pipelines are more susceptible to external geopolitical factors and crisis situations than oil pipelines.

Table 2. Empirical Analysis of Pipeline Deal Speed

	(1)	(2)	(3)	(4)	(5)	(6)
	All (P)	Oil (P)	Gas (P)	All (NB)	Oil (NB)	Gas (NB)
Geopolitics	0.7638*** (0.1080)	-0.2532 (0.3482)	1.2550*** (0.1762)	0.7447*** (0.2139)	-0.2532 (0.3482)	1.1563*** (0.3093)
PoliticalTrust	-1.5352*** (0.5530)	2.9022** (1.4180)	-0.9463 (0.8556)	-1.5133 (1.1522)	2.9022** (1.4180)	-0.9768 (1.5268)
Ownership	-0.2672** (0.1234)	0.4678 (0.5434)	-0.4150*** (0.1511)	-0.1491 (0.2372)	0.4678 (0.5434)	-0.1975 (0.2694)
PipeLength	0.0001*** (0.0000)	0.0006*** (0.0002)	0.0002*** (0.0000)	0.0001** (0.0001)	0.0006*** (0.0002)	0.0002*** (0.0001)
CountryNumbers	0.2434*** (0.0502)	0.3098*** (0.1162)	0.0010 (0.0776)	0.2799*** (0.1020)	0.3098*** (0.1162)	0.0228 (0.1639)

Standard errors in parentheses

(P) – Poisson model, (NB) – Negative binomial model

(All) – all oil and natural gas pipelines, (Oil) – Oil pipelines, (Gas) – Natural gas pipelines

* p<0.10, ** p<0.05, *** p<0.01

CHAPTER FOUR
SINO-RUSSIAN ENERGY RELATIONS AND
CROSS-BORDER OIL PIPELINE DEVELOPMENT

INTRODUCTION

Sino-Russian cooperation in the oil and gas sector comes from different motivations and interests in each country. China and Russia appear to be ideal, complementary partners: one is the holder of enormous hydrocarbon reserves and a leading exporter, and the other is a fast-developing economy and the world's largest consumer and importer of hydrocarbons. In spite of this supply-demand complementarity, however, these countries' bilateral energy relations have gone through many ups and downs during the last two decades. The trajectory of the ups and downs tends to track periods when one or the other country was in a more advantageous bargaining position.⁹⁸ Moreover, the trajectory of their energy relations reflects a convoluted set of factors shaping each country's energy-related policies, including divergent internal dynamics between the government, national oil and gas companies, and private-interest groups.

While energy has become a central plank of the bilateral relationship and the two countries' foreign policies more generally, progress in bilateral energy cooperation has been slow.⁹⁹ In examining the slow pace as well as the ups and downs of the Sino-Russian energy relationship, some scholars focus on the sources of vulnerability that inhibit the development of a genuinely close partnership¹⁰⁰, whereas others emphasize that bilateral energy cooperation is moving toward an enduring and comprehensive

⁹⁸ Vidya Nadkarni, *Strategic Partnership in Asia: Balancing without Alliances* (New York: Routledge, 2010).

⁹⁹ Keun-Wook Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications* (Oxford: Oxford University Press, 2012).

¹⁰⁰ Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in James Bellacqua, *The Future of China-Russia Relations* (2010); Sherman Garnett, *Rapprochement or Rivalry? Russia-China Relations in a Changing Asia* (2000); Bobo Lo, *Axis of Convenience: Moscow, Beijing, and the New Geopolitics* (2008); Nadkarni (2010); Richard Weitz, *China-Russia Security Relations: Strategic Parallelism without Partnership or Passion* (2015); Vladimir Portyakovs, "Russian-Chinese Relations: Current Stage and Future Prospect," *Revolutions: Global Trends & Regional Issues* 1 (2013): 234-245.

partnership through interaction and mutual learning over time.¹⁰¹ The former group argues that the sources of vulnerability lie in the nature of the Sino-Russian energy relationship, which is driven by tangible interests and realities of power rather than by a fundamental convergence of national interests or ideology. This approach pays attention to the countries' relative status of power – China's rise and Russia's decline – in the international system and the widening gap between the two. On the other hand, the latter group contends that outcomes are contingent on mutual learning through multifaceted interaction over time and on the course of domestic, regional, and global developments. Whether Sino-Russian energy ties can evolve into an enduring partnership or are just fragile bonds has become a matter of scholarly debate. This debate on the Sino-Russian partnership and its regional and global implications has intensified with China and Russia's long-awaited \$400 billion deal in May 2014 to deliver 38 billion cubic meters (bcm) of natural gas to China annually over the next thirty years through the Power of Siberia pipeline. Some studies track these countries' energy relations since the 1990s, but not many of them fully examine the nature of Sino-Russian energy relations and their geopolitical and energy market implications in the scholarly context. Chapters 4 and 5 fill

¹⁰¹ Xia Yishan, "China-Russia Energy Cooperation: Impetuses, Prospects and Impacts," *The James A. Baker Institute for Public Policy, Rice University* (2000); Chen Xiaoqin, "Geopolitical Vision of China-Russia Energy Cooperation," *Russian Central Asian & East European Studies* 5 (2007): 007; Yan Xuotong, "The Weakening of the Unipolar Configuration," *China 3.0* (2013); Dmitri Trenin, "Gas deal entails China-Russia strategic depth" *Global Times*, May 25, 2014.

Also see quotes from Dmitry Mosyakov at the Institute of Oriental Studies. He expressed "confidence in the progressive development of Sino-Russian relations" and said that "China is increasingly becoming for Russia an economic and political alternative to the West" (quotes from Portyakov (2013); original source from Euronews Channel (in Russian), March 25, 2013).

this analytical gap by paying particular attention to tracking bilateral energy relations since the 2010s.

Compared to relations in the natural gas sector, which had stalled until recently, Sino-Russian relations in the oil sector are being actively developed. The major achievement on this front was the construction of the Eastern Siberia–Pacific Ocean (ESPO) oil pipeline and the spur to China from ESPO. While much scholarly attention has focused on why cooperation in the oil sector was easier and materialized earlier than with natural gas, and on how developing oil pipelines is different from building gas pipelines, few studies focus on the fundamental similarities between oil and gas relations, and the nature of Sino-Russian energy partnership.

I fill this analytical gap by examining similarities and differences in Russia and China's oil and gas sector cooperation. I argue that they are similar in that deals for both cross-border oil and gas pipelines were signed when 1) Russian-Western relations were at a low point – during Russia's invasion of Georgia in 2008 and Russia's annexation of Crimea in 2014 – and/or 2) unexpected external factors, such as the Global Financial Crisis and the collapse of oil prices, compelled Russia to search for funding sources overseas. On the other hand, the development of oil and gas pipelines is also driven by different domestic factors in each country, which reflect national politics and institutional arrangements, energy policies, state-owned oil and gas companies' commercial considerations, central and local governments' interests, and other private-interest groups. In addition, interests tend to evolve in response to changing domestic and international circumstances, given that the axis of Sino-Russian relations operates on several levels – bilateral, regional, and global – that constantly intersect.

In developing energy relations with China, Russia has often implemented “wait-and-see” tactics. It has signed a series of documents with China when Moscow’s relations with West were complicated or on bad terms, but it has not been willing to compromise on price and equity issues until it desperately needed China’s help. Changes in the geopolitical environment, however, have driven both Russia and China to approach their bilateral energy relations differently. Russia decided to make concessions to China to maintain its geopolitical leverage with major powers such as the United States and Europe at critical historical junctures. For China, meanwhile, there are strong incentives to combine market and strategic considerations and diversify its energy import portfolio with Russian oil and gas. China’s decision to import Russian oil and gas demonstrates how government concerns about security of supply and domestic political agendas are linked with national oil companies’ commercial interests.

I also argue that the nature of the Sino-Russian strategic energy partnership is transactional or instrumental¹⁰² rather than comprehensive due to the following impediments in the overall Sino-Russian relations: lingering historic distrust, Russia’s perceptions of China’s demographic threat in the Russian Far East, and strategic competition over regions such as Central Asia. At the nexus of the Sino-Russia strategic partnership lie energy and trade, and Chinese and Russian political leaders have sought to transcend a contentious shared history over the past two decades. While historical suspicions have softened, they have not disappeared. Bilateral cooperation efforts have left a mixed legacy of mistrust and anxiety on the one hand, and accommodation,

¹⁰² Jeffrey Mankoff, "The Ukraine Crisis and the Future of Sino-Russian Relations," *Asian Forum Special Commentaries – US Perspective* 3, no. 6 (2014).

calculation, and pragmatism on the other,¹⁰³ which have created the basis for the Sino-Russian energy relations. In sum, the strategic energy partnership will likely remain transactional for the time being, given that the overall Sino-Russian relationship has both competitive and cooperative elements and that the Sino-Russian dynamic is not equal but asymmetrical.

Chapters 4 and 5 are organized as follows. Chapter 4 examines Sino-Russian oil relations, with a particular focus on the development of the Eastern Siberia Pacific Ocean (ESPO) pipeline. It begins by explaining the role of energy in the development of Sino-Russian relations with a brief historical overview. Then key elements of this Sino-Russian oil deal are analyzed on the domestic and international level. Power dynamics in the Russian oil industry and the rise of Rosneft, China's "loans for oil" as an import strategy, and the impact of Russia's invasion of Georgia and the Global Financial Crisis on the oil deal are examined in depth in order to measure the gains and losses for each country. Chapter 5 discusses Sino-Russian gas relations, with special attention to the development of the Power of Siberia (POS) and the Altai pipelines. With a brief historical overview of the Sino-Russian gas trade, this chapter explores the key political-economic drivers for the gas deal on the domestic and international levels. The international drivers include the impact of the Ukraine crisis and resulting Western sanctions, as well as the impact of falling global oil prices. In Russia, domestic factors include the country's "eastward strategy" and the competition between Rosneft and Gazprom. In China, relevant factors include the changing role of national oil companies (NOCs) with the country's aggressive anti-corruption campaign and increasing concerns about air pollution.

¹⁰³ Bobo Lo, *Axis of Convenience: Moscow, Beijing, and the New Geopolitics* (Washington, D.C.: Brookings Institution Press, 2008).

Chapters 4 and 5 answer my puzzle regarding what brings China and Russia into binding cross-border oil and gas pipeline deals and how political and economic factors play out interactively in the decision-making process regarding pipeline projects in the following respects. First, Sino-Russian oil and natural gas pipelines are cases where deals are delayed for decades due to lack of political willingness among the parties, despite clear economic incentives (as these neighboring states could enjoy supply-demand complementarity – with one as a major energy importer, and the other as a major energy exporter). While Sino-Russian oil and gas pipeline deals involve fewer actors than the oil and gas pipeline projects to bring Caspian hydrocarbons to Europe (which are discussed in Chapters 6 and 7), Sino-Russian direct-link pipeline deals took much longer to finalize than the deals for multi-state export pipelines carrying Caspian oil and gas. In this respect, Sino-Russian oil and gas pipelines challenge the conventional understanding that the more parties involved in a cross-border pipeline project, the harder it is to negotiate, reach investment decisions, and finalize intergovernmental agreements.

Through the Sino-Russian oil and gas pipeline projects, I find the answers to why some bilateral deals for direct-link pipelines face or have faced many more obstacles than multi-state export pipelines in Eurasia. I argue that the explanation can be found in the interaction between three underlying political and economic factors – (1) mutual distrust or lack of political alignment between Russia and China, (2) a pipeline ownership structure where only state-owned enterprises in China and Russia are allowed to participate in the financing, construction, and operation of Sino-Russian pipelines, and (3) geopolitical changes due to crisis situations.

After discussing the fundamental similarities between Sino-Russian oil and gas relations, which are the three factors mentioned above, Chapters 4 and 5 examine how and to what extent the strategic framework of calculations regarding oil pipeline development is different from natural gas pipeline development. The Sino-Russian case studies offer more nuanced and sophisticated explanations than the statistical analysis as to why natural gas pipeline development is more susceptible to geopolitical factors than oil pipeline development, and therefore takes longer to finalize. These chapters explore the distinction between oil and natural gas as commodities, different subnational political-economic dynamics in each country regarding bilateral Sino-Russian oil and gas deals, and different geopolitical factors affecting oil and gas deals.

ENERGY AND SINO-RUSSIAN RELATIONS

Despite a history of suspicion and rivalry compounded by lingering memories of military confrontation, border disputes, and ideological conflict, Sino-Russian bilateral relations have yielded significant dividends in recent years. Since the primary catalyst behind the formal strategic partnership agreement between the two countries in 1996¹⁰⁴ was a shared desire to check hegemonic American global preeminence¹⁰⁵, the trajectory of Sino-Russian relations reveals a complex security and economic partnership interwoven with competitive and cooperative elements. The 2001 Treaty of Good Neighborliness and

¹⁰⁴ The April 1996 Joint Declaration announced the resolve of China and Russia “to develop a strategic partnership of equality, mutual confidence, and mutual coordination towards the 21st century.” “Text of PRC-Russia Statement Released,” in *Xinhua Domestic Service*, April 25, 1996 (FBIS Daily Report).

¹⁰⁵ President George H.W. Bush’s “new world order” discourse, the Clinton administration’s doctrine of “enlargement of markets and democracies, and the President George W. Bush’s muscular unilateralism were deeply disconcerting to Moscow and Beijing alike. China and Russia had continued concerns over American policies, which was reflected in the opening sentence of the 1997 Joint Statement issued in Beijing, calling for the promotion of the “multipolarization of the world and establishment of a new international order.” See Chapter 3, Nadkarni, *Strategic Partnership in Asia: Balancing without Alliances*.

Friendly Cooperation enabled both sides to upgrade multifaceted cooperation in trade and civilian technology, reflecting a pragmatic Russian desire to move away from a relationship based largely on arms sales. In 2003, when the Chinese leadership had changed to President Hu Jintao and Premier Wen Jiabao from Jiang Zemin and Zhu Rongji, the two countries recognized the importance of economic considerations, and addressed the need to boost trade and energy ties. Moreover, border delimitation agreements allowed China and Russia to stop viewing each other as imminent threats.¹⁰⁶ In sum, China and Russia in the 2000s were not only engaged in bilateral and regional military contacts, finally settling all pending boundary demarcations, but also started to consider energy and trade as key elements in the further development of bilateral economic ties.¹⁰⁷

Energy certainly has served as a key element in developing the Sino-Russian economic partnership and the evolution of their relationship from the largely political partnership of the 1990s to “pragmatic and business-like” interaction.¹⁰⁸ Indeed, the energy sector has seemingly been where both China and Russia can enjoy a supply-demand

¹⁰⁶ With the break-up of the Soviet Union into fifteen states, the length of the Russian border with China shrank from 7,500 kilometers to approximately 4,300 kilometers. By May 1991, large sectors of the eastern boundary had been demarcated and the ensuing agreement was ratified in 1992. The agreement on the demarcation of the shorter western boundary (55 kilometers) was completed in 1994 and ratified in 1995. In November 1997, Russia and China reached an agreement on joint economic use of several islands and adjacent waters in the eastern sector. The unresolved sectors of the eastern boundary were finally demarcated in 2004 and 2008. According to the terms of the July 2008 agreement, Tarabarov (Yinlong) and half of Bolshoi Ussuriysky (Heixiazi) islands were ceded to China. For details, see Chapter 3, Nadkarni, *Strategic Partnership in Asia: Balancing without Alliances*.

¹⁰⁷ Among the books that contribute to an in-depth understanding of Sino-Soviet and Sino-Russian relations are: Thomas Hart, *Sino-Soviet Relations: Re-examining the Prospects for Normalization* (Gower Publishing Company, 1987); Lowell Dittmer, *Sino-Soviet normalization and its international implications, 1945-1990* (University of Washington Press, 1992); Eizabeth Wishnick, *Mending Fences: The Evolution of Moscow's China Policy from Brezhnev to Yeltsin* (University of Washington Press, 2015); Garnett, *Rapprochement or Rivalry? Russia-China Relations in a Changing Asia*; Lo, *Axis of Convenience: Moscow, Beijing, and the New Geopolitics*; Bellacqua, *The Future of China-Russia Relations*.

¹⁰⁸ Lo, *Axis of Convenience: Moscow, Beijing, and the New Geopolitics*.

complementarity. China is the world's second-largest oil consumer (behind the United States) and became the largest global energy consumer in 2010.¹⁰⁹ Russia is a major producer and exporter of oil and natural gas; Russia was the world's third-largest producer of oil (after Saudi Arabia and the United States) in 2013 and the second-largest producer of natural gas in 2012 (after the United States). Russia's economy largely depends on energy exports; oil and gas revenues accounted for 52 percent of federal budget revenues and over 70 percent of total exports in 2012, according to IHS Energy.¹¹⁰

Moreover, energy is fundamental to the rise of Russia and China as (re-)emerging powers in a very different context. As the Kremlin officials speak of Russia being an "energy superpower,"¹¹¹ energy for Russia has not been just an instrument of influence in itself, but has impacted other dimensions of power, including military, political, economic, and technological. Energy has been no less vital to China from a different standpoint. For Beijing, energy is not an instrument of geopolitical ambition, but the principal rationale for an assertive foreign policy to facilitate its global quest for energy resources as well as a policy tool to fuel its economic development and modernization.¹¹²

Despite the supply-demand complementarity, the Sino-Russian energy relationship has been dogged by problems. First, Moscow has been locked in an asymmetrical economic relationship with its giant southern neighbor, although trade between the two countries

¹⁰⁹ Energy Information Administration, *Country Analysis Briefs: China* (2014).

¹¹⁰ Energy Information Administration, *Country Analysis Briefs: Russia* (2014).

¹¹¹ Fiona Hill, "Russia the 21st Century's Energy Superpower?," *Brookings Review* 20, no. 2 (2002); Vladimir Milov, "How Sustainable Is Russia's Future as an Energy Superpower?" (paper presented at the Meeting report, Carnegie Endowment for International Peace, March, 2006).

¹¹² Lo, *Axis of Convenience: Moscow, Beijing, and the New Geopolitics*.

has increased substantially. The bilateral trade pattern has shown structural asymmetries, in that energy and arms constitute Russia's principal exports to China while China exports consumer goods and industrial products to Russia. Even Russia's exports of machinery to China have dropped dramatically since the mid-2000s.¹¹³ As the share of machinery and industrial equipment of China's total exports to Russia increased from 8.2 percent in 2000 to 20 percent in 2005, to 29 percent in 2006, and to 42.4 percent in 2012, the corresponding figures for Russian machinery exports to China dropped from 28.7 percent in 2001 to 20.1 percent in 2002, to 1.2 percent in 2006, and to 0.7 percent in 2012.¹¹⁴ The share of Russian energy exports to China, meanwhile, increased exponentially from about 10 percent in 2001 to about 54 percent in 2006, and to about 67% in 2012,¹¹⁵ and China became Russia's second-biggest trading partner after the EU in 2013, totaling \$89 billion in bilateral trade.¹¹⁶

The asymmetric nature of bilateral trade reflects the relative status of these countries' power – China's rise and Russia's decline – in the international system, and the gap

¹¹³ Arms sales have slowed substantially, with no significant orders being placed since 2006. This may stem from Chinese aspirations of producing the equipment themselves once they obtain the designs or the possibility that the People's Liberation Army (PLA) is already saturated with Russian hardware imports. Nonetheless, China likely wants to buy more products from Russia, such as advanced military technology, to aid the PLA's modernization. However, Russia's concerns that its own technology could someday be used against it, coupled with the prospect of Beijing's gaining access to Russian proprietary information or learning to re-engineer its technology for domestic production, may be contributing to Moscow's unwillingness to make such sales. See James Bellacqua, "Contemporary Sino-Russian Relations: Thirteen Years of a 'Strategic Partnership,'" and Jing-dong Yuan, "Sino-Russian Defense Ties: The View from Beijing," in James Bellacqua, ed. *The Future of China-Russia Relations* (Lexington: University Press of Kentucky, 2010); *ibid.*

¹¹⁴ Vladimir Portyakov, "Certain Aspects of Improving Russian-Chinese Strategic Partnership," *Far Eastern Affairs* 3, no. 35 (2007); Vladimir Portyakovs, "Russian-Chinese Relations: Current Stage and Future Prospect," *R/evolutions: Global Trends & Regional Issues* 1 (2013): 234-245. Trade patterns between Russia and China can be traced from Russia's Federal State Statistics Service (Roskomstat) and Chinese Customs Authority Data.

¹¹⁵ Portyakovs, "Russian-Chinese Relations: Current Stage and Future Prospect."

¹¹⁶ "Russia-China trade hits record \$59bn in first half of 2014," *Reuters*, October 20, 2014. <http://rt.com/business/197516-russia-china-trade-half-2014/>.

between the two is even widening. China has become a major player on the global stage both economically and politically, becoming more integrated to the global economic system and having better ties with the rest of the world. China comes to the developing world, armed with preferential loans and infrastructure projects, in the hopes of locking up energy resources and other raw materials to aid its economic development. In contrast, Russia's efforts to reach out to the rest of the world are hindered by the fact that it has little to sell besides oil, gas, chemicals, and metals. In addition, China's and Russia's interests conflict in other areas, including the widening gap in terms of the countries' demography and their competition in Central Asia. These "overlapping but not identical"¹¹⁷ interests play a significant role in hindering efforts by the two countries to develop a stable and predictable relationship.

SINO-RUSSIAN OIL RELATIONS – EASTERN SIBERIA PACIFIC OCEAN (ESPO) OIL PIPELINE

Preliminary Setting

Sino-Russian energy relations during the last two decades have been both good and bad, depending on when one or the other country was in a more advantageous bargaining position. As Erica Downs points out, the dynamics of the China-Russia energy relationship have been shaped by fluctuations in world oil prices.¹¹⁸ Shortly after the normalization between the Soviet Union and China, Moscow began to talk about constructing oil and gas pipelines to China in the late 1980s. In the 1990s, when world oil

¹¹⁷ Gilbert Rozman, "The Sino-Russian Strategic Partnership: How Close? Where to?," in Bellacqua, *The Future of China-Russia Relations*.

¹¹⁸ Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in Bellacqua, *The Future of China-Russia Relations*.

prices were low and the Russian oil industry was starved for capital, Russia was interested in selling oil and natural gas to China.¹¹⁹ Beijing, however, was rather indifferent toward these projects: oil prices were as low as \$20 a barrel throughout the 1990s, and there was an excess of supply on the market.¹²⁰ Once China became a net importer of oil in 1993 and oil prices rose in the 2000s, however, the situation changed. The search for foreign sources of crude became a priority in China's national strategy. Beijing's *going abroad* policy provided incentives for its national oil companies to pursue overseas investments in targeted regions: Central Asia, Russia, Africa, and the Middle East.¹²¹ Russia, along with Central Asia, received particular attention because of the geographical advantage of short supply lines and its geopolitical significance.¹²²

China's proactive stance toward cooperation with Russia on oil issues was driven by three factors: 1) the sharp decline of production at the Daqing oil field which traditionally met a third of China's oil needs¹²³; 2) the lack of substantially large-scale alternatives in Central Asia (i.e., the difficulty of the China-Kazakhstan oil pipeline development due to

¹¹⁹ Ibid.

¹²⁰ Nina Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft " *Russie.NEI.Visions* 70 (2013).

¹²¹ For more details for Chinese NOCs, see the following: Xiaojie Xu, "Chinese Noc's Overseas Strategies: Background, Comparison and Remarks," *The Changing Role of National Oil Companies in International Energy Markets. Houston, TX: James A. Baker II Institute for Public Policy, Rice University* (2007); Steven W Lewis, "Chinese NOCs and World Energy Markets: CNPC, Sinopec and CNOOC," *The Changing Role of National Oil Companies in International Energy Markets. James A. Baker II Institute for Public Policy, Rice University* (2007).

¹²² Keun-Wook Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*, p. 282.

¹²³ The Daqing oil field still remains China's top oil field, constituting a quarter of the country's overall crude oil production. After more than 50 years of production, the field is mature and prone to declining production. While Daqing has maintained the level of 800,000 barrels per day for the past decade after declining from a level of about 1 million barrels per day, it will reduce the output to 640,000 barrels per day by 2020 as a result of limited reserves, high production costs, and lower international oil prices. Source: EIA Country Analysis Brief, China (2014).

limited crude availability)¹²⁴; and 3) China's diversification strategy regarding energy imports.¹²⁵ In the early 2000s, Chinese authorities started talks with their Russian counterparts on the laying of an oil pipeline to China based on a concept originated by the Russian private company Yukos in the late 1990s. At that time, Beijing officials were ready to take any steps necessary to secure crude supply from Russia, but Moscow was dragging its feet. For most of the 1990s and in the early 2000s, the Kremlin did not pursue new markets, but rather played the Chinese card in negotiations with Gazprom's European clients.¹²⁶ In contrast, due to China's rapid increase in demand for oil and higher global oil prices, China was eager to diversify the sources of its oil imports. Transporting oil overland from Russia represented a potential improvement over transporting oil from the politically unstable Persian Gulf and through strategically vulnerable sea lanes through which more than 85 percent of China's crude oil imports flow.¹²⁷ Chinese policy makers consider the land-based supply routes less vulnerable than the sea lanes where the Chinese navy does not have a major presence.¹²⁸ In this sense,

¹²⁴ Keun-Wook Paik, "Sino-Russian Energy Relations: Heading for a New Era?" *The Northeast Asian Economic Review, Economic Research Institute for Northeast Asia (ERINA)* 1, no. 2 (December 2013).

¹²⁵ Xia Yishan, "China's Energy Strategy and China-Russia Energy Cooperation," Asia-Pacific Economic Cooperation (APEC) Joint Symposium ("Energy Links Between Russia and East Asia: Development Strategies for the XXI Century"), August 30 – September 3, 2010 (Irkutsk, Russia).

China's foreign energy cooperation is based on two goals: (1) international cooperation and (2) diversification of supply. First, international cooperation is aimed at improving the relationships between China and energy-importing countries. Second, diversification is based on the fact that China's energy strategy was focused on Middle East before 2000. Xia Yishan said that energy should be imported from diversified regions and that the sources of energy should be diversified from oil to natural gas. Moreover, the means of transporting energy to China should also be diversified, and more oil and gas pipelines should be constructed to improve China's energy transportation security.

¹²⁶ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

¹²⁷ Tian Chunrong, "2007 nian zhongguo shiyou jinchukou zhuangkuang fenxi" [Analysis of China's Oil Import and Export in 2007], *Guoji Shiyou Jingji* [International Petroleum Economics], no. 3 (2007).

¹²⁸ Wenran Jiang, "Energy Security, Geopolitics and the China-Russia Gas Deals," *China Brief Volume 9*, Issue 2 (2015).

China has been eager to expand its access to Russian oil through overland pipeline supplies as part of its strategy to lessen its heavy dependence on Middle Eastern oil imported by sea.¹²⁹

Competition between Different Power Groups in the Russian Oil Industry

The Russian oil industry and the Russian state are inseparably intertwined. At the center of the story is the emergence and evolution of a new oil industry after the breakup of the Soviet Union in 1991. The weakness of the Russian state in the 1990s enabled the oil industry to restructure, privatize, and begin to modernize. The resurgence of strong state power in Russia since 2000 enabled the state to regain control over the oil industry, even as the state itself became increasingly dependent on oil revenues. Although both oil and gas are the main drivers of the Russian economy, Russian oil is different from Russian gas in two ways. First, whereas Russia exports three-quarters of its oil output, it consumes nearly two-thirds of its gas output at home, much of it at prices below export parity – that is, at artificially low, subsidized prices. Second, Russia’s oil exports generate more than four times the revenue of its gas exports. Therefore, there is a fundamental difference in that oil pays the bills abroad, while gas subsidizes the economy at home.¹³⁰

¹²⁹ Development of a cross-border crude oil pipeline as a policy idea originated from when Hu Jintao, the former secretary general of the Central Committee of the Chinese Communist Party and later president of China, framed the country’s financial and oil issues as matters of economic security at the Central Economic Work Conference in November 2003. He expressed concerns about the country’s dependence on the Strait of Malacca for 80 percent of its oil imports and perceived attempts by other states to gain control over the narrow waterway. For further details, see John W. Garver, "Development of China's Overland Transportation Links with Central, South-West and South Asia," *The China Quarterly* 185 (2006). Bo Kong, "The Geopolitics of the Myanmar-China Oil and Gas Pipelines," in Mikkal Herberg et al., "Pipeline Politics in Asia: The Intersection of Demand, Energy Markets, and Supply Routes," in *NBR Special Report* (National Bureau of Asian Research, 2010).

¹³⁰ Thane Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia* (Cambridge, Massachusetts: Harvard University Press, 2012).

In order to understand how Sino-Russian oil relations began to take shape, it is important to explore how different power groups in the Russian oil industry competed over China and rival oil pipeline proposals. Mikhail Khodorkovsky, former head of oil giant Yukos, first began the policy of petroleum cooperation with China in the late 1990s by shipping oil via rail to China.¹³¹ As his company Yukos became one of the first Russian oil companies to develop an interest in Eastern Siberia, Khodorkovsky was pushing the Angarsk-Daqing pipeline focused on a single commercial market, China. Although the Angarsk-Daqing option was carefully designed to be a profitable investment¹³², Russian President Vladimir Putin instead supported Russian state-owned oil pipeline company Transneft's plan of an Angarsk-Nokhodka pipeline that is longer and more expensive, but allows for the diversification of end-markets.¹³³ The choice between the two routes was defined by political considerations, given that the Angarsk-Daqing option would have left Russia dependent on one monopoly buyer – China.¹³⁴ This was the first time that Asian export development confronted severe competition between different powers in the Russian establishment.¹³⁵

The Rise and Fall of Yukos¹³⁶

¹³¹ The first oil shipment of 12,000 tons was delivered to China by rail in 1999.

¹³² Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia*, p. 470.

¹³³ The Yukos line, extending 2,247 kilometers, would have cost \$1.7 billion, while the Transneft project, at 3,764 kilometers, would have cost \$5.2 billion. The Angarsk-Daqing would have been profitable with throughout of 20 million tons per year and the Angarsk-Nadhodka of 50 million tons per year. For more details, see Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

¹³⁴ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

¹³⁵ Tatiana Mitrova, "Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges," 2014 North Pacific Energy Dialogue in the Shale-Gas Era Conference Paper, East-West Center, 2014.

¹³⁶ For more details, see chapter 7 in Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia*.

Khodorkovsky's independent overtures to China with his company Yukos were attacked because many in the Russian political and economic elite viewed China as a foreign threat. In the eyes of Russian elites, Khodorkovsky's picture of the oil industry seemed to be based on the image of the era of the Seven Sisters.¹³⁷ It clashed with Putin's fundamental logic that the role of oil industry in post-Soviet Russia is not just as a source of wealth for powerful individuals and clans, but also as a resource for political power and state policy. As Putin has rebuilt central government power since his inauguration in May 2000, the areas of conflict between the Kremlin and the private oil companies have multiplied and intensified. The Kremlin's increasingly favorable view of Rosneft as an emerging national oil company created a new rival to the private companies for the privatization of the remaining state-owned oil assets and for control of oil licenses in East Siberia and the Russian Far East. Putin's determination to exploit the potential of oil and gas as instruments of foreign policy clashed with the oil companies' insistence that profitability alone should determine the choice of production levels and export markets. Yukos resembled the other private oil companies in kind (LUKoil, TNK, Sibneft, Surgut, etc.), but stood out in degree; on every point of contention with the Kremlin, Yukos was more strident, more aggressive, and more radical than others. Khodorkovsky was arrested

¹³⁷ The "Seven Sisters" is a term to describe the seven oil companies which formed the "Consortium for Iran" cartel and dominated the global petroleum industry from the mid-1940s to the 1970s. the group comprised Anglo-Persian Oil Company (*now BP*); Gulf Oil, Standard Oil of California (SoCal), Texaco (*now Chevron*); Royal Dutch Shell; Standard Oil of New Jersey (Esso/Exxon) and Standard Oil Company of New York (Socony) (*Mobil now part of ExxonMobil*). Prior to the oil crisis of 1973, the members of the Seven Sisters controlled around 85 percent of the world's petroleum reserves, but in recent decades the dominance of the companies and their successors has declined as a result of the increasing influence of the OPEC cartel and state-owned oil companies in emerging-market economies. [https://en.wikipedia.org/wiki/Seven_Sisters_\(oil_companies\)](https://en.wikipedia.org/wiki/Seven_Sisters_(oil_companies))

on October 25, 2003, and Yukos' most valuable asset, its Yuganskneftegaz subsidiary, was bought by Rosneft at auction for \$9.35 billion in 2004.¹³⁸

The Oil Industry in China

Between 1994 and 1998, the Chinese government reorganized state-owned oil and gas assets into two vertically integrated firms: the China National Petroleum Corporation (CNPC) and the China Petrochemical Corporation (Sinopec). Dominating China's upstream and downstream oil markets, these two companies report directly to the State Economic and Trade Commission (SETC) under the supervision of the State Council. CNPC is the largest and most influential national oil company (NOC), as well as the leading upstream player in China. Along with its publicly listed arm PetroChina, accounts for roughly 60 percent and 80 percent of China's total oil and gas output respectively. Sinopec has traditionally focused on downstream activities such as refining and distribution, which represented three-fourths of the company's revenue in past years. The China National Offshore Oil Corporation (CNOOC), meanwhile, is responsible for offshore oil exploration and production, and has seen its role expand as a result of growing attention to offshore hydrocarbon resources.¹³⁹

China did not experience the degree of competition between different power groups that the Russian oil industry had during its period of developing Asian and Chinese markets. Although Sinopec also explored the possibility of oil supply from Russia with its interest in a crude oil pipeline, China's State Development Planning Commission (SDPC) gave CNPC exclusive authorization in any petroleum-related negotiations, including pipelines

¹³⁸ Marshall Goldman, *Oilopoly: Putin, Power, and the Rise of the New Russia* (Oxford: Oneworld, 2008).

¹³⁹ Energy Information Administration, *Country Analysis Briefs: China* (2014).

with Russia at that time. In 2001, China's top priority was to explore oil supply from Russia, as CNPC had realized that the China-Kazakhstan oil pipeline development could not be implemented as planned due to limited crude oil availability. In its negotiations with Yukos in August 2002, CNPC indicated a readiness to provide credit for the construction of the Russian section of the Angarsk-Daqing oil pipeline and to buy all the crude that would go through the new route. With these guarantees, CNPC placed all its bets on Yukos. CNPC had never expected any delay to, or suspension of, the Angarsk-Daqing pipeline plan.¹⁴⁰ Beijing authorities did not fully understand the internal and external political dynamics that led Russia to reject Yukos' initiative and choose the pipeline plan of the Russian state-owned pipeline company Transneft instead.¹⁴¹ Indeed, the Kremlin and the Russian state energy firms became increasingly irritated with CNPC for continuing to negotiate with Yukos rather than the Russian state.¹⁴²

The reason why Beijing authorities did not fully understand the internal dynamics involved in Russia's energy policies on cross-border pipelines seems to be driven by the fundamental differences in the energy bureaucratic structures of the two countries.

Although China and Russia are similar in that the decision-making regarding energy policy is a top-down process in both countries,¹⁴³ they are different in terms of the degree of influence that state-owned oil and gas companies have in shaping and implementing energy policies. For instance, the chairmen of Gazprom and Rosneft are considered to be

¹⁴⁰ Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*, Chapter 7.

¹⁴¹ Paik, "Sino-Russian Energy Relations: Heading for a New Era?"

¹⁴² Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in Bellacqua, *The Future of China-Russia Relations*.

¹⁴³ For China's top-down energy policy approaches, see Xu Qinhua and William Chung, *China Energy Policy in National and International Perspectives: A Study Fore-and-Aft 18th National Congress* (City University of Hong Kong Press, 2014).

the most powerful men after President Putin in Russia, while the chairman of CNPC is at most only as powerful as a cabinet minister in China.¹⁴⁴

Russia's "Triangularism"¹⁴⁵ – Moscow's Playing Between China and Japan

On April 3, 2002, Transneft's vice president, Sergei Grigoryey, said that:

...global consideration[s] rather than the cost of the project is what one should have in mind. The Chinese pipe[line] will be cheaper to build, but it would provide access to just one market. And what if all of sudden they no longer needed our oil? The Pacific pipe[line] ensures access to markets in the USA, Japan, South Korea, Southeast Asia, Australia, and China, too.¹⁴⁶

Transneft's proposal of extending the pipeline to the Pacific coast drew attention from Japan. During Japanese Prime Minister Junichiro Koizumi's visit to Moscow in January 2003, he publicly announced that Japan was greatly interested in the project to construct a crude oil pipeline from East Siberia to the Pacific coast (hereafter referred to as the Eastern Siberia – Pacific Ocean (ESPO) pipeline). In May 2003, Moscow formulated a compromise plan to designate the Pacific route as the trunk line (with a maximum

¹⁴⁴ Igor Sechin, the head of Russia's largest state-run oil company Rosneft, is regarded to be the second-most powerful man in the country after Putin. In contrast, Jiang Jiemin, a former chairman of CNPC, was appointed director of the State-owned Assets Supervision and Administration Commission (SASAC) in March 2013 after the end of his CNPC chairmanship. This shows that the chairmanship of Chinese national oil and gas companies is less powerful than that of Russian national oil and gas companies. Moreover, in September 2013, Jiang Jiemin was abruptly removed from his post and came under investigation for corruption and abuse of power. It is not likely that the heads of Russian state-run oil and gas companies would be removed from their posts so easily or unexpectedly.

Jack Farchy, "Igor Sechin: Russia's second most powerful man," *Financial Times*, April 28, 2014.

¹⁴⁵ Bobo Lo, "A Fine Balance—the Strange Case of Sino-Russian Relations," *Russie Nei Visions*, no. 1 (2005).

¹⁴⁶ See Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*, p. 323. Original source: Vladimir Baidashin, "Dueling Pipelines," *RPI*, May 2002, pp. 17–24.

capacity of 50 million tons of oil per year) and the Daqing route as the spur pipeline (with a capacity of 30 million tons of oil per year). This Russian government officially endorsed this plan in August 2003 with its, “Energy Strategy for Russia for the Period up to 2020.” However, Moscow maintained an equivocal stance on whether the spur pipeline to Daqing would be built before the trunk pipeline to the Pacific coast, despite repeated requests for clarification from Beijing and Tokyo.¹⁴⁷

Putin’s triangulation strategy,¹⁴⁸ playing China against Japan, arose for two main reasons: 1) Moscow’s hope to reduce its dependence on Beijing (and possible blackmail from China as the monopoly customer) by diversifying oil exports to the wider Asia-Pacific market¹⁴⁹; and 2) Russia’s desire to maximize foreign investment in the ESPO project,¹⁵⁰ as well as concessions from both countries, by exploiting competition between China and Japan.¹⁵¹ The concept of triangularism reflects not only a desire to improve relations with Japan for Russia’s own sake, but also to allow Russia greater strategic flexibility in the region. However, the deeper rationale behind such triangulation strategy is to preserve the strategic status quo between the existing power of Japan and the emerging power of China. Viewing Japan as a strategic counterweight to China, Russia continuously delayed

¹⁴⁷ Shoichi Itoh, “The Geopolitics of Northeast Asia’s Pipeline Development”, in Mikkal E. Herberg, “Pipeline Politics in Asia: The Intersection of Demand, Energy Markets, and Supply Routes,” in *NBR Special Report* (National Bureau of Asian Research, 2010).

¹⁴⁸ Lo, “A Fine Balance-the Strange Case of Sino-Russian Relations.”

¹⁴⁹ Ibid.

¹⁵⁰ Itoh, “The Geopolitics of Northeast Asia’s Pipeline Development.”

¹⁵¹ Erica Downs, “Sino-Russian Energy Relations: An Uncertain Courtship,” in Bellacqua, *The Future of China-Russia Relations*.

confirming whether priority would be given to the development of the pipeline between Skovorodino¹⁵² and Daqing field.

Russia's strategic delay, however, did not allow it to consolidate its position either in China or in Japan. First, Moscow failed to understand that support for the ESPO project in Japan was minimal. The pro-Russian players in the Japanese government who shared Moscow's anti-Chinese sentiment during the Koizumi period attempted to maximize Japanese investment in the Russian energy sector, such as the ESPO project, regardless of the associated investment risks. As Sino-Japanese relations stabilized in subsequent years, however, this group received only limited domestic support given the high degree of uncertainty concerning the ESPO investment framework and the availability of proven crude reserves in East Siberia. Russia not only overestimated the impact of Japan's geopolitical rivalry with China, but also its desire for Russian oil to alleviate Japan's high degree of dependence on the Middle East. These miscalculations came when Russia failed to consider two key points: (1) Japan has one of the world's largest oil stockpiles¹⁵³; and (2) Japan's desire to diversify its crude supply sources does not necessarily mean that it will ignore economic considerations. Such naïve calculations by Russia resulted in the failure to attract large-scale investment from Japan to cover the

¹⁵² Skovorodino (Russian: Сквородино) is a town and the administrative center of Skovorodinsky District of Amur Oblast, Russia. Skovorodino is located 54 kilometers (34 mi) from the border with Heilongjiang, China. Heilongjiang borders Inner Mongolia to the west and Russia to the north and east. The Amur River (or Heilong Jiang, meaning "Black Dragon River) marks the border between the People's Republic of China and Russia to the north. Heilongjiang contains China's northernmost point (in Mohe County along the Amur) and easternmost point (at the junction of the Amur and Ussuri Rivers).

¹⁵³ Christian Schmollinger, "Strategic Petroleum Reserves of Iea Member Countries," *Bloomberg News*, June 24, 2011, <http://www.bloomberg.com/news/articles/2011-06-24/strategic-petroleum-reserves-of-iea-member-countries-table->; for the information on the Strategic Petroleum Reserve (SPR), see International Energy Agency (IEA)'s Closing Oil Stock Levels in Days of Net Imports Table. <http://www.iea.org/netimports/>

pipeline's construction cost.¹⁵⁴ At the same time, from Moscow's perspective, the substantial increase in Russian revenue from oil and gas since 2003 has made Japanese financing for ESPO less attractive.¹⁵⁵

On the other hand, Russia's ongoing pipeline delays also drove the Beijing authorities to reconsider their energy strategy. Due to the stalling of the Angarsk-Daqing pipeline, China learned that Russia would not be in a hurry to decide the pipeline route and clarify the investment framework. China thereby began actively to seek other suppliers of oil in other regions including Central Asia, the Middle East, Africa, and Latin America. For instance, in 2003 PetroChina indicated "the Kazakhstan-China pipeline also tops our agenda" and the Central Asian option was "no longer a backup to the Russia-China pipeline."¹⁵⁶ Moreover, at a meeting with Kazakhstan's Primer Minister Daniyal Akhmetov during the Shanghai Cooperation Organization (SCO) conference in Bishkek in September 2004, China's Prime Minister Wen Jiabao said that Sino-Kazakh energy cooperation is a win-win situation.¹⁵⁷ These statements show that the Chinese authorities' patience with Russia was running out and that they had decided to prioritize pipeline development with Central Asia.¹⁵⁸ In sum, due to its strategy of delay regarding China and Japan, Russia had missed the opportunity to consolidate its position in China, which

¹⁵⁴ Individuals from the Japan Bank for International Cooperation have indicated that they do not favor the project if it involves heavy subsidies. A quote from Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in Bellacqua, *The Future of China-Russia Relations*. For more details, see Nelli Sharushkina, "Russia Denies Japan Secure Pipeline Access," *International Oil Daily*, July 19, 2006; "Japan, Russia Plan to Cooperate on Oil Export Pipeline," *Platts Oilgram Price Report*, November 22, 2005; and James Brooke, "The Asian Battle for Russia's Oil and Gas," *New York Times*, January 3, 2004.

¹⁵⁵ Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in Bellacqua, *The Future of China-Russia Relations*.

¹⁵⁶ Li Yuling, "PetroChina: Confident in the Economics of the Angarsk-Daqing Pipeline," *China OGP*, October 1, 2003, pp. 1–2.

¹⁵⁷ Chen Wenxian, "Sino-Kazakhstan Pipeline Starts Construction," *China OGP*, October 1, 2004, pp. 2–3.

¹⁵⁸ Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*.

was quickly overtaken by other players. While China was not the only choice for Russia at that time, Russia overlooked the fact that Russian oil was not the only choice for China either.

The Rise of Rosneft – The Driver of Russia-China Energy Cooperation

The “Yukos Affair” and the arrest of Mikhail Khodorkovsky during the early 2000s influenced relations between the state and the oil industry and the overall course of oil policy in Russia. Russia in the 1990s moved toward privatizing its oil industry mainly due to the collapse of the Soviet planned economy, the disintegration of the Soviet oil sector, the ambitions of the oil and financial oligarchs, and above all, the weakness of the state.¹⁵⁹ However, in the early 2000s, as the Russian state regained power, the idea of an autonomous oil sector was rejected. The primacy of the state over the private sector was reasserted as Putin embarked on a course of state intervention in the economy – first and foremost in the oil and gas sector – after being elected as president in 2000 and the Kremlin increasingly supported the idea of a state-owned national oil champion. As Putin argued in his 1997 doctoral dissertation, greater state control of energy assets is essential given that Russia’s energy resources are an important vehicle for revitalizing Russia’s economy and restoring its great power status.¹⁶⁰ Therefore, Rosneft, which had barely survived the 1990s as a state-owned company, emerged as the lead player in the next phase of the Russian oil industry in the twenty-first century.

¹⁵⁹ Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia*, p. 319.

¹⁶⁰ For more on Putin’s views on energy, see Stephen Boykewich, "The Man with the Plan for Russia, Inc.," *Moscow Times*, June 6, 2006; Vladimir V. Putin, "Vladimir Putin's Academic Writings and Russian Natural Resource Policy Mineral Natural Resources in the Strategy for Development of the Russian Economy," *Problems of Post-Communism* 53, no. 1 (2006).

The decisive point came in 2005, when Rosneft succeeded in capturing Yuganskneftegaz, Yukos' most valuable asset, while also avoiding a takeover by Gazprom.¹⁶¹ Having Igor Sechin, then the deputy chief of Presidential Administration, as chairman of its board of directors, Rosneft began to possess unique administrative clout and played an important role in Russia's domestic and foreign policy.¹⁶² For instance, the company declared East Siberia and the Far East as areas of strategic interest, and became a driving force in Russia's eastward strategy and attempts to establish close business relations with Asian countries, including China.¹⁶³

The First Loan for Oil

Some analysts consider Rosneft's acquisition of Yuganskneftegaz in 2005, which it accomplished with Chinese financial help, as a breakthrough for Russian-Chinese petroleum cooperation. However, I contend that this initial "loan for oil" deal, the type of arrangement that began to shape oil relations between Russia and China, was unbalanced.

¹⁶¹ With Khodorkovsky out of way and Yukos headed for extinction, Putin had a plan to merge Rosneft (and the expropriated assets of Yukos) into Gazprom in mid-September 2004. The plan proposed by Prime Minister Mikhail Fradkov and Gazprom CEO Aleksei Miller was appealing to Putin; the state would gain full majority control of the combined Gazprom-Rosneft entity. From Putin's point of view, it made no sense to have two national champions. On the other hand, Moscow leaders viewed Rosneft favorably as the "silovik oil company" because of the alliance between Sergei Bogdanchikov (Rosneft's chairman at that time) and Igor Sechin (now Rosneft's chairman, who was named as chairman of board of directors at that time) in the Yukos Affair. Gazprom, meanwhile, was regarded as the company of the "Saint Petersburg business elite," with one of the *Pitertsy's* members, Dmitri Medvedev, as its board chairman. Throughout his term, Putin had tried to maintain a careful balance among the various groups in his constituency; Medvedev and Sechin, both deputy heads of the Presidential Administration, were among his two closest and most trusted aides. By 2004, the balance was visibly tilting in favor of *siloviki* partially as a result of the Yukos Affair. Rather than having wished to see it tilt further, it seems more plausible that Putin had intended to give both sides a stake in the merged Gazprom-Rosneft entity. For more detailed explanation, see Chapter 8, "Russia's Accidental Oil Champion: The Rise of Rosneft," from Thane Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia* (Cambridge, Mass: Harvard University Press: 2012).

¹⁶² *Kommersant*, June 14, 2006, http://www.kommersant.com/p681868/r_33/Bogdanchikov_on_Yuganskneftegaz_Case_Closed/.

¹⁶³ Nina Poussenkova, "Lord of the Rigs: Rosneft as a Mirror of Russia's Evolution," *The James A. Baker III Institute for Public Policy of Rice University* (2007).

As part of its efforts to remain independent from Gazprom, Rosneft pledged to export 48.4 million tons (354 million barrels) of oil to China by 2010 to pay back the \$6 billion that China offered to lend as an upfront payment.¹⁶⁴ Rosneft was desperate for cash to finance its \$9.4 billion purchase of Yuganskneftegaz, the main oil-producing asset of Yukos, which Rosneft deemed essential to its survival as an independent company.¹⁶⁵ Given that, analysts speculated that the price for Yuganskneftegaz was set too low, although the terms of the contract were not disclosed.¹⁶⁶ China, meanwhile, was eager to take advantage of Rosneft's plight to negotiate a new supply contract with a substantial discount on the market price of oil.¹⁶⁷ Both the internal political games in Russia (private vs. national oil and gas companies; Rosneft vs. Gazprom; the Kremlin vs. different lobbying groups) and Kremlin's strategic delay of the ESPO launch (in its attempt to play China and Japan against each other) prevented Russia from beginning its petroleum exports to China in a timely fashion. During this delay, China was diversifying its petroleum imports through other sources, and Russia was no longer the main priority in the Chinese energy strategy. However, China's \$6 billion loan clearly provided a lifeline

¹⁶⁴ According to the Federal Energy Agency, Rosneft received a \$6 billion credit from Russian banks to purchase Yuganskneftegaz, and Vnesheconombank in turn received the funds for this credit from an array of Chinese banks in exchange for oil supplies to China.

¹⁶⁵ According to Downs, the Chinese loan was especially valuable as Rosneft was unable to borrow from Western banks because Yukos had filed for Chapter 11 bankruptcy protection in the United States. See Downs's chapter in Bellacqua, *The Future of China-Russia Relations*.

¹⁶⁶ Overall, the contract price was slightly higher than the market one: the average discount on the price of Urals oil for Brent in the period from 2005–2007 came to \$3.80 per barrel. According to the industry estimates, however, Rosneft's supply to China could be less profitable than supply to Europe, due to transportation costs of the delivery. See Nina Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft," *Russie.NEI.Visions* 70, French Institute of International Relations (2013).

¹⁶⁷ Erica Downs, "China Development Bank's Oil Loans: Pursuing Policy—and Profit," *China Economic Quarterly* 15, no. 4 (2011).

to Rosneft and laid the foundation for Rosneft's successful initial public offering (IPO) in 2006.¹⁶⁸

The Layout for the Eastern Siberia Pacific Ocean (ESPO) Oil Pipeline

After the fallout from the "Yukos Affair" subsided, neglected pipeline projects seemed to regain strength with the rise of Rosneft. On the last day of 2004, Russia's Prime Minister Mikhail Fradkov signed a decree on the establishment of the ESPO pipeline. The decision to construct the ESPO pipeline was facilitated by Russia's decision-makers, who were the main actors driving the project forward.¹⁶⁹ The layout of the ESPO pipeline was politically motivated, given Russia's national agenda for an eastward shift in its oil and gas development. Russia's eastern energy policy has three objectives: 1) exploitation of the oil and gas fields in East Siberia, replacing declining fields in West Siberia; 2) diversification of Russia's oil and gas exports to East Asian markets (while avoiding dependency on one single buyer of oil, namely China); and 3) socioeconomic development in the Russian Far East and East Siberia in order to deal with a worsening demographic situation and increasing Chinese immigration to the regions.¹⁷⁰

¹⁶⁸ CNPC subscribed to \$500 million worth of Rosneft shares during the company's initial public offering. "Cnpc Invests \$500m in Rosneft's Ipo," *China Daily*, July 19, 2006; Jason Bush, "Rosneft Ipo: Less Than Meets the Eye," *Bloomberg Business*, July 13, 2006. See also Paik (2012), p. 348.

¹⁶⁹ Tabata and Liu, "Russia's Energy Policy in the Far East and East Siberia," in *Russia's Energy Policies: National, Interregional and Global Levels*, ed. Pami Aalto (Cheltenham, UK: Edward Elgar, 2012).

¹⁷⁰ It became clear by the end of the 1990s that Far Eastern and East Siberian regions were not able to develop their economies by themselves. From the end of 1991 to the end of 1999, while Russia's population as a whole decreased by 0.9 percent (1.38 million), the population from the Far East shrank 14.3 percent (1.15 million); the population of the island of Sakhalin decreased by 20.4 percent (0.15 million). For more details, see Tabata and Liu, "Russia's Energy Policy in the Far East and East Siberia," in *Russia's Energy Policies: National, Interregional and Global Levels*, ed. Pami Aalto (Cheltenham, UK: Edward Elgar, 2012).

In Russia, where oil and gas fields are located in landlocked areas far from energy-consuming regions, oil and gas needs to be transported through long-distance pipelines. With the ESPO pipeline, the Russian decision-makers desired to break a vicious cycle: oil fields were not being developed in Eastern Siberia because there was no pipeline to export oil, but no pipeline was being built because there was no crude immediately available to fill it.¹⁷¹ Until the idea of the ESPO pipeline was introduced, all Russian oil trunk pipelines delivered oil westwards, including those reaching the former East European and Baltic countries and those connecting to export terminals at the Black or Baltic Sea. The decision to construct the ESPO pipeline was made in order to both facilitate the discovery of new oil fields in East Siberia that would replace the stagnant Western Siberian fields, and to export oil eastward from East Siberian oil fields.

The first phase of the ESPO oil pipeline from Taishet in Irkutsk Oblast to Skovorodino in Amur Oblast was started in April 2006 and completed in October 2009. While Rosneft played a key role in catalyzing the ESPO project, the question of whether to build a spur to China was left unresolved for a long time. Transneft and CNPC signed a protocol concerning the construction of the oil pipeline from Skovorodino to the Chinese border in 2006, and the project was planned to begin in 2007 and be completed in 2008, simultaneous with the launch of the first stage of the ESPO. The negotiations stalled, however, mostly due to a disagreement over the price of Russian crude. An objection against the ESPO from Vladimir Yakunin, the head of the Russian Railways, was another

¹⁷¹ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

factor delaying the process; without a pipeline, oil supplies to China would have to be delivered by the Russian railway monopoly.¹⁷²

Map 1. Eastern Siberia Pacific Ocean (ESPO) Oil Pipeline



Source: Center for Easter Studies <http://www.osw.waw.pl/en/publikacje/analyses/2013-01-09/completion-espo-oil-pipeline-connects-siberia-to-pacific-ocean>

Russia's Invasion of Georgia

Progress on the ESPO project began to take shape only in October 2008, when CNPC and Transneft (the Russian state pipeline monopoly) signed the deal to build an oil pipeline with an annual capacity of 15 million tons from Skovorodino to Daqing as a branch of the main ESPO trunk pipeline. This deal came after talks between Chinese Prime Minister Wen Jiabao and his Russian counterpart, Vladimir Putin on October 28, 2008. It is worth noting that the deal with China was signed when Russian-Western relations were at one

¹⁷² Ibid. As of 2009, Russia exported 9 million tons of oil a year to China via railway. Zhang Xin, "Russian Pipeline to Reach China Soon," *China Daily*, April 8, 2009.

of their lowest points since the Cold War era due to Russia's invasion of Georgia in August 2008.¹⁷³ China has been valuable to Russia as a tool to pressure Europe to reconsider any attempts to reduce its dependence on Russian energy.¹⁷⁴

After the breakup of the former Soviet Union, the clash over influence in the former Soviet republics became a stumbling block between Russia and the United States. When Moscow had lost its empire, it did not relinquish its assertion of privileged interests in Georgia, Ukraine, and the other former Soviet republics. The United States, meanwhile, viewed these lands in terms of promoting or defending democracy. For more than a decade, Moscow had supported secessionist provinces of Georgia, namely South Ossetia and Abkhazia, while Georgia had achieved the creation of passably democratic institutions and the implementation of an unwaveringly pro-U.S. foreign policy since the Rose Revolution of 2003.¹⁷⁵ The military intervention that Russia launched in August 2008 was a firm rejoinder to the pro-Western Georgian leadership and a chance to stand

¹⁷³ In a similar fashion, Putin visited China in March 2006 when relations between Gazprom and its consumers in the EU were complicated following the first gas conflict with Belarus and signed a memorandum on the construction of a branch of the ESPO to China as well as gas pipelines. Frightened by this political gesture of Russia's non-binding agreement with China, EU nations renewed the long-term natural gas contracts, as had been Moscow's aim.¹⁷³ See Pousenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

Russia traditionally charged Belarus below market prices for gas given Moscow's desire to keep an ally on its Western flank. However, Gazprom moved to ensure the reliability of gas transits to Europe by attempting to establish control over the Belarusian transit network. Belarus initially agreed to sell 50% of the network, but after disagreement over price it refused and Gazprom announced price increases

¹⁷⁴ Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in Bellacqua, *The Future of China-Russia Relations*.

¹⁷⁵ The Rose Revolution was a change of power in Georgia in November 2003, which took place after widespread protests over the disputed parliamentary elections. As a result, President Eduard Shevardnadze was forced to resign on November 23, 2003 (Source from Wikipedia, http://en.wikipedia.org/wiki/Rose_Revolution#cite_ref-2). Also see Cory Welt, "Georgia's Rose Revolution: From Regime Weakness to Regime Collapse," in Valerie Bunce, Michael McFaul, and Kathryn Stoner, eds., *Democracy and Authoritarianism in the Postcommunist World* (Cambridge: Cambridge University Press, 2010).

up to U.S. influence in Moscow's backyard.¹⁷⁶ Whereas many of the region's inhabitants as well as the Russian citizens viewed the war as a justified intervention rather than a brazen attempt to resurrect the empire, Russia's actions distanced the country from Western institutions. In particular, European countries initially joined the United States in promising sanctions against Russia.

In addition, Georgia's geographical proximity to the Black Sea, Caspian, and Central Asia regions has made this transit country an important player in terms of energy exports. Since the collapse of the former Soviet Union, the U.S. and the EU have considered Georgia as one of the main building blocks in the formation of alternative energy export routes that bypass the territory of Russia. Georgia soon emerged as a major transit country for Western pipeline plans, including the successful construction of the Baku-Tbilisi-Ceyhan (BTC) oil pipeline and the Baku-Tbilisi-Erzurum (BTE) gas pipeline (also known as South Caucasus Pipeline (SCP)).¹⁷⁷

Due to its geostrategic importance in terms of energy transit and political ideology, Georgia had become the site of the major open confrontation between Russia and the United States following the five days of the Russian-Georgian war in August 2008. Russia must have realized that it needed Chinese support against Washington,¹⁷⁸ which I argue motivated Russia to complete a memorandum with China stipulating the apportionment of credit by China for construction of the ESPO and the future deliveries

¹⁷⁶ Charles King, "The Five-Day War," *Foreign Affairs*, November/December (2008), <http://www.foreignaffairs.com/articles/64602/charles-king/the-five-day-war>.

¹⁷⁷ Shamil Yenikeeff, "The Georgia-Russia Standoff and the Future of Caspian and Central Asian Energy Supplies," *Oxford Institute for Energy Studies. Oxford Energy Comment* (2008).

¹⁷⁸ Stephen Blank, "Russo-Chinese Relations in Strategic Perspective," *the Asan Forum* (2014), Vol. 3 (6), <http://www.theasanforum.org/russo-chinese-relations-in-strategic-perspective/>.

of crude. However, the process of the oil deal and the ESPO pipeline began to drag once again. I also argue that Russia's procrastination at this time was related to the fact that Chinese officials refused to endorse Moscow's decision to recognize Abkhazia and South Ossetia as independent, and that the Shanghai Cooperation Organization (SCO) refused to give unequivocal support to Russia's violation of Georgian territorial integrity. In addition, the China-Kazakhstan oil pipeline that was going to be operational in 2009 and the Central Asia-China gas pipeline (Turkmenistan-Uzbekistan-Kazakhstan-China pipeline) that was under construction struck at Russian energy leverage in the region. While China and Russia remained suspicious about each other's activities in Central Asia, where their state-controlled firms compete for energy resources, Moscow must have realized that growing Chinese power could obstruct Russia's interests in the region.¹⁷⁹

The Global Financial Crisis and the Second Loans for Oil

Disagreements over the price of Russian crude and the interest rate for Chinese loans to Russian companies were worked out in February 2009, when the Russia's Vice-Premier Igor Sechin visited China. The breakthrough was apparently reached mainly thanks to the Global Financial Crisis and corresponding growing need of Rosneft and Transneft for cash.¹⁸⁰ Russia and China signed a series of deals on oil pipelines and long-term crude oil trade, collectively known as "loans-for-oil." The China Development Bank (CDB)¹⁸¹, a government-controlled lender, agreed to provide \$25 billion in loans: \$15 billion to Rosneft (Russia's biggest oil producer and a state-owned company) for a

¹⁷⁹ Ibid.

¹⁸⁰ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

¹⁸¹ The China Development Bank (CDB) has been the major source of financing for China's resource push.

twenty-year contract on the delivery of oil between CNPC and Rosneft, and \$10 billion to Transneft (Russia's state-owned pipeline operator) for the construction and operation of a Skovorodino-Mokhe pipeline. In exchange for the Chinese loans, Russia initially pledged to export 15 million tons of oil annually (300,000 barrels a day, or nearly 10 percent of China's existing volume of oil imports) for twenty years starting in 2011.¹⁸² While the details of the agreement including the interest rate and the oil price were not disclosed, the Russian side acknowledged the interest rate was lower than the world market price.¹⁸³

The pipeline spur to China that the two countries had discussed for more than fifteen years was finally put into operation in January 2011. The reason why the two countries were not able to finalize the deal for a long time was partially because demand for Russia's oil was ample and its companies enjoyed easy access to credit¹⁸⁴ and partially because China insisted on being in charge of the full value chain¹⁸⁵ – maximizing equity

¹⁸² Rosneft and Transneft concluded a bilateral agreement, according to which Transneft would buy six million tons per year from Rosneft for resale to China and a remaining nine million tons per year would be delivered by Rosneft directly. See Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft." David Winning and Shai Oster, "China, Russia Strike \$25 Billion Oil Pact: In Third Deal in a Week, Beijing Moves to Lock up Natural Resources at Bargain Prices to Fuel Its Growth," *The Wall Street Journal*, February 18, 2009, <http://www.wsj.com/articles/SB123488153527399773>.

¹⁸³ Peter O'Brien, vice-president of Rosneft at that time, announced, "The sum of credit is \$15 billion over a term of 20 years – at the same time a grace period is stipulated to take place, during the course of which only interest will be paid. I would call the price of credit obtained by the company unprecedentedly low." Tatiana Mitrova, "Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges," 2014 North Pacific Energy Dialogue in the Shale-Gas Era Conference Paper, *East-West Center*, 2014.

According to Sergey Sanakoyev, an inter-governmental commission expert, Chinese banks normally finance large projects under LIBOR (the London Interbank Offered Rate) plus 3 to 5 percentage points. The level in March 2009 was LIBOR + 4.24 - 6.24 percent. The China Development Bank agreed on a fixed interest rate of 5.5 – 6.0 percent (average rate of 5.69 percent), which even Igor Sechin acknowledged was low, observing that "We do not have such rates right now." See Paik (2012). Original source from Inna Gaiduk, "Russia and China Reach Oil Export," *Russian Petroleum Investor (RPI)*, March 2009, pp. 41-46. Also see Julie Jiang and Jonathan Sinton, "Overseas Investments by Chinese National Oil Companies," *International Energy Agency*, February 2011.

¹⁸⁴ Oster, "China, Russia Strike \$25 Billion Oil Pact: In Third Deal in a Week, Beijing Moves to Lock up Natural Resources at Bargain Prices to Fuel Its Growth."

¹⁸⁵ Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*.

participation and constructing the related crude pipeline infrastructure linked to pipeline networks in China – until it had to compromise to sign a deal with Russia. However, any explanation of what actually drove the breakthrough for the deal cannot overlook the changes in the external economic and geopolitical environment surrounding Russia during the Global Financial Crisis.

The period of 2008–2009 can be considered a watershed in terms of Russian geopolitical strategy. Russia has pursued partnership with China to leverage greater global standing vis-à-vis the United States. For years, Russia subordinated its standing in Asia in its quest for a global role equal to that of the U.S., leveraging its presence and influence in Europe, Central Asia, and Middle East to compel U.S. acknowledgement of its status and demands. However, Russia was not able to enforce its stance in the areas of its vital interest, including Syria, without Chinese support. On Syria, Beijing enjoyed watching Moscow distract Washington with minimal Chinese participation in an area of relative strategic unimportance to China. By 2008-2009, Moscow must have realized that growing Chinese power could be an impediment to Russia’s geopolitical strategy.¹⁸⁶ Following Russia’s invasion of Georgia in August 2008, the Central Asian states followed China’s lead in refusing to recognize the Russia-backed separatist states of Abkhazia and South Ossetia. This weakening of Russia’s traditional influence was changing the fundamental dynamics of the region, encouraging Central Asian leaders to become less deferential to the Kremlin.¹⁸⁷ China’s ability to thwart Russia over Central Asia has increased —not only in foreign diplomacy, but also in the sphere of energy trade.

¹⁸⁶ Stephen Blank, “Russo-Chinese Relations in Strategic Perspective,” *The Asan Forum* (2014), Vol. 3 (6), <http://www.theasanforum.org/russo-chinese-relations-in-strategic-perspective/>.

¹⁸⁷ Jeffrey Mankoff and Leland R. Miller, "China-Russia Competition Opens a Door for America," (2010), <http://www.forbes.com/2010/04/22/china-russia-politics-tension-markets-economy-oil-gas.html>.

These developments drove Russia to play China and Japan against each other and delay the decision of the ESPO pipeline and its spur line project.

As the financial crisis hit the Russian economy severely¹⁸⁸, however, Moscow was finally pushed to sign a deal with China and rely on Chinese funding to repay Russian debts and refinance loans in the short term. According to an industry insider, Rosneft had to pay a debt of \$13 billion back by the 2009 summer.¹⁸⁹ Russia's crude oil production fell in 2008 for the first time in ten years, and the credit crisis and the decline in global demand turned the oil industry into a buyer's market.¹⁹⁰ Given such circumstances, Russia wanted to secure customers and find a counterbalance to its dependence on Western Europe. With all these factors combined, Russia had to end its strategic delay on the ESPO pipeline and seek out China for immediate financial help.

Geopolitical Change and Sino-Russian Oil Cooperation

In order to understand the Sino-Russian oil matrix, I examined both political and economic factors at both the domestic and international level. In this research, I paid particular attention to geopolitical and external crisis factors—Russia's invasion of Georgia and the Global Financial Crisis – that facilitated the strategic oil partnership between the two countries. Given that the decisions to formalize binding energy agreements between the two countries were made at critical historical points, I borrow the concept of crisis in order to explain the key drivers of oil deals that go beyond market

¹⁸⁸ The Russian GDP contracted by 8 percent while the stock market lost about 60 percent of its value.

¹⁸⁹ Morena Skalamera, "Booming Synergies in Sino-Russian Natural Gas Partnership," Paper, Belfer Center for Science and International Affairs, Harvard Kennedy School, May 2014.

¹⁹⁰ Oster, "China, Russia Strike \$25 Billion Oil Pact: In Third Deal in a Week, Beijing Moves to Lock up Natural Resources at Bargain Prices to Fuel Its Growth."

reasons. Chapter 2 provides detailed explanations of how I apply the model of crisis to my own theory.

The notion of crisis is very applicable to Russia's strategic turn toward China and China's decision to offer loan for a major oil deal at critical and historical turning points. The Global Financial Crisis, combined with Russia's invasion of Georgia, had suddenly changed the pre-existing bargaining context for Sino-Russian oil sector relations and thereby opened opportunities for change. In the pre-existing setting for negotiations that had been delayed over a decade, Russia had never seemed willing to agree on the pricing formula or to allow China's equity investment in the Russian upstream market. However, the crisis situations facilitated a breakthrough in bilateral oil sector relations. First, the fact that CNPC and Transneft signed a non-binding agreement for the construction of a spur pipeline (from Skovorodino to Daqing) when Russian-Western relations were at one of their lowest points does not seem so different from the Russia's tactic of using China as a tool to pressure Europe to reconsider reducing its dependence on Russian energy. However, shortly after being hit by the Global Financial Crisis and the subsequent fall in world oil prices, Russia was forced to end its strategic delay and take a major step forward with China by signing a deal for immediate financial help.

Decision-makers in Moscow who had delayed making a final decision on the ESPO pipeline and its spur to China in order to maximize concessions from China were forced into sudden and high-stakes decisions during the crisis situations. They were pressured to devise a solution within a sharply limited period in order to secure a massive loan from China. China also decided to compromise with Russia by lending cash-strapped Russian energy companies \$25 billion (in exchange for the completion of an oil pipeline to China

and a twenty-year oil supply contract) without equity oil participation in the Russian upstream market. Starting with its first loan offer of \$6 billion in 2005, Beijing planners had learned that it had to compromise with the Russian approach to doing business, which only allows foreign investors to take minority stakes even while it seeks major investment capital in the Russian upstream market. Within a limited timeframe at the critical juncture discussed here, Beijing authorities decided to give up their maximizing equity participation, which they had enjoyed in Central Asia, and to play by the Russian rules of the game in order to meet China's desperate need for oil supply in the northeastern provinces. Compromises had become possible in both countries as the pressure on decision-makers to negotiate a workable framework was intensified during the crisis.

The Gains and Losses for Russia and China

While both the Chinese and Russian media regarded the loan-for-oil deal of 2009 as a win-win arrangement, it is necessary to examine both gains and losses that each country have experienced since the deal through an analysis of Chinese and Russian oil policies.

On the China side, its desperate need for oil for its northeastern provinces forced it to commit to major investments and financing without being permitted to take any equity positions in Russia's upstream projects.¹⁹¹ The crude supply from Eastern Siberia to

¹⁹¹ According to the data from the Ministry of Land and Resources, China's remaining recoverable reserves of oil were 212 thousand/100 million tons in 2007 and the reserve production ratio was 11.3. At that time, China's raw oil output was projected to reach 177198 million tons in 2010 and 182-200 million tons in 2015, which shows a slow growth in demand. In 2020, China's raw oil output is predicted to reach a peak of 181-201 million tons, after which it will begin to decline. In contrast, China's oil demand has increased rapidly with its rapid economic growth (until the country's recent downturn and slower economic growth). For instance, China's oil demand increased from 227 million tons in 2001 to 388 million tons in 2009. Therefore, the widening gap between supply and demand of oil was a big concern for China at that time. Xia Yishan, "China's Energy Strategy and China-Russia Energy Cooperation," Asia-Pacific Economic

China's three northeastern provinces of Heilongjiang, Jilin, and Liaoning (especially Heilongjiang, due to the decline of the Daqing field¹⁹²) was one of China's highest priorities. Crude supply from Central Asia (with equity participation in various projects) was another Chinese priority. While Beijing pursued oil and gas supply from both Russia and Central Asian republics simultaneously, Beijing learned that its "Central Asian Model"¹⁹³ of maximizing equity oil participation did not work in Russia. Instead, Beijing authorities realized the importance of financing in Russian oil deals: the loans-for-oil approach of the "Russian Model" that finances the target supply source to make sure of long-term supply security.¹⁹⁴ The first loan-for-oil deal of \$6 billion in 2005 provided the logical basis for China to offer the second loan-for-oil deal of \$25 billion in 2009, which is regarded as a breakthrough for Sino-Russian oil cooperation. From the first loan-for-oil deal, China had learned that in order to conclude the deal, it had to compromise with the Russian approach to business that does not allow foreigners to have significant equity stakes but seek for major external investment capital in the upstream and infrastructure. In compromising with Russia, however, China was able to promptly take advantage of the crisis situation, as Chinese financial institutions were relatively insulated from the

Cooperation (APEC) Joint Symposium ("Energy Links Between Russia and East Asia: Development Strategies for the XXI Century"), August 30 – September 3, 2010 (Irkutsk, Russia).

¹⁹² The local government of Heilongjiang said that the Daqing oil field, which supplies about a quarter of China's domestic production as China's largest inland oilfield, would cut output by 11.5 million tons in 2015. Limited oil reserves, high-cost oil development, and declining international oil prices have caused the aging and fast-depleting Daqing oil field to reduce output. Xiang Bo, "China's Largest Oilfield to Reduce Output," *Xinhua Net*, December 28, 2014. Mark Magnier and Brian Spegele, "Forecasting China's Oil Buying Grows Harder: Purchases for Stockpiles Appear to Skew Figures," *Wall Street Journal*, February 25, 2015.

Also see footnote #26 for the data explaining the decline of the Daqing oil field.

¹⁹³ Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*.

¹⁹⁴ Ibid.

Global Financial Crisis's problem of toxic assets that had crippled many other global banks and debt-laden energy companies, giving China the resources to fund big deals.¹⁹⁵

From a broader Chinese perspective, a stable oil supply of about 300,000 barrels a day from the Russian Far East, or nearly 10 percent of China's volume of oil imports (as of today), ensures the success of its diversification strategy. China imports about 60 percent of the oil it uses,¹⁹⁶ much of it through strategically vulnerable shipping lanes such as the Strait of Malacca and the South China Sea. This has been driving China's efforts to diversity supply lines with new overland pipeline routes that are less vulnerable to supply disruption and ensure more stable supplies.¹⁹⁷ Xia Yishan, an energy expert at the China Institute of International Studies, said the pipeline would make Russian oil a "more straightforward, consistent, and long-lasting" alternative to Middle East and African sources, which make up 80 percent of China's oil imports. Xia added, "Oil imports from Russia will diversify China's energy sources, which guarantees its strategic need for the crude."¹⁹⁸ In this sense, China has been eager to expand its access to Russian oil through pipeline supplies as part of its strategy to lessen its heavy dependence on Middle Eastern oil imported by sea. China had already refurbished some of the refineries in the

¹⁹⁵ China was also suffering from the global downturn, but its economy continued to grow – its gross domestic product expanded 9 percent in 2006, down from 13 percent in 2007, <http://www.wsj.com/articles/SB123488153527399773>.

¹⁹⁶ Wenran Jiang, "Energy Security, Geopolitics and the China-Russia Gas Deals," *China Brief Volume 9*, Issue 2 (2015).

See also Gabriel B. Collins, *China's Energy Strategy: The Impact on Beijing's Maritime Policies* (Naval Institute Press, 2008). According to Collins, China imported roughly 45 percent of its oil supply in 2008. However, he projected that China's rising motor vehicle ownership, its plan to double the size of its road network, and its domestic firms' huge fixed investment in steel, petrochemicals, and other energy-intensive basic industries could drive oil imports to as much as 60 percent of total oil demand by 2016.

¹⁹⁷ See footnote #32.

¹⁹⁸ Zhang Xin, "Russian Pipeline to Reach China Soon," *China Daily*, April 8, 2009.

northeastern provinces, including the Liaoyang and the Dalian refineries, which also pushed China to secure at least a minimum volume of crude oil from Russia.¹⁹⁹

From the Russian perspective, the oil deal enabled Russia to take a major step forward in its eastern policy as a counterbalance to its dependence on Europe and to boost investment and development in the Far East and Eastern Siberia. Moreover, Russia not only secured a massive loan for the major infrastructure development without allowing China's equity stakes in the Russian upstream market, but also gained more diversity in its oil exports to Asia. By all appearances, Russia seemed to have achieved most of what it wanted from the deal. However, there still remains a puzzling question of what real gains and losses there are for Russia in the deal. Such a puzzle can be solved by re-examining the implications of the Sino-Russian oil deal at two levels of analysis: 1) the internal dynamics in the Russian oil sector, involving the government, state-owned enterprises, and private-interest groups; and 2) the impact of the deal at the international level, especially in terms of bilateral Sino-Russian relations. And effect in Russo-U.S. relations?

On the first point regarding the Russian domestic sphere, Russian state-owned oil companies enjoyed an undeniable advantage over their private rivals in the Far East and East Siberia. On the second point regarding the international sphere, the Russian state lost its leverage over oil exports to China due to the delay stemming from internal competition between different power groups in the oil sector. Rosneft and Transneft

¹⁹⁹ PetroChina undertook to refurbish its northeastern oil pipeline grid and refineries in preparation for the import of Eastern Siberian oil in the early 2000s. PetroChina started an expansion of its Liaoyang refinery, its main center for processing Russian oil. The projected increase in oil imports from Russia led PetroChina to undertake a significant increase in oil storage capacity. CNPC had also begun expanding its Dalian refinery with a planned capacity of 20 million tons per year to be reached by 2005. For more details, see Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*.

received exclusive access to the pipeline for the delivery of oil to China for the project's first twenty years.²⁰⁰ Once Russia set a strategic goal of developing the Eastern vector of its energy policy and strengthening oil and gas cooperation with the Asia-Pacific countries²⁰¹, Rosneft certainly served as a main catalyst in petroleum relations, getting an influential lobbyist of Igor Sechin behind the project. Rosneft received credits for the project from Chinese banks against guaranteed supplies of oil, lobbied for the construction of a spur to China from the ESPO pipeline system, and subsequently increased its oil exports to the Asia-Pacific countries dramatically.

Oil exports to the Asia-Pacific began from Russia's Kozmino terminal once the first stage of the ESPO pipeline construction was completed in 2009 (along with the spur pipeline to China at the end of August 2010), amounting to 10.53 million tons in 2009 and 16.9 million tons in 2010. When the second stage of the pipeline was completed at the end of 2012, the American market received 35 percent of the oil through the Kozmino terminal, Japan received another 30 percent, China 25 to 28 percent, and the rest went to Singapore, Malaysia, and South Korea.²⁰² The volume of China's total imports from Russia has expanded significantly after imports of 15 million tons of oil by the spur pipeline to China (the Skovorodino-Daqing line) began in 2011. However, in the 2000s and the early 2010s, there was still no guarantee for China to receive a higher allocation of Russian oil

²⁰⁰ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft." For an original source, see "Article 13 of the Accord between the Government of the RF and the Government of the PRC on cooperation in the oil sphere", Intergovernmental agreement on oil cooperation between People's Republic of China and the Russian Federation (Beijing, 2009).

²⁰¹ "The Energy Strategy of Russia to 2030" was adopted at the end of 2009. See http://www.energystrategy.ru/projects/docs/ES-2030_%28Eng%29.pdf.

²⁰² Transneft head Nikolay Tokarev said that the proportions set to remain unchanged for a while. See <http://rt.com/business/transneft-espo-oil-asia-807/> and <http://www.stroytransgaz.ru/en/pressroom/news/2012/12/1630/>.

exports from Kozmino since other Northeast Asian consumers such as Japan and South Korea were also anxious to secure bigger volumes of Russian supply. In particular, China has not received the same level of Russian crude oil import increases that Japan and South Korea enjoyed during the 2000s. Japan's crude oil imports from Russia increased from 3.5 percent of Japan's total oil imports in 2007 to 7.1 percent in 2010.²⁰³ South Korea's imports of oil from Russia have increased since 2007 as well and, thanks to imports from Kozmino, Russia's share of the South Korean market increased from 4.2 percent in 2007 to 5.6 percent in 2010.²⁰⁴

Without a doubt, the ESPO pipeline deal provided the foundation for Rosneft to become a flagship enterprise of the Russian oil industry and turn itself into a leading international energy corporation among publicly owned oil companies. However, due to domestic political games involving the Russian oil sector, Russia began exporting its petroleum to the Chinese market a bit late.²⁰⁵ Once China started reconsidering its energy import strategy vis-à-vis Russia during the delay, Russia had missed the opportunity to consolidate its position in China. Russia supplied 8 percent of all petroleum imported to China in 2010, and 11 percent in 2014.²⁰⁶ However, the Middle East remains the largest source of China's crude oil imports and African countries, particularly Angola, began contributing more to China's imports in the past decade. In 2014, the Middle East

²⁰³ See Table 8.4 (Japan's imports of crude oil) from Tabata and Liu, "Russia's Energy Policy in the Far East and East Siberia," in *Russia's Energy Policies: National, Interregional and Global Levels*, ed. Pami Aalto (Cheltenham, UK: Edward Elgar, 2012).

²⁰⁴ See Table 8.5 (Korea's imports of crude oil) from *ibid.*

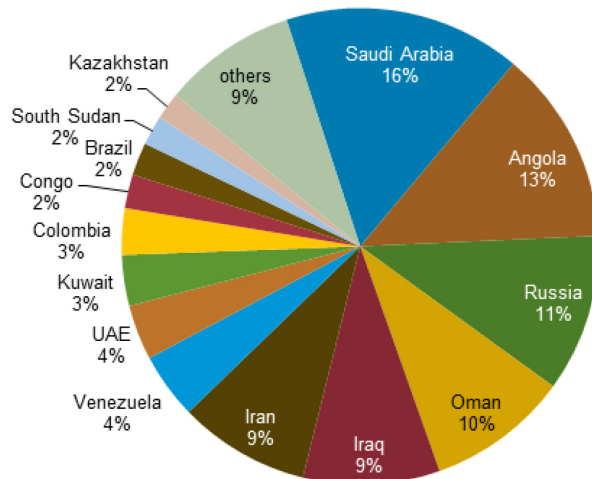
²⁰⁵ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

²⁰⁶ Among countries exporting oil to China, Russia occupied fifth place after Saudi Arabia, Angola, Iran, and Oman in 2010. EIA Country Analysis Brief, China (2014). In 2014, Russia occupied third place after Saudi Arabia and Angola. EIA Country Analysis Brief, China, 2015.

supplied 52 percent of China’s oil and Africa supplied 22 percent.²⁰⁷ Today, Chinese petroleum sources are well-diversified, and Russia is no longer a top priority in Chinese energy strategy.

Figure 4. China’s Crude Oil Imports by Source (2014)

China's crude oil imports by source, 2014



Sources: FACTS Global Energy, Global Trade Information Services, Inc.

Source: U.S. Energy Information Administration

Sino-Russian Oil Cooperation – Not Very Balanced

China and Russia’s \$25 billion deal on the ESPO oil pipeline system in 2009 and the long-term petroleum trade it ensured marked a historic turning point in Sino-Russian oil sector cooperation. It appeared to be a win-win deal for both Russia and China: Russia secured a massive loan in exchange for a sizeable supply of crude to China, while China secured a significant portion of its future crude supply from Russia. Structural analysis of

²⁰⁷ EIA County Analysis Brief, China, 2015.

the deal, including each country's subnational dynamics, however, reveals that oil sector relations between Russia and China do not appear very balanced. Notwithstanding the economic and security benefits offered by the geographical proximity between the two countries (a shorter distance can save on transportation costs; an overland pipeline reduces China's heavy reliance on oil imports through vulnerable sea-lanes), Russia seems less attractive to China relative to other petroleum exporting countries (who have greater competitiveness in oil prices), due to the aging resource base in the Russian oil industry, the lack of large-scale infrastructure in the country, and the high production costs in the Russian Far East (RFE). In the end, however, the urgency of Chinese oil supply situation made Beijing take a more proactive stance toward Sino-Russian oil sector cooperation.

In the short term, China did not secure the massive quantities of oil it wanted, while Russia seemed to have achieved most of what it desired, including major infrastructure development in East Siberia and more diversity in its oil exports to Asia. In the process, China contributed substantial investment to Russia, but without the benefit of major equity participation in the Russian upstream market. In the long term, however, the widening gap between rising China and declining Russia is likely to make the terms of bilateral energy cooperation more favorable to China. When it delayed the ESPO deal during the 2000s, Russia lost time to establish a petroleum dialogue with China in a more equalized and balanced manner. As it dealt with severe competition between different oil sector power groups after the breakup of the former Soviet Union, Russia was unable or unwilling to take into account the fact that China's choice of reliable suppliers was increasing significantly. During its international isolation following the invasion of

Georgia in 2008, Russia made the political gesture of concluding the ESPO deal, but it still was not ready to make any tangible progress. Not until Russia struggled with the Global Financial Crisis, and Rosneft and Transneft needed Chinese money urgently, was Russia ready to act on the deal. Russia soon learned, however, that the buyer (and creditor) in oil deals has more power than the seller (and debtor).²⁰⁸ Moscow has found itself more and more addicted to Chinese money as the Russian oil sector deteriorates and the resource base depletes.

The Third Loans for Oil – Comprehensive Partnership or Fragile Alignment?

It is worth examining how Russia and China have strived to strengthen their energy ties since recent leadership changes in each country. Xi Jinping visited Russia for his first overseas trip as president of China on March 22, 2013, signing a series of energy deals and calling Russia China's "friendly neighbor."²⁰⁹ Since the ESPO pipeline development with Chinese financing has shaped the fundamental characteristics of the Sino-Russian oil (more broadly energy) relationship, Xi seems to have learned how to use the money card effectively to expand the flow of energy from Russia. The past decades of negotiations over cross-border pipeline projects indicate that geographical proximity and economic complementariness are necessary, but not sufficient, for the development of a robust bilateral energy relationship.²¹⁰ The inflow of Chinese capital has undoubtedly served as a key driver in finalizing non-binding agreements between the two countries.

²⁰⁸ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

²⁰⁹ "Chinese President Xi Jinping in Russia for First Foreign Tour," *BBC News*, March 22, 2013.

²¹⁰ Erica Downs, "Money Talks: China-Russia Energy Relations after Xi Jinping's Visit to Moscow," *The Brookings Blogs*, April 1, 2013, <http://www.brookings.edu/blogs/up-front/posts/2013/04/01-china-russia-energy-relations-downs>.

One of the key features of the deals signed during the 2013 Xi-Putin summit is Russia's agreement to allocate maximum crude for China in return for Chinese capital – primarily in the form of loans from the China Development Bank (CDB). Rosneft pledged to triple its oil deliveries to China from 300,000 barrels per day (b/d) to as much as one million b/d, which is double the total amount of oil Russia exported to China in 2012 and equal to the amount of oil Saudi Arabia, China's top crude oil supplier, delivered to China last year.²¹¹ At the St. Petersburg International Economic Forum, on June 21, 2013, Rosneft inked a deal with CNPC to double oil supplies to China, which amounts to additional 15 million tons annually (300,000 barrels per day) for twenty-five years.²¹² Rosneft and CDB completed documents for a long-term \$2 billion loan under an accord signed March 2013 and Rosneft could get up to a \$70 billion prepayment from China under this \$270 billion supply deal (which calls for exporting a total of 365 million metric tons of crude to China over twenty-five years).²¹³ Rosneft also signed a second contract for oil supplies to China with Sinopec for 10 million tons of oil over ten years starting in 2014. Under the agreement, Sinopec will make an advance payment of between 25 and 30 percent of the total cost of the ten-year contract.²¹⁴

²¹¹ Ibid.

²¹² Courtney and Buckley Weaver, Neil, "Russia and China Agree \$270bn Oil Deal," *Financial Times*, June 21, 2013.

²¹³ The projected amount that Rosneft might have secured as prepayment from China as part of the 2013 deal varies depending sources. While industry sources projected Rosneft secured up to \$30 billion in upfront prepayment, Putin said prepayments could amount to \$70 billion. See Denis Pinchuk, "Rosneft to Double Oil Flows to China in \$270 Bln Deal," *Reuters*, June 21, 2013.

²¹⁴ Tatiana Mitrova, "Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges," 2014 North Pacific Energy Dialogue in the Shale-Gas Era Conference Paper, *East-West Center*, 2014.

Russia seems to be continuing the practice of raising Chinese money for Rosneft's corporate purposes.²¹⁵ According to Standard and Poor's, Rosneft is facing large debt maturities in 2013, 2014, and 2015 of \$6.6 billion, \$15.9 billion, and \$16.2 billion, respectively. Accordingly, prepayment from China would allow Rosneft to lighten the burden on its balance sheet by reducing debts to banks and to minimize financing risks.²¹⁶

Some speculate that the \$270 billion deal, one of the biggest ever in the history of the global oil industry, signals the growing energy ties between Russia and China and China's rising interest in gaining greater access to Russian oil.²¹⁷ For instance, the deal involves a joint venture between CNPC and Russia's Rosneft to develop Russia's East Siberian oil fields where Rosneft holds 51 percent and CNPC 49 percent. The deal gives China access to the Srednebotuobinsk field, which is one of the key assets held by Taas-Yuriakh Neftegazodobycha (Rosneft subsidiary) with an estimated 2.05 million barrels of oil and equivalents in Siberia.²¹⁸ Although development of the Srednebotuobinsk field

²¹⁵ The upfront payment would allow Rosneft, which acquired the British-Russian joint venture TNK-BP in a \$55 billion deal in 2013, to cut its debt. See Marina Koreneva, "Russia, China sign 'unprecedented' \$270 bn oil deal," *Fox News*, June 21, 2013, <http://www.foxnews.com/world/2013/06/21/russia-china-sign-unprecedented-270-bn-oil-deal/>; Mitrova, "Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges."

²¹⁶ Denis Pinchuk, "Rosneft to Double Oil Flows to China in \$270 Bln Deal," *Reuters*, June 21, 2013.

²¹⁷ Stephen Blank, "Russia's Energy Deals with East Asia: Who Wins?," *the Diplomat*, July 03, 2013, <http://thediplomat.com/2013/07/russias-energy-deals-with-east-asia-who-wins/>; Matthew Phillips, "Russia's Shrinking Leverage With China," *Bloomberg Business*, October 23, 2013, <http://www.bloomberg.com/bw/articles/2013-10-23/russias-shrinking-leverage-with-china>; Yuri Kogtev, "Latest oil deal making Russia dependent on China," *Russia Beyond the Headlines*, September 1, 2013, http://rbth.asia/world/2013/09/01/latest_oil_deal_making_russia_dependent_on_china_48667.html.

²¹⁸ Rosneft homepage, "Rosneft and CNPC Sign Memorandum to Expand Cooperation in Upstream Projects in East Siberia," October 18, 2013, <http://www.rosneft.com/news/pressrelease/18102013.html>.

On October 14, 2013, Rosneft consolidated 100% of Taas-Yuriakh Neftegazodobycha LLC into Rosneft subsidiary RN-Vostochnaya LLC. Taas-Yuriakh Neftegazodobycha holds production licenses for the Central and Kurungsk blocks of the Srednebotuobinsk oil and gas condensate field. The field is located 169

might serve as a foundation for the future joint venture between the two countries, it should be noted that the two countries have not reached a final agreement, but have only signed a memorandum for future upstream development. According to Sergey Sanakoyev, executive secretary of the Russian-Chinese Chamber for Facilitating Trade in Machinery and Innovative Products, talks seem to be taking longer than expected because Rosneft and CNPC are still haggling over the price and the size of the future Chinese stakes. Moreover, Chinese companies tend to be reluctant to become minority stakeholders in joint ventures.²¹⁹

China has been expanding participation in the Russian upstream market since 2005, but has not engaged in any major joint venture participation in significant upstream fields. In 2005, Rosneft offered Sinopec the opportunity to set up a joint venture for the purposes of geological survey of the Veninsky fields, where Sinopec holds 25.1 percent shares and Rosneft holds 74.9 percent.²²⁰ In 2006, Sinopec purchased a 97 percent stake in Udmurtneft, which was the subsidiary of TNK-BP, BP's main vehicle in Russia.²²¹ In that same year, Rosneft and CNPC signed an agreement about the creation of a joint venture Vostok Energy in which Rosneft holds a 51 percent stake and CNPC 49 percent. In 2007, Vostok Energy won licenses for two small deposits in Irkutsk Oblast, located near the ESPO. However, the joint venture has been mothballed after the licenses it

km away from the pipeline. "Rosneft and CNPC sign East Siberia pact," *Oil & Gas Journal*, October 18, 2013. <http://www.ogj.com/articles/2013/10/rosneft-cnpc-sign-east-siberia-pact.html>

²¹⁹ Galina Starinskaya, "Rosneft Offers Cnpc Stake in Yakutia Oil Producer," *Russia Beyond the Headlines*, September 11, 2013.

²²⁰ "Sinopec to Survey Sakhalin-3 for Own Account," *Kommersant*, October 13, 2005.

²²¹ TNK-BP was acquired by Rosneft in 2013. See Lewis, "Chinese NOCs and World Energy Markets: CNPC, Sinopec and CNOOC."

obtained proved to be uninspiring.²²² There has been a tendency where Russia invites Chinese participation only in less significant upstream projects, and more substantial joint ventures have been in limbo due to various reasons. Rosneft's proposal to grant CNPC a stake in the Vankor oil fields, Rosneft's third-largest onshore production subsidiary and one of largest oil fields in Russia, seems too premature to be considered as another landmark project in Chinese-Russian energy cooperation, as the proposal comes when the future of Western companies in Russia became uncertain with the outbreak of the Ukraine crisis.

The story is similar in the downstream. In 2007, Rosneft (49 percent stake) and CNPC (51 percent stake) created the joint venture Vostok Petrochemicals to construct a \$5 billion Chinese refinery in Tianjin with an annual capacity of 13 million tons and to sell petrochemicals on the Chinese market. Although it was initially planned to be commissioned by 2011, it took much longer because of disagreements over a number of issues, including the financing of the project and access to retail outlets in China. Ironically, talks have not focused on the missed deadlines regarding refinery construction, but on the way to market products from the refinery that has not been built. Rosneft has long insisted that it wants the joint venture to help it access China's domestic fuel market by creating a network of 300 retail outlets.²²³ Although CNPC and Rosneft signed the agreement in May 2014 by endorsing the crude refining portion of a feasibility study for the construction, they have not endorsed the petrochemical production package included

²²² Mikhail Krutikhin, "An Uphill Road for Rosneft, CNPC," *Natural Gas Europe*, August 31, 2013.

²²³ Krutikhin, "An Uphill Road for Rosneft, CNPC."

in the feasibility study.²²⁴ Although Chinese companies have been invited to join the Russian downstream project, they have not made serious practical steps toward accepting the proposals and are concerned about how Rosneft's large refinery and petrochemical facility on the Pacific Coast might compete with other commercial arrangements.²²⁵

In conclusion, the third massive loans for the long-term petroleum trade seem to make the terms of bilateral energy cooperation more favorable to China. With the development of the ESPO oil pipeline system, Russia seemed to have achieved most of what it desired in the short term, while China did not secure the massive quantities of oil that it wanted.

With the widening geopolitical-economic gap between rising China and declining Russia, however, Russia is becoming more dependent on Chinese capital, and China does not seem to be as desperate as it used to be in securing oil supplies from Russia. For instance, a second spur from Russia to China was supposed to be operational in 2015 to ship the extra 90,000 barrels of oil per day (4.5 million tons per year) in addition to the 300,000 barrels of oil per day that has been operational from the first spur from Skovorodino to Daqing. However, the Chinese did not finish construction on their side for this second spur to Daqing and have opted to obtain the 300,000 barrels of oil per day from Kozmino instead.²²⁶ China's decision to not meet the construction schedule for the second spur shows that the increase in the oil supply from Russia via pipelines is not China's top priority.

²²⁴ "Cnpc, Rosneft Advance Tianjin Refining Complex," *Oil and Gas Journal*, November 10, 2014.

²²⁵ Krutikhin, "An Uphill Road for Rosneft, CNPC."

²²⁶ Author's interview with Julia Nanay. Also from "Kozmino to Load Extra Oil for China," *Argus FSU Energy*, December 18, 2014.

CONCLUSION

Progress in Sino-Russian oil cooperation has been slow (although it was faster than the progress in Sino-Russian gas cooperation, which will be discussed in Chapter 5).

Moscow began to talk about constructing oil and gas pipelines to China in the late 1980s, shortly after the normalization of relations between the Soviet Union and China. The two countries signed binding agreements on the construction of the spur section of the ESPO oil pipeline and the long-term petroleum trade in 2009, when Russia-Western relations were at low point with Russia's invasion of Georgia and when Russia was struggling with the Global Financial Crisis. I argued that Sino-Russian oil deals were delayed due to lack of political will in the two countries, despite the clear economic incentives due to the countries' supply-demand complementarity. Although energy has become a central plank in China and Russia's bilateral economic relationship, energy is still a weak link to bind the two countries together due to the following impediments: lingering historic distrust, Russia's perception of China's demographic threat in the Russian Far East, strategic competition over shared neighboring regions such as Central Asia, and the widening power gap between a rising China and a declining Russia. Given such obstacles, China and Russia were not willing to compromise on fundamental disagreements over oil prices and China's equity participation in the Russian upstream sector until changes in the geopolitical environment drove both countries to approach their bilateral energy relations from a different angle.

The development of Sino-Russian oil pipeline came from different motivations and interests in each country. For Russia, cross-border pipelines are strategic projects to drive investment priorities, revitalize its economy, and achieve international political and

economic gains. In particular, Russia's oil pays the bills abroad while natural gas subsidizes its domestic economy because Russia's oil exports generate more than four times the revenue of its gas exports. The role of the oil industry in post-Soviet Russia is not only as a source of wealth for powerful individuals, but also as a source of state power, as President Putin has rebuilt central government power since his inauguration in 2000. In developing oil relations with China, Russia implemented "wait-and-see" tactics, as Moscow feared that with the widening gap between a rising China and a declining Russia, increasing dependence on China as an energy supplier would eventually constitute a threat to national security.

However, Russia decided to make concessions to China to preserve its geopolitical leverage with major powers such as the United States and the European Union at critical historical points. The Global Financial Crisis and collapse in oil prices, together with Russia's invasion of Georgia in 2008, compelled Russia to rely on Chinese capital in developing its energy sector. Without a doubt, the inflow of Chinese capital (e.g., "loans for oil" to Russian companies from the Chinese Development Bank) has served as a key driver to the finalization of cross-border agreements between the two countries.

On China's end, there were strong incentives to combine market and strategic considerations to diversify its oil import portfolio with Russian oil. Once China became a net importer of oil in 1993, its search for foreign sources of crude and a diversification strategy regarding energy imports have become top priorities in China's national strategy. With China's rapid increase in oil demand and high global oil prices, China was eager to import oil from various regions of the world and diversify its oil importation routes and methods. Transporting oil overland from Russia via pipeline represented a potential

improvement over transporting oil from politically instable sea lanes off of Southeast Asia, through which more than 85 percent of China's crude oil imports flow.

In addition, crude supply from Eastern Siberia to China's three northeastern provinces of Heilongjiang, Jilin, and Liaoning was one of China's highest priorities, mainly due to the projected decline of production from the Daqing oil field, the largest oilfield in China. In its negotiations with Moscow, Beijing learned the importance of financing in Russian oil deals – namely the “loans-for-oil” approach that finances the target supply source to ensure long-term supply security – instead of its “Central Asian Model” of maximizing equity oil participation. The first loan-for-oil deal of \$6 billion (which financed Rosneft's \$9.4 billion purchase of Yuganskneftegaz) in 2005 provided the logical basis for China to offer the second loan-for-oil deal of \$25 billion in 2009 for the construction of the ESPO oil pipeline and the twenty-year contract of oil delivery between Rosneft and CNPC. The third loan-for-oil deal of \$270 billion in 2013 to allocate maximum crude for China over twenty-five years seems to make the terms of bilateral oil cooperation more favorable to China.

CHAPTER FIVE
SINO-RUSSIAN ENERGY RELATIONS AND
CROSS-BORDER GAS PIPELINE DEVELOPMENT

INTRODUCTION

This chapter discusses Sino-Russian gas relations, with special attention to the development of the Power of Siberia (POS) and Altai pipelines. With a brief historical overview of the Sino-Russian gas trade, this chapter explores the key political-economic drivers for the gas deal on the domestic and international levels. The international drivers include the impact of the Ukraine crisis and resulting Western sanctions, as well as the impact of falling global oil prices. In Russia, domestic factors include the country's "eastward strategy" and competition between Rosneft and Gazprom. In China, relevant factors include the changing role of national oil companies (NOCs) with the country's aggressive anti-corruption campaign, increasing concerns about air pollution, and diversification strategy regarding energy imports.

Sino-Russian natural gas pipelines are a case where the deals are delayed for decades due to lack of political will among the parties despite clear supply-demand complementarity, such as in the case of Sino-Russian oil pipeline development. The chapter explains why Sino-Russian bilateral deals for direct-link pipelines face or have faced many more obstacles than multi-state export pipelines, even though Sino-Russian deals involve fewer actors. While existing studies focus on gas prices and China's equity participation in the Russian upstream sector to explain fundamental obstacles to deal finalization, the chapter examines three underlying, interactive political and economic factors that are underexplored in the political science literature and that are overarching themes of my dissertation: (1) mutual distrust or lack of political alignment between Russia and China; (2) pipeline ownership structures where only state-owned enterprises from China and Russia are allowed to participate in financing, construction, and operation of Sino-

Russian pipelines; and (3) geopolitical changes due to crisis situations. I argue that the mechanism of these underlying political and economic factors shapes Sino-Russian energy relations and affects the likelihood and speed of successful pipeline gas deals.

In addition to demonstrating the fundamental similarities between Sino-Russian oil and gas relations in terms of the three factors described above, the chapter also explains how the strategic framework of calculations regarding oil pipeline development is different from natural gas pipeline development and why gas deals took longer to materialize than oil deals. The chapter also examines differences between oil and gas as commodities, as well as different domestic factors in each country, to explain the differences between Sino-Russian oil pipeline development and gas pipeline development. Domestic factors include Russia's state-run gas monopoly Gazprom's rigid stance toward China, Russia's eastward strategy, and the competition between Gazprom and Russia's state-run oil company Rosneft. In China, relevant factors include the changing role of national oil companies (NOCs) with the country's aggressive anti-corruption campaign and subsequent energy sector restructuring, increasing concerns about air pollution, and the development of a diversification strategy regarding energy imports. The Sino-Russian case of gas pipelines offers more nuanced and sophisticated explanations than the statistical analysis as to why natural gas pipeline development is more susceptible to geopolitical factors than oil pipeline development and therefore takes longer to finalize.

The SINO-RUSSIAN GAS MATRIX AND THE POWER OF SIBERIA (POS) GAS PIPELINE

During President Vladimir Putin's visit to China for the Conference on Interaction and Confidence-Building Measures in Asia (CICA) in May 2014, Gazprom and the China

National Petroleum Corporation (CNPC) signed a thirty-year “take-or-pay”²²⁷ contract to deliver Russian gas through the “Power of Siberia (POS)” pipeline to northeast China. The contract stipulates gas supplies of 38 billion cubic meters (bcm) per year, starting in 2019 according to Gazprom. The 4,000-kilometer POS pipeline will pump gas from the Kovykta and Chayanda fields in Eastern Siberia through Khabarovsk to China and to Vladivostok, Russia. The initial segment of the POS will extend from Yakutia to Blagoveshchensk, from where a pipeline spur enters China, serving the Beijing-Tianjin-Hebei metropolitan area in the north of China and the Yangtze River Delta in the east.²²⁸ The pipeline’s second segment will extend from Blagoveshchensk to Vladivostok, although the exact timing remains unclear. The total cost of the pipeline is estimated at \$55 billion²²⁹, out of which \$25 billion was expected to come from an advance payment from CNPC, but this approach failed.²³⁰ Gazprom thereby plans to attract loans from the Chinese banks, but no concrete agreements have so far been reached.²³¹

²²⁷ “Take-or-pay” clauses require the buyer to take an annual minimum volume of gas, or to pay for that volume whether or not it is taken. For more details, see James Henderson and Simon Pirani Henderson, ed. *The Russian Gas Matrix: How Markets Are Driving Change* (New York: Oxford University Press, 2014); Jonathan P. Stern and Howard V. Rogers, “The Transition to Hub-Based Gas Pricing in Continental Europe,” *Oxford Institute of Energy Studies* (2011).

²²⁸ The pipeline system consists of two parts – the Yakutia-Khabarovsk-Vladivostok gas trunk pipeline and the Irkutsk-Yakutia pipeline. The Yakutia-Khabarovsk-Vladivostok (about 3,200 kilometers) gas pipeline will supply gas directly to China and run in parallel with the already operational Eastern Siberia Pacific Ocean (ESPO) oil trunk pipeline. The first stage of this line will be constructed by 2018. See Tatiana Mitrova, “Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges,” 2014 North Pacific Energy Dialogue in the Shale-Gas Era Conference Paper, *East-West Center* (2014).

²²⁹ Aditya Suresh et al, “China’s Gas Choices: Dawn of the Russian-China Axis?”, *Macquarie Research*, June 4, 2014, p. 1-36.

²³⁰ Pang Changwei—a researcher at Energy Strategic Institute, China University of Petroleum—says “There is no tradition of advance payment in international market, as [the] natural gas market is changeable. China could take stakes, but not accept advance payment.” For quotation, see Guo Yan, “Natural Gas Prices Negotiations into Deadlock Between China and Russia,” *China’s Foreign Trade (中国对外贸易(英文版))*, Issue 21, 2011: 12-13.

²³¹ Keun-Wook Paik, “Sino-Russian Gas and Oil Cooperation: Entering a New Era of Strategic Partnership?”, *Oxford Institute for Energy Studies* (2015). One of the most effective ways to lower the

While the precise terms of the gas deal have not been disclosed²³², the timing and general outlines that are known have broader energy market and geopolitical implications. First, the deal will not only make CNPC Gazprom's single largest customer, but it also opens the door for the large-scale entry of Russian gas to the Asian market, including Japan and South Korea. Moreover, the fact that the deal moved forward in 2014 after more than a decade of delay demonstrates how the crisis in Ukraine changed geopolitical underpinnings, triggered the historic mega deal, and provided the ideological justification for Russia to move faster toward China and Asia. While some argue that powerful drivers to make the deal happen were already in place long before the Ukraine crisis,²³³ this chapter emphasizes the impact of the U.S. and European financial sanctions on Russia's changing geopolitical and export strategies. It also analyzes how political and economic motivations interact to influence cooperative trans-border arrangements.²³⁴ By examining

border price of petroleum and gas trade is the use of upfront or advanced payment, or upstream equity acquisition. After Gazprom and CNPC reached a final agreement on price, they reviewed the upfront payment option as a financial instrument to further reduce the border price, but this proposal is no longer considered by both companies.

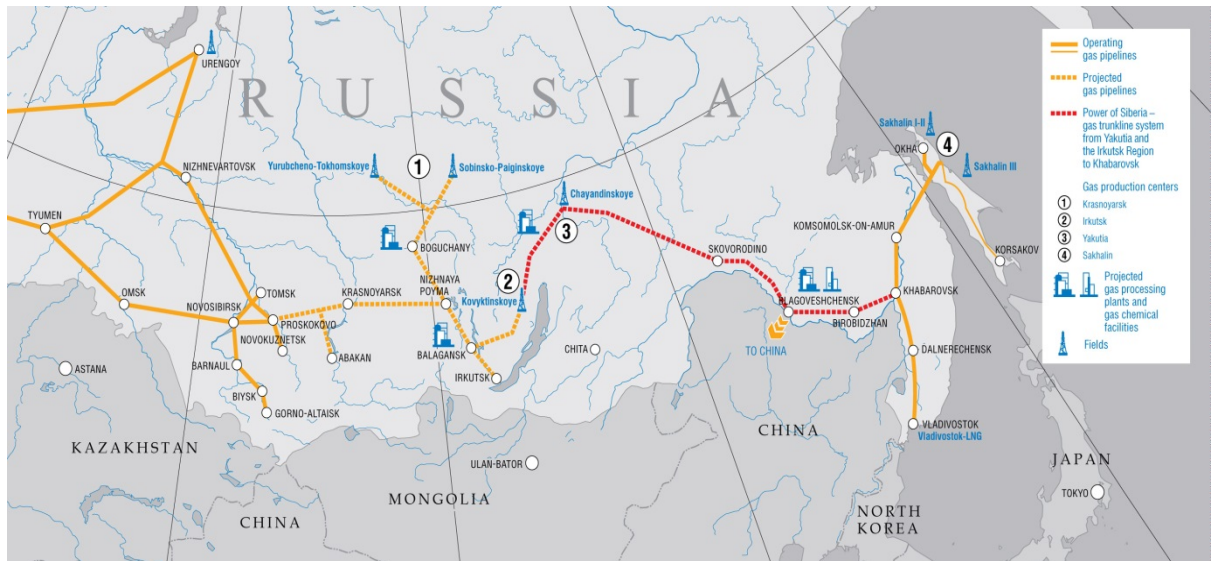
²³² The contract is linked to oil prices and has "take-or-pay" clause. Although the contract price was not officially disclosed, the average price is estimated at \$350-\$380 per 1,000 cubic meters. The base price for CNPC is about \$360. According to Russian officials, Gazprom's China gas price will be close to what Germany pays for Gazprom's gas — an average of \$366 in 2013. This was one of the lowest prices in Europe, given that Gazprom's average export price to Europe in 2013 was \$380. Elena Mazneva and Aibing Guo, "Gazprom's China Gas Price Said to Be near German Level," Bloomberg Business, July 2, 2014. For more detailed explanations on the estimation of the border price, see Interfax, Russia & CIS Oil and Gas Weekly, 22-28 May 2014, p. 4-10.

²³³ Tatiana Mitrova, "Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges," 2014 North Pacific Energy Dialogue in the Shale-Gas Era Conference Paper, East-West Center, 2014; Morena Skalamera, "The Sino-Russian Gas Partnership: Explaining the 2014 Breakthrough." Belfer Center Geopolitics of Energy Project Paper, Harvard Kennedy School, November, 2014.

²³⁴ Since the mega gas deal was finalized to construct the POS gas pipeline, China and Russia's political and economic motivations have changed due to the decline in oil prices, the collapse of the Russian ruble, and China's economic slowdown. These developments, in addition to the prolonged Western sanctions on Russia with its annexation of Crimea, make the POS project unprofitable for Gazprom. Meanwhile, the growth in China's demand for natural gas is slowing due to the country's economic slowdown. Moreover, China's access to liquefied natural gas (LNG) is becoming more available in the country due to the fall in oil prices. China is also reviewing its energy needs differently with the prospect of shale gas imports from

both domestic and international factors, I aim to explain the logic behind this secret-mega deal for China and Russia.

Map 2. Power of Siberia Gas Pipeline



(Source: Gazprom)

This chapter is organized as follows. First, it tracks the history of Sino-Russian relations in the natural gas sector and analyzes the main obstacles that have stalled bilateral cooperation until recently. It then explores the key political-economic drivers for the breakthrough in Sino-Russian gas sector cooperation – namely, the delivery of Russian gas to China through the Power of Siberia pipeline – at both the international and domestic levels. International drivers include the impact of the Ukraine crisis and the resulting Western economic sanctions, and falling global oil prices. Domestic factors in each country are as follows: Russia’s eastward strategy and the competition between Rosneft and Gazprom; in China, the changing role of national oil companies (NOCs) with

the United States. For further details about what has happened since the POS and Altai gas deals, see p. 32-34.

the national anti-corruption campaign and the air pollution issue in Chinese domestic politics. The impact of geopolitical and external economic factors, as well as the interplay between domestic political and economic motivations, will be examined in depth.

SINO-RUSSIAN GAS RELATIONS

Historical Overview

Despite numerous meetings and negotiations, no visible cooperation was made in the natural gas sector between China and Russia during the 2000s. The key difference between the oil and the gas sectors in terms of progress lies in the contrast between Rosneft's proactive approach and Gazprom's rigid stance toward China. Gazprom's monopoly status and its European-oriented business strategy caused it to delay in reaching a gas price compromise with China, which motivated China to prioritize its gas supply option from Central Asia, especially from Turkmenistan. While Gazprom insisted that China pay European prices for gas, it refused to offset China's financial burden of a high import price through an equity gas stake for CNPC. Given that CNPC has no authority to make any compromise on price negotiations and that the ultimate decision on the final price must come from the Price Department in China's National Development and Reform Commission (NDRC),²³⁵ numerous negotiations have stalemated without any tangible progress.

In 2007, Russia approved the Eastern Gas Program (Map 3), its "state-run development program for an integrated gas production, transportation and supply system in Eastern Siberia and the Far East, taking into account potential gas exports to China and other

²³⁵ Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*.

Asia-Pacific countries.” Yet Gazprom, appointed by the Russian government as the coordinator of this program, has not been successful in making any single possible pipeline scenario into a reality.²³⁶ Although a memorandum was signed between Gazprom and CNPC on natural gas supplies and the construction of two gas pipelines in 2006, no major steps were taken by Russia until Putin returned to the Kremlin in May 2012 for a six-year presidential term.²³⁷ Putin urged Gazprom to reconsider Russia’s gas export policy to take advantage of rising Asian demand and to develop capacity to produce liquefied natural gas (LNG) for the Asian market.²³⁸ “The priorit[y] should be diversification of markets to account for the prospective Asian segment and means of delivery,” said Putin.²³⁹ Putin’s order to end the delay in launching Russia’ Eastern Gas Program, despite ongoing concerns about its high costs, pressed Gazprom to move forward and develop the giant Kovykta gas field in Irkutsk Oblast and the Chayandinskoye (Chayanda) gas and condensate fields in Yakutia of the Sakha Republic.

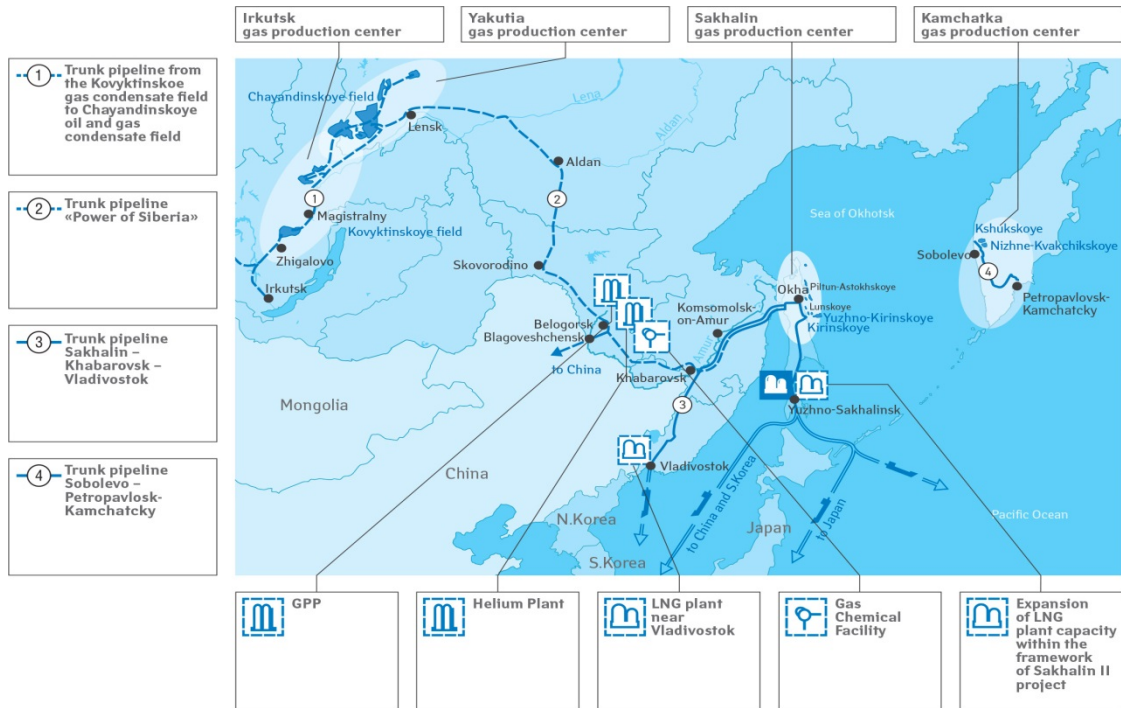
²³⁶ Mitrova, “Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges.”

²³⁷ He will be eligible for re-election for another that would keep him in power until 2024.

²³⁸ Andrei Glazov, “Putin Tells Gazprom to Get More Efficient, Expand LNG Ops,” International Oil Daily, March 27, 2012, http://www.energyintel.com/Pages/Eig_Article.aspx?DocId=760580.

²³⁹ Putin’s warning came as Gazprom launched a huge Arctic field to supply Europe, where demand is falling. Putin has tightened his personal grip on Russia’s gas export policy since the formal launch of a European Commission probe into pipeline gas export monopoly Gazprom’s pricing under its standard long-term contracts, which are linked to the oil price. See <http://www.reuters.com/article/2012/10/23/russia-putin-energy-idUSL5E8LNBMQ20121023>.

Map 3. Eastern Program



(Source: Gazprom)

During the World Gas Conference held at Kuala Lumpur, Malaysia, in June 2012, China offered a very large upfront payment without interest to secure the prioritization of eastern, China-bound natural gas pipeline routes from Eastern Siberia. In return, Russia’s Deputy Premier Arkady Dvorkovich confirmed that Moscow was reviewing the Chinese proposals in December 2012.²⁴⁰ In retrospect, Gazprom’s purchase of the Kovykta field in 2011 enabled negotiations to focus on the China-bound eastern route,²⁴¹ but Gazprom

²⁴⁰ Interfax Russia & CIS Oil and Gas Weekly, December 6-12, 2012, p. 44.

²⁴¹ In March 2011, Gazprom bought the Kovyktinskoye (Kovykta) gas condensate field from RUSIA Petroleum, which had unsuccessfully tried to develop it with TNK-BP. The Kovykta field is the basis for Irkutsk gas production center. Its gas ABC1+C2 resources amount to 1.5 trillion cubic meters (tcm) with extractable resources of gas condensate of 77 million tons. The field’s, which is also rich with helium, is due for commissioning in 2021. The production level is expected to plateau at about 35-37 billion cubic meters (bcm) of gas per year. The capital expenditure (CAPEX) for the field development is estimated at \$14.4 to \$16.2 billion (RBK, 26.05.2014). Mitrova, “Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges.”

continuously pursued the Altai (western) route until the Sino-Russia summit on March 22, 2013.²⁴² From Xi Jinping's first presidential visit to Russia (his first international trip as president), as many as thirty agreements have been signed with Russia, mostly in the energy sector. The two highlights are Russia's agreement to allocate a maximum volume of crude to China and Russia's acceptance of China's preference for the eastern route of natural gas pipelines from Eastern Siberia. Gazprom and CNPC signed a memorandum of understanding (MOU) for the delivery of 38 bcm of natural gas to China over thirty years starting in 2018, with the option of expanding to 60 bcm.²⁴³ At the St. Petersburg International Economic Forum in June 2013, Rosneft signed a deal to double oil supplies to China (365 million tons for twenty-five years), and CNPC agreed to take a 20 percent stake in Novatek's \$20 billion Yamal-LNG project, with Novatek's agreeing to supply at least 3 million tons of LNG to China.²⁴⁴ On the same day, Putin announced the gradual end of state-controlled Gazprom's monopoly on exports of natural gas, opening the way for rivals Novatek and Rosneft to compete for huge new Asian markets.²⁴⁵ Gazprom noted that "the price of gas to be supplied to China won't be linked to the U.S. spot

²⁴² "Chinese President Xi Jinping in Russia for First Foreign Tour," BBC, March 22, 2013, <http://www.bbc.co.uk/news/world-asia-china-21873944>;

Wu Jiao and Li Xiaokun, "Agreements Boost China-Russia Partnership," China Daily, March 23, 2013, http://usa.chinadaily.com.cn/2013-03/23/content_16340212.htm.

Jonathan Earle and Anatoly Medetsky, "Oil and Gas to Dominate Xi's Visit," The Moscow Times, March 22, 2013, <http://www.themoscowtimes.com/news/article/oil-and-gas-to-dominate-xis-visit/477302.html>.

²⁴³ A supply contract of 38 to 60 bcm would help fill the projected gap of 150 bcm between China's natural gas demand and China's domestic natural gas supply in 2020, as projected by CNPC. Erica Downs, "Money Talks: China-Russia Energy Relations after Xi Jinping's Visit to Moscow," The Brookings Blogs, April 1, 2013, <http://www.brookings.edu/blogs/up-front/posts/2013/04/01-china-russia-energy-relations-downs>.

²⁴⁴ Courtney Weaver and Neil Buckley, "Russia and China Agree \$270bn Oil Deal," Financial Times, June 21, 2013.

²⁴⁵ Katya Golubkova and Tim Heritage, "Putin Signals End to Gazprom's Russian Gas Export Monopoly," Reuters, June 21, 2013.

market prices” after the negotiations between Gazprom Chairman Alexey Miller and CNPC President Zhou Jiping.²⁴⁶ Gazprom also announced that the company expects to sign an agreement in September 2013 on the basic terms of a deal to provide gas supplies to China and aims to conclude the deal by the end of 2013.²⁴⁷

At the G20 meeting in September 2013, Gazprom and CNPC signed an agreement outlining the major terms and conditions of pipeline gas supply from Russia to China via the eastern route,²⁴⁸ but the final price was still not determined. During premier Dmitry Medvedev’s visit to Beijing in October 2013, it was announced that the price formula was agreed, but again, the final border price was not determined.²⁴⁹ However, with its economy reeling from the geopolitical crisis sparked by its annexation of Crimea and its falling out with the West, Moscow wanted to finalize the long-delayed deal more desperately than China, and had to acquiesce to a larger Chinese investment role.²⁵⁰

Main Obstacles for the Sino-Russian Gas Cooperation

Unlike Sino-Russian cooperation in the oil sector, cooperation in the natural gas sector showed very little tangible progress for more than a decade due to the disagreements over

²⁴⁶ “Russian Gas Supplies to China to be Priced without linkage to Henry Hub,” Gazprom website, June 19, 2013, <http://www.gazprom.com/press/news/2013/june/article164806/>.

²⁴⁷ Svetlana Burmistrova and Vladimir Soldatkin, "Gazprom Aims to Sign Basic Terms of China Gas Deal in Sept," *Reuters*, June 19, 2013.

²⁴⁸ The agreement terms include the start date and volume of gas deliveries (38 bcm per year), the take-or-pay level, the amount of guaranteed payments, and the gas transfer point.

²⁴⁹ Medvedev said “We are now finalizing a formula that will regulate gas shipments from Russia to China along the eastern route. As a matter of fact, this formula has already been agreed upon. We have yet to agree on the price Final agreement was reached on the use in the contract of a multiplicative formula tied to the cost of oil products.” See *Interfax Russia & CIS Oil and Gas Weekly*, October 17–23, 2013, pp. 5-6.

²⁵⁰ Kathrin Hille, "Russia Looks East as It Seeks to Rebalance Trade Interests," *Financial Times*, April 3, 2014, <http://www.ft.com/intl/cms/s/0/3035cb28-bb47-11e3-8d4a-00144feabdc0.html?siteedition=intl#axzz3R4Xe22wN>.

prices, pipeline routes, and China's equity investment in Russian upstream market, as well as the lack of trust between the two countries.²⁵¹ Understanding these impediments is crucial to understanding the fundamental and multidimensional aspects of the Sino-Russian strategic energy ties.

First, the main obstacle that delayed the agreement was a pricing formula for the Russian gas deliveries. Russian negotiators wanted China to pay the same high price for gas as its European customers, whose long-term contracts link gas prices to oil prices. As domestic gas prices in China are strictly controlled by the National Development and Reform Commission (NDRC), on the other hand, Chinese negotiators find Gazprom's price offer unattractively high. The NDRC would lose billions of dollars on gas imports.

Second, the development of the Altai pipeline (West Siberia) route that was prioritized by Gazprom was not supported by the Beijing authorities. China was fully aware of that Gazprom is pursuing a "swing supplier" strategy from the Altai project because Gazprom would be easily able to switch its West Siberia gas exports to China from Europe when the European demand for Russian gas stagnates or shrinks. The Chinese authorities apparently had no interest in inviting any criticism for dividing up the share of European gas and preferred buying Russian gas from East Siberia rather than West Siberia.²⁵² In addition, China needs gas from East Siberia and Sakhalin because regional capacity in the three northeastern provinces of China (Heilongjiang, Jilin, and Liaoning) is relatively small. Without the access to the Russian Far East region, China would have to rely on more expensive LNG imports.

²⁵¹ Paik, *Sino-Russian Oil and Gas Cooperation: The Reality and Implications*.

²⁵² Keun-Wook Paik, "Sino-Russian Gas and Oil Cooperation: Entering a New Era of Strategic Partnership?" OIES Paper WPM 59, Oxford Institute for Energy Studies, April 2015.

Third, Russia had refused to allow any foreign companies to acquire equity in its oil and gas fields, and pipeline projects until recently.²⁵³ This obstacle motivated China to construct the West-East Pipeline (WEP) II Pipeline in order to accelerate gas imports from Central Asia. In line with this development of domestic gas grid, the Beijing authorities chose to develop Turkmenistan gas as an equity supply source, which was to compensate for the burden of the high border price.²⁵⁴ In addition, China diversified its import options by building a gas pipeline to Myanmar and by increasing LNG volumes. Finally, Sino-Russian relations lack trust and still confront a range of tensions in their shared region. Particularly in Central Asia, China has eroded Russia's previously dominant presence by emerging as the number one trading partner and source of foreign investment in the region (Table 3),²⁵⁵ while Russia strives to reintegrate the former Soviet

²⁵³ In October 2013, Rosneft and CNPC agreed to set up a joint venture for upstream developments in East Siberia, with Rosneft holding 51 percent and CNPC with the rest (after the third loan offer from China). The deal gives China access to the Srednebotuobinsk field, which has an estimated 2.05 million barrels of oil and equivalents in Siberia. In addition, in September 2014 it was announced that CNPC will obtain up to 10 percent in Russia's Vankor oilfields, Rosneft's biggest production asset (after the Sino-Russian gas deal in May).

²⁵⁴ The major breakthrough was made by Turkmenistan's decision in 2006 to allow CNPC to take an upstream position in Turkmenistan's gas exploration and production, together with the related gas pipeline development. The price that CNPC had accepted for Turkmen gas was not cheap, but the equity gas option allowed the CNPC planners to cushion the financial burden of the high import price. See Paik (2012), p. 378–9.

²⁵⁵ China has become the principal partner in trade and investment for all Central Asian states (if not the largest, it is by no means less than the second-largest trading partner). Table 2 below compares the increasing role of China's trade with Central Asia to Russia's diminishing share of the same.

Table 3. Russia and China's Share of Central Asian Countries' Total Trade (2000-2012)

		Kazakhstan		Kyrgyzstan		Tajikistan		Turkmenistan		Uzbekistan	
		Export	Import	Exports	Import	Export	Import	Export	Import	Export	Import
2000	Russia	25.5%	46.3%	24.8%	23.4%	57.9%	31.8%	4.29%	14.8%	33.1%	19.6%
	China	11.3%	3.3%	19.1%	25.0%	2.56%	3.9%	N/A	1.38%	N/A	2.85%
2008	Russia	9.6%	41.0%	27.9%	5.9%	20.8%	26.0%	1.4%	28.4%	19.0%	24.8%

blocs. In addition to the region’s rising economic ties with China, the prospect of withdrawal of U.S. forces from Afghanistan and the closure of the Manas Transit Center²⁵⁶ in Kyrgyzstan led China to be the primary source of “external” influence in Central Asia.²⁵⁷ Russia has established the Eurasian Customs Union to slow down the region’s reorientation toward China as well as to deepen the integration of economy, politics, security, and culture in the territories of the former Soviet Union. China has instead promoted the idea of a Silk Road Economic Belt, which Beijing sees as linked to the Shanghai Cooperation Organization (SCO). Competing Sino-Russian ambitions are becoming more visible in the region.²⁵⁸ Moreover, the xenophobic image of the “yellow peril” or the “China threat” – the Chinese invading in their millions by immigrating to the vast expanse of Siberia and Russia’s Far East – is reflected in the multi-dimensional aspects of the Sino-Russian bilateral relationship. Tensions between the two countries have been exacerbated by the widening demographic imbalance between the Russian Far

	China	12.1%	15.0%	3.5%	65.7%	2.0%	48.6%	0.4%	28.0%	4.72%	15.4%
2010	Russia	5.6%	16.9%	19.4%	21.7%	20.3%	26.5%	6.0%	22.8%	25.6%	25.1%
	China	24.5%	48.7%	10.2%	50.0%	5.3%	54.3%	38.9%	17.7%	21.9%	17.8%
2012	Russia	10.0%	31.8%	15.5%	17.9%	4.4%	16.6%	1.5%	13.1%	13.4%	21.2%
	China	21.2%	26.8%	7.4%	56.5%	9.6%	43.2%	66.5%	20.2%	19.2%	17.8%

Source: Slavomir Horak, “Challenges from the East: China,” in Starr and Cornell, eds., *Putin’s Grand Strategy: The Eurasian Union and Its Discontents*, Central Asia-Caucasus Institute & Silk Road Studies Program, 2014 (original data sources: EU Commission Trade Statistics, Observatory of Economic Complexity).

²⁵⁶ Manas Transit Center is a former U.S. military installation at Manas International Airport, near Bishkek, the capital of Kyrgyzstan. The base was opened in December 2001 to support U.S. military operations in the ongoing war in Afghanistan. All U.S. forces vacated the base in early June 2014, at which time control of the base was handed over to Kyrgyz authorities. https://en.wikipedia.org/wiki/Transit_Center_at_Manas.

²⁵⁷ Mankoff, "The Ukraine Crisis and the Future of Sino-Russian Relations."

²⁵⁸ S. Frederick Starr and Svante E. Cornell, eds., *Putin's Grand Strategy: The Eurasian Union and Its Discontents* (Central Asia-Caucasus Institute & Silk Road Studies Program, 2014).

East (RFE) and China's northeastern provinces, by Russia's larger population crisis, and by the growing Chinese economic influence in eastern Russia.²⁵⁹

Drivers for Sino-Russian Gas Cooperation

Notwithstanding these major obstacles, Sino-Russian cooperation in the natural gas sector has moved forward. What political and economic factors have served as immediate catalysts in this breakthrough? Are there any critical and historic turning points shaping this strategic decision-making? Why do both sides need the deal after more than a decade of negotiations? This chapter examines the strategic, political, and economic factors that are driving both sides to sign the long-delayed deal (in both international and domestic levels).

(1) The Ukraine Crisis

First, I explore the international and external factors that are driving the strategic gas partnership between China and Russia. I argue that changes in the geopolitical environment during the historically critical turning point of the Ukraine crisis in 2014 motivated China and Russia to make a strategic political-economic decision to build a long pipeline and to develop the gas fields in the RFE. Although there were other important signs and drivers prior to the signing of the deal in May 2014, they were only rhetoric or diplomatic gestures, given that the two sides had not agreed on the core elements of price and equity. In the wake of its annexation of Crimea and the resulting Western sanctions, Russia faced the new reality of increased isolation from the United States and Europe. As Russia finds its choices limited, it has become more desperate to

²⁵⁹ Lo, *Axis of Convenience: Moscow, Beijing, and the New Geopolitics*.

shift back toward a more Sino-centric approach to Asia. “Putin has long talked about shifting east...The Ukraine crisis provides the ideological justification for moving ahead faster,” said Fyodor Lukyanov, chairman of the Council on Foreign and Defence Policy.²⁶⁰ Likewise, other Russian analysts say the country’s falling-out with the West has acted as a catalyst in Russia’s new approach to China. Russia had to take an action to show that Russia’s moving toward a more comprehensive partnership with China and Asia as a whole is not only political rhetoric, but also has tangible outcomes. However, Russia’s efforts to play the China card are coming at a higher price to Moscow than previously, putting Beijing increasingly in the driver’s seat. While China remains neutral diplomatically in the Russian-Ukrainian confrontation, it does not want a collapsed ruble, nor a weakened Russia in its struggle with the U.S.-led Western allies over the crisis of Ukraine.²⁶¹ Chinese Foreign Minister Wang Yi offered Chinese assistance to Russia to overcome Western pressure.²⁶²

The notion of crisis that I discussed in Chapter 2 is well applied in explaining Russia’s strategic turn to China and Putin’s decision-making at a critical historical turning point. The Ukraine crisis changed the pre-existing bargaining context for Sino-Russian energy relations and opened opportunities for change. For more than a decade, Chinese and Russian negotiations had failed to agree on the pricing formula, and Russia had never allowed China’s equity investment in the Russian upstream gas market. However,

²⁶⁰ Hille, "Russia Looks East as It Seeks to Rebalance Trade Interests," <http://www.ft.com/intl/cms/s/0/3035cb28-bb47-11e3-8d4a-00144feabdc0.html#axzz3N6cZaq8z>.

²⁶¹ Jin Canrong and Wang Hao, “Wukelan Weijizhong De Gefangboyi He Zhongguo Lichang [Relevant Parties and China’s Positions on the Ukraine Crisis, 乌克兰危机中的各方博弈和中国立场]” Xushu Qianyan [人民论坛学术前沿], April 8, 2014.

²⁶² Li Jianmin, a researcher at the Chinese Academy of Social Sciences, suggested that China's assistance be provided through mechanisms including the Shanghai Cooperation Organization (SCO) and BRICS. Zhang Yunbi, “Beijing Willing to Assist Moscow”, *China Daily*, December 22, 2014.

compromises have become suddenly possible as the pressure on individual policy makers to negotiate a workable framework was intensified by the pressing need to deliver results during the crisis. Without a doubt, Russia was placed under more pressure than China, given that Putin was struggling to prevent the Russian economy from falling into recession amid lingering sanctions and plunging oil prices. Putin was forced into sudden and high-stake decisions because he was pressured to devise a solution within a sharply limited time period. While the precise terms over the gas deal including the price were not disclosed, Putin had to compromise on the optimal conditions that Russia had continuously pursued concerning the gas deal with China, in order to deal with the sanctions and their potential crippling blow to the Russian economy.

Some have argued that the geopolitical implications of the Ukraine crisis on Russia-China relations should not be overstated, and that powerful drivers to bridge the price gap and make the natural gas deal happen were already in place long before the crisis.²⁶³ I do not argue against this perspective, but suggest that changes in the external geopolitical environment resulting from the crisis put the finishing touches on Russia's agreement with Beijing. To better understand the fundamentals of the Sino-Russian gas deal, it is crucial to grasp how geopolitical factors caused by the Ukraine crisis interacted with key political and economic factors in Russia and China.

(2) *Falling Global Oil Prices*

Although global oil prices started to fall after China and Russian signed their huge natural gas deal in May 2014, I want to briefly analyze their impact on ongoing Sino-Russian

²⁶³ Mitrova, "Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges."; Skalamera, "The Sino-Russian Gas Partnership: Explaining the 2014 Breakthrough."

energy relations. This analysis also requires a discussion of the fall of the Russian ruble. Structurally linked to the sanctions imposed by Western governments in response to Russia's annexation of Crimea, the collapse of the ruble in 2014 — following the harm to the Russian economy from the steep drop oil prices beginning earlier that year — has pushed Russia into crisis mode.²⁶⁴ The Russian government expects the country's economy, which grew by 0.8 percent in 2014, to contract by at least 4 percent in 2015. Moscow has already committed more than \$9.7 billion (590 billion rubles) to prop up banks and large companies in the wake of the ruble rout.²⁶⁵ Standard & Poor's downgraded Russia's credit rating to BB+, one notch below investment grade, on January 26, 2015. Such pessimism by the rating agencies sends a clear signal that the country is now potentially facing a much more dangerous crisis than that of 2008–2009, given that Russia preserved investment grades in 2008 when global oil prices fell threefold to below \$40 a barrel and in 2009, when Russia's GDP collapsed by 8 percent. The economic burden of a downgrade is not nearly as important as its symbolic and political impact.²⁶⁶ The political burden comes from the embedded structural link between the decline in oil prices (from \$100 to below \$50) and the Ukraine-related sanctions that cut off any opportunities for Russia to borrow its way out of the crisis. It is very likely that Russia will run out of cash by the end of 2016 if oil prices do not rise and sanctions are not lifted. In such a situation, Russia would be more likely to rely on China both financially and politically.

²⁶⁴ Quotes from Charles Ebinger and Cliff Geddy who spoke at “Global Effects of the Oil Price Crash” Brookings Institution event held on February 2, 2015. <http://www.brookings.edu/events/2015/02/02-global-oil-price-crash>

²⁶⁵ Kathrin Hille, "Falling Rouble Piles the Pressure on Putin," Financial Times January 20, 2015.

²⁶⁶ Sergei Guriev, "Russia's Downgrade Deepens Political Crisis with Europe," Financial Times, January 27, 2015.

(3) *Russia's Eastward Strategy and Internal Dynamics Between Rosneft and Gazprom*

Russia's Eastward Strategy

The changing landscape of global energy markets and geopolitics is significantly altering Russia's position as a major global player. Traditionally, most of Russia's energy exports are directed to Europe (74 percent in 2010), where Russia controls large shares in oil (30 percent), gas (22 to 30 percent), and coal (13 to 15 percent) markets.²⁶⁷ However, the European market, Russia's major export destination for energy, has experienced structural change in recent years, while the Asian market is driving future global hydrocarbon growth.

First, the stagnation in European oil and gas demand is not likely to recover to previous levels, mainly due to recessions in Eurozone countries and slower than expected economic recovery after the Global Financial Crisis.²⁶⁸ Second, the liberalization process following the European Commission's adoption in 2009 of the Third Energy Package has created unfavorable regulatory and market conditions for Russia, which include "unbundling" (the separation of gas supply from transportation businesses) and the new (national but especially) EU network codes that were created to regulate cross-border transportation of energy resources.²⁶⁹ Russia is now confronting new painful developments, such as changing gas pricing mechanism with a much higher share of spot

²⁶⁷ ERI RAS - ACRF, *Global and Russian Energy Outlook to 2040* (Moscow: The Energy Research Institute of the Russian Academy of Sciences, the Analytical Center for the Government of the Russian Federation, 2014).

²⁶⁸ *World Energy Outlook 2013*, International Energy Agency; ERI RAS-ACRF, *Global and Russian Energy Outlook to 2040*

²⁶⁹ Henderson, *The Russian Gas Matrix: How Markets Are Driving Change*.

indexation and buyers' pressure to review the contracts, shrinking refinery margins, European anti-trust investigations against Gazprom, and third-party access requirements for North European (NEL) and South Stream pipelines.²⁷⁰ In addition to such unfavorable market conditions, Europe is now stressing its desire to lessen its dependence on Russian energy supplies,²⁷¹ as a result of geopolitical tensions between Russia and the West arising from the Ukraine crisis.

In addition to the changing market environment in Europe, other factors — such as the North American shale gas and oil boom, the rise of oil and gas production from non-OPEC countries such as Central Asian republics and East Africa²⁷², and Iran's potential large-scale emergence on global oil and gas markets — are creating additional competitive pressure on Russia. According to the general scenario in the April 2013 *Global and Russian Energy Outlook up to 2040*²⁷³, Russian exports of oil and gas will drop by more than 20 percent over the next ten to fifteen years, with their share of the country's GDP decreasing by one third. The report alerted Russian officials that, even in the most optimistic forecast, it will take Russia at least ten years to catch up with the leaders of the new energy markets. In this sense, there is an urgent need for Russia to diversify its energy export markets and to turn to its Asian markets by developing its offshore and LNG production and its pipeline gas exports to Asia.

²⁷⁰ Tatiana Mitrova, "The Political and Economic Importance of Gas in Russia," in *The Russian Gas Matrix: How the Markets Are Driving Change*, ed. James Henderson and Simon Pirani (New York: Oxford University Press, 2014).

²⁷¹ (European Commission, 2014)

²⁷² Stanley Reed, "Natural Gas Discovery Promises a Boon for Eni and Mozambique," *New York Times*, December 5, 2012. http://www.nytimes.com/2012/12/06/business/energy-environment/eni-announces-major-gas-find-off-mozambique.html?_r=0

²⁷³ *Global and Russian Energy Outlook* is a major analytical report developed by the Energy Research Institute (ERI) of the Russian Academy of Sciences and the Analytical Center of the Russian Government.

The Russian government's "Energy Strategy of Russia to 2030" adopted in 2009 states that Russian energy exports of liquid hydrocarbons (oil and oil products) to Asia should grow from its baseline of 6 percent to 22 to 25 percent while natural gas exports should grow from 0 percent to 19 or 20 percent by 2030.²⁷⁴ The development of trade relations in the energy sphere with the Asia-Pacific region and the rapidity in the development of the Chinese market have become important elements in Russia's official energy strategy. In addition, the eastern vector of Russian energy policy is related to the necessity of securing economic and industrial development in East Siberia and the Far East, given that raising living standards and stopping the outflow of population from the region have been among the most important tasks on the Russian national agenda.²⁷⁵

However, until the recent gas deal between Gazprom and CNPC in May 2014, Gazprom did not seem particularly interested in or capable of establishing gas sector cooperation with China or Asia more broadly. Short-term interests have typically prevailed over the long-term task of modernizing Russia's energy sector. For instance, during Gazprom's conflict with EU consumers following the first gas dispute with Belarus in 2005/2006, Putin visited China in March 2006 and signed memoranda on the construction of a spur of the ESPO pipeline to China as well as other gas pipelines. Rather than moving forward in forging energy ties with China, however, Russia used the deal to secure concessions from its European consumers, once it demonstrated that Russia had other attractive export options and China represented a viable gas export option.²⁷⁶

²⁷⁴ Energy Strategy of Russia to 2030. Moscow, 2009. http://www.energystrategy.ru/projects/docs/ES-2030_%28Eng%29.pdf.

²⁷⁵ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

²⁷⁶ Ibid.

Rosneft's Maneuvers and Gazprom's Concessions

Since Russia's 2006 gas export law entitled Gazprom to become a monopolist, it has created a bottleneck in Russia's turn toward Asia. Despite Gazprom's underperformance and inefficiency, Putin constantly defended it from tax increases, anti-monopoly investigations, and attacks by the European Commission and members of the Russia government and business community, because it has been a backbone of his political regime. He has relied on Gazprom's resources in building the so-called "vertical of power." However, as Gazprom's capitalization dropped by almost four times and its profit decreased by one-third over the last five years,²⁷⁷ it is getting harder for Putin to deny Gazprom's failures, and he has had to encourage other gas producers to develop their resources in order to stimulate diversification of the gas market.²⁷⁸

Under this strategy, Novatek²⁷⁹ started to grow fast to become the second-largest gas producer in Russia, by acquiring stakes in several companies, including Yamal LNG. By the end of 2012, Novatek had increased its market share in Russia's overall gas production to 9 percent and its share of the domestic supply to 16 percent. Rosneft's acquisition of TNK-BP in a \$55 billion deal in the fall of 2012 not only made it the largest oil company in the world, but also enlarged its gas assets. Rosneft increased its

²⁷⁷ Gazprom's share of the European market (the 27 member countries of the EU) went down from 47 percent in 2003 to 34 percent in 2012.

²⁷⁸ Olga Khvostunova, "Rosneft vs. Gazprom," Institut of Modern Russia (2013).

²⁷⁹ In 2009, Gennady Timchenko, owner of the commodity-trading company Genvor and Putin's close friend, acquired a 23 percent stake in Novatek. In 2006, 19.9 percent of this company was acquired by Gazprom. See Khvostunova (2013).

gas production by one-third and became one of the three largest gas producers in the country, behind Gazprom and Novatek.²⁸⁰

More importantly, Rosneft has already taken a lead in the Russian Far East, as the company views the Asia-Pacific market as the baseline for its business. In contrast, Gazprom is lagging in Asian markets while it still remains the single channel for the Russian gas business in Europe. When Gazprom's largest gas project at the Shtokman field²⁸¹ was put on hold due to the U.S. shale gas revolution in 2013, however, the company decided to accelerate its Eastern Gas Program. The key features of the program include the development of the Chayanda gas field in Yakutia, the construction of the Power of Siberia pipeline (from Yakutia to Khabarovsk to Vladivostok), and the construction of the LNG plant in the Far East, which will cost an estimated \$45 to \$60 billion. The program is one of the most expensive projects in the world and raises questions of cost efficiency and viability.

On the other hand, Rosneft is fulfilling the Russian government's strategic plans on the diversification of markets for hydrocarbons and the economic development of eastern

²⁸⁰ Along with being the largest takeover in Russian history, Rosneft's acquisition of TNK-BP is supposed to increase Rosneft's daily oil production to 4 million barrels per day. In addition, Rosneft acquired a majority stake in Itera (the acquired TNK-BP gas assets were transferred to the management of Itera) in 2012, and in May 2013 increased its stake in Itera to 100 percent. Upon consolidation of Itera's gas assets, Rosneft became the third largest gas producer in Russia. See Khvostunova (2013). See James Marson, "Rosneft Completes \$55 Billion Takeover of TNK-BP," *Wall Street Journal*, March 21, 2013, <http://www.wsj.com/articles/SB10001424127887324103504578374184188808640> and Vladimir Soldatkin and Andrew Callus, "Rosneft Pays out in Historic TNK-BP Deal Completion," *Reuters*, March 21, 2013, <http://www.reuters.com/article/2013/03/21/us-rosneft-tnkbp-deal-idUSBRE92K0IZ20130321>

²⁸¹ The plan was to deliver LNG from the Shtokman gas condensate field in the Barents Sea to the U.S. market, but this deal became irrelevant for the United States because of the shale gas revolution. Gazprom indefinitely postponed development the gas field, the latest delay to its years-long efforts to tap the Arctic field with France's Total and Norway's Statoil. See "Gazprom May Shelve Shtokman Project as US Shale Revolution Bites," *Reuters*, June 3, 2013. <http://rt.com/business/gazprom-shtokman-us-shale-143/> and James Marson, "Gazprom Postpones Development of Shtokman Field," *Wall Street Journal*, August 30, 2012, <http://www.wsj.com/articles/SB10000872396390444914904577620733220528246>.

parts of the country. Rosneft has participated in the Sakhalin-1 offshore development project since 2005 as part of a production-sharing agreement (PSA).²⁸² It has reached an agreement with ExxonMobil to build an LNG plant in the Far East²⁸³, and signed an LNG supply agreement with two Japanese companies (Marubeni Corporation and Sakhalin Oil and Gas Development) and the oil trader Vitol in July 2013.²⁸⁴ More importantly, Rosneft has become the primary moving force in Russo-China petroleum cooperation. The opening of the strategic ESPO pipeline in 2012 paved the way for new export deals with China and the Asia-Pacific region.

Given the declining significance of Gazprom and Rosneft's previously successful moves, along with the changes in the global energy market, competition between the two companies is likely to be unavoidable.²⁸⁵ Gazprom has been increasingly pushed aside by aggressive competitors – Rosneft and Novatek – in both the Asian and domestic markets. Gazprom's notorious inefficiency in its core business emboldens competitors to capture greater shares of the domestic market and to demand exemptions from its export monopoly.²⁸⁶ Along with opposing the increase in the mineral tax for independent gas producers enacted in 2012, Rosneft and Novatek officially appealed to the Energy Ministry to request liberalization of LNG exports. In this strategic move to end

²⁸² Rosneft has a 20 percent stake in the project, while the Indian company ONGC holds 20 percent, the Japanese company SODECO 20 holds percent, and ExxonMobil 30 percent, respectively. See http://www.rosneft.com/Upstream/ProductionAndDevelopment/russia_far_east/sakhalin-1/.

²⁸³ The capacity of the LNG project to be located on Sakhalin Island in the Russian Far East is expected to be 5 million tons per year, subject to further expansion. The liquefaction plant, the launch of which is scheduled for 2018, will receive natural gas from Rosneft's reserves in the Far East and other Sakhalin gas reserves. See <http://www.rosneft.com/news/pressrelease/21082013.html>.

²⁸⁴ See Rosneft homepage, <http://www.rosneft.com/news/pressrelease/2106201313.html>.

²⁸⁵ Khvostunova, "Rosneft vs. Gazprom."

²⁸⁶ Pavel Baev, "Rosneft, Gazprom, and the Government: The Decision-Making Triangle on Russia's Energy Policy," *Russie Nei Visions* - French Institute of International Relations (2014).

Gazprom's long-standing monopoly in the gas field, Rosneft's Igor Sechin is well-positioned as head of world's largest oil corporation and someone who has gained significant political weight and administrative leverage.

As a result of this lobbying, the Russian State Duma passed legislation for the limited liberalization of Russia's LNG exports in November 2013. This was followed by long-awaited amendments to gas export law by the Russia's Parliament on December 1, 2013, a move that ended Gazprom's monopoly and was designed to help Russia meet its goal of doubling its share of the global LNG trade by 2020. However, "[t]he limited liberalization of Russia's LNG exports will not threaten Gazprom's monopoly on the export of Russian gas to Europe, which is conducted entirely via pipelines" according to Jack Sharples, a researcher at the European Geopolitical Forum. The new law only opens the door for LNG exports to private companies – Rosneft and Novatek – that received gas extraction licenses of national importance before January 2013 and for operations of state groups from offshore fields.²⁸⁷

In the system of decision-making on the Russian oil and gas sector, Putin acts as a supreme arbiter in the "flexible triangle"²⁸⁸ formed by the government and two super-large state companies – Gazprom and Rosneft. In this arrangement, it appears that changing dynamics between Rosneft and Gazprom – Rosneft's maneuvers and Gazprom's concessions – will strongly influence the future path of the Russian energy sector's development, but the state will still play a major role. The modern history of the

²⁸⁷ Kathrin Hille, "Russia Paves Way for Limited Liberalisation of LNG Exports," *Financial Times*, November 22, 2013.

²⁸⁸ Baev, "Rosneft, Gazprom and the Government: The Decision-Making Triangle on Russia's Energy Policy."

Russian oil and gas industry shows competing political and commercial agendas between the government and companies. Business decisions in the Russian energy sector are very often influenced by short-term political considerations, which can conflict with the long-term or short-term economic and commercial interests of the industry. At the same time, it is also true that the government itself is not strong enough to make a strategic decision and implement a plan if it encounters powerful opponents, and the state's decisions can be crippled by diverse private interest groups that are closely connected to state decision-makers.²⁸⁹

The Russian energy sector is now undergoing a gradual redistribution of exclusive export rights among major players – away from Gazprom and toward Rosneft, and Novatek. In return, however, these non-Gazprom producers are likely to become hostage to a large number of government interests that are not often commercially and economically viable.²⁹⁰ In some cases, the Russian government puts more weight on geopolitical considerations than commercial interests. Mega-projects bypassing Ukraine, costly LNG projects, gas imports from Central Asia designed to promote Russia's political influence, and projects in Eastern Siberia and the Far East are examples of projects that are economically dubious but have geopolitical importance to Russia. It may be logical that a state oil and gas company serves as a driver of government policies in this strategically important sphere, given that the state creates significant non-market competitive advantages for the company in comparison with private counterparts. For instance, the Russian state granted Rosneft and Gazprom exclusive access to offshore fields and

²⁸⁹ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

²⁹⁰ Tatiana Mitrova, "The Political and Economic Importance of Gas in Russia," in *The Russian Gas Matrix: How the Markets Are Driving Change*, ed. James Henderson and Simon Pirani (New York: Oxford University Press, 2014), pp. 6–38.

included Rosneft in the list of strategic companies that receive special bankruptcy protection.²⁹¹ National oil and gas companies sometimes have to pay the price for such a close relationship with the state, but they also have to make a choice between national geopolitical goals and corporate interests.

The Russian oil and gas industry is at crossroads, and the rise of Rosneft and the decline of Gazprom lie at the nexus of the change. Rosneft serves as an instrument of Russia's foreign policy, facilitating the government's strategic plans regarding the development of the Russian Far East and the diversification of markets for hydrocarbons. At the same time, Russia's foreign policy has enabled Rosneft to pursue its corporate interests, and the company's high-ranking state agents and private interest groups frequently help implement its Chinese strategy. Obviously Rosneft has been the primary driving force of Sino-Russian energy cooperation. In petroleum relations with China, Rosneft has not only pursued long-term national strategic interests, but also sought both long-term and short-term corporate interests. From its oil deal with China, Rosneft was able to achieve the long-term corporate goals of becoming a flagship enterprise of the Russian oil industry and transforming itself into an international energy company. The company was also able to obtain Chinese money for its short-term corporate goals; the first two loans from China were utilized to pay for the acquisition of Yukos and the third loan was used to pay for the takeover of TNK-BP.

It is worth noting that the competition between Gazprom and Rosneft drove Gazprom to sign its gas deal with China. Considering the internal dynamics in the Russian energy industry, Gazprom must have agreed to the deal that Rosneft could have otherwise taken.

²⁹¹ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

Gazprom was reluctant to sign the deal with China because it does not understand the Chinese business culture as well as Rosneft does, was tired of long negotiations, and was not attracted to the deal's low margins. If Gazprom did not take the deal, its competitors would probably have built the LNG terminals within a couple of years, which would have caused Gazprom to lose its window of opportunity in the Asia-Pacific market. Gazprom was instead forced to participate in the deal by Putin.²⁹²

Whether independent non-Gazprom gas producers can get access to the Power of Siberia pipeline has been one of the key issues in Russia since the deal between Gazprom and CNPC. Rosneft, with its considerable gas production potential in Eastern Siberia, has raised this issue, as it wants to gain access to export markets. In June 2014, Rosneft requested an anti-monopoly investigation to the Energy Ministry, in order to have third party-access both to the Power of Siberia and Sakhalin pipelines. Genuine gas pipeline liberalization is unlikely, however, and Gazprom is most likely to buy gas from Rosneft to resell it to China.

Perhaps the key question concerning these changing internal dynamics is whether national oil and gas companies' short-term corporate interests correspond to Russia's long-term strategic goals. In regard to oil relations with China, Rosneft indirectly placed the country in a position of depending on China as a creditor in order to fulfill its short-term corporate interests of getting Chinese money for its projects while it pursued long-term national interests.²⁹³ Since its first loan-for-oil from China in 2005, Russia has regarded China not only as a market but also as a source of financing. In addition,

²⁹² This paragraph is based on author's interview with Tatiana Mitrova, head of Oil and Gas Research at the Energy Research Institute of the Russian Academy of Sciences.

²⁹³ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

Chinese financial resources have become involved in a redistribution of property in strategic sectors of the Russian economy.²⁹⁴ Both the ESPO and POS pipelines are geostrategic projects in the grand Soviet tradition, built by state-owned monopolies. Both the oil and gas industries are footing the bill for the state's strategic objectives and for Russia's rent-distribution system of Russia. The strategic project is driving investment priorities, rather than the other way around.²⁹⁵ Given a tacit marriage between the state and national oil and gas companies, in many cases a decision is made first, then the project is implemented, money is invested, and later it too often stands idle and unclaimed.²⁹⁶ After the decision to invest in the Eastern Gas Program was made, Gazprom did not reach any concrete agreements with China until recently. There seems to be a high concentration of special interests in the Russian oil and gas industry, whereby a group of people gain from making strategic decisions on certain large-scale projects that are economically dubious. In the middle of the Ukraine crisis, for example, Gazprom moved toward Asia, in order to rebalance its interests, not to switch from Europe to Asia entirely. Such an action seems to align with Russia's long-term strategic interests, but Beijing will be more likely to dictate the terms of energy cooperation between China and Russia if Gazprom pursues both short-term corporate interests and long-term national interests, as Rosneft appears to do.

(4) Changing Dynamics Involving Chinese NOCs and Air Pollution Issues in Chinese Domestic Politics

²⁹⁴ Mitrova, "Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges."

²⁹⁵ Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia*.

²⁹⁶ Khvostunova, "Rosneft vs. Gazprom."

Air Pollution and President Xi's Initiative for Energy Revolution

At his meeting with ruling Communist Party officials on June 13, 2014, Chinese President Xi Jinping's call for an "Energy Revolution" focused attention on the country's diversification into non-carbon energy sources, especially replacing coal with natural gas. In his agreement with U.S. President Barack Obama in November 2014, Xi also pledged to cap China's carbon emissions and turn to renewable sources for 20 percent of the country's energy by 2030. A key driver for Xi's initiative for an energy revolution has been China's continuing problems with air pollution. The Chinese government previously focused on economic growth at all costs, but has recently become sensitive to its environmental challenges. Smog in Beijing and Shanghai made the government realize that it has to take measures to rein in pollution, which otherwise will lead to social discontent.²⁹⁷ With protests over pollution turning violent in Chinese cities at least three times, the government realizes that it has to inflict pain on some sectors such as the transportation and energy sectors and deal with any political and social disquiet that may result.²⁹⁸

In this respect, natural gas seems to be a most feasible and accessible option to aid in China's efforts to address the environmental degradation issue. Considering gas's higher price than coal, however, the increase in gas consumption creates new opportunities and challenges. Moreover, given that the prospects for developing unconventional shale gas in China appear slim, China has committed to increasing domestic production of

²⁹⁷ "Xi Jinping's Green Pledge Will Require an Economic Revolution," *South China Morning Post*, November 22, 2014. Zhao Shengnan, "Xi Tackles Pollution on Two Fronts," *China Daily*, March 7, 2015.

²⁹⁸ Clyde Russell, "Shades of Carter in Xi's China Energy Revolution," *Reuters*, June 17, 2014, <http://www.reuters.com/article/2014/06/17/us-column-russell-china-energy-idUSKBN0ES16M20140617>.

conventional gas and imports. The Chinese leadership implemented a radical reform of the gas pricing system in 2013 to replace the old cost-based approach. Under the new pricing mechanism, further price increases are expected in the domestic natural gas market, which will likely make China more reliant on foreign gas imports (that are more competitive in terms of price) and thereby decrease pressure on major gas importers.²⁹⁹

Fully aware of the necessity to cut coal consumption, Beijing planners have been looking for ways to maximize the use of natural gas. According to the China Energy Fund Committee (CEFC)'s study, the 12th Five-Year Plan (2011-2015)'s projection of domestic natural gas consumption reaching 230 bcm is an attainable target, but further expansion is less feasible. The study examines the main driving forces for the growth in gas consumption during the period of China's 12th Five-Year Plan (2011–2015): 1) domestic environmental pressure; 2) Chinese commitment to a low-carbon economy; 3) development of unconventional gas; 4) a gas import infrastructure built in recent years; 5) energy security³⁰⁰; and 6) uncertainty over the pace of clean energy development. In the upcoming 13th Five-Year Plan (2016–2020), domestic natural gas consumption is projected to range from 350 bcm to 450 bcm, with the following factors affecting the projection: 1) international commitments to reduce carbon emissions³⁰¹; 2) increased

²⁹⁹ Michael Chen, "The Development of Chinese Gas Pricing: Drivers, Challenges, and Implications for Demand," OIES Paper (NG 89), Oxford Institute for Energy Studies, July 2014.

³⁰⁰ China has been seeking ways to alleviate pressure caused by energy security issues since it became an oil importer in 1993. Using more gas to replace coal and oil will help diversify its energy mix while balancing the tension between using cheap coal and an increasing need for cleaner fuel.

³⁰¹ China has committed to reduce per GDP unit CO₂ emissions by 40 percent to 45 percent in 2020 compared to the 2005 level. Assuming the average annual economic growth rate ranges from 7 to 9 percent, natural gas consumption needs to reach 350 to 450 bcm in 2020 to achieve this emissions target.

domestic supply of natural gas; 3) scaling -up of unconventional gas development; 4) continuous improvement in pipeline infrastructure; and 5) price restrictions.³⁰²

China's Anti-Corruption Campaign and Its Impact on the Energy Industry

Since President Xi unleashed a wide-ranging anti-corruption drive in September 2013, China's government has pursued major changes in its energy sector and launched targeted investigations of high-ranking energy technocrats.³⁰³ National prosecuting departments investigated twenty-four high-ranking officials in 2014, including former Chinese Communist Party security chief Zhou Yongkang and CNPC's former chairman Jiang Jiemin.³⁰⁴ During the same period, over one hundred officials were dismissed from employment, the majority of which were from the National Energy Administration, CNPC, State Grid, and Shanxi Province, China's major producer of coal.³⁰⁵ The arrest of Mr. Zhou in December 2014 had huge symbolic implications, as he was arguably the most powerful man in China after building up patronage networks that spanned the oil, mining, and security industries, as well as regional support bases.³⁰⁶

³⁰² China Energy Fund Committee (CEFC), "China Energy Focus: Natural Gas 2013."

³⁰³ After the Central Committee meeting of November 2013 (the Third Plenum), the Xi administration stated its intention to "comprehensively deepen reform" and has created a group to do so. The need for such a body signals that many policy disputes remain and that the central government intends to stay focused on changed until at least 2020. David M. Lampton, "How China is Ruled," *Foreign Affairs*, Jan/Feb 2014 Vol. 93 Issue 1.

³⁰⁴ Zhang Yan, "Two Dozen Top Officials Investigated," *China Daily*, January 23, 2015, http://usa.chinadaily.com.cn/china/2015-01/23/content_19384507.htm

³⁰⁵ Ji Jin, "Anti-corruption Campaign May Be Nearing Completion: 'Tiger' Arrested Impacts the Stock Market," *Sina Finance*, August 7, 2014, <http://finance.sina.com.cn/china/20140807/185019944384.shtml>; Ming Fu and Quanlun Deng, "The Amount of Corruption in Chinese Energy Sector Might be up to Trillions RMB: Many CNPC Officials Escape to Overseas," *Sina Finance*, September 2, 2014, <http://finance.sina.com.cn/china/20140902/040820184953.shtml>; Yue Qi, "Corruption in Macroeconomics," *The Beijing News*, December 12, 2014, http://hn.ifeng.com/jingji/jingjixinguancha/detail_2014_12/26/3342462_0.shtml.

³⁰⁶ Jamil Anderlini and Lucy Hornby, "Captured in a Chinese Tiger Hunt," *Financial Times*, March 31, 2014. For more details on the purge of Zhou Yongkang, see <http://www.scmp.com/topics/zhou-yongkang>;

New chairmen have been named for the country's top three state-owned oil companies since major reforms began in 2014.³⁰⁷ Guo Jiaofeng, a deputy director at the Institute of Resources and Environmental Policy under the State Council's Development Research Center, said recent changes in the international and domestic energy markets – changes marked by falling profits for oil companies – have offered an opportunity to push China's energy reform agenda.³⁰⁸ However, the implementation of this reform agenda is likely to remain unchanged as the country deals with rising dependence on foreign supplies of crude, said Lin Boqiang, director of the China Center for Energy Economics Research at Xiamen University.³⁰⁹

Speculations about the linkage between energy reforms and the corruption campaign raise a question: Is the government weakening the monopolies to stem corruption, or is it using corruption charges to overcome resistance to energy reforms?³¹⁰ A common ground between these explanations is that the energy sector is dominated by state-owned enterprises and that cases in which people trade power for money abound.³¹¹ Whatever

<http://www.bloomberg.com/bw/articles/2014-12-08/tiger-zhou-yongkang-to-be-tried-for-corruption-in-china>; <http://www.cnn.com/2014/12/05/world/asia/china-zhou-yongkang/>; <http://www.economist.com/news/china/21636086-zhou-yongkang-may-well-have-been-corrupt-his-real-problem-was-losing-power-struggle-tiger>; <http://foreignpolicy.com/2014/12/05/happy-friday-zhou-yongkang/>.

³⁰⁷ Wang Yupu, the deputy head of the Chinese Academy of Engineering, replaced Fu Chengyu as chairman of Sinopec Group in May 2015. The central government also announced Wang Yilin, a former CNPC executive and the chairman of China National Offshore Oil Corp (CNOOC), would become the chairman of CNPC.

³⁰⁸ Huang Kaixi, "New Faces, New Reforms for Big Oil in China," *Caixin Online*, May 14, 2015, <http://english.caixin.com/2015-05-14/100809088.html>.

³⁰⁹ Du Zuan, "New Leaders Take Reins at Oil Giants," *China Daily*, May 5, 2015, http://www.chinadaily.com.cn/china/2015-05/05/content_20619383.htm.

³¹⁰ Michael Lelyveld, "China's Oil Giants Face Probes Amid Mounting Anti-Graft Drive," *Radio Free Asia*, July 14, 2014, http://www.rfa.org/english/commentaries/energy_watch/probes-07142014105656.html.

³¹¹ Huang Kaixi, "New Faces, New Reforms for Big Oil in China," *Caixin Online*, May 14, 2015, <http://english.caixin.com/2015-05-14/100809088.html>. Lucy Hornby, "China's Anti-corruption Drive

the connections between the two explanations may be, state-owned oil companies have been scrambling to satisfy the government's demand for "opening up" the energy sector, producing a series of incremental steps.

On June 25, 2014, state-owned CNPC announced the opening of its oil and gas pipeline network to suppliers other than its PetroChina subsidiary and existing customers, four months after the National Energy Administration (NEA) issued a plan partially to end CNPC's monopoly over China's pipeline system. The opening of CNPC's pipelines to third parties can be a breakthrough for energy development that could attract more producers to Chinese markets, since CNPC controls 90 percent of the country's pipelines for crude oil and 70 percent for natural gas. However, it is not clear how far CNPC's move goes toward satisfying the NEA mandate, which is a part of a larger plan to open up China's petroleum sector to mixed ownership and investment. In his report to the National People's Congress in March 2014, Premier Li Keqiang outlined plans for developing a "mixed-ownership economy" allowing non-state capital to invest in state-owned enterprises (SOEs). In line with this move, China Petrochemical Corp. (Sinopec) announced restructuring plans for its distribution business that would allow social and private capital to buy up to 30 percent of the shares in its chain of filling stations. In addition, CNPC PetroChina stated plans to spin off sections of its vast gas pipeline system into a new subsidiary to be sold by public tender.³¹²

Clearly, the Chinese energy sector is undergoing a difficult time both at home and overseas. Low oil prices are bringing the state giants out of their shell, and large overseas

Focuses on Energy Industry," *Financial Times*, May 28, 2014, <http://www.ft.com/intl/cms/s/0/5379486c-e608-11e3-a7f5-00144feabdc0.html#axzz3S8SaKtKt>.

³¹² Lelyveld, "China's Oil Giants Face Probes Amid Mounting Anti-Graft Drive."

energy deals are unlikely because the state oil majors are distracted by anticorruption investigations at home. Legal disputes in Africa are also another variable. The home front mirrors the trend of China's overseas investment, with energy and power firms in the unwanted position of being front and center in Xi's anti-corruption campaign. The arrests of high-ranking energy technocrats at home reflect that Chinese oil companies were less competitive in overseas investment in 2014.³¹³ In this respect, Chinese NOCs are likely to be inward focused at least for the short-term. For instance, Sinopec's top priorities for 2014 are domestic-focused, such as development of shale gas and the sale of a minority stake in its retail fuel business.³¹⁴

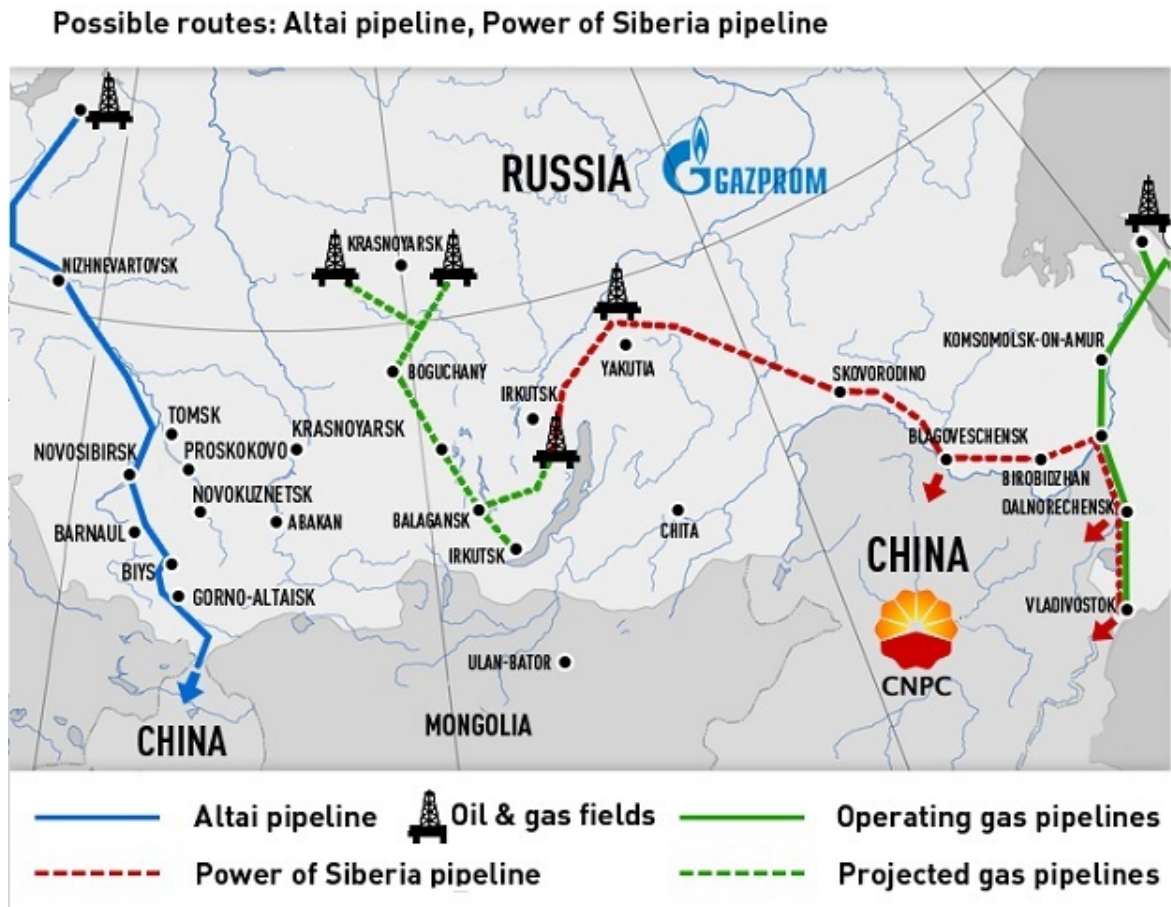
Strategic Rush for the Altai Gas Pipeline, and Russia's Cancellation of the South Stream Pipeline

On November 9, 2014 Gazprom and CNPC signed a memorandum of understanding (MOU) and a framework agreement to supply gas from Russia to China via the western route through the "Altai" pipeline. The agreement called for the delivery of 30 billion cubic meters annually from West Siberia for 30 years starting in 2018. Since Xi and Putin brokered the deal just one day before Obama's arrival in Beijing for the APEC summit, analysts have been debating why China and Russia took a giant step on another massive energy deal and how significant the deal is likely to be.

³¹³ Derek Scissors, "China's Outward Investment Healthy, Puzzling," American Enterprise Institute (AEI) Research (2015).

³¹⁴ China Petroleum & Chemical Corporation (Sinopec), "2013 Annual Results Announcement," (2014).

Map 4. Altai Gas Pipeline



(Source: Gazprom)

Some speculate that the agreement on the Altai pipeline seems more of a political statement than a substantial effort, given that the new deal is not binding and lacks agreement on key elements, most notably price.³¹⁵ These analysts pay attention to the fact that a handful of similar memorandums were announced during the decade-long

³¹⁵ Meghan L. O'Sullivan, "New China-Russia Gas Pact Is No Big Deal," Bloomberg View, November 14, 2014.

negotiations that preceded the May deal on the “eastern route,” efforts that had little effect.³¹⁶

Some Russian and Chinese energy specialists contend that China does not seem really enthusiastic about the idea of the “western route” despite the political rhetoric, given that Chinese authorities considers it as only one of several energy supply possibilities and certainly not a top priority. China already has gas supply contracts with Central Asian countries, Russia via the “eastern pipeline route,” and Myanmar in terms of overland pipelines, in addition to huge amounts of LNG contracts. China would not necessarily want to create supply bubbles by adding the Altai project to the current portfolio, which might cause problems for CNPC.³¹⁷

On the other hand, some pronounced the deal as a game-changer, a symbol of a new strategic partnership between long-estranged countries. Zhang Xin, CNPC’s director of foreign relations, said the companies are confident they will sign a commercial contract as early as next year. Zhang said this confidence is based on the fact that talks for western route deliveries have been underway for a long time, and – even though tensions did arise – the level of mutual understanding and trust has grown, citing CNPC’s strategic

³¹⁶ O’Sullivan, "New China-Russia Gas Pact Is No Big Deal." Skalamera, "The Sino-Russian Gas Partnership: Explaining the 2014 Breakthrough."

³¹⁷ Author’s interview with Tatiana Mitrova (also her comments from: Tatiana Mitrova’s lecture, “Looking East Amid a Crisis to the West: Russia’s Energy Export Strategies,” Edwin O. Reischauer Center for East Asian Studies Seminar Series, Johns Hopkins School of Advanced International Studies (SAIS), on October 14, 2014). Also such perspectives are based on comments from Nina Poussenkova and Yuki Yu, at the “Energy Geopolitics in Eurasia: Sino-Russian Gas Deal, Central Asian Piped Gas, and Their Impacts on the Korean Peninsula (Session 3),” Natural Gas Cooperation for the Unified Korean Peninsula and the Lessons from Germany, 2014 International Energy Conference (Seoul), Institute of East and West Studies & Yonsei-SERI EU Centre, Yonsei University, on November 21, 2014.

partnership agreements with Gazprom and Rosneft.³¹⁸ Highlighting that the Altai deal will make Russia a “swing supplier” between the European market and Asian market³¹⁹, Keun-Wook Paik, senior fellow at the Oxford Institute for Energy Studies, said “China would like to show openly that Sino-Russian energy cooperation is no longer driven by necessity but forms a core part of strengthened, strategic-level cooperation between the two countries.”³²⁰

According to Interfax, the conclusion of the western route would see Russia pump up to 68 billion cubic meters (bcm) of natural gas per year to China (together with the 38 bcm gas deal signed in May) by the middle of the next decade, which would be about one-fifth of China’s expected gas demand in 2020.³²¹ If China and Russia agreed on price and transformed this Altai pipeline memorandum into a binding agreement in the near future, it could certainly ease Russia’s isolation, help wean China off its unhealthy dependence on coal, and thus strengthen economic and political ties between the two countries. However, the deal is far from complete. There remain a host of unresolved issues, including the price China will pay for the gas. Moreover, this time Russia will have to make even more concessions than in the May 2014 deal, given that the new deal requires

³¹⁸ Gennady Krivosheyev, “Altai Pipeline Will Go Direct from Russia to China,” *Interfax Natural Gas Daily*, November 18, 2014, <http://interfaxenergy.com/gasdaily/article/14214/altai-pipeline-will-go-direct-from-russia-to-china>.

³¹⁹ Keun-Wook Paik, “Sino-Russian Gas and Oil Cooperation: Entering a New Era of Strategic Partnership?” OIES Paper WPM 59, Oxford Institute for Energy Studies, April 2015.

³²⁰ For Paik’s comment, see Keith Johnson, “Xi’s Just That into You,” *Foreign Policy*, November 10, 2014. He also discussed whether Sino-Russian oil and gas cooperation will move to the strategic level (i.e. the possibilities of 1) the Altai MOU to be converted into a binding agreement, and 2) the potential sale of Rosneft’s 20 percent equity to CNPC in the foreseeable future) at “Sino-Russian Gas and Oil Cooperation: Entering a New Era of Strategic Partnership?” (2015).

³²¹ Colin Shek, Li Xin and Zhang Yiping, “China and Russia Close in on Second Major Pipeline Deal,” *Interfax Natural Gas Daily*, November 10, 2014, <http://interfaxenergy.com/gasdaily/article/14149/china-and-russia-close-in-on-second-major-pipeline-deal>.

Russia to ship gas to China's sparsely populated west and China to then ship the gas a thousand miles overland.³²² Arguably, the Ukraine crisis has already made Russia more desperate to avoid the appearance of isolation, meaning the second pipeline deal of 2014 (the Altai deal) involved more substantial concessions to China on pricing than the first one (the Power of Siberia deal).³²³ Together with the recent dip in oil prices, which is driving down the price of natural gas (given that many gas contracts in Asia are indexed to the price of oil), prolonged Western sanctions on Russia's energy, defense, and finance sectors have resulted in the collapse of the ruble, thereby pushing Russia into a crisis mode. Given that Russia will likely run out of cash by the end of 2016 if oil prices do not rise and sanctions are not lifted, Russia is likely to make more concessions and rely on China both financially and politically. Russia, therefore, had been eagerly anticipating the second natural gas deal with China ever since the ink dried on the first one in May 2014. Snagging another major contract with China significantly offset Russia's reliance on the European market, giving Moscow a powerful ally when friends appear hard to come by.³²⁴

In October 2014 Gazprom, announced for the first time that it is ready to shelve its Vladivostok LNG project and focus on supplying more gas to China via pipelines. Much of the LNG produced at Vladivostok would have been sold to Japan, with production starting in 2018 at an annual capacity of 10 million tons. The project would be the first major Russian energy project to be scrapped since the United States and Europe targeted

³²² Johnson, "Xi's Just That into You."

³²³ For such arguments, see Mankoff, "The Ukraine Crisis and the Future of Sino-Russian Relations."

³²⁴ Johnson, "Xi's Just That into You."

the country's energy industry with sanctions.³²⁵ On December 1, 2014 Putin announced that Russia halted the South Stream pipeline that would supply gas to southern Europe, bypassing Ukraine. Instead, he named Turkey as its preferred partner for an alternative pipeline, by signing a preliminary deal with the Turkish company Botas Petroleum Pipeline to build a pipeline under the Black Sea to Turkey. Fyodor Lukyanov, head of the Council on Foreign and Defense Policy and an advisor to the Russian government, explained that "Europe for some years has seen Russia not as a source of energy security, but as a risk. When the conflict with Ukraine started, it became clear that building this or any other new pipeline to Europe was impossible."³²⁶ Interestingly, however, Putin made a U-turn, announcing that his country has not given up on the South Stream during his visit to Hungary on February 17, 2015.³²⁷

During the last decade, Russia has exhibited some regular patterns in dealing with geopolitical turmoil. First, Russia tends to send political messages to the rest of the world that it always has other options during a crisis. Second, Russian political leaders tend to be willing to bear economic costs for geostrategic gains, and such a tendency is likely to intensify when Russia's political and economic relations with the West are at risk. In order to keep its geopolitical leverage, Russia keeps sending its political messages to the West that it has other strong partners to work with. Russia's eagerness for the second major gas deal with China was driven by geostrategic calculations rather than commercial

³²⁵ Jack Farchy, "Gazprom Considers Shelving Vladivostok LNG project," *Financial Times*, October 10, 2014, <http://www.ft.com/intl/cms/s/0/16eb3ef2-509b-11e4-8645-00144feab7de.html#axzz3SU6mMbcM>.

³²⁶ Stephen Bierman, Ilya Arkhipov, and Elena Mazneva, "Putin Scraps South Stream Gas Pipeline After EU Pressure," *Bloomberg*, December 2, 2014, <http://www.bloomberg.com/news/articles/2014-12-01/putin-halts-south-stream-gas-pipeline-after-pressure-from-eu>.

³²⁷ Georgi Gotev, "Putin: We Haven't Given up the South Stream Project," *EurActive*, February 18, 2015, <http://www.euractiv.com/sections/energy/putin-we-havent-given-south-stream-project-312224>.

considerations, given that Russia will have to make more substantial concessions to finalize the second deal and strengthen economic and political ties with China. The decision to shelve the Vladivostok LNG project can be understood under the same logic, with Russia intending to focus on selling more gas to China via pipelines rather than starting a new project for LNG (which is one of the major trends of the global transformation of energy market) and rather than selling gas to Japan. Pipelines are strategically important to Russia because they create infrastructure and investment.³²⁸ In the current geopolitical environment, China is a more important country than Japan to Russia both politically and economically as Russia struggles to prevent the country from falling into recession amid plunging oil prices and lingering sanctions. Similarly, the decision to concentrate on supplying gas to Turkey through a different Black Sea pipeline in lieu of the South Stream pipeline to southern Europe is part of Putin's message to Europe and his attempts to increase its geopolitical leverage.

Another puzzle is what has changed the mindset of Chinese decision-makers, as Beijing had previously not welcomed the western Altai pipeline route. One major factor is that China's social stability is at stake, as public anger has spiraled over air pollution caused by decades of coal burning. Boosting the supply of cleaner burning gas could help wean China itself off of its unhealthy dependence on coal, which is a key political goal in the country's current domestic politics.³²⁹ Next, having one more gas pipeline can provide additional security of supply to China, given that Chinese leaders have always been uncomfortable with the country's growing dependence on seaborne energy imports, crude

³²⁸ Tatiana Mitrova, "Looking East Amid a Crisis to the West: Russia's Energy Export Strategies," Edwin O. Reischauer Center for East Asian Studies Seminar Series, Johns Hopkins School of Advanced International Studies (SAIS), on October 14, 2014.

³²⁹ Colin Shek, Li Xin and Zhang Yiping, "China and Russia Close in on Second Major Pipeline Deal."

oil in particular, because it exposes a critical vulnerability in global chokepoints where the U.S. Navy is still dominant. Piped gas from Russia also dovetails with Moscow's desire to edge out the prospects of American LNG exports to Asia.³³⁰ More broadly, it makes sense for China to keep Russian onside as much as possible in order to promote Beijing's ambitious "Silk Road Economic Belt (SREB)" initiative effectively, which has already raised tensions with Moscow over its sphere of influence. Chinese decision-makers are very aware that Moscow has drifted closer towards Beijing's orbit since the Ukraine crisis, and might try to take this opportunity to not only remove any political obstacles from Russia, but also to secure more economic gains (as Russia has to make more concessions on pricing).³³¹

After Gas Deals: Delaying Pipeline Projects?

On March 18, 2015, Reuters reported that Russia might postpone the Power of Siberia project until after it builds the cheaper Altai pipeline route from existing fields to China's western regions. Although Russia denied any such delay (and Gazprom declined to comment), such a change would effectively downgrade one of Putin's signature projects to find new markets for the country's energy resources in Asia, in response to Europe's reduction of its reliance on Russian energy.³³² Given the fact that the giant Bovanenkovo Yamal field (Map 5) that opened in 2012 now pumps around 40 billion cubic meters (bcm) of natural gas a year and has a maximum capacity of 140 bcm, the western Altai route that would provide China with gas from Yamal is much cheaper for Russia than the

³³⁰ Johnson, "Xi's Just That into You."

³³¹ Paik, "Sino-Russian Gas and Oil Cooperation: Entering a New Era of Strategic Partnership?"; Mankoff, "The Ukraine Crisis and the Future of Sino-Russian Relations."; Johnson, "Xi's Just That into You."

³³² Europe cut imports from Russia by 9 percent to 147 billion cubic meters (bcm) in 2014.

Power of Siberia project that requires the development of new gas fields in remote eastern Siberia. Given the 50 percent decline in global oil prices since the May 2014 gas deal was signed (the gas price under the contract is linked to oil prices), the Power of Siberia would be unprofitable for Gazprom.³³³ However, the Altai route is considerably less attractive to China — as it already has surplus supplies in the west, but is short of gas in the industrial east. In addition, the Altai route would require a huge new pipeline system within China to bring gas from Yamal to China’s remote far western border, which might even require a serious change in China’s Five-year Plan.³³⁴

In fact, the contract between Russia and China for gas supplied via the Altai gas pipeline is also being delayed mainly because China is reviewing its energy needs. China’s growth in demand for gas is slowing due to the country’s economic slowdown³³⁵ and liquefied natural gas (LNG) is becoming more available in the country due to the fall in oil prices. According to Russian Deputy Prime Minister Arkady Dvorkovich, the negotiations on the Altai pipeline were underway in July 2015, but it is unclear how much it would take to finalize the deal.³³⁶ Final agreements for the Altai pipeline would require strong political

³³³ Analysts estimate that the gas price implied by the contract was around \$350-380 per thousand cubic meters when it was signed in May 2014. Given the 50 percent decline in oil prices since then, “it could be as low as \$175 per thousand cubic meters – clearly a lossmaking level.” Jack Farchy, “Gazprom’s China Contract Offers No Protection against Low Prices,” *Financial Times*, August 10, 2015.

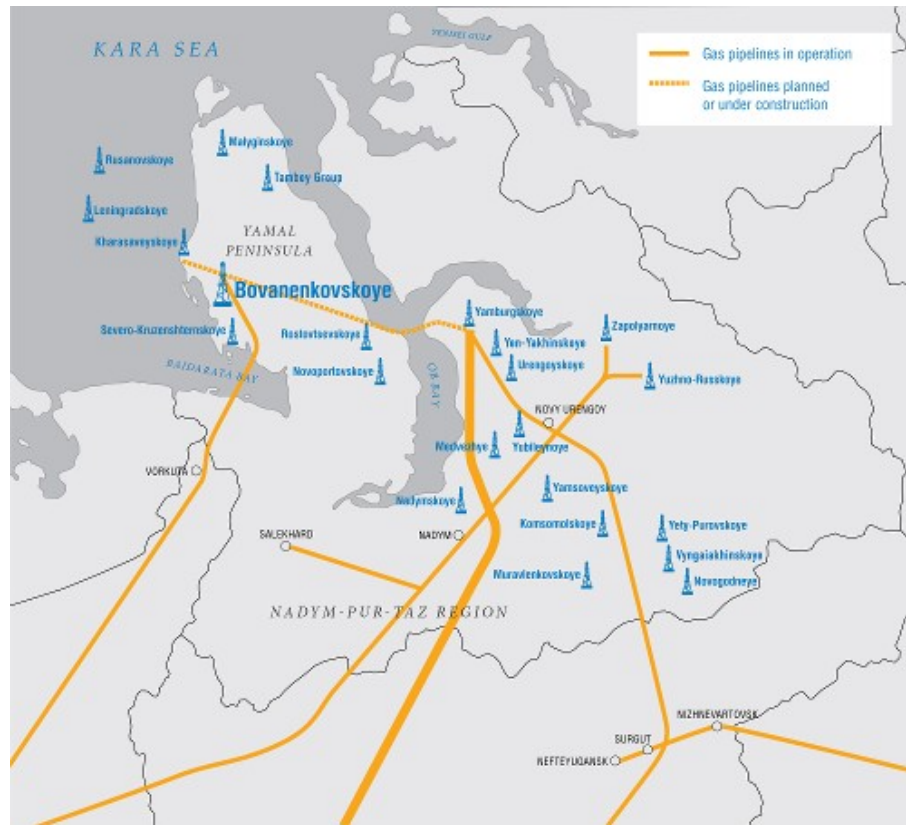
³³⁴ Denis Pinchuk, Svetlana Burmistrova, and Katya Golubkova, "Russia Could Postpone Gas Pipe to China Touted by Putin," Reuters, March 18, 2015.

³³⁵ According to the BP Statistical Review of World Energy 2015, gas consumption in China grew by 12-13 percent in 2013, but the growth fell to 8.5 percent in 2014, <http://www.bp.com/en/global/corporate/about-bp/energy-economics/statistical-review-of-world-energy.html>.

³³⁶ “Russia-China Deal on 2nd Gas Route Postponed,” *Reuters*, July 22, 2015, <http://www.rt.com/business/310451-gazprom-cnpc-gas-deal/>.

motivations on both sides, said Sergei Sanakoyev, president of the Russia-China Analytical Center.³³⁷

Map 5. The Yamal Peninsula and the Bovanenkovo field



(source: Gazprom)

It might seem logical for Russia to delay the Power of Siberia project and develop the Altai project by utilizing spare capacity from existing gas fields, given that the fall in global energy prices along with prolonged Western sanctions on Russia have hurt the case for investing in new fields. However, the Altai route has been a longtime Russian priority in negotiations with China, and Russia consistently pursued the Altai pipeline until it finally accepted China's preference of the eastern gas supply route along with the

³³⁷ Ibid.

major Chinese loans for oil deals between Rosneft and CNPC and between Rosneft and Sinopec in 2013. If Russia wants to advance the Altai route before the Power of Siberia pipeline (the terms of which have already been finalized), Russia will have to make even more concessions on price and other key elements than it estimated when signing a MOU with China on the Altai project in November 2014.

Given all the factors that are pushing Russia into a crisis mode, including the collapse of the Russian ruble resulting from extended Crimea-related Western sanctions on the Russian economy and the recent dip in global energy prices, the Altai option might be the most effective strategy and probably the only way for Russia to accomplish the two goals at the same time: 1) to be a swing producer in both the European and Asian natural gas markets and 2) to strengthen economic and political ties with China, which has been a major source of financing for Russian energy projects. However, it is not likely that China would be willing to change its prioritization of the eastern over the western gas pipeline route between the two countries, in spite of the challenges that China is currently facing. China's energy sector is undergoing a difficult time both at home and overseas due to its being a target in President Xi's anti-corruption campaign and due to low oil prices. Chinese energy planners, and CNPC in particular, do not seem eager to take any political or economic risks by entering into different negotiations with Russia to develop an additional pipeline that is a top priority for Russia, but not China. Once China takes a stronger position in the course of negotiations, it tends to give the other side (Russia in this case) little leverage.³³⁸

³³⁸ Negotiations are a central feature of Chinese domestic and international behavior and are a core aspect of Chinese thinking. The Chinese approach to negotiations can be characterized as (1) the search for the

CONCLUSION

Russian energy policy does not seem to have been a coherent process shaped by a strategic assessment of fundamentals.³³⁹ Cross-border pipelines, in most cases, are strategic projects in the grand Soviet tradition, built by state-owned enterprises. The strategic project drives the investment priorities, rather than the other way around.³⁴⁰ For Moscow, creation of new energy infrastructure such as pipelines is regarded not only as a tool to revitalize its economy, but also as a means to achieve international political and economic gains.³⁴¹ In many cases, the decision is made first, then the project is implemented, money is invested, and later the project stands unclaimed or idle.³⁴² In China, things are different, as Beijing has a history of building pipelines first and then securing the oil or gas supplies to fill them, whereas Moscow prefers to sign supply agreements first and then construct pipelines.³⁴³ However, the development of pipelines is politically driven in both China and Russia. Although it is not as easy as in the Russian case to understand which power groups in China supported certain pipeline projects, it is

best deal after all possible permutations of gains and losses have been explored and considered, and (2) the need for the Chinese side to bargain among itself first before accepting the final deal. In the realm of international negotiations, the Chinese portray themselves as occupying one of four different power positions: (1) the stronger position, giving the other side little leverage, or playing the role of a solicitously helpful stronger partner; (2) the posture of the needy, weaker party, in which case the other “stronger” party has an obligation to help or rectify past injustice; (3) the posture that its power is growing, so that arriving at a deal earlier will be more advantageous to the other party than waiting; and (4) the posture that the two parties need each other, requiring flexibility and accommodation among both sides. See David M Lampton, *Following the Leader: Ruling China, from Deng Xiaoping to Xi Jinping* (Berkeley and Los Angeles: University of California Press, 2014), p. 192-218.

³³⁹ Baev, "Rosneft, Gazprom, and the Government: The Decision-Making Triangle on Russia's Energy Policy."

³⁴⁰ Gustafson, *Wheel of Fortune: The Battle for Oil and Power in Russia*.

³⁴¹ Putin, "Vladimir Putin's Academic Writings and Russian Natural Resource Policy Mineral Natural Resources in the Strategy for Development of the Russian Economy."

³⁴² Khvostunova, "Rosneft vs. Gazprom."

³⁴³ Erica Downs, "Sino-Russian Energy Relations: An Uncertain Courtship," in Bellacqua, *The Future of China-Russia Relations*.

obvious that political leadership in Beijing has generally been more supportive of pipeline projects than NOCs have.³⁴⁴ The fact that not even top CNPC decision-makers were sure about their May 2014 Power of Siberia pipeline deal until last minute, and with presidents Xi and Putin involved in the final stages of pipeline negotiations, shows that the POS project was ultimately a political decision.³⁴⁵ And given that Xi's anti-corruption campaign has paralyzed CNPC's decision-making since 2012, it makes sense to speculate that the political leadership in China has more power than NOCs in developing cross-border pipelines.³⁴⁶

In this respect, I have argued that the nature of the Sino-Russian strategic energy partnership is transactional rather than comprehensive. Energy is a weak link binding the two countries together,³⁴⁷ as the strongest element in any bilateral relationship is shared political interests. Mistrust between China and Russia has hindered their more pragmatic-oriented energy ties from evolving into an enduring partnership. This mistrust has been driven by Russia's perceptions of China's demographic threat in the Russian Far East and strategic competition over the countries' shared neighboring regions such as Central Asia. Moreover, Moscow fears that with the widening gap between a rising China and a

³⁴⁴ Based on author's interview with Erica Downs.

³⁴⁵ Author's interview with Keun-Wook Paik. The agreement over the fundamental elements (including pricing formula) to finalize the Power of Siberia deal was made within the final 48 hours of negotiation, with presidents Xi and Putin's strong involvement (during Putin's visit to China in May 2014).

³⁴⁶ Another example is that CNPC wanted to build a crude pipeline to Kazakhstan in 1996, but the idea was rejected by Beijing. The idea came up again when China's Prime Minister Wen Jiabao discussed it with Kazakhstan's Prime Minister Daniyal Akhmetov. Kazakhstan and China agreed on the construction of Kenkiyak–Kumkol section on August 18, 2007, and the construction of the section was completed on July 11, 2009. See Erica Downs, "Mission Mostly Accomplished: China's Energy Trade and Investment along the Silk Road Economic Belt," *China Brief* 15, no. 6 (Jamestown Foundation, 2015), http://www.jamestown.org/uploads/media/China_Brief_Vol_15_Issue_6_2_01.pdf.

³⁴⁷ See for example, U.S. Congress, Senate, Committee on Energy and Natural Resources, "The Geopolitics of Oil and America's International Standing," testimony by Flynt Leverett, 110th Cong., 1st sess., January 10, 2007.

declining Russia, increasing dependence on China as an energy export destination will eventually constitute a threat to national security. Beijing, meanwhile, is concerned with whether Russia will fulfill its promises. The delay of the POS project mentioned above provides a strong example of why China is suspicious of Russia as reliable trading partner. Given that the development of Sino-Russian pipelines is driven by political decisions in each country, and that the two countries are still suspicious of each other on other major dimensions such as politics, the argument that China-Russia energy ties are bolstering cooperation or comprehensive partnership are misplaced.

The transactional nature of energy relations between Russia and China hindered the two countries from successful engagement and materialization of any major joint venture participation in the Russian upstream sector so far. As Table 3 shows, there has been a pattern where Russia invites Chinese participation only in less significant upstream projects, and more substantial joint ventures have been in limbo due to various reasons. I argue that lack of political alignment (i.e., low political trust) between the two countries is one of the key factors that prevented Chinese companies from gaining access to significant reserves in Russia independently. While Rosneft has been consistently trying to open the Russia's upstream sector to Chinese NOCs (mainly for the purpose of helping manage its accumulated debt), no Chinese equity acquisition of major stakes in the Russian upstream sector has been realized—not only because of the limited participation of foreign companies in the development of Russia's strategic assets, but also because of the lingering political mistrust between Russia and China. Unlike the oil sector, there have been no discussions of equity arrangements in Russian natural gas production, since Gazprom has not yet been willing to consider such an option.

**Table 4. Current Status of Chinese Participation
in the Russian Oil and Gas Upstream Sector***

<p>Venineft, a joint venture of Rosneft (74.9%) and Sinopec (25.1%) established in 2005 to run the geological survey and develop the Veninsky block of Sakhalin-3 project. Sinopec withdrew from the project in 2010 because Rosneft repeatedly delayed the signing of a formal exploration and development agreement with Sinopec despite the high exploration costs and huge amount of money Sinopec had already put into the project.³⁴⁸</p>
<p>Sinopec purchased a 97% stake in Udmurtneft, the subsidiary of TNK-BP, through the company Promleasing, in August 2006. Later Rosneft acquired 51% of Promleasing from Sinopec, and the two companies signed a shareholder agreement on the joint management of Udmurtneft. However, Rosneft implemented the strategy of “your money for our assets but still under our control”³⁴⁹ and ultimately purchased TNK-BP in 2012.</p>
<p>Rosneft (51%) and CNPC (49%) formed the joint venture Vostok Energy in 2006 for the exploration and production of hydrocarbons in Russia. In 2007, Vostok Energy won licenses for two small deposits in Irkutsk Oblast, located near the ESPO pipeline. However, the joint venture has been mothballed after the licenses it obtained proved to be uninspiring.</p>
<p>In the course of Rosneft’s IPO, CNPC acquired 0.6% of Rosneft shares for \$500 million</p>

³⁴⁸ “Russia: Sinopec Ends Oil Exploration at Sakhalin-3”, *Newswire Energy-pedia*, September 29, 2010, <http://www.energy-pedia.com/news/russia/sinopec-ends-oil-exploration-at-sakhalin-3>; Jing Yang, “Sinopec Considering Pulling Out of Sakhalin III Project,” *Interfax China*, October 16, 2007, <http://www.resourceinvestor.com/2007/10/15/sinopec-considering-pulling-out-sakhalin-iii-project>.

³⁴⁹ Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft."

in 2006.

Rosneft (51%) and **CNPC** (49%) set up a joint venture for upstream developments in **East Siberia**, in 2013. However, they have not reached a final agreement, but have only signed a memorandum for future upstream development. No progress has been made so far because the estimated cost for the project is too high according to CNPC.³⁵⁰

Rosneft and **CNPC** signed a framework agreement for CNPC to take a 10% stake in Russia's **Vankor oil field** in November 2014.³⁵¹ There has been no update on this project so far.

(*Table 3 made by author based on the sources: Nina Poussenkova, "Russia's Eastern Energy Policy: A Chinese Puzzle for Rosneft " *Russie.NEI.Visions* 70 (2013), and Tatiana Mitrova, "Russia-Northeast Asia Energy Trade and Investment: Opportunities and Challenges," 2014 North Pacific Energy Dialogue in the Shale-Gas Era Conference Paper, *East-West Center* (2014). For other sources, see footnotes.)

Moreover, China and Russia have not formed a joint venture (JV) as a consortium in the development of cross-border pipeline projects. The ESPO pipeline is owned and operated by Transneft, Russia's state-owned pipeline monopoly company, with the exception of the Chinese section of the spur line from Russia.³⁵² The construction of the ESPO pipeline was financed by the Chinese Development Bank (CDB) in the form of loans. The CDB lent \$10 billion to Transneft for the construction of operation of a

³⁵⁰ Interfax, *Russia & CIS Oil and Gas Weekly*, 13-19 November 2014.

³⁵¹ Ibid.

³⁵² The Chinese section of the Skovorodino-Daqing spur (from Mohe to Daqing) was built and is operated by CNPC.

Skovorodino-Mohe pipeline.³⁵³ As Russia did not allow Chinese NOCs to take equity positions in Russia's upstream sector, China instead financed the target supply source to ensure long-term supply security. The CDB provided \$15 billion in loans to Rosneft, Russia's largest state-owned oil producer, for a twenty-year contract on the delivery of 15 million tons of oil annually.

Although the arrangements in terms of financing for the construction and gas supply of the POS pipeline have not been disclosed, they are likely to be in a similar to the terms in the ESPO pipeline project. An estimated \$25 billion out of the total capital cost of \$55 billion for building the POS pipeline was expected to come from CNPC, but prepayment failed to materialize. Consequently, industry experts now speculate that Gazprom plans to attract loans for the project from Chinese banks. Although no concrete agreements have been reached yet, Chinese loans seem the only viable option for Russia to finance pipeline construction and upstream development, given that financing from Western companies is blocked under the economic sanctions following Russia's annexation of Crimea and that these investments are less attractive due to lower global oil prices since 2014.

In sum, no major Sino-Russian joint venture participation in the Russian upstream or related cross-border pipeline projects has been realized so far, which seems to show that the low level of mutual trust between China and Russia prevents shared ownership of large-scale infrastructure projects such as pipelines that are strategically important to both countries. Therefore, the Sino-Russian strategic energy partnership will likely remain transactional for some time.

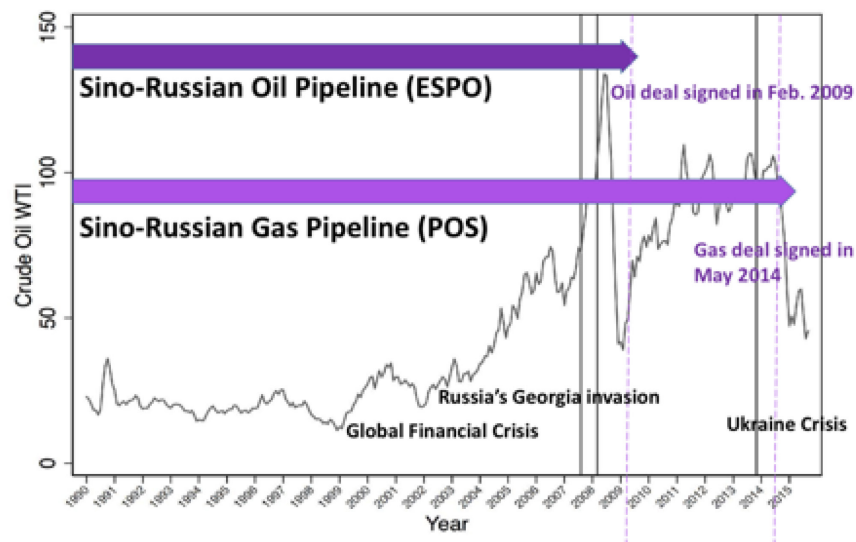
³⁵³ The Skovorodino-Daqing spur goes through Mohe, which is on the border between Russia and China.

The key finding of the Sino-Russian oil and gas pipeline cases is that the changing geopolitics due to crisis situations has profoundly shaped the Sino-Russian energy relations. Binding agreements for cross-border oil and gas pipelines were signed when 1) Russian-Western relations were at odds – with Russia’s invasion of Georgia in 2008 and Russia’s annexation of Crimea in 2014 and/or 2) unexpected external factors such as the Global Financial Crisis and collapsing oil prices compelled Russia to rely on Chinese capital (see Figures 5 & 6). Although I also examined the difference between oil and gas deals, I focused on the similarity between the two in order to explain why Sino-Russian bilateral deals for direct-link pipelines have faced more obstacles and taken longer than the deals for multi-state export pipelines carrying Caspian oil and gas to European markets (which I will examine in Chapters 6 and 7).

In developing energy relations with China, Russia repeatedly engaged in tactics of strategic delay through political gestures or through signing non-binding agreements. Russia tends to have signed its series of agreements with China when Russia’s relations with West were complicated or on bad terms, but has not been willing to compromise on fundamental disagreements over price and equity until Russia desperately needed China’s help. The inflow of Chinese capital (e.g., three major “loans for oil” from the Chinese Development Bank) has undeniably served as a key driver facilitating the finalization of binding agreements between the two countries. Ultimately, changes in the geopolitical environments have prompted both Russia and China to approach their bilateral energy relations from a different angle. Russia decided to make concessions with China to preserve its geopolitical leverage at critical historical junctures. On China’s end, there are strong incentives to combine market and strategic considerations by diversifying its

energy import portfolio through Russian piped oil and gas.³⁵⁴ China's decisions to invest in importing Russian oil and gas captures how government concerns about security of supply and domestic political agendas are linked with national oil companies' commercial interests.

Figure 5. Sino-Russian Oil and Gas Pipeline Deals and the Impact of Geopolitics and External Crisis



In addition to external geopolitical and economic factors, I also argue that lack of political alignment between China and Russia due to mutual distrust was one of the key elements to delay the finalization of both oil and gas deals. Sino-Russian pipeline deals took a long time to finalize due to low political will within the two countries, despite substantial economic incentives for energy cooperation as complementary partners. Conversely, relatively high levels of political alignment among host countries enabled

³⁵⁴ Wenran Jiang, "Energy Security, Geopolitics and the China-Russia Gas Deals," *China Brief Volume 9*, Issue 2 (2015).

Caspian pipelines to move ahead more quickly despite relatively less substantial economic incentives (e.g., relatively small volumes of oil and gas). Moscow fears that with the widening gap between a rising China and a declining Russia, increasing dependence on China as an energy export destination will eventually constitute a threat to national security. Beijing, meanwhile, is suspicious of Russia's reliability as a trading partner.

Changing internal dynamics in each country have also driven the development of cross-border pipelines. In Russia, the changing dynamics between Rosneft and Gazprom under Putin's leadership will likely determine the future path of the Russian energy sector's development. With Rosneft's strategic moves into the Asia-Pacific market, particularly into China, and its efforts to end Gazprom's monopoly in gas exports, the alignment of oil and gas companies' short-term corporate interests with Russia's long-term strategic goals will be critical to determining Russia's future, especially given the geopolitical turmoil with the Ukraine crisis and resulting Western sanctions, the collapse of the ruble, and the fall of global oil prices. In China, meanwhile, President Xi Jinping's anti-corruption campaign, as well as the increasingly salient political issue of air pollution, helps explain the changing dynamics involving its energy sector. Under Xi's energy revolution initiative, natural gas seems to be the most feasible option to aid in alleviating air pollution, and the Chinese leadership implemented a radical reform of the country's gas pricing system in 2013. Moreover, Xi's anti-corruption campaign will likely to drive Chinese national oil companies to be inward-focused rather than engaging in overseas investment, at least for the short-term.

Finally, Sino-Russian gas pipeline development took much longer to materialize than oil pipeline development. From the market point of view, it is more technologically difficult and consequently more expensive to build natural gas pipelines than oil pipelines.

Beyond clear market reasons, natural gas trade tends to be more vulnerable to political influence than oil trade due to oil and natural gas's inherently different characteristics as commodities. While oil is an internationally traded commodity, natural gas is a regionally traded commodity. While the price of oil generally refers to the spot price³⁵⁵ of a barrel of benchmark of crude oil,³⁵⁶ the pricing mechanism of natural gas displays regional differentiation. Outside of North America (where a deregulated Henry hub pricing mechanism of spot indexation reigns), countries typically sign a contract for natural gas trade that is linked to oil prices and has a long-term (usually thirty years) "take-or-pay" clause.³⁵⁷ In this respect, the gas pricing mechanism requires direct and long-term relationships between supplier and consumer states. I argue that the gas trade is more vulnerable to political orientation of the involved governments than the oil trade because natural gas is produced, transported, and traded through regional and fragmented markets. Natural gas transport infrastructure such as pipelines and LNG terminals is more susceptible to changes in the political orientation and stability of the governments involved.

³⁵⁵ A spot contract is a transaction of buying and selling a commodity, security, or currency for settlement (payment and delivery) on the spot date, which is normally two business days after the trade date. The settlement price is called spot price.

³⁵⁶ Benchmark crude or market crude is crude oil that serves as a reference price for buyers and sellers of crude oil. There are three primary benchmarks, West Texas Intermediate (WTI), Brent Blend, and Dubai Crude. Other well-known blends include the OPEC Reference Basket used by OPEC, Tapis Crude which is traded in Singapore, Bonny Light used in Nigeria, Urals oil used in Russia, and Mexico's Isthmus. [https://en.wikipedia.org/wiki/Benchmark_\(crude_oil\)](https://en.wikipedia.org/wiki/Benchmark_(crude_oil))

³⁵⁷ "Take-or-pay" clauses require the buyer to take an annual minimum volume of natural gas, or to pay for that volume whether or not it is taken.

China and Russia viewed gas pipeline projects as riskier than oil pipeline projects because they were uncertain whether they could ensure consistent political and security cooperation between the two countries for thirty years (the period of a gas pipeline take-or-pay contract). Underlying political-economic arrangements between Russia and China, and within each country, have a greater impact on the successful launch and deal speed of cross-border pipeline projects for natural gas than for oil. First, natural gas pipelines seem to be more affected by geopolitical and external crises than oil pipelines. For example, binding agreements for the China-Russia spur section of the ESPO oil pipeline were signed in 2009 after both Russia's invasion into Georgia (in 2008) and the Global Financial Crisis (in 2008-2009) happened, while the agreements for the POS gas pipeline were signed in May 2014, shortly after the Ukraine crisis happened with the Russia's annexation of Crimea (in March 2014). It is worth noting that the gas deal was finalized before the fall in global oil prices happened (since the summer 2014) and major Russian state-owned oil and gas companies were listed under the U.S. and EU economic sanctions (in July and September 2014, respectively).³⁵⁸ Second, the low level of political trust between China and Russia also explains why the POS gas pipeline deal was delayed longer than the ESPO oil pipeline deal. As seen in Figure 2, the discussion for both Sino-Russian oil and gas pipelines was started in the late 1980s. While the gas deal was finalized in 2014, the first "loan for oil" deal was signed in 2005 and the oil deal for the ESPO spur was signed in 2009.

³⁵⁸ "Ukraine Crisis: Russia and Sanctions," *BBC News*, December 19, 2014, <http://www.bbc.com/news/world-europe-26672800>. "The Ukraine Crisis Timeline," the Center for Strategic & International Studies (CSIS), <http://csis.org/ukraine/index.htm>.

Table 5. Summary of Sino-Russian Oil and Gas Pipelines

	Sino-Russian Oil Pipeline: Eastern Siberia Pacific Ocean (ESPO)	Sino-Russian Gas Pipeline: Power of Siberia (POS)	Sino-Russian Gas Pipeline: Altai
Speed of Deal	Proposed in the late 1980s; (binding) deal signed in 2009 (phase 1 operational in 2009, and phase 2 (spur) in 2012)	Proposed in the late 1980s; (binding) deal signed in May 2014	Proposed in the late 1980s; (non-binding) deal signed in November 2014
Actors Involved	CNPC, Rosneft, Transneft, CDB	CNPC, Gazprom (Chinese banks unidentified as prepayment failed)	CNPC, Gazprom
China-Russia Political Alignment (political trust)	Low	Low	Low
Pipeline Ownership Structure	NOCs only (Chinese section owned by CNPC; Russian section owned by Transneft)	NOCs only (Chinese section owned by CNPC; Russian section owned by Transneft)	NOCs only (Chinese section owned by CNPC; Russian section owned by Transneft)
China's Equity Participation in Russian Upstream Sector	No Chinese equity in Russian oil upstream sector Loans-for-oil deal (\$25 prepayment)	No Chinese equity in Russian gas upstream sector (CNPC's 10% equity in Rosneft's Vankor oilfield) Prepayment failed	Undetermined
Capital Cost for Pipeline Construction	\$26.4 billion (= \$14.4B (phase 1) + \$12B (phase 2))	\$55 billion	\$14 billion
Pipeline Length	4,857 km	4,000 km	2,800 km
Unit Cost (=cost per kilometer)	\$5.3 million/km	\$13 million/km	\$3.3 million/km
Volume	1.6 million b/d	38 bcm/year	30 bcm/year
Geopolitical	Russia's Georgia Invasion, Global	Ukraine Crisis	Ukraine Crisis

Factors	Financial Crisis		
Subnational, External Project Factors	Rosneft vs. Yukos, China's energy diversification strategy, China's increasing oil demand and decreasing production, China's "loans-for-oil" strategy	Rosneft vs. Gazprom, China's air pollution issues and energy sector restructuring	Low oil prices, Ruble collapse, China's economic slowdown

CHAPTER SIX
CASPIAN OIL TO THE WEST:
BAKU-TBILISI-CEYHAN (BTC) OIL PIPELINE DEVELOPMENT

This chapter begins by explaining how the cases of cross-border oil and gas pipelines linking the Caspian region with Europe fit within the overall architecture of my dissertation. First, I chose the cases of the Baku-Tbilisi-Ceyhan (BTC) oil pipeline and the Southern Gas Corridor (SGC) as projects that show variations in terms of the relationship between economic and political incentives. The BTC oil pipeline is a case where strong political alignment between states drove the deal despite low economic incentives for international oil companies (IOCs), particularly until the late stage of pipeline planning (e.g., the project involved a relatively small volume of oil). The SGC pipeline project is a case where the deals proceeded with a high-to-medium level of political alignment and economic incentives among host countries.³⁵⁹ Second, I chose the BTC oil pipeline and the SGC pipeline projects to explain why the multi-state export pipelines from the Caspian region materialized more quickly than the Sino-Russian direct-link pipelines, even though the multi-state export pipelines involve more parties (including transit states without overarching jurisdiction) than the direct-link pipelines. Third, I selected the BTC and SGC pipeline projects since they both involved combined pipeline ownership between national oil companies (NOCs) and international oil companies (IOCs), which created joint venture (JV) consortiums for the financing, construction, and operation of pipelines.

³⁵⁹ The degree of political alignment (i.e., political trust) among host countries for the SGC pipeline project is not resolved, given that dynamics in the region are changing quickly due to the Ukraine crisis, Russia's subsequent cancellation of the South Stream pipeline, and Moscow's strategic moves toward the Turkish Stream pipeline. The degree of political alignment among host countries seems to keep declining and is difficult to estimate because participating countries with different policy goals are taking diverging approaches to energy resources. Compared to the other three cases in my dissertation, however, the SGC pipeline project is a case where there are substantial political and economic incentives, rather than a case where political and economic incentives are inversely related.

Chapters 6 and 7 explain the similarities and differences between the BTC oil pipeline and the SGC gas pipeline development given the logic for case selection described above. Chapter 6 explains how political motivations drove commercial decisions for the BTC oil pipeline deal through examining three underlying political and economic factors: (1) a geopolitical goal of enhancing Western involvement in the energy and security sectors of the Caspian region through the development of pipeline transportation bypassing Russia and Iran; (2) a strong political alignment among host countries and consistent U.S. involvement; and (3) the NOC-IOC combined ownership structure of financing that facilitated a successful materialization of the BTC oil pipeline project. This chapter also explains how a complex set of commercial interests and geopolitics in the Caspian region came into play among the key state and non-state actors, including Azerbaijan, Turkey, Georgia, Russia, the United States, and Western oil companies. It focuses on the colossal political efforts of states involved in the Caspian pipeline negotiations and competition among major players despite the relatively modest volumes of oil in the Caspian Sea by examining U.S. involvement as an outside actor, Turkey's role and political objectives, and Azerbaijan's strategic interests after the Soviet collapse.

INTRODUCTION

The Caspian Sea region³⁶⁰ is geographically landlocked, but on the crossroads between Western Europe, East Asia, and the Middle East. Until the collapse of the Former Soviet Union (FSU), the region's energy resources were largely untapped aside from

³⁶⁰ In this study, I refer to Caspian region as the territory covering the present five littoral countries of the Caspian Sea: Russia, Kazakhstan, Turkmenistan, Iran, and Azerbaijan.

Azerbaijan's oil production, although it has significant oil and natural gas reserves.³⁶¹ As the breakdown of the Soviet opened up enormous potential reserves of oil and gas in the region, the key question has been how and where to develop the export infrastructure of pipelines in order to bring Caspian oil and gas to the international market. With several newly independent countries gaining access to valuable hydrocarbon deposits, different countries have taken diverging approaches to developing Caspian energy resources and export infrastructure. In a broad sense, the geopolitical atlas of energy export after the FSU breakdown has been drawn differently between eastern and western Caspian countries. While eastern Caspian countries such as Kazakhstan and Turkmenistan orient greater volumes of oil and gas east to China, western countries such as Azerbaijan have targets to the west, accessed largely through Georgia, to Turkey and Europe.

Turkmenistan, meanwhile, is seeking to diversify supply options to the south.

In Chapters 6 and 7, I examine how the cross-border pipelines linking the Caspian region with Europe have developed from oil to gas, by focusing on the Baku-Tbilisi-Ceyhan (BTC) oil pipeline and the Southern Gas Corridor (SGC) projects. I briefly explain other pipeline projects – the Caspian Pipeline Consortium (CPC), the South Caucasus Pipeline (SCP) or Baku-Tbilisi-Erzurum (BTE) gas pipeline, the Trans-Caspian Gas Pipeline (TCGP), Nabucco, the South Stream, and the Turkish Stream – in order to better investigate the geopolitical and geo-economic dimensions of BTC and SGC in relationship with participating countries and actors (i.e., international and national oil and gas companies) of other pipeline projects. Therefore, the countries that are not main

³⁶¹ The region has 48 billion barrels per day of oil and 292 trillion cubic feet of natural gas according to the U.S. Energy Information Administration (EIA).

players in the BTC and SGC projects, such as Kazakhstan and Turkmenistan, are less explored here.

The basic trends and opportunities for energy transportation in the Caspian region have changed with different political and economic environments. During the 1990s, low oil prices, lack of regional cooperation between the countries' governments, and few export options for Caspian hydrocarbons slowed the development of Caspian oil and gas resources. In the 2000s, however, the combination of foreign investment and rising energy prices allowed the Caspian littoral countries to shift from diverting oil extraction for domestic use to supplying regional and world oil markets.³⁶² Sustained high oil prices, foreign (mostly Western) capital and technology, and increased world demand for oil and gas (mostly from developing Asia) in the 2000s enabled landlocked, non-OPEC countries of the Caspian region to produce greater volumes, which require greater export capacity through a larger number of routes than existed in the 1990s.

Until the mid-2000s, the energy transportation infrastructure of the region was still dominated by the pipeline architecture of the Soviet era, even after more than a decade of active investments from Western oil companies. This means that the oil and gas pipelines, though extensively developed, still conform more to the political, security, and commercial realities of the FSU than to the needs of independent Caspian states that have sought to maximize national benefits by contributing to global energy security.³⁶³ The addition of new pipelines to the traditional transportation system that has been mostly

³⁶² *Caspian Sea Region: Country Analysis Brief* (U.S. Energy Information Administration, 2013).

³⁶³ Jan H Kalicki and Jonathan Elkind, "Eurasian Transportation Futures," in *Energy and Security: Toward a New Foreign Policy Strategy* (2005).

operated by Transneft, the Russian state-owned pipeline monopoly, is still a top policy priority in the current Caspian region of the 2010s. However, the prospect of the “multiple pipeline strategy”³⁶⁴ to ensure diverse and reliable transportation of Caspian energy resources – especially natural gas – to regional and international markets still seems challenging in the 2010s, given the rapidly changing geopolitical and geo-economic environment of the region due to the Ukraine crisis, low oil prices, increasing competition between Russia and China, and the dynamics regarding the Eurasian Union and the Shanghai Cooperation Organization (SCO), as well as due to changes with regard to the Shah Deniz consortium, the international effort to develop Azerbaijan’s largest natural gas field.³⁶⁵

The emerging trend of trans-regional oil and gas pipelines and the development of the east-west corridor linking Europe to Central Asia and beyond via the Caucasus has impacted Eurasian geopolitics and economies to a large extent. The process of realignment and integration of the Caspian region is continuing within this broader trend. This chapter is organized as follows. It briefly introduces the geopolitical change after the former Soviet breakdown through the discussion of the “early oil” pipeline routes from the Caspian. It explains how political necessity drove commercial decisions in the

³⁶⁴ Since the dissolution of the former Soviet Union, the U.S. government—involvement in close cooperation with Russia, Turkey, Azerbaijan, Georgia, and Kazakhstan—elaborated the “multiple pipeline strategy” as the only economically and politically viable export solution for Caspian hydrocarbons. See: Jan H Kalicki, “Caspian Energy at the Crossroads,” *Foreign Affairs* (2001). Svante E Cornell, Mamuka Tsereteli, and Vladimir Socor, “Geostrategic Implications of the Baku-Tbilisi-Ceyhan Pipeline,” *The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West* (2005).

³⁶⁵ The Shah Deniz (SD) gas and condensate field is the largest natural gas field in Azerbaijan. The field was discovered in 1999. BP operates Shah Deniz on behalf of its partners in the Shah Deniz Production Sharing Agreement (PSA). The SD field is operated by BP, which has a share of 28.8%. Other partners include TPAO (19%), SOCAR (16.7%), Petronas (15.5%), LUKoil (10%), and NIOC (10%). See: wikipedia, https://en.wikipedia.org/wiki/Shah_Deniz_gas_field; the BP website, http://www.bp.com/en_az/caspian/operationsprojects/Shahdeniz/SDstage1.html.

development of the BTC oil pipeline. Geopolitical and strategic considerations of Azerbaijan and Turkey, and the strong U.S. involvement as an outside actor in the BTC pipeline, are examined. Then the chapter moves on to how state and non-state actors aligned commercially to finance the BTC pipeline project. This section accounts for foreign investment in the Azerbaijan's upstream oil fields and the BTC pipeline project, where shareholders in each joint venture consortium comprise both national oil companies (NOCs) and international oil companies (IOCs). Finally, the chapter examines how host countries of the BTC pipeline project (Azerbaijan, Turkey, and Georgia) and the United States are politically aligned and remained committed to each other in implementing the pipeline project.

GEOPOLITICS OF ENERGY IN THE CASPIAN REGION

The Baku-Tbilisi-Ceyhan (BTC) pipeline is a 1,760 kilometer (km)-long oil pipeline through Azerbaijan, Georgia, and Turkey with a capacity of around 50 million tons of oil per year (i.e., one million barrels per day). It is the first oil pipeline coming out of the Caspian Sea region that does not cross Russian territory to reach the international market. The pipeline's construction began in 2003 and was completed in 2006. In explaining the course of events that led to the realization of the BTC pipeline, this chapter focuses on the colossal political efforts of states involved in the Caspian pipeline negotiations and competition despite the relatively modest volumes of oil in the Caspian Sea. The BTC pipeline route was mainly decided by political considerations, both domestic and international, of involved actors rather than by market incentives, as many existing

studies contend.³⁶⁶ This chapter explains how U.S. involvement as an outside actor, Turkey's role and political objectives, and Azerbaijan's strategic interests after the Soviet collapse affected the development of Caspian pipeline politics and an east-west energy corridor. A complex set of commercial interests and geopolitics in the Caspian region came into play among the key state and non-state actors, including Azerbaijan, Turkey, Georgia, Russia, the United States, and Western oil companies.

Map 6. Baku-Tbilisi-Ceyhan (BTC) Oil Pipeline



(Source: The State Oil Fund of the Republic of Azerbaijan)

³⁶⁶ For studies that argue political factors and geopolitical calculations are the dominant considerations in the implementation of the BTC pipeline project, see: Brenda Shaffer, *Energy Politics* (2011), p.53-59.

Preliminary Setting for Geopolitics – Post-Soviet “Early Oil” Pipelines

During the Soviet era, no major pipeline was built to carry Caspian oil to the outside world, since the oil from the Caspian region was used to serve Soviet domestic needs rather than export. Azeri and Kazak oil production were linked to the internal Russian pipeline network and carried to Russian refineries for domestic use.³⁶⁷ After the dissolution of the Soviet Union in 1991, Caspian oil producers found themselves with an urgent need to find an export route that could sustain Caspian oil production. Azerbaijan and Kazakhstan started looking for alternatives to reduce their dependence on the Russian pipeline system in the long run, although it was much more difficult for Kazakhstan to bypass Russia because of its geographical location.³⁶⁸ While Azerbaijan tried to avoid dependence on Russia for its energy transport, it also did not want to antagonize Moscow in determining the transportation routes for the “early oil” from the Caspian. The U.S. government also did not push for an option that would completely exclude Russia from the hydrocarbon business in the Caspian. Therefore, the Azerbaijan International Operating Company (AIOC) and the Azerbaijani political leadership agreed in October 1995 on a dual pipeline strategy: a northern route from Baku to Novorossiysk, Russia (completed in 1997)³⁶⁹, and a western route from Baku to Supsa, Georgia (completed in

³⁶⁷ Nurettin Altundeger, "Geopolitical Rivalry in the Caspian-Caucasus Region and the Dilemma of Interstate Cooperation," Order No. 3281462, Old Dominion University, 2007.

³⁶⁸ John Roberts, “Pipeline Politics,” in *The Caspian: Politics, Energy and Security*, ed. Shirin Akiner (London: Routledge, 2004).

³⁶⁹ The Baku-Novorossiysk pipeline runs for 1,330 kilometers from Azerbaijan's Sangachal Terminal to the Russian Black Sea port of Novorossiysk. The contract was signed in 1996 between the Azerbaijan International Operating Company (AIOC), SOCAR, and Transneft. According to SOCAR, maximum throughput along the line is 105,000 barrels per day (bpd). http://wiki.openoil.net/index.php?title=Baku-Novorossiysk_Pipeline

1999)³⁷⁰. While the Russian government pushed for Baku-Novorossiysk to be the main outlet for Azerbaijan and Kazakhstan, the U.S. and Azerbaijani governments insisted on the availability of a second route of Baku-Supsa.³⁷¹

In negotiating the transportation of “early oil” from the Caspian, each party was willing to modify its policies to accommodate other parties, as the stake in “early oil” was not as high as the political and economic benefits expected from the transportation of the region’s primary volumes of “main oil” that would be developed later.³⁷² Russia secured the biggest portion of this “early oil”, but it also accepted the inclusion of the second oil transportation route. While the United States and Azerbaijan agreed on the northern route to Russia, they also agreed on excluding the Iranian route and secured the second route from Russia because the United States remained steadfastly against any project that could give Iran more leverage in Western oil markets.³⁷³

³⁷⁰ The Baku-Supsa line, also known as the Western Route Export Pipeline (WREP), runs for 830 kilometers from the Chirag field in the Caspian Sea, via the Sangachal terminal, to the Supsa terminal on the Black Sea coast in western Georgia. Just under half of the pipeline is located in Georgia. The line became fully operational in 1999, and has a capacity of 155,000 barrels per day (bpd). http://wiki.openoil.net/index.php?title=Baku-Supsa_pipeline

³⁷¹ Tuncay Babali, "Energy Diplomacy in the Caspian Basin: Since the End of the Cold-War." Order No. 3095034, University of Houston, 2003.

³⁷² Up to 80,000 barrels per day were expected to flow from the Caspian by late 1996, which is a very modest volume of oil. The output was expected to grow to 700,000 barrels per day by 2010, but until the early 2000s, the “early oil” was expected to be in much smaller quantities.

³⁷³ Although Tehran had adopted a hostile stance toward Azerbaijan’s pro-Turkish President Abulfaz Elchibey, it became more accommodating toward Heydar Aliyev, who replaced Elchibey after the June 1993 coup d’état. Interested in staying in good terms with Tehran, Aliyev repeatedly stated that Baku intended to have mutually beneficial relations with Tehran based on cooperation in the fields of oil production and marketing. On November 12, 1994, Aliyev transferred 5% out of SOCAR’s 20% share in the AIOC to Iran. Facing objections from the U.S. government, however, the AIOC turned down this transfer, thus sabotaging Aliyev’s effort to buy Tehran’s support against Russian projection of a big-power role in Caspian issues. Page 213, Babali, "Energy Diplomacy in the Caspian Basin: Since the End of the Cold-War."

BTC Main Oil Export Pipeline and Geopolitics: Political Necessity Drove Commercial Decisions

The BTC pipeline is the first oil pipeline in the Caspian region to bypass Russia, transporting oil from Azerbaijan to the international market via Georgia and Turkey. The key element in the successful completion of BTC is that political necessity of enhancing Western involvement in the energy and security sectors of the Caspian region has driven commercial decisions. Many Western oil companies initially opposed strong U.S. political involvement in the decision-making process for Caspian oil transportation options, but in this case, political decisions contributed to the creation of commercially effective solutions.³⁷⁴

After the U.S. government established economic relations with a newly independent Azerbaijan in 1992, high-profile government officials such as the U.S. Secretary of Energy Hazel O'Leary and Undersecretary of State Strobe Talbott visited Baku to explore opportunities for energy cooperation.³⁷⁵ The U.S. government became very interested in Azerbaijan's oil export to the United States and NATO partners because of its landlocked geographical location bordering Russia, Iran, Georgia, and Armenia. Linking Azerbaijan with Turkey, a NATO member, was a U.S. strategic priority, as it had the potential to create a solid foundation for the integration of Azerbaijan into Western economies, thus creating further opportunities for the American presence in the region. Washington was not interested in gaining control over Azerbaijan's modest hydrocarbon

³⁷⁴ Cornell, Tsereteli, and Socor, "Geostrategic Implications of the Baku-Tbilisi-Ceyhan Pipeline."

³⁷⁵ Robert Finn, "Diplomatic Beginning in Baku," in *Azerbaijan in Global Politics: Crafting Foreign Policy*, ed. Fariz Ismailzade and Alexandros Petersen (Baku, Azerbaijan: Azerbaijan Diplomatic Academy, 2009).

volumes, but rather saw the energy transit route as a tool to foster security and political ties with Caspian states.³⁷⁶

The idea of the BTC was first introduced in 1992 by Turkey. From the U.S. perspective, the goals of the BTC include reducing dependence on OPEC oil producers in the Middle East, creating a secure supply of oil to Israel, and beginning to end dependence on Russian and Iranian oil transportation networks from the Caspian region.³⁷⁷ The successful completion of BTC means the ambition of building the east-west pipeline corridor linking Central Asian with Europe has been realized. The east-west corridor is aligned with the “multiple pipeline strategy” that the U.S. government elaborated as the only politically and economically viable export solution for Caspian hydrocarbons from the beginning of the 1990s. This strategy serves broad U.S. policy objectives toward the region: 1) assuring the sovereignty and the independence of the countries of the Caspian Sea region; 2) supporting economic cooperation among the countries of the region and with Turkey, the U.S. ally in the area; 3) promoting diversified and reliable energy sources; and 4) supporting U.S. investments overseas.³⁷⁸ In particular, those in high-level U.S. policy circles believed that if Azerbaijan’s energy resources were transported through Russia or Iran, Baku would not be able to adopt a pro-Western security and political orientation.³⁷⁹

³⁷⁶ Shaffer, *Energy Politics*, p. 56.

³⁷⁷ "Baku-Tbilisi-Ceyhan Pipeline Company Founded," *Alexander's Gas & Oil Connections*, August 30, 2002. http://www.gasandoil.com/news/central_asia/06e64ce97241a092b52d5a35d6be6a60 Source: The World Socialist Web Site (WSWS).

³⁷⁸ Cornell, Tsereteli, and Socor, "Geostrategic Implications of the Baku-Tbilisi-Ceyhan Pipeline."

³⁷⁹ Shaffer, *Energy Politics*, p. 56.

Azerbaijan supported the BTC pipeline project for political and strategic reasons more than for commercial interests, especially when oil prices were low in the 1990s. From a purely market-oriented perspective, Azerbaijan should have chosen either the shortest route of oil export to world markets through Iran or the cheapest option of existing Baku-Novorossiysk pipeline controlled by Russia for the main export pipelines (MEP). The Iranian route was not politically viable for Azerbaijan because of U.S. opposition and unstable relations between Baku and Tehran. Azerbaijani leaders were also deeply concerned about Russia's control over pipelines and the volatile pricing policy set by Transneft. The unresolved nature of the Nagorno-Karabakh conflict³⁸⁰ between Armenia and Azerbaijan was another main reason why Azerbaijan actively endorsed an alternative to the Russian energy corridor in the form of BTC. Armenia has close military ties with Russia,³⁸¹ and Russia plays an important role in the security policy of Armenia. Russia has been repeatedly suspected of transferring large amounts of arms to Armenia during and after the war between Armenia and Azerbaijan over the area of Nagorno-

³⁸⁰ Azerbaijan has been engaged with in a territorial dispute with neighboring Armenia since 1988. The conflict, which started over Armenian claims to the Azerbaijani area of Nagorno-Karabakh, grew into a full-scale war and resulted in Armenia's occupation of over 17 percent of Azerbaijan's territory, which caused the flight of more than half a million Azeri refugees. Although military actions were stopped with a 1994 cease-fire agreement with the help of international mediators, the Nagorno-Karabakh question is still a "frozen conflict" in the post-Soviet region.

For further details, see: Svante E Cornell and Fariz Ismailzade, "The Baku-Tbilisi-Ceyhan Pipeline: Implications for Azerbaijan," *ibid.* Csaba Marosvari, "Cold Reality in the Land of Fire: The Interrelations of Azerbaijan's Natural Gas Export and Foreign Policy" (M.A., The University of North Carolina at Chapel Hill, 2012).

³⁸¹ Russia and Armenia are bound together in the Russian-dominated Collective Security Treaty Organization (CSTO) that institutionalizes their political-military alliance. Alternatively, Azerbaijan, along with other former Soviet countries such as Georgia, Moldova, and Ukraine founded the GUAM (Georgia, Ukraine, Azerbaijan, and Moldova) Organization for Democracy and Economic Development. None of the GUAM members have joined the CSTO.

Karabakh.³⁸² Transporting oil through Georgia rather than Armenia, which is a more expensive route, was therefore logical and strategically desirable for Baku.³⁸³

Azerbaijan has been trying to utilize its energy resources to strengthen its political independence and stimulate its economic development by bringing in foreign investment since its independence in 1991. The development of transport infrastructure is therefore considered to be a priority of Azerbaijan's national development strategy, especially in its potential to link Europe and Central Asia.³⁸⁴ Given the geopolitical realities of Azerbaijan's geographical location, Azerbaijan President Heydar Aliyev (1993-2003) led a pragmatic multi-vectoral foreign policy³⁸⁵, focusing on the diversification of oil exports through transport infrastructure, as the country must have pipelines through transit states to export its energy resources to its markets. Baku had hoped to build multiple export pipelines to avoid dependence on one transit state, but the oil volumes discovered in the state did not justify more than one pipeline. President Aliyev made a strategic decision that the main export pipeline should be built on an east-west route, through Georgia and

³⁸² "Russia Denies Fresh Arms Transfer to Armenia," *Armenian News Asbarez*, January 14, 2009. <http://asbarez.com/59917/russia-denies-fresh-arms-transfer-to-armenia/>

³⁸³ Initially the U.S. government tried to urge Baku and Ankara to select the Armenian route, as an attempt to solve the Armenian-Azerbaijan conflict. The Armenian route, however, was rejected by Baku. See: Ekaterina Svyatets, "Power, Profits, and Politics: Energy Security and Cooperation in Eurasia" (Ph.D., University of Southern California, 2013).

³⁸⁴ Alexandros Petersen and Fariz Ismailzade, *Azerbaijan in Global Politics : Crafting Foreign Policy* (Baku: Azerbaijan Diplomatic Academy, 2009).

³⁸⁵ Multi-vectorism in foreign policy is a widely used term in official statements and the academic literature to define the foreign policy strategy or behavior of post-Soviet countries that have built strong relationship with other geopolitical actors (countries or institutions) in order to counterbalance Russia's influence and enhance their own independence. Idnan and Shaffer (2011) describe the term as to "refrain from joining exclusive alliance systems and maintain cooperation with competing alliance system." Ariel Cohen (2008) defines multi-vectoralism as "bilateral relations with each geopolitical actor, and [the avoidance of] sacrificing one vector for the sake of the other." Bhavna for Dave (2007) describes the country with multi-vectoral foreign policy as "geared at developing close relationship with all of neighbors and an active engagement in multilateral regional organizations. For more details, see: Marosvari, "Cold Reality in the Land of Fire: The Interrelations of Azerbaijan's Natural Gas Export and Foreign Policy." <http://search.proquest.com/docview/1024564172?accountid=11752>.

Turkey, and be led primarily by Western oil companies.³⁸⁶ In order to gain independence from the Russian transit system, Baku had strong political and strategic motives to develop the BTC pipeline, which was strongly supported by the U.S. government.³⁸⁷

In Azerbaijan's oil export strategy, the utilization of commercial incentives from increasing energy export revenues has been an instrument rather than a goal. As the country's energy policy has been shaped and implemented to achieve goals in other policy fields, the utilization of energy resources serves as economic leverage for foreign policy priorities.³⁸⁸ For political and strategic reasons, Azerbaijan chose BTC, the most expensive and longest pipeline route among other options (such as developing the shortest route of oil export through Iran or the cheapest option of the existing Baku-Novorossiysk pipeline controlled by Russia). Revitalization of the country's economy, stabilization of its internal order, and preservation of its political independence, all of which were negatively affected by the post-Soviet transition and the Nagorno-Karabakh conflict, had become urgent priorities for Azerbaijan. Foreign investment from Western oil companies not only brought essential capital and state-of-the-art technology to develop the country's untapped offshore oil and gas fields, but it also gave Baku leverage against its neighbors.

The involvement of Turkey was also a main driving force behind the BTC pipeline project. Turkey, as a regional power, has close ties with countries of the Caspian region

³⁸⁶ Shaffer, *Energy Politics*, p. 54.

³⁸⁷ Adam N Stulberg, *Well-Oiled Diplomacy: Strategic Manipulation and Russia's Energy Statecraft in Eurasia* (SUNY Press, 2008).

³⁸⁸ Heidi Kjaernet, "Azerbaijani-Russian Relations and the Economization of Foreign Policy." In: Indra Overland, Heidi Kjærnet, and Andrea Kendall-Taylor, *Caspian Energy Politics: Azerbaijan, Kazakhstan and Turkmenistan* (Routledge, 2010).

and supported their independence ever since the breakup of the Soviet Union. Although Turkey could not provide the resources that the former Soviet republics needed for their political and economic independence, it presented itself as a door to the Western world, as both a NATO member country and a longtime ally of Washington.³⁸⁹ Since it introduced the idea of BTC in 1992, Turkey strongly supported the pipeline route via Georgia and Turkey for the following reasons. First, the BTC pipeline route would provide an alternative to transporting large amounts of crude oil through the Bosphorus region, where more than 12 million Turkish people live.³⁹⁰ BTC would bypass this choke point, delivering oil directly to a safe, deep-sea port. Second, Turkey supported the BTC pipeline route for geopolitical and strategic reasons. Turkey believed that the main country that the pipeline goes through would have a political influence over the region. As some have argued, the building of the BTC pipeline constitutes a strategic milestone in post-Soviet Eurasia, and has major implications for the South Caucasus and its role in European and world politics.³⁹¹ The BTC pipeline presented itself as a big opportunity for Turkey to gain an important status in the region. Even though different countries agreed to having the Caspian region's "early oil" go through Russia, neither Turkey nor

³⁸⁹ Altundeger, "Geopolitical Rivalry in the Caspian-Caucasus Region and the Dilemma of Interstate Cooperation," p. 84-120.

³⁹⁰ The status of the Istanbul straits had been determined by the Montreux Treaty in 1936. The treaty proposes free passage to commercial ships and only gives Turkey the right to close them during the wartime against enemy warships. Therefore, Turkey has no right to intervene in the passage of oil tankers through the Turkish straits. After 1990, traffic on the Bosphorus intensified, and this has caused several serious accidents that threatened the city life in Istanbul. The Turkish government stepped up and introduced certain regulations to control the passage of heavy-loaded ships; however, these regulations could not help to solve the existing problems, as the traffic through the straits has increased each year since. Source: Altundeger, "Geopolitical Rivalry in the Caspian-Caucasus Region and the Dilemma of Interstate Cooperation," p. 108-110.

³⁹¹ Svante E. Cornell, Mamuka Tsereteli, and Vladimir Socor, "Geostrategic Implications of the Baku-Tbilisi-Ceyhan Pipeline," in *The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West*, eds. S. Frederick Starr and Svante E. Cornell (Johns Hopkins University Press, 2005): 17-38.

the United States desired to see Russia establishing full control over the future of Azeri oil. The Turkish struggle for geopolitical influence is also related to its domestic politics. As a successful launch of the BTC pipeline became an issue of reputation for Turkey, each political party in Turkey, from the 1990s to 2007, made it a priority to increase the project's popularity.³⁹²

COMMERCIAL DECISIONS

Preliminary Setting for Foreign Investment – IOC-led development of Azerbaijan's oil fields

The idea of the BTC was first introduced in the spring of 1992 by Turkish Prime Minister Süleyman Demirel, who called on Central Asian countries including Azerbaijan to export energy resources through Turkey.³⁹³ The first document of the framework agreement on the BTC construction was signed between Azerbaijan and Turkey on March 9, 1993.³⁹⁴ After the signing of the first production-sharing agreement (PSA) between the State Oil Company of the Azerbaijan Republic (SOCAR) and mostly Western oil companies on the Azeri-Chirag-Gunashli (ACG) oil fields in 1994, however, the BTC project had more direct involvement from the U.S. government. In the ACG project, SOCAR signed the “contract of the century” with British Petroleum (BP), Amoco, and other U.S. and

³⁹² Altundeger, "Geopolitical Rivalry in the Caspian-Caucasus Region and the Dilemma of Interstate Cooperation," p. 111-112 (original source: Nejdet A. Pamir, “Baku-Ceyhan Boru Hatti,” Avrasya Stratejik Arastirmalar Merkezi (ASAM) Yayinlari (Ankara: Kirali Matbaasi, 1999).

³⁹³ After the 49th Cabinet of the Republic of Turkey started under DYP (True Path Party) leader Süleyman Demirel on November, 20 1991, diplomatic ties between Turkey and Azerbaijan were established on January 14, 1992.

³⁹⁴ "Timeline of the Baku-Tbilisi-Ceyhan Pipeline," *Turkish Daily News*, July 13, 2006.
<http://www.hurriyetdailynews.com/default.aspx?pageid=438&n=timeline-of-the-baku-tbilisi-ceyhan-pipeline-2006-07-13>

European-based oil companies, setting the stage for foreign long-term involvement in energy-export projects in Azerbaijan.³⁹⁵

This \$8 billion contract provided for the development of the Azeri-Chirag-Gunashli (ACG) oil fields in the Caspian Sea, which are estimated to contain reserves of 5 billion barrels.³⁹⁶ It was the first deal in the Caspian to bring together a diverse group of governments and companies – 11 foreign oil companies and six countries.³⁹⁷ It has thereby created an environment for foreign investment, which enabled the Azeri

³⁹⁵ It was Azerbaijan's first offshore PSA. With a lifetime of 30 years, it represented the first major investment by Western multinational companies in any country of the former Soviet Union and became known as the Contract of the Century. The PSA signed on September 20, 1994 in Baku by the Government of Azerbaijan and a consortium of 11 foreign oil companies from six nations initiated a rapid period of development, which has transformed the country into a major global energy supplier and changed the energy map of Europe. It is operated by BP on behalf of the Azerbaijan International Operating Company (AIOC). AIOC was formed in February 1995 following the ratification of the PSA and originally comprised eleven partner companies, representing six countries. Azerbaijan's government receives approximately 80% of the total profits from a combination of royalties and SOCAR's share. The remaining 20% of profits is divided among the other consortium members. The final division of stakes among the eleven final multinational signatories is as follows: SOCAR (20%), BP (17%), American Amoco (17%), Unocal (9.5%), Pennzoil (4.8%), Exxon (5%), McDermott (2.45%), Russia's Lukoil (10%), Norway's Statoil (8.5%), Scotland's Ramco (2%), Turkish state oil company TPAO (1.75%), Saudi Arabia's Delta Nimir (1.7%).

ACG's current shareholders and participating interests are: BP (35.8%), SOCAR (11.6%), Chevron (11.3%), Inpex (11%), Statoil (8.6%), ExxonMobil (8%), TPAO (6.8%), Itochu (4.3%), and ONGC (2.7%). ACG is a complex of six production platforms: Chirag 1, Central Azeri, West Azeri, East Azeri, Deepwater Gunashli, and West Chirag. A subsea pipeline was laid at the bottom of the Caspian Sea to transport oil from offshore to Sangachal Terminal, near Baku. Sangachal is one of the biggest and most efficient terminals in the world, which can receive and process up to 1.2 million barrels of oil per day.

See: BP Operations and Projects in Caspian at http://www.bp.com/en_az/caspian/operationsprojects/ACG.html; Nasser Sagheb and Masoud Javadi, "Azerbaijan's 'Contract of the Century' finally Signed with Western Oil Consortium," *Azerbaijan International* 2, no. 4 (1994).

³⁹⁶ U.S. Energy Information Administration, *Country Analysis Brief: Azerbaijan* (2014). The ACG holds over 70% of Azerbaijan's total reserves and accounted for almost 75% of Azerbaijan's total output in 2013.

³⁹⁷ Daniel Yergin, *The Quest: Energy, Security, and the Remaking of the Modern World* (Penguin, 2011), p. 54.

government to start another major international project in the Shah Deniz gas and condensate field in 1999.³⁹⁸

Commercial Decisions for BTC

Washington, especially during the Clinton Administration (1993-2001), perceived that it could help to create more stability and peace in the Caspian region through helping to transport landlocked Azerbaijan's oil production to world markets via multiple pipelines that bypass Russia and Iran.³⁹⁹ However, there was substantial opposition initially to the BTC proposal in both business and governmental circles in the United States and the Caspian region. It required billions of dollars of investment and involved the logistical challenge of running a long pipeline with portions in less politically stable areas of Georgia and Turkey. It should be noted that the major U.S. energy companies active in the Caspian region did not strongly support Washington's promotion of the east-west corridor pipeline, and that most of the major investment in the project came from non-U.S. based oil companies such as BP.⁴⁰⁰

In order to make the BTC project more feasible, the U.S. government became noticeably more active and coherent in its policy in the Caspian region between 1995 and 1998. In January 1995, the U.S. Embassy in Azerbaijan announced that its government would not

³⁹⁸ The Shah Deniz (SD) gas and condensate field is the largest natural gas field in Azerbaijan. The field was discovered in 1999. BP operates Shah Deniz on behalf of its partners in the Shah Deniz Production Sharing Agreement (PSA). The SD field is operated by BP, which has a share of 28.8%. Other partners include TPAO (19%), SOCAR (16.7%), Petronas (15.5%), LUKoil (10%), and NIOC (10%). See: wikipedia, https://en.wikipedia.org/wiki/Shah_Deniz_gas_field; the BP website, http://www.bp.com/en_az/caspian/operationsprojects/Shahdeniz/SDstage1.html.

³⁹⁹ Jim Nichol, *Armenia, Azerbaijan, and Georgia: Political Developments and Implications for US Interests* (Washington, D.C.: Congressional Research Service, 2011).

⁴⁰⁰ Shaffer, *Energy Politics*, p. 59.

agree to the Iranian route for the oil pipeline. In 1997, the U.S. Department of State issued a report titled *Energy Development in the Caspian Region*, analyzing the expansion of the world's energy supply and demand, the sovereignty and independence of the Caspian basin countries, and the need to isolate Iran.⁴⁰¹ In this report, the United States gave preference to the BTC main export pipeline route. In November 1997, U.S. Energy Secretary Federico Peña visited the Caucasus and Central Asian republics on behalf of the U.S. president and urged leaders of the regional states to clarify their attitudes toward the BTC oil pipeline and the Trans-Caspian gas pipeline projects before October 1998. In February 1998, the White House urged the Turkish government to make the BTC project commercially viable. In the summer of 1998, the U.S. administration established the position of special counselor for Caspian energy diplomacy and appointed Richard Morningstar to the post. In October 1998, the new U.S. Energy Secretary Bill Richardson, together with representatives from the five regional countries, signed the Ankara Declaration calling for the construction of a pipeline to run from Baku via Tbilisi to Ceyhan. In the same month, the White House administration met with America's 15 largest oil companies in order to convince them that the BTC line was preferable to others from a geostrategic and geopolitical perspective. Washington was clearly determined to push through this pipeline, regarding it as a nucleus for geopolitical development in the region.⁴⁰²

⁴⁰¹ Nasib Nassibli, "Azerbaijan's Geopolitics and Oil Pipeline Issue," *Journal Of International Affairs* 4, no. 4 (1999).

⁴⁰² For U.S. efforts on the BTC project between 1995 and 1998, see: "Azerbaijan: Policy Priorities Towards the Caspian Sea," in *The Caspian: Politics, Energy, and Security*, ed. Shirin Akiner (New York: Routledge, 2004).

Although the United States declared its support for the BTC project immediately after the Turkish government proposed it, it was not until 1998 that this support had a direct impact on all sides – especially Western oil companies – involved in the decision-making process.⁴⁰³ One of the most decisive steps to boost the project took place in 1998, when a feasibility study and an environmental audit for transporting crude oil from Caspian region to the Mediterranean Sea was carried out by a German-based international engineering company, Pipeline Engineering GmbH – PLE, through a loan provided by the World Bank.⁴⁰⁴ The final results of the study in August 1998 provided the first evidence to persuade the AIOC members producing oil in Azerbaijan’s ACG fields to think seriously about the Azerbaijan-Georgia-Turkey route as a way to Western markets. During the 17th Congress of the World Energy Council in Houston on September 15, 1998, U.S. Ambassador Morningstar, the Special Advisor to the President and Secretary of State for Caspian Basin Energy Diplomacy, stated that the U.S. administration’s “firm commitment to developing a network of east-west pipelines will enhance U.S. national security interests and business opportunities for U.S. companies in the strategically critical Caspian region.” He further argued that, “Building a Baku-Ceyhan oil pipeline and a trans-Caspian gas pipeline (TCGP)⁴⁰⁵ makes absolute sense for both national security and commercial reasons...Both pipelines will increase energy security by avoiding the concentration of a vast new sources of oil and gas in the Persian Gulf region.

⁴⁰³ Tuncay Babali, "Energy Diplomacy in the Caspian Basin: Since the End of the Cold-War" (Ph.D., University of Houston, 2003).

⁴⁰⁴ "Baku-Tblisi-Ceyhan Crude Oil Pipeline Project Directorate," <http://www.btc.com.tr/eng/project.html>.

⁴⁰⁵ The Trans-Caspian Gas Pipeline (TCGP) is a proposed subsea pipeline between Türkmenbaşy in Turkmenistan, and Baku in Azerbaijan. The TCGP project would transport natural gas from Turkmenistan and Kazakhstan to European Union member countries, circumventing both Russia and Iran. This project attracts significant interest since it will connect vast Turkmen gas resources to major consumer geographies such as Turkey and Europe. The project is heavily criticized by Russia and Iran. https://en.wikipedia.org/wiki/Trans-Caspian_Gas_Pipeline

Finally, both pipelines enjoy great potential to become lucrative investment opportunities for U.S. companies.”⁴⁰⁶

Thanks to countless similar announcements and statements from the U.S. and Turkish governments on the BTC, negative public and private views about the project ultimately began to change.⁴⁰⁷ In addition, as a result of the feasibility study, the intergovernmental agreement (IGA) in support of the pipeline was signed by Azerbaijan, Georgia, and Turkey on November 18, 1999, during a meeting of the Organization for Security and Cooperation in Europe (OSCE) in Istanbul, Turkey. U.S. President Bill Clinton also signed the Agreement as witness.⁴⁰⁸ The agreement regarding the establishment of the BTC Pipeline Company (BTC Co.) was finally signed in London on August 2, 2000. In order to make investment in BTC more feasible, the U.S. government made financing from government agencies, such as the Overseas Private Investment Corporation (OPIC) and the U.S. Export-Import Development Bank, available.⁴⁰⁹ In October 2000, SOCAR and seven international oil companies holding interests in the ACG offshore oilfields, formed a Sponsor Group to pursue development of the BTC project and appointed BP as operator. During the “Tale of Three Seas” conference organized by the Cambridge Energy Associates in Istanbul on June 20, 2001, John Browne, CEO of BP, stated that the

⁴⁰⁶ Quotations are from: "Energy Diplomacy in the Caspian Basin: Since the End of the Cold-War." Original source: *Pulse of Turkey*, No: 57 October 2nd 1998.

⁴⁰⁷ Ibid.

⁴⁰⁸ "Baku-Tbilisi-Ceyhan Crude Oil Pipeline Project Directorate ". During the OSCE summit, the Host Government Agreement (HGA), the Turnkey Agreement (TA), and the Government Guarantee (GG) were also initialed as Annexes to the Intergovernmental Agreement. The Intergovernmental Agreement (IGA) and the Annexes were ratified by the Azerbaijan Parliament on May 26 and by the Georgian Parliament on May 29. The Turkish Parliament also ratified the agreement package on June 22, 2000.

⁴⁰⁹ Richard Morningstar, "From Pipe Dream to Pipeline: The Realization of the Baku-Tbilisi-Ceyhan Pipeline," *Caspian Studies Program*, Harvard Kennedy School (2003).

BTC is commercially viable, based on the ACG and Shah Deniz (SD) (condensate) reserves alone, and reiterated BP's determination to go ahead with the project.⁴¹⁰

Kazakhstan also showed its interest in shipping oil through the BTC pipeline following the discovery of the Kashagan oil field, and signed an agreement in 2006 with Azerbaijan to transport about three million tons of oil from its Kashagan oil field.⁴¹¹

Pipeline Ownership Structure

The total cost of the BTC project is \$3.9 billion, approximately 70 percent of which was funded in the form of financing by third parties. The group providing loans, export credits and risk insurance to BTC comprises the European Bank of Reconstruction and Development (EBRD) and the International Finance Corporation (IFC), the private sector arm of the World Bank, export credit agencies of seven countries, and a syndicate of 15 commercial banks.⁴¹² To complete the project, the BTC Co. joint venture (JV) was established in 2002 and the finalization of the financing agreements came in 2004. The principal stakeholder of the JV is British Petroleum (BP) with 30.1 percent of shares (the project operator), followed by Azerbaijan's state oil company SOCAR (25%). Other consortium members include American UNOCAL (8.9%), Norwegian Statoil (8.71%),

⁴¹⁰ Daniel Yergin, *The Quest: Energy, Security, and the Remaking of the Modern World* (Penguin, 2011).

⁴¹¹ "Revolutions in the Pipeline," *Kommersant*, May 25 2005. "BTC: Kazakhstan Finally Commits to the Pipeline," *Eurasianet*, June 18 2006. Because of the opposition from both Russia and Iran, Kazakhstan started to transport oil to the BTC pipeline by tankers across the Caspian Sea.

⁴¹² "The Baku-Tbilisi-Ceyhan (BTC) Pipeline Project," Lessons of Experience Number 2, International Finance Corporation (IFC), September 2006.
http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications_loe_btc_wci_1319578699042

Turkish TPAO (6.53%), Italian ENI (5%), French Total (5%), Japanese Itochu (3.4%), Japanese Inpex (2.5%), American ConocoPhillips (2.5%) and American Hess (2.36%).⁴¹³

As explained in Chapter 2, my dissertation focuses on the pipeline ownership structure, which captures how state and non-state actors involved in a pipeline project are commercially aligned. Contrary to the cases of Sino-Russian pipeline development, the BTC pipeline project was funded through a joint venture in addition to funding from debt financiers and multilateral agencies. Equity investors that sponsored the BTC project created the BTC Corporation and finalized the shareholder agreements. The BTC pipeline represents the combined ownership structure, where both NOCs (Azerbaijan's SOCAR, Turkey's TPAO, and Japan's Inpex) and IOCs (BP, Unocal, Statoil, Eni, Total, ConocoPhillips, and Hess) are shareholders in the pipeline joint venture. BP, as principal shareholder and project operator, took the lead in establishing a JV consortium.

POLITICAL ALIGNMENT

There was a high degree of unity among the countries involved with the BTC pipeline project. Political leaders of Azerbaijan, Georgia, and Turkey were all fully committed to the project and to each other. Azerbaijani President Heydar Aliyev, Georgian President Eduard Shevardnadze, and Turkish Prime Minister Süleyman Demirel were able to settle all issues concerning the project easily because of mutual political trust.⁴¹⁴

⁴¹³ "Baku-Tbilisi-Ceyhan Pipeline," BP Caspian Operations and Projects, the BP website, http://www.bp.com/en_az/caspian/operationsprojects/pipelines/BTC.html.

⁴¹⁴ Author's interview with Richard Morningstar, Special Advisor to the President and Secretary of State for Caspian Basin Energy Diplomacy and Former Ambassador to Azerbaijan.

For the United States, the independence of Azerbaijan and Georgia became a geopolitical and strategic priority after the collapse of the Soviet Union, especially because of their geographical locations. The United States viewed the development of an east-west energy transit route as a tool to foster these countries' political and economic independence and also wanted Turkey to be actively involved. Washington sought to increase the political influence of Turkey in the region and boost its economy, which was damaged by the lack of oil exported through its territory from Iraq since the end of the first Gulf War in 1991.⁴¹⁵ Washington was clearly aware that the southern Mediterranean coast of Turkey was the only potential endpoint for the BTC pipeline because Turkey would not allow any more oil tankers through Bosphorus. Transporting oil through Georgia rather than Armenia was a political decision, given the Nagorno-Karabakh conflict between Azerbaijan and Armenia and the close military relationship between Russia and Armenia. The United States remained steadfastly against any project that could give Iran more leverage in Western oil markets,⁴¹⁶ and did not want any more Caspian oil to be transported through Russia.

The full commitment of Azerbaijan, Turkey, and Georgia to the project and the strong political involvement from the United States made every energy outlet other than the

⁴¹⁵ Shaffer, *Energy Politics*, p.57.

⁴¹⁶ *Oil & Gas Journal*, January 14, 2002, p. 60.

The U.S. Congress passed the Iran-Libya Sanctions Act (ILSA) in 1995 (during the Clinton Administration), imposing proscriptions on any company – American or not – spending more than \$20 million developing Iran's oil and gas reserves. French, Malaysian, and Russian companies defied ILSA by contracting for billions to explore Iran's huge South Pars gas field in the Persian Gulf. During the Bush Administration, various interest groups including the American Israel Public Affairs Committee (AIPAC) got a five-year extension on ILSA in 2001, but the Bush Administration did not employ any sanctions on France, Russia, and Malaysia. At the first State of Union speech, President George W. Bush said that the administration is not yet prepared to allow American investment in Iran, by calling the three countries of Iraq, Iran, and North Korea "The Axis of Evil."

BTC pipeline politically impossible. The BTC pipeline transit route was the only politically viable option that Western oil companies had.

Table 6. Development of the BTC Oil Pipeline

- In the spring of 1992, the Turkish Prime Minister Süleyman Demirel suggested to Central Asian countries (including Azerbaijan) that the pipeline should run through Turkey. The first agreement on the construction of the Baku–Tbilisi–Ceyhan pipeline was signed between Azerbaijan and Turkey on March 9, 1993 in Ankara.
- In 1994, a consortium of oil companies led by the British Petroleum (BP) signed an \$8 billion PSA with the Azerbaijani state oil company, SOCAR (State Oil Company for the Azerbaijan Republic). Investors in the “contract of the century” include: SOCAR, BP, Amoco, Unocal, Pennzoil, Exxon, McDermott, Lukoil, Statoil, Ramco, TPAO, Delta Nimir.⁴¹⁷
- The first BTC Steering Committee meeting took place in January 1995. President Heydar Aliyev addressed the committee.
- The third Steering Committee meeting approved the Early Oil Project as well as the two early oil export options – the northern route through Russia and the western route through Georgia in October 1995.

⁴¹⁷ ACG’s current shareholders and participating interests are: BP (35.8%), SOCAR (11.6%), Chevron (11.3%), Inpex (11%), Statoil (8.6%), ExxonMobil (8%), TPAO (6.8%), Itochu (4.3%), and ONGC (2.7%). See footnote #36 for further details.

- The governments of the Republic of Azerbaijan and the Russian Federation signed the Intergovernmental Agreement on the transit of Azerbaijan oil via the pipeline from Baku to Novorossiysk in January 1996.
- The governments of the Azerbaijan Republic and Georgia signed the Intergovernmental Agreement on the transit of Azerbaijani oil via the pipeline from Baku to Supsa in March 1996.
- The presidents of Azerbaijan, Georgia, and Ukraine inaugurate the Western Route Export Pipeline and the Supsa Terminal on the Georgian coast of the Black Sea in April 1999.
- The Intergovernmental Agreement in support of the pipeline was signed by Azerbaijan, Georgia, and Turkey on November 18, 1999, during a meeting of the Organization for Security and Cooperation in Europe (OSCE) in Istanbul, Turkey.
- The Baku-Tbilisi-Ceyhan Pipeline Company (BTC Co.) was established in London on August 1, 2002.
- BTC Project Company signs Project Finance Agreements in February 2004.
- Inauguration of the Azerbaijan section of the BTC oil export pipeline by the presidents of Azerbaijan, Georgia, and Turkey in May 2005. Inauguration of the Georgian section of the Baku-Tbilisi-Ceyhan (BTC) oil export pipeline by the presidents of Georgia, Azerbaijan, and Turkey in October 2005.
- Baku-Tbilisi-Ceyhan (BTC) celebrates full commissioning. The official inauguration of the Turkish section of the BTC oil export pipeline occurs in July 2006.

CONCLUSION

The BTC oil pipeline is not only the first infrastructure link between Caspian hydrocarbons and international markets that does not cross Russia, but it is also a source of greater energy diversity, a symbol of the independence of the Caspian states, a proof of cooperation and mutual political trust among participating states, and a tool for economic development.⁴¹⁸ It illustrates how major energy infrastructure projects inherently involve political considerations and how political willingness drove commercial considerations in the decision-making behind this energy transit route. With the strong political involvement of the U.S. government, the host countries of Azerbaijan, Turkey, and Georgia are fully committed to the BTC project and to each other given its geopolitical and strategic importance.

With the BTC, Azerbaijan chose the most expensive and longest potential pipeline route among other options (including the shortest route of oil export through Iran or the cheapest option of the existing Baku-Novorossiysk pipeline controlled by Russia) in order to gain independence from the Russian transit system and create a potential link with Europe and the West.⁴¹⁹ Baku's policy was strongly pro-Western for both political and economic reasons, and the former President Heydar Aliyev was absolutely determined to have an energy outlet to the West. Realizing that the oil volumes discovered in the state would not justify more than one pipeline, the Azerbaijani

⁴¹⁸ Jonathan Elkind, "Economic Implications of the Baku-Tbilisi-Ceyhan Pipeline," in *The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West*: 39-60.

⁴¹⁹ Alexandros Petersen and Fariz Ismailzade, *Azerbaijan in Global Politics : Crafting Foreign Policy* (Baku: Azerbaijan Diplomatic Academy, 2009).

government decided to develop the BTC, which was powerfully supported by the U.S. government. In addition to such geopolitical calculations, the revitalization of Azerbaijan's economy through foreign investment from Western oil companies and the stabilization of its internal order (threatened by the post-Soviet transition as well as the Nagorno-Karabakh conflict) became urgent priorities for Azerbaijan.

Certainly, the BTC pipeline allowed Azerbaijan to monetize its energy resources: SOCAR owns a 10 percent share of AIOC, a 20 percent share of the ACG upstream equity, and a 25 percent share of the BTC pipeline JV. The BTC pipeline also enabled the development of the South Caucasus Pipeline (SCP) (or the Baku-Tbilisi-Erzurum (BTE) gas pipeline) at reduced cost, with the massive gas discovery in the Shah Deniz field. In 2004, BP estimated that Azerbaijan would receive more than \$100 billion in revenue from operations of the ACG, BTC, Shah Deniz, and SCP projects. Azerbaijan created the State Oil Fund of Azerbaijan (SOFAZ) to use its energy revenues, but also enjoyed job creation from the BTC and SCP pipeline projects.

Turkey strongly supported the BTC pipeline project for geopolitical, security, and domestic political reasons. Turkey aimed to enhance its geopolitical influence over the region as it believed that Turkey, as NATO ally, could play a key role in granting Azerbaijan and Georgia the opportunities to orient themselves toward the Euro-Atlantic security frameworks. The BTC pipeline route provided an alternative to transporting large amounts of crude oil through the Bosphorus, which was creating major security and environmental problems for Turkey. Each political party in Turkey also supported the BTC, because a successful launch of the BTC pipeline became an issue of reputation for Turkey.

The BTC pipeline addressed geopolitical and strategic concerns in Georgia as well. Georgia's geographical proximity to the Black Sea, Caspian, and Central Asia regions has made this transit country an important player in terms of energy exports after the collapse of the Soviet Union. Since Georgia became the site of the first major open confrontation between Russia and the United States in the region with the Rose Revolution in 2003⁴²⁰, the United States and the European Union have considered Georgia to be one of the main building blocks in the formation of alternative energy export routes that bypass the territory of Russia. Therefore, the successful launch of the BTC oil pipeline and its parallel BTE gas pipeline enabled Georgia to emerge as a major transit country in the region. Georgia also viewed the BTC pipeline project as an opportunity for foreign investment as the country was trying to shake off its reputation for endemic corruption and a poor investment climate. Combined, the BTC and BTE projects represent one of the largest forms of foreign direct investment (FDI) in Georgia, which contributed to the country's socioeconomic development. Georgia is also enjoying economic benefits of transit tariffs and employment benefits from the pipeline projects.⁴²¹

⁴²⁰ The Rose Revolution was a change of power in Georgia in November 2003, which took place after widespread protests over the country's disputed parliamentary elections. As a result, President Eduard Shevardnadze was forced to resign on November 23, 2003. The Rose Revolution marked the end of Shevardnadze's reign in Georgia, along with the end of a Soviet era of leadership. Consisting of twenty days of protests, it ended with new presidential and parliamentary elections and Shevardnadze stepping down from power. Many countries watched Georgia's transition from an autocracy to a democracy, but the key international players were primarily Russia and the United States. Russia was suspected of being involved in Georgia's affairs from the beginning. Georgia was previously under Soviet influence, became independent in the 1990s, but saw much disarray in the form of separatist groups, particularly those that were Russian-backed. The United States viewed the revolution as an opportunity to make a serious attempt at establishing democracy not only in Georgia, but also in the region. The U.S. Agency for International Development was reported to have spent \$1.5 million on modernizing Georgia's voting system. https://en.wikipedia.org/wiki/Rose_Revolution

⁴²¹ Georgia's transit tariffs amount to \$50-60 million per year at peak capacity.

Since the early 1990s, the U.S. government made continuous political and diplomatic efforts to promote the export of Azerbaijan's hydrocarbons to international markets through an east-west corridor. Notwithstanding the modest volume of oil, Washington viewed the BTC pipeline transit route as tool to foster security and political ties with the Caspian states, as well as to begin to end dependence on Russian and Iranian oil transportation networks from the Caspian region. While the United States successfully excluded the Iranian route by supporting the BTC and other Caspian infrastructure projects, it did not seem to push hard to exclude Russia. As in the "early oil" debate during the early 1990s, the United States seemed to be satisfied with the two-track solution of dual pipeline strategy (one led by the U.S. and Western oil companies, and the other led by Russia) in exporting Caspian energy to international markets, as evidenced in the Caspian Pipeline Consortium (CPC)⁴²² to carry Kazakhstan's oil in the Tengiz field to the Russian Black Sea port of Novorossiysk.

However, the geopolitical rivalry between Russia and the West certainly played a key role in planning and developing the BTC oil project. Moscow refused to support the project and Lukoil and other Russian state-oil companies declined to join it, whereas U.S. oil companies participated in the Russian-driven CPC pipeline project. It is worth noting that despite Washington's strong political support for the BTC project, most of the major investment in the project came from non-U.S.-based oil companies. U.S. oil companies initially opposed the U.S. government's political involvement in the decision-making and negotiation process of the BTC pipeline project, but this political decision certainly

⁴²² The Caspian Pipeline Consortium (CPC) is a consortium and a pipeline to transport Caspian oil from Tengiz field to the Novorossiysk terminal on Russia's Black Sea coast. It is also a major export route for oil from the Kashagan and Karachaganak fields. The CPC was established in 1992 with shareholders including Chevron, Mobil, Shell, Lukoil, Rosneft, and Transneft (largest shareholder).

contributed to the creation of commercially effective solutions, along with BP's announcement of commercial viability of the project even without Kazakhstan's oil commitment.

CHAPTER SEVEN
CASPIAN GAS TO EUROPE:
THE SOUTHERN GAS CORRIDOR DEVELOPMENT

INTRODUCCION

This chapter examines the development of natural gas pipelines in the Southern Gas Corridor (SGC).⁴²³ As a chief component of the EU's strategy in energy diversification, the SGC has been at the center of an intricate geostrategic game for many years.

Geopolitical, geo-economic, and commercial interests intersect in the decision-making of the various pipeline proposals: Nabucco, South Stream, the Trans Adriatic Pipeline (TAP), the Trans Anatolian Pipeline (TANAP), and Turkish Stream. With the recent results of the pipeline competition from which TAP and TANAP were chosen, I investigate the region's gas pipeline dynamics and political-economic interests of key and relevant actors. How states, the EU, and firms have defined their interests and how those interests diverge or converge are scrutinized through analysis of the four proposed pipelines.

The case of the SGC pipeline project fits with the overall architecture of my dissertation in the following respects. First, I explained earlier that I chose four pipeline cases that show variations in terms of the relationship between economic and political incentives in order to explain the underlying mechanism of political and economic factors that lead states to agree binding cross-border pipeline deals. The SGC pipeline project is a case where the deals proceeded with a high-to-medium level of political alignment and economic incentives among host countries. The degree of political alignment (i.e.,

⁴²³ The southern corridor refers to the area south of the Black Sea and into southern Europe. The term "Southern Gas Corridor" was mentioned in: "An EU Energy Security and Solidarity Action Plan (Second Strategic Energy Review)," Commission of the European Communities, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0781:FIN:EN:PDF>.

political trust) among host countries for the SGC pipeline project is not resolved, however, given that dynamics in the region are changing quickly due to the Ukraine crisis, resulting Western sanctions, low oil prices, Russia's subsequent cancellation of the South Stream pipeline, and Moscow's strategic moves toward the Turkish Stream pipeline, all of which happened after TAP and TANAP were chosen. The degree of political alignment among host countries seems to keep declining and is difficult to estimate because participating countries with different policy goals are taking diverging approaches to energy resources. Compared to the other three cases in my dissertation, however, the SGC pipeline project is a case where there are substantial political and economic incentives, rather than a case where political and economic incentives are inversely related.

Second, the SGC pipeline project involves combined pipeline ownership between national oil companies (NOCs) and international oil companies (IOCs), with a joint venture (JV) consortium for the financing, construction, and operation of pipelines, as well as for the development of the upstream sector (where states receive natural gas via pipeline). The SGC pipeline project is also a case that shows why the Caspian multi-state export pipelines materialized more quickly than the Sino-Russian direct-link pipelines, even though the multi-state export pipelines involve more parties (including transit states without overarching jurisdiction) than direct-link pipelines.

As mentioned at the beginning of Chapter 6, I explain the similarities and differences between the Baku-Tbilisi-Ceyhan (BTC) oil pipeline and the SGC gas pipeline development throughout Chapters 6 and 7 based on the logic for case selection described above. Chapter 7 explains the underlying political and economic factors that brought

countries into the SGC's binding gas pipeline deals: (1) the geopolitical rivalry between the European Union (EU) and Russia (i.e., the EU's quest for natural gas supply diversification to reduce its dependence on Russia, which has disrupted supply in the past in its efforts to punish uncooperative countries and maintain its control over the European market); (2) the relatively high degree of political alignment among host countries; and (3) the NOC-IOC combined ownership structure of pipeline and upstream financing.

Key players' geopolitical and economic interests intersected in the decision-making regarding various pipeline proposals in the SGC project network (namely, Nabucco, TAP, TANAP, and South Stream). Similarities between BTC and SGC include the U.S. and EU efforts to link the Caspian region with Europe for supply diversification purposes and to secure transit routes away from Russia, as well as a pipeline and upstream sector ownership structure that is shared between IOCs and NOCs. To explain differences between BTC and SGC, this chapter focuses on the changing landscape of energy markets and geopolitics in the region. A complex set of commercial interests, political interests, and geopolitics in the Caspian region came into play among the key state and non-state actors, including the EU, Russia, Azerbaijan, Turkey, and the oil companies participating in the Shah Deniz (SD) consortium and the TAP and TANAP joint ventures (e.g., British Petroleum (BP) and Azerbaijan's national oil company, SOCAR).

The SD consortium's choice of TAP and TANAP over the Nabucco proposal for SGC, as well as Russia's cancellation of South Stream pipeline and its strategic move toward the Turkish Stream pipeline in the midst of the Ukraine crisis, illustrates how regional power politics have changed in the last decade. Changes in the energy development policies of Azerbaijan and Turkey—who now desire to avoid direct competition and maintain

pragmatic relations with Russia in ways that did not concern them much in the 1990s—explains why the SD consortium chose TAP and TANAP over the EU-backed Nabucco Pipeline. In particular, Azerbaijan’s national oil company SOCAR is playing a larger role in the SGC project than it played in the BTC project (it is the largest shareholder in the SGC’s TAP and TANAP pipeline JVs, while it held the second-largest share in the BTC pipeline JV, after British Petroleum). Turkey is also strategically moving toward developing new forms of bilateral energy partnerships with Russia, particularly with the emergence of energy policy fragmentation between Turkey and the EU. Chapter 7 explains how different countries with different policy goals are taking diverging approaches to developing natural gas outlets from the Caspian region to Europe given the changing landscape of geopolitics and energy markets.

BACKGROUND

Options and Challenges to Natural Gas Supply Diversification in Europe

Before I delve into the SGC development, it is worth discussing the particularities of natural gas as a traded good. Natural gas is gaining more significance worldwide as it is cleaner than other fossil fuels in terms of greenhouse gas emissions. However, natural gas displays a number of unique traits, which set its market apart from other energy markets such as oil. While oil is a global commodity, gas is a regional commodity with regional buyers and sellers exerting more influence. As natural gas is produced, transported, and traded through regional, fragmented markets, its pricing mechanism displays regional differentiation. Outside of North America, where deregulated hub pricing reigns, the majority of natural gas pricing in the world has been long-term in nature and linked to oil

prices. With its relatively low energy density, and hence its high cost of transportation and storage, natural gas until recently has lent itself to the business model of long-term contracts, destination clauses, and “captive” end-use consumers.⁴²⁴ Under long-term and oil-indexed contracts, the buyer takes the “market risk” and the seller takes the “price risk” through the price linkage to oil and the take-or-pay mechanism.⁴²⁵ This business model is well suited to Russia and Gazprom, where one-third of the EU’s natural gas originates.⁴²⁶

Throughout the 1960s to the mid-2000s, the long-standing EU-Russian gas relationship that was rooted in standard long-term contracts was relatively stable. Especially when European gas demand growth seemed assured and oil prices were expected to remain robust, the risk incurred by both parties seemed low. Since the mid-2000s, however, the EU has become increasingly concerned about its rising dependence on Russian gas imports owing to Russia’s cutoffs of natural gas supplies to Europe. Many European countries have suffered several unexpected energy cutoffs due to confrontations between Russia and the key pipeline transit states of Ukraine and Belarus over natural gas supply and transit issues. Gazprom halted all natural gas supplies transiting Ukraine for three days in January 2006 and for nearly three weeks in 2009 after the two sides failed to reach agreement on several issues, including a debt allegedly owed by Ukrainian oil and gas company Naftohaz Ukrayiny to Gazprom and the price that Ukraine would pay for natural gas supplies. Given that about 80 percent of Europe’s natural gas imports from

⁴²⁴ James and Pirani Henderson, Simon, ed. *The Russian Gas Matrix: How Markets Are Driving Change* (New York: Oxford University Press, 2014). Jonathan Stern, *The Pricing of Internationally Traded Gas* (Oxford University Press, 2012). Market risk is the risk that an investment will decrease due to moves in market factors. Price risk is the risk of a decline in the value of a security or a portfolio.

⁴²⁵ Take-or-pay clauses specify a minimum, pre-set volume of gas per year that the buyer will pay for at the contract price, regardless of whether the volume is taken or not.

⁴²⁶ Henderson, *The Russian Gas Matrix: How Markets Are Driving Change*.

Russia passed through Ukraine at that time⁴²⁷, the 2009 Russian-Ukraine gas dispute resulted in supply disruptions in many European nations, with eighteen European countries reporting major drops or complete cutoffs of their gas supplies transported through Ukraine from Russia.⁴²⁸ In 2010 and 2011, disputes between Russia and Belarus over a variety of issues, including energy prices, debt owed by Belarus, and transit fees paid by Russia for the use of Belarusian pipelines, led to temporary reductions of oil and natural gas supplies to Belarus and neighboring countries.⁴²⁹ These incidents of gas disputes demonstrate how Russia has openly exploited its energy strength to manipulate domestic and international policies in Belarus and Ukraine, thus enabling Russia to exert influence over certain European countries. As the current Ukraine crisis shows, moreover, the EU's interdependent hydrocarbon relations with gas giant Russia have grown ever more tense since the mid-2000s, remaining paramount in almost all of the foreign policy dealings between Brussels and Moscow.⁴³⁰

In response to past supply disruptions and the potential for future energy supply curtailments, European leaders, sometimes with the support of the United States, have sought to increase their energy security by exploring supply diversification options both

⁴²⁷ Prior to the opening of the Nord Stream pipeline, about 80% of Europe's natural gas imports from Russia transited Ukraine pipelines. The Nord Stream, which transports natural gas from Russia to Germany via a pipeline under the Black Sea, has a planned capacity of almost 2 trillion cubic meters (tcf) per year, as compared to the Ukraine pipeline system's 4.0-4.5 tcf per year. The first supplies from the Nord Stream were delivered in late November 2011 and the pipeline is operating at about 80% of its maximum capacity.

⁴²⁸ "Factbox - 18 Countries Affected by Russia-Ukraine Gas Row," *Reuters*, Jan 7, 2009. <http://www.reuters.com/article/2009/01/07/uk-russia-ukraine-gas-factbox-idUKTRE5062Q520090107?sp=true>

⁴²⁹ Paul Belkin, Jim Nichol, and Steven Woehrel, "Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification," *Congressional Research Service* (2013).

⁴³⁰ Angel Saz-Carranza and Marie Vandendriessche, "Routes to Energy Security: The Geopolitics of Gas Pipelines between the EU and Its Southeastern Neighbors," in *The New Politics of Strategic Resources: Energy and Food Security Challenges in the 21st Century*, ed. David Steven, Emily O'Brien, and Bruce Jones (Washington, D.C.: the Brookings Institution, 2015).

in terms of sources and transit routes. One such response has been the decision by some EU members to support alternative transit routes for Russian gas. Examples include the opening of the Nord Stream pipeline, which directly connects Russia and Germany, and Russia's proposal of the South Stream pipeline, which would connect Russia, Bulgaria, and Hungary across the Black Sea, bypassing Ukraine. While the European Commission energy commissioner office maintained that projects such as the Nord Stream enhance European security by providing alternative routes for Russian supplies, a number of EU member states opposed Nord Stream, questioning Russia's reliability as an energy supplier.⁴³¹ In particular, the Russian-backed projects such as the South Stream are widely seen as rivals to other pipelines supported by the EU such as Nabucco and criticized for potentially giving Moscow additional political and economic leverage in Russia's dealing with countries that the pipeline is going to bypass.⁴³² The South Stream project, which Russia announced its intention to scrap during the Ukraine crisis, will be examined in detail later in this chapter.

Another response to enhancing the EU's energy security, in this respect, has been the Southern Corridor to transport natural gas from the Caspian region and Central Asia. The SGC is regarded as a key component of the EU's strategy for supply diversification, given that the Caspian region holds the greatest potential for new natural gas supplies for Europe and that the EU's reliance on Russian gas can be reduced. However, the delays in expanding and fully developing Southern Corridor natural gas pipelines to Europe,

⁴³¹ Roger Boyes, "Gazprom is not a market player, it's political weapon," *The Times*, January 7, 2009.

⁴³² Michael Ratner, Paul Belkin, Jim Nichol, and Steven Woehrel, "Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification," *CRS Report for Congress*, Congressional Research Service (2013).

including the Trans-Caspian Pipeline, have thus far led Central Asian countries to look east rather than west to bypass Russia and open new markets.⁴³³ Intricate geostrategic dynamics lie at the heart of the various pipeline proposals for the SGC, thus resulting in the replacement of Nabucco (or Nabucco West), which is no longer considered a commercially viable project, by the planned small-scale TAP and TANAP projects. On June 28, 2013, the Shah Deniz II consortium that controls the Azerbaijani natural gas chose the TAP projects instead of Nabucco to connect to TANAP.⁴³⁴

Although natural gas is decreasing its share in the EU energy mix,⁴³⁵ it forms the centerpiece of a complex geopolitical competition to the union's east.⁴³⁶ As Europe's natural gas production has declined in recent years, its dependence on imported natural gas has increased.⁴³⁷ This has left it more dependent on its primary supplier, Russia,

⁴³³ Ibid.

⁴³⁴ BP press release, <http://www.bp.com/en/global/corporate/press/press-releases/shah-deniz-targets-italian-and-southeastern-european-gas-markets.html>.

⁴³⁵ Gas consumption decreased both in absolute and relative terms against feeble economic performance, weak electricity demand and growing role of solid fuels and renewables in the power sector. The quantity of gas consumed went down by 11%, reaching 393 Mtoe in 2012 and the share of gas declined from 25.1% in 2010 to 23.4%. "EU Energy Markets in 2014," European Commission.

According to Eurostat, the EU-27's energy mix in 2011 was split as follows: petroleum products and natural gas made up over half of the whole (providing 35 percent and 23 percent of needs, respectively), with solid fuels (17 percent), nuclear heat (14 percent), and renewables (10 percent) delivering the rest. In 2011, the then 27 member states (Croatia became the 28th member of the EU on July 1, 2013) imported more than half of their energy (54 percent), with Russia and Norway as their main petroleum and gas suppliers. This dependence continues to rise steadily, especially for natural gas, where imports are 154 percent greater than their 1995 levels. See European Commission's Eurostat data for 2011, published in April 2013.

⁴³⁶ Angel Saz-Carranza, and Marie Vandendriessche. "Routes to Energy Security: The Geopolitics of Gas Pipelines between the EU and Its Southeastern Neighbors." In *The New Politics of Strategic Resources: Energy and Food Security Challenges in the 21st Century*, edited by David Steven, Emily O'Brien and Bruce Jones (Washington, D.C.: the Brookings Institution, 2015).

⁴³⁷ Europe and Eurasia together produce 31 percent of the world's natural gas. However, the EU countries' share in that percentage is low and decreasing. The Netherlands and the United Kingdom are the EU's main indigenous producers: the latter, in particular, has seen its production drop over the last decade – from 108.4 bcm in 2003 to 57.1 bcm in 2013, while Dutch production is flat. For more details, see: Saz-Carranza

which has shown some inclination to use its resources for political ends.⁴³⁸ As natural gas comprised 23 percent of the EU's primary energy consumption in 2011 and the EU gas production is declining, the EU import dependence is expected to grow to 71-73 percent by 2030.⁴³⁹ Russia accounted for 32 percent of European natural gas imports in 2012 and 39 percent in 2013⁴⁴⁰, surpassed only by Norway as the lead supplier⁴⁴¹. In the face of rising concern about Europe's reliance on Russian energy and growing public pressure to address global climate change, EU member states have begun to increase cooperation toward an "Energy Policy for Europe."⁴⁴² The European Commission adopted the Third Energy Package in 2009 to complete the integration and liberalization of the internal European energy market, promote the interconnection of electricity grids and natural gas pipelines, boost energy efficiency, and better coordinate external energy policies. Moreover, Europe is now stressing its desire to lessen its dependence on Russian energy supplies (European Commission, 2014), as a result of geopolitical tensions between Russia and the West arising from the Ukraine crisis.

and Vandendriessche, "Routes to Energy Security: The Geopolitics of Gas Pipelines between the EU and Its Southeastern Neighbors."

⁴³⁸ The George W. Bush Administration sharply criticized Russia for using energy supplies as a means to gain political influence over other countries and urged European countries to diversify supply sources. See: Richard Cheney, "Vice President's Remarks at the 2006 Vilnius Conference," *Reval Hotel Lietuva, Vilnius* (2006). May 4, 2006, <http://www.whitehouse.gov>

The Obama Administration has also called for diversification, but has refrained from openly expressing concerns about Russia's energy policy in the region, perhaps in order to avoid jeopardizing relations with Moscow. See: Belkin, Nichol, and Woehrel, "Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification."

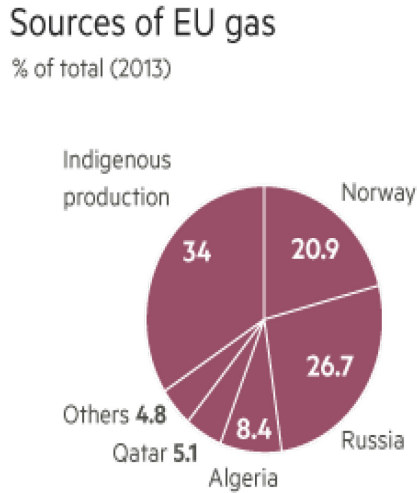
⁴³⁹ http://www.eurogas.org/uploads/media/Statistics_Eurogas_LT_Outlook_2007-2030_Final_25.11.10.pdf

⁴⁴⁰ "Main Origin of Primary Energy Imports, EU-28, 2003-13" (Source: Eurostat).

⁴⁴¹ BP Statistical Review of World Energy 2013.

⁴⁴² Belkin, Nichol, and Woehrel, "Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification."

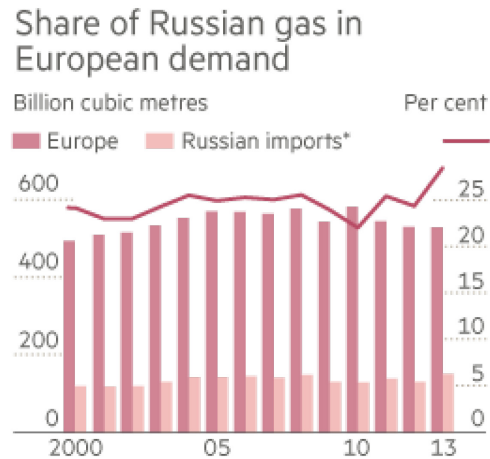
Figure 6. Sources of EU Gas (2013)



Source: Eurogas

(Source: Eurogas)

Figure 7. Share of Russian Gas in European Demand



* Adjusted
Source: Oxford Institute for Energy Studies

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FT

(Source: Oxford Institute for Energy Studies)

Many question how far EU member states will go to push Russia (and Gazprom) to adopt the EU's principles of competition and open its energy sector to outside investment.

Some analysts argue that an EU commitment to further liberalize Europe's energy market—which includes changing to a gas pricing mechanism with a much higher share of spot indexation⁴⁴³, European anti-trust investigations against Gazprom occurring since September 2012, and third party access requirements for the North European (NEL) and the South Stream pipelines—could signal the beginning of a more unified approach

⁴⁴³ Given that the U.S. natural gas market is not priced against oil, the EU's changing gas pricing mechanism (which is to increase share of spot indexation) may pose an opportunity to enhance the EU's energy security with the prospect of significant U.S. LNG exports to Europe since the advent of shale gas in the U.S.

toward Russia.⁴⁴⁴ Other observers contend that regardless of the aforementioned efforts, Russia will continue to exercise significant influence over Europe's energy security. Indeed, several member states such as Germany and Italy, the largest importers of Russian natural gas, have pursued long-term bilateral energy deals with Russia, which will likely increase their dependence on Russia for years to come. Although they are not the major energy consumers, Bulgaria, Romania, Hungary, and Greece have also entered into long-term energy agreements with Russia.⁴⁴⁵

Key Gas Infrastructure in Europe

In 2011, Europe and Eurasia accounted for the trade of 469.7 bcm of the world's 694.6 bcm of international pipeline-supplied natural gas. In terms of infrastructure, two-thirds of the world's cross-border natural gas pipelines operate in Europe. The EU already holds some €500 billion of sunk costs in natural gas infrastructure; the European Commission estimates some €70 billion more will be necessary in the period up to 2020.⁴⁴⁶ The EC published its strategy for long-term energy infrastructure in Europe in 2013, defining the following priorities for gas: first, diversify the continent's gas infrastructure; second, expand the Southern Gas Corridor in order to import about 10 percent of European demand from the Caspian region and the Middle East; third, increase flexibility by developing more liquefied natural gas (LNG) terminals and storage facilities; and finally,

⁴⁴⁴ Jonathan Stern, Simon Pirani, and Katja Yafimava, "Does the Cancellation of South Stream Signal a Fundamental Re-Oriented of Russian Gas Export Policy," *Oxford Institute for Energy Studies* (2015).

⁴⁴⁵ Belkin, Nichol, and Woehrel, "Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification."

⁴⁴⁶ European Commission, *Proposal for a Regulation of the European Parliament and of the Council on Guidelines for Trans-European Energy Infrastructure and Repealing Decision*, No 1364/2006/EC. (COM(2011) 658), 2011.

increase indigenous production from the eastern Mediterranean of biogas or other unconventional sources.

Caspian Gas to Europe

Supply diversification and secure transit routes are key ingredients for the EU's quest for energy security. In order to seek alternative supplies of natural gas outside of Russia, as well as more secure supply routes that avoid unstable transit countries such as Ukraine, the EU has aimed to construct an energy corridor, the so-called Southern Gas Corridor (SGC). This corridor—a network of gas pipelines transporting natural gas from the Caspian, Central Asia, and even potentially the Middle East to Europe—has no pre-established route. Over the last decade, a number of competing pipelines have been proposed to form the corridor: Nabucco, South Stream, TAP, and TANAP. The original Nabucco project, once heralded as the centerpiece for European energy diversification, has stalled and been replaced by the TAP project, which has significantly less capacity. The TAP project is currently in its implementation phase and is preparing for construction beginning in 2016.⁴⁴⁷ Connecting with TANAP at the Greek-Turkish border, TAP will cross Greece, Albania, and the Adriatic Sea before coming ashore in southern Italy and connecting to the Italian natural gas network. A final investment decision for TANAP has not yet been made.

The geopolitical competition over the SGC began with the original Nabucco project proposal in 2002, and its counter-proposal, Russia's South Stream pipeline project, launched in 2007. After much speculation and fierce competition with other pipeline

⁴⁴⁷ <http://www.tap-ag.com/the-pipeline>

projects, TANAP in particular, the Nabucco consortium submitted a new pipeline proposal called Nabucco West. Therefore, the competition essentially played out between two EU-sponsored pipelines – Nabucco West and TAP – and intensified with the addition of a Russian counterpart, South Stream. While the Shah Deniz Consortium chose the TAP over Nabucco West in June 2013, Moscow continued to push forward with its South Stream pipeline.⁴⁴⁸ Russia finalized arrangements with transit states for the construction of South Stream and began construction of the onshore portion in Russia in December 2012. During Russian President Vladimir Putin’s visit to Turkey on December 1, 2014, however, Russia scrapped the \$40 billion South Stream pipeline project to Europe, in favor of another project, Turkish Stream, designed to ship gas exports to Turkey. While Russia was struggling to avoid recession amid plunging oil prices and lingering sanctions arising from the Ukraine crisis, Russia signed a preliminary deal with the Turkish company Botas Petroleum Pipeline to build Turkish Stream, a pipeline of the same size as the South Stream, under the Black Sea to Turkey.⁴⁴⁹

SOUTHERN GAS CORRIDOR (SGC)

Tracing the Competition

⁴⁴⁸ Although Russia has long been viewed as an opponent of Nabucco or any other project associated with the Southern Corridor strategy, it has not been as vocal in its opposition to smaller-scale projects such as TAP. Belkin, Nichol, and Woehrel, "Europe’s Energy Security: Options and Challenges to Natural Gas Supply Diversification."

⁴⁴⁹ Stephen Bierman, Ilya Arkhipov, and Elena Mazneva, "Putin Scraps South Stream Gas Pipeline after Eu Pressure," *Bloomberg*, December 2, 2014.

In this section, I trace the competition over the SGC, beginning with the original Nabucco project through to the counter-proposal of South Stream and rival TANAP, and on to the final struggle between TAP and Nabucco West.

Nabucco, the Original

The vision of Nabucco, one of the first SGC proposals, was first translated into an infrastructure project in 2002, and comprised a five-company consortium including OMV of Austria, MOL Group of Hungary, Bulgaraz of Bulgaria, Transgaz of Romania, and BOTAS of Turkey. The project would involve a 3,800 kilometer-long pipeline with a capacity of 31 bcm per year, designed to carry natural gas extracted in Azerbaijan, Turkmenistan, Iraq, Iran, and Egypt to southeast and central Europe via Turkey.⁴⁵⁰ In June 2005, the five Nabucco partners signed a joint venture agreement and later the consortium was extended to RWE AG, German electric utilities company, in 2008.⁴⁵¹ The intergovernmental agreement (IGA) between Turkey, Romania, Bulgaria, Hungary, and Austria was signed by five prime ministers in July 2009 in Ankara.⁴⁵² All the participating countries ratified the agreement by March 2010.⁴⁵³

⁴⁵⁰ Natural gas flows from these producing countries would have reached the Turkish border as follows: via the South Caucasus Pipeline in the case of Azerbaijan; via Iran or the planned Trans-Caspian Pipeline in the case of Turkmenistan; via the planned extension of the Arab Gas Pipeline in the case of Iraq; via the Arab Gas Pipeline in the case of Egypt.

⁴⁵¹ Each partner held one-sixth of the venture.

⁴⁵² "Europe Gas Pipeline Deal Agreed," *BBC News*, July 13, 2009.

⁴⁵³ Badalova A., "Rwe: Ratifying Nabucco Agreement by Turkey Gives Azerbaijan and Turkmenistan Basis for Conclusion of Gas Contracts," *Trend News Agency*, March 5, 2010.

Map 7. The Nabucco Pipeline



(Source: Wikipedia)

The project immediately got unprecedented support from the EU, the United States, and Turkey. For the EU, it represented a major opportunity to diversify its natural gas away from Russia. In particular, southeast Europe is heavily dependent on Russian gas imports compared to other European countries. According to Simon Pirani, senior research fellow at the Oxford Institute for Energy Studies, the price for Russian gas varies in different European countries. For instance, eastern European countries pay more than \$500 per trillion cubic meters, while the United Kingdom pays \$300 and Germany \$370 or more.⁴⁵⁴ For this reason, Nabucco not only got financial support from the EU⁴⁵⁵ but also became the flagship project of the SGC. The European Commission in 2008 launched an

⁴⁵⁴ "Eastern Europe: Import Dependence, Higher Prices," *Natural Gas Europe*, April 2, 2013. <http://www.naturalgaseurope.com/eastern-europe-gas-import-dependence->

⁴⁵⁵ The European Commission awarded a grant in the amount of 50% of the estimated total eligible cost of the feasibility study including the market analysis, and technical, economic, and financial studies.

initiative for transporting the natural gas supply from Caspian and Middle Eastern regions to Europe as a response to the energy security concerns that emerged in the EU after the first European gas crisis occurred between Russia and Ukraine in January 2006.⁴⁵⁶

For the United States, the project represented an important geopolitical asset in reducing the EU's natural gas dependency on Russia, exactly as the Baku-Tbilisi-Ceyhan (BTC) pipeline served in the 1990s to reduce the EU's oil dependency on Russia and Iran.

Special Envoy for Eurasian Energy Richard Morningstar and Ranking Member of the United States Senate Committee on Foreign Relations Senator Richard Lugar represented the United States at the signing of the intergovernmental agreement among the five states in 2009.⁴⁵⁷ The sheer length of the pipeline and its route – through Turkey, Bulgaria, Romania, Hungary, and Austria – would enable some EU states to have direct access to gas sources from the Caspian and beyond. In Erzurum, Turkey, Nabucco would connect to the South Caucasus Pipeline. For Turkey, the project offered an opportunity to realize its long-term strategic goal of becoming a key energy hub in the region.

Despite the strong political commitment of the five transit countries and the political support of the EU and the United States, the Nabucco project ultimately failed mainly due to commercial and financial reasons: it was a very large scale pipeline project with a hugely uncertain demand outlook and faced a potential competitor in the South Stream pipeline. Moreover, the project promoters were mainly mid-size companies who had to rely on project finance and bank loans, and the banks demanded guarantees and long-

⁴⁵⁶ European Commission, *Second Strategic Energy Review – An EU Energy Security and Solidarity Action Plan* (COM(2008) 781 final), 13 November 2008.

⁴⁵⁷ Ian Kelly, "Signing Ceremony for the Intergovernmental Agreement on the Nabucco Pipeline," ed. U.S. Department of State (Washington, DC, 2009).

term take or pay contracts that the market could not deliver.⁴⁵⁸ Another major element of uncertainty for the Nabucco project was that, with the exception of Azerbaijan, all the potential suppliers were facing major difficulties realizing their desire to ship natural gas to Europe via Turkey.⁴⁵⁹

From the very beginning, obtaining firm commitments from suppliers in order to ensure diversified sourcing (one of the main goals in the project) was problematic.⁴⁶⁰ The Middle East proved unworkable as a source of gas through Nabucco. Northern Iraq's gas fields were not yet ripe for the picking, due to uncertainty regarding their governance. In addition, accessing Iraq's gas would require construction of an extra connector to hook up to existing pipelines heading toward Europe. Iran, bordering the Caspian, still had its resources locked away because of sanctions related to its nuclear program.⁴⁶¹ Complex situations in Caspian countries other than Azerbaijan have prevented any true progress from transporting their resources northwest to Europe. While Turkmenistan holds largest reserves of natural gas in the region and is investing in a number of recently assessed fields such as the South Yolotan-Osman field, it already exports to Russia and China. China has been offering investment and loans for Turkmen gas field development and

⁴⁵⁸ Manfred Hafner, "The Southern Gas Corridor and the Eu Gas Security of Supply: What's Next?," *Natural Gas Europe*, March 28, 2015.

⁴⁵⁹ Simone Tagliapietra, "Eu-Turkey Energy Relations after the 2014 Ukraine Crisis," *ibid.*, September 18, 2014; Saz-Carranza and Vandendriessche, "Routes to Energy Security: The Geopolitics of Gas Pipelines between the Eu and Its Southeastern Neighbors.," *ibid.*; *ibid.*

⁴⁶⁰ "Routes to Energy Security: The Geopolitics of Gas Pipelines between the Eu and Its Southeastern Neighbors."

⁴⁶¹ P5+1 countries (the United States, the United Kingdom, Russia, Germany, France, and China), the EU, and Iran have reached an understanding on the key elements of Iranian nuclear activities on April 2, 2015, from a series of meetings held from March 26 to April 2, 2015 in Lausanne. According to the joint statement, Iran would redesign, convert, and reduce its nuclear facilities and accept the additional protocol (with provisional application) in order to lift all nuclear-related economic sanctions. However, the timing of sanctions relief, as well as the relationship between Iran's implementation of its nuclear obligations and the suspension or termination of U.S., EU, and UN Security Council sanctions still remained to be answered.

pipeline construction. Plans for the Trans-Caspian Gas Pipeline have been discussed since the early 1990s, but they did not make any real progress due to political and legal disputes between the Caspian littoral states.⁴⁶² In this sense, Azerbaijan seemed the most realistic source of supply, and both the European Commission and the United States pushed hard to secure Azeri gas supplies for Nabucco. However, the Nabucco consortium found it difficult to secure supplies because banks and customers were unwilling to commit to the project before supplies were guaranteed.⁴⁶³ At the same time, Azerbaijan refused to sign any delivery contract before being certain of the pipeline's viability. Whereas Azeri gas was the only realistic source of supply to the Nabucco consortium, to Azerbaijan Nabucco was only one of several options to export its gas to Europe.

South Stream

While the Nabucco partners were developing detailed plans and attempting to secure diversified supply for the pipeline, Russia launched its own pipeline project, South Stream, in 2007. Although Russia said that it designed the South Stream pipeline to bypass troublesome transit states along its transport route, such as Ukraine or Belarus, it has been considered as a rival to Nabucco in order to thwart the EU's attempts to diversify its gas imports away from Russian dominance.

⁴⁶² As of 2000, negotiations related to the demarcation of the Caspian Sea had been going on for nearly a decade among the states bordering the Caspian – Azerbaijan, Russia, Kazakhstan, Turkmenistan, and Iran. The status of the Caspian Sea is the key problem. Access to mineral resources (oil and natural gas), access for fishing, and access to international waters (through Russia's Volga river and the canals connecting it to the Black Sea and Baltic Sea) all depend upon the outcomes of negotiations.
https://en.wikipedia.org/wiki/Caspian_Sea#Territorial_status.

⁴⁶³ Saz-Carranza and Vandendriessche, "Routes to Energy Security: The Geopolitics of Gas Pipelines between the Eu and Its Southeastern Neighbors."

The plan for the pipeline was for it to run under the Black Sea and connect Russia with Bulgaria, and then for the onshore section to travel over land from Bulgaria to Serbia, Hungary, and Slovenia, finally connecting with Italy. Starting with the signing of an agreement between Gazprom and the Italian energy company Eni on establishing a joint project company for the commissioning of the marketing and technical feasibility studies of the project in November 2007⁴⁶⁴, Russia signed agreements with all European transit countries, committing them to South Stream from 2008 to 2010. Russian officials estimated the first line of South Stream, a span of 2,380 kilometers, would be operational by 2015 and have a capacity of 63 bcm per year by 2018, which would account for around 12 percent of Europe's gas consumption.⁴⁶⁵ The joint venture South Stream AG, equally owned by Gazprom and Eni, was registered in 2008 for the pipeline's onshore section.⁴⁶⁶ A new project company, South Stream Transport AG, was established for the offshore Black Sea section of the pipeline in 2011, with shareholders comprising Gazprom (50 percent), Eni (20 percent, Italy), Électricité de France (EdF) (15 percent,

⁴⁶⁴ "Eni and Gazprom Sign the Agreement for the South Stream Project," *Scandinavian Oil-Gas Magazine*, November 23, 2007.

⁴⁶⁵ The offshore pipeline was planned to carry 63 bcm of natural gas per year. It would have four parallel lines with capacity of 15.75 bcm each. The first line was planned to be ready by the end of 2015, the second and third lines by the end of 2016, and the fourth line by the end of 2017. The offshore section is expected to cost €10 billion. Pipeline sections in Bulgaria, Serbia, Hungary, and Slovenia will have capacity of at least 10 bcm per year. The onshore pipeline will have eight compressor stations and is expected to cost €6 billion. See: Nadia Rodova, "Russia, Bulgaria Sign Final Investment Decision on South Stream Gas Pipeline," *Platts*, November 15, 2012. "Ukrainian Gas Transmission System May Cost More Than South Stream Construction," *Gazprom*, December 30, 2011. Stephen Bierman and Anna Shiryayevskaya, "Russia, Slovenia Sign South Stream Gas Pipe Accord," *Bloomberg*, November 14, 2009.

⁴⁶⁶ Stephen Jewkes, "Eni, Gazprom Set up Company for South Stream Gas Pipeline," *Forbes*, January 18, 2008.

France), and Wintershall (15 percent, Germany).⁴⁶⁷ The total cost for pipeline construction was estimated as €16 billion.

Map 8. The South Stream Pipeline



(Source: Gazprom)

Construction of the Russian onshore facilities for the pipeline started in Bulgaria in October 2013. However, the project was dropped by the Russian side in December 2014—following numerous obstacles caused by Bulgaria and the EU, the 2014 Crimean crisis, and the imposition of European sanctions on Russia.⁴⁶⁸ On April 17, 2014, amid the Russian conflict in Ukraine, the European Parliament adopted a non-binding resolution opposing the South Stream gas pipeline and recommended a search for

⁴⁶⁷ Jacob Gronholt-Pedersen, "Companies Sign South Stream Deal," *The Wall Street Journal*, September 16, 2011.

⁴⁶⁸ Jim Yardley and Jo Becker, "How Putin Forged a Pipeline Deal That Derailed," *The New York Times*, December 30, 2014. Darya Korsunskaya, "Putin Drops South Stream Gas Pipeline to Eu, Courts Turkey," *Reuters*, December 1, 2014.

alternative sources of gas supplies for the European Union.⁴⁶⁹ According to the Parliament, the pipeline does not comply with the EU legislation under the Third Energy Package, which stipulates the separation of companies' generation and sale operations from their transmission networks.⁴⁷⁰ In June 2014, Bulgaria suspended construction of the pipeline due to the European Commission's infringement procedure against Bulgaria for non-compliance with European rules on energy competition public procurements.⁴⁷¹ On December 1, 2014, during a state visit to Turkey, President Putin announced that Russia was withdrawing from the project, blaming Western sanctions and lack of construction permits in the territory of the European Union.⁴⁷² Russia instead announced it intends to build a pipeline through Turkey known as Turkish Stream, although negotiations between Russia and Turkey on this project have not been finalized.⁴⁷³

⁴⁶⁹ "Meps Oppose South Stream, Seek Sanctions against Russian Energy Firms," *Sofia News Agency Novinite*, April 17, 2014.

⁴⁷⁰ Laurence Norman, "Eu Tells Bulgaria to Stop Work on Gazprom's South Stream Project: Eu Warned Last Year That South Stream Couldn't Proceed before It Complied with Eu Legislation," *The Wall Street Journal*, June 3, 2014.

⁴⁷¹ "Bulgaria's Government to Collapse over South Stream," *EurActiv*, October 6, 2014.

⁴⁷² "Russia Drops South Stream Gas Pipeline Plan," *BBC News*, December 1, 2014.

⁴⁷³ Stanley Reed and Sebnem Arsu, "Russia Presses Ahead with Plan for Gas Pipeline to Turkey," *The New York Times*, January 21, 2015.

The Southern Gas Corridor beyond Nabucco: Trans Anatolian Pipeline (TANAP) and Trans Adriatic Pipeline (TAP)

Map 9. The Southern Gas Corridor (SGC) Pipeline Project



(Source: BP)

Azerbaijan completely reshaped the South Gas Corridor game in 2011 by rapidly conceptualizing its own infrastructure project to carry future natural gas flows from Shah Deniz Phase II to Turkey: the Trans-Anatolian Pipeline (TANAP). The TANAP project was announced in November 2011 at the Third Black Sea Energy and Economic Forum

in Istanbul⁴⁷⁴, and Turkey and Azerbaijan signed a memorandum of understanding establishing a consortium to build and operate the pipeline in December 2011. On June 26, 2012, President of Azerbaijan Ilham Aliyev and then Prime Minister of Turkey Recep Tayyip Erdoğan signed a binding intergovernmental agreement on the pipeline.⁴⁷⁵

Under the agreement, SOCAR (Azerbaijan's state oil company) initially held 80 percent of TANAP's share as well as operating rights, whereas Turkey's state pipeline company BOTAŞ held 15 percent and Turkish Petroleum held five percent. However, Baku later invited BP, Norway's Statoil, and Total of France – the shareholders of the Shah Deniz gas production consortium – to acquire minority stakes in TANAP.⁴⁷⁶ Only BP exercised this option in 2013,⁴⁷⁷ and TANAP will be operated by SOCAR, which currently holds a 58 percent stake in the project, BOTAŞ (30 percent), and BP (12 percent).⁴⁷⁸

Approximately 2,000 kilometers in length, TANAP is planned to run from the Georgia-Turkey border to the Turkey-Greece border (although the exact route of the pipeline is not yet determined) and is expected to be completed in 2018.⁴⁷⁹ The initial capacity of TANAP is expected to be 16 bcm gas from Azerbaijan's Shah Deniz II field in the Caspian Sea, of which 6 bcm of gas will be delivered annually to Turkey (by 2018) and 10 bcm to Europe (by 2019). The pipeline is expected to cost \$10 to \$11 billion and will

⁴⁷⁴ Ferruh Demirmen, "Bp-Socar Duo Deliver 'Coup De Grace' to Nabucco," *News.Az*, December 19, 2011.

⁴⁷⁵ "Turkey, Azerbaijan Sign Gas Pipeline Deal," *Bloomberg Business* June 26, 2012.

⁴⁷⁶ From the outset, Baku had announced that it would sell minority stakes in TANAP to eligible partners, but it would retain a controlling stake and the operator's role. The international companies from the Shah Deniz consortium (BP, Statoil, and Total) had an option to take up to 29% in TANAP.

⁴⁷⁷ "Botas, Bp Pipelines Intend to Become Tanap Shareholders," *Trend*, December 17, 2014.

⁴⁷⁸ BP acquired its 12% stake in the project on March 13, 2015. "Bp Acquires 12 Percent Stake in Tanap Pipeline Project," *Hürriyet Daily News*, March 13, 2015.

⁴⁷⁹ Construction of TANAP began in Turkey in March 2015. Isabel Gorst, "Construction of Tanap Pipeline Begins in Turkey as Eu and Russia Spar for Upper Hand," *Financial Times*, March 18, 2015.

receive its gas from the South Caucasus Pipeline (SCP), a pipeline already carrying gas from the Azerbaijani Shah Deniz field to Turkey, which will be expanded in order to accommodate the new volumes of gas coming from Shah Deniz Phase II and going to TANAP.

As the Turkish and Azeri governments committed their support to TANAP, the Nabucco project started to unravel. TANAP took over the first two-thirds of Nabucco's planned route, as well as its direct feed-in from the Shah Deniz field.⁴⁸⁰ The entrance of TANAP into the Southern Gas Corridor race in December 2011 gave the "coup de grace" to the already moribund Nabucco project by replacing Nabucco on Turkey's territory up to the EU border.⁴⁸¹ For this reason, the Nabucco consortium tried to reinvent itself in 2012, by proposing a new and smaller version of the project: Nabucco West. This pipeline was designed to carry 10 bcm gas per year to Europe—from the Turkish-European border (from TANAP's end at Turkey) to Austria via Bulgaria, Romania, and Hungary, with a distance of 1,300 kilometers.⁴⁸² As a continuation pipeline from TANAP into central Europe, Nabucco West inherits the "old" Nabucco's legal framework on EU territory.⁴⁸³ Initially, SOCAR had received final proposals for pipelines to export natural gas from the second phase development of the Shah Deniz offshore fields. By October 2011, proposals were received from consortia backing the Nabucco, the Interconnector Turkey–Greece–

⁴⁸⁰ Saz-Carranza and Vandendriessche, "Routes to Energy Security: The Geopolitics of Gas Pipelines between the Eu and Its Southeastern Neighbors."

⁴⁸¹ Hafner, "The Southern Gas Corridor and the Eu Gas Security of Supply: What's Next?."

⁴⁸² Nabucco Gas Pipeline International Company press release, May 16

⁴⁸³ This includes the 2009 Inter-Governmental Agreement (IGA), 2010 Project Support Agreements (PSAs), and EU-approved exemptions from third-party access to the pipeline's capacities. Vladimir Socor, "Nabucco-West: Abridged Pipeline Project Officially Submitted to Shah Deniz Consortium," *Eurasia Daily Monitor Volume 9*, no. 98 (2012).

Italy (ITGI)⁴⁸⁴, and TAP, as well as from BP, which proposed the South East Europe Pipeline (SEEP) from western Turkey through Bulgaria, Romania, and Hungary to Austria. As the Azerbaijani and Turkish governments signed a memorandum of understanding (MOU) to construct TANAP in December 2011, however, the Nabucco consortium submitted new pipeline proposals to the Shah Deniz consortium, including the original route as well as the short Nabucco West route in May 2012. The Shah Deniz Export Negotiating Team indicated in February 2012 that it preferred the TAP proposal over the ITGI proposal. In mid-2012, it rejected SEEP, leaving TAP and Nabucco West as the final remaining choices.⁴⁸⁵ In June 2013, the Shah Deniz consortium announced that it had chosen TAP over Nabucco West to provide a missing link between TANAP and the European market.⁴⁸⁶

TAP is planned to run 870 kilometers across Greece, Albania, and on the seabed of the Adriatic Sea, terminating in southern Italy. As the SGC's segment on EU territory, TAP will connect with TANAP at the Turkey-Greece border. TAP is designed to carry 10 bcm annually of TANAP natural gas to Europe from the Turkey-Greece border.⁴⁸⁷ TAP's shareholding is comprised of BP (20%), SOCAR (20%), Norway's Statoil (20%), Belgium's Fluxys (16%), France's Total (10%), German's E.ON (9%), and Switzerland's

⁴⁸⁴ The Turkey–Greece pipeline was completed in 2007 while the future of the Greece–Italy pipeline project is unclear due to the competing Trans Adriatic Pipeline. The Greece-Italy pipeline was developed by a joint venture between Greek DEPA and Italian Edison.

⁴⁸⁵ Belkin, Nichol, and Woehrel, "Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification."

⁴⁸⁶ "Shah Deniz Consortium Chooses Tap to Carry Azeri Gas to Europe," *Reuters*, Jun 28, 2013.

⁴⁸⁷ The 10 bcm that TAP will initially carry annually to Europe represents only about 2 percent of the EU's gas consumption. In the future the addition of two extra compressor stations could double throughput to more than 20 bcm per year as additional energy supplies will come on stream in the wider Caspian region.

Axpo (5%). TAP plans to commence pipeline operations in 2020, in time for first gas exports from Shah Deniz II.⁴⁸⁸

The TAP project was envisioned in 2003 by the Swiss energy company EGL Group. The feasibility study was conducted in March 2006, investigating two options – a northern and a southern route. The southern route through Greece and Albania was considered to be more feasible. Trans Adriatic Pipeline AG, a joint venture for the pipeline, was registered in 2007 by the EGL Group and the Norwegian energy company Statoil.⁴⁸⁹ Since then, Statoil has been the driving force for the TAP project.⁴⁹⁰ In September 2012, Albania, Greece, and Italy confirmed their political support for the pipeline by signing a memorandum of understanding.⁴⁹¹ In February 2013, the countries signed an intergovernmental agreement.⁴⁹² The TAP consortium approved the Resolution to Construct on December 17, 2013, the same day when the Shah Deniz consortium approved its final investment decision.⁴⁹³

The decision of the Shah Deniz consortium to choose TAP makes it possible for pipeline construction to proceed along the 3,500-kilometer Southern Gas Corridor, from Azerbaijan to European Union territory in Italy. The cumulative investments are estimated at \$25 billion in the offshore gas projects and \$20 billion in the construction of

⁴⁸⁸ "Tap Confirms Resolution to Construct Following the Final Investment Decision by the Shah Deniz Consortium," *tap-ag homegae (news and events)*, December 17, 2013.

⁴⁸⁹ www.tap-ag.com.

⁴⁹⁰ Valdimir Socor, "Scp, Tanap, Tap: Segments of the Southern Gas Corridor to Europe," *Eurasia Daily Monitor* 11, no. 8 (2014).

⁴⁹¹ Zulfugar Agayev, "Tap Gas Pipeline Project Gains Support of Italy, Greece, Albania," *Bloomberg Business*, September 28, 2012.

⁴⁹² "Commissioner Oettinger Welcomes the Signature of an Intergovernmental Agreement on Tap," *European Commission*, February 13, 2013.

⁴⁹³ Socor, "Scp, Tanap, Tap: Segments of the Southern Gas Corridor to Europe."

transit pipelines. This is one of the largest energy projects in the global energy business in terms of investment costs, technical complexity, territory covered, and multinational participation. Three pipeline projects – the South Caucasus Pipeline (SCP) expansion⁴⁹⁴, TAP, and TANAP – along the route from Shah Deniz and Baku to Italy, comprise the Southern Gas Corridor (See the SGC map above).

The Current Shape of the Southern Gas Corridor: Why TANAP and TAP were chosen

TANAP and Azerbaijan

In this section, I outline a set of reasons to explain both how TANAP completely killed the original Nabucco project and why TAP was chosen over Nabucco West.

Azerbaijan completely reshaped the SGC game in 2011 by conceptualizing its own infrastructure project (TANAP) to transport its future natural gas flows from Shah Deniz Phase II to Turkey. One of the chief reasons for TANAP's victory over Nabucco was its ownership structure. Azerbaijan and its state oil company SOCAR initiated the TANAP

⁴⁹⁴ The South Caucasus Pipeline (SCP), approximately 700 kilometers in length, runs from Baku across Azerbaijan and Georgia to the border of Turkey. The line is dedicated to the transportation of Shah Deniz gas from Phase One of that field to Georgia, Azerbaijan, and Turkey. Since 2006, Georgia receives its gas supplies almost entirely from Azerbaijan through this pipeline.

A consortium identical in its composition with the Shah Deniz producers' consortium, although a legally separate entity, owns and operates the South Caucasus Pipeline. Its current shareholding is comprised of BP (formerly known as British Petroleum, the project operator) with 28.8 percent of the shares, Azerbaijan's State Oil Company (SOCAR) with 16.7 percent, Norway's Statoil 15.5 percent, as well as Total of France, Russian Lukoil, and the National Iranian Oil Company at 10 percent each, and Turkish Petroleum with 9 percent of the shares. This composition reflects the recent adjustment whereby Statoil sold portions from its former stake to BP and SOCAR.

Operating since 2006, the SCP has a first-stage capacity of 7 bcm per year, but is chronically under-utilized at about 5 bcm in most years. With Shah Deniz production Phase Two anticipated at 16 bcm annually, on top of Phase One's 9 bcm, the SCP will be up for a capacity boost to 25 bcm per year by means of additional looping and two new compressor stations. The cost of this boost is estimated at \$3 billion. This would fully accommodate Shah Deniz gas export volumes, but not much beyond that. The pipeline's status would change, from being dedicated to Shah Deniz gas to being dedicated to Azerbaijani gas (i.e., including non-Shah Deniz volumes). Ibid.

project and, as the largest shareholder, will undertake most of the cost. The eastern section of the original Nabucco design would have been predominantly owned by international companies from downstream and consuming countries. Moreover, the Nabucco project promoters were mid-size companies that have to rely on project finance and bank loans. TANAP, on the other hand, was not born as a multilateral project, but rather as a producer-driven bilateral project between Azerbaijan and Turkey.⁴⁹⁵ Although BP later joined the pipeline consortium (with a 12 percent share), the initial composition of the ownership was not based on symmetric bilateral relations, but rather unbalanced in favor of Azerbaijan. SOCAR was initially expected to hold an 80 percent stake in the project, leaving only the remaining 20 percent to the Turkish partners. Notwithstanding the recent changes to a more balanced ownership structure for the pipeline (entailing a share of 58 percent for SOCAR, 25 percent for BOTAS, 5 percent for TPAO, and 12 percent for BP), SOCAR still retains a controlling share of TANAP and will operate the line in the future.⁴⁹⁶ TANAP is crucially important for SOCAR, as it will have a key role in the delivery of gas from its Shah Deniz field further down the supply chain to Europe, rather than selling the gas at Azerbaijan's border (which would have been the case with Nabucco).⁴⁹⁷ It seems plausible that Azerbaijan prefers TANAP to Nabucco's eastern tract given that TANAP enables the pipeline owners to control both intake and offtake of the gas flows and to ensure that contractual commitments are met. Moreover, Azerbaijan

⁴⁹⁵ Hafner, "The Southern Gas Corridor and the Eu Gas Security of Supply: What's Next?."

⁴⁹⁶ Initially, Azerbaijan had held an 80% stake, with Turkey owning the remainder. The Turkish stake was divided between the Turkish upstream company TPAO (15%) and the Turkish pipeline operator BOTAS (5%). The international companies from the Shah Deniz consortium (BP, Statoil and Total) had an option to take up to 29% in TANAP. However, only BP exercised this option in December 2013. The Turkish government decided then that only BOTAS will hold a stake (20%) in TANAP. The Turkish pipeline operator acquired an additional 10% in May 2014.

⁴⁹⁷ Hafner, "The Southern Gas Corridor and the Eu Gas Security of Supply: What's Next?."

is able to ensure the financing of the infrastructure directly, which is totally different from Nabucco's case where the shareholder companies would have relied on project finance and bank loans. Given that Azerbaijan accumulated considerable oil revenues from the exports through the BTC pipeline, the cost of TANAP, estimated at approximately \$10 to \$11 billion, is an amount that Azerbaijan can easily finance by making use of its sovereign wealth fund, the State Oil Fund, which currently contains about \$34 billion in assets under management.⁴⁹⁸

In sum, Azerbaijan and SOCAR strategically planned the TANAP project in order to provide a bridge through Turkey. The Shah Deniz Consortium partners were unable or unwilling to build a dedicated pipeline across Turkey for Shah Deniz gas and, beyond Shah Deniz, other Caspian gas.⁴⁹⁹ The consortium partners were unable or unwilling to finance the pipeline because there was simply never going to be enough gas at that time to provide 31 bcm, as Nabucco planned, to Europe. Retaining a controlling stake has enabled SOCAR to finance the TANAP project, which effectively replaced the Turkish section of the original Nabucco project. The Nabucco West pipeline project that came to surface after TANAP killed the original Nabucco was only one third of the length of the original project.

Why TAP and Not Nabucco?—The Shah Deniz Consortium's Perspective

The Shah Deniz consortium selected the TAP project to provide a missing link between TANAP and the European market. Why was TAP chosen over Nabucco West? From the

⁴⁹⁸ Ibid.

⁴⁹⁹ "Azerbaijan and the Southern Gas Corridor to Europe: Implications for U.S. And European Energy Security - Conference Report," (Washington, DC: The Jamestown Foundation, 2013).

consortium's point of view, TAP is more economically viable than Nabucco West in terms of cost and supply-demand structure. BP-Azerbaijan executive vice president Al Cook, who is responsible for developing the Shah Deniz Phase II field, described TAP as significantly more efficient than Nabucco West from a gas price and tariff point of view. Moreover, uncertainty over the volume of gas supplies from the Caspian region exacerbated doubts over Nabucco West's viability. Other than the Azerbaijan's Shah Deniz fields, no alternative source of gas was available for Nabucco West in the short- and medium-term. A fundamental drawback of the Nabucco project (both the original and the revised version) was that its joint venture consortium does not include any single supplier country, while TANAP was founded and owned by members of the Shah Deniz consortium, which will provide the initial gas supplies. Although disconnected second-order suppliers – such as Turkmenistan, Iran, and Iraq – favored Nabucco due to its larger capacity in the Balkans and southeast Europe, these countries had little influence on the decision. The European Commission did not seem to understand that any pipeline project to bring natural gas to Europe needs to include gas suppliers. The idea that a pipeline owned solely by buyers of gas could be bankable was unrealistic from the start.⁵⁰⁰ In contrast, the three largest TAP stakeholders are all gas producers (SOCAR, BP, and Statoil, with 20 percent each); these three companies have stakes in the Shah Deniz consortium.

⁵⁰⁰ Ana Stanic, "Four Lessons the Eu Should Learn About Energy Security," *Natural Gas Europe*, October 14, 2014.

Why TAP and Not Nabucco?—Azerbaijan's Perspective

As a gas exporter, Azerbaijan preferred TAP over Nabucco because it allowed buyers to locate as close as possible to the production side in the Caspian Sea to limit transportation costs.⁵⁰¹ From a commercial point of view, Azerbaijan refused to sign any delivery contract with the Nabucco consortium before being certain of the pipeline's viability, while banks and customers were unwilling to commit to the project before supplies were guaranteed.⁵⁰² From a geopolitical and strategic point of view, Azerbaijan desired to avoid any direct competition with Gazprom, and thus was trying to find limited market niches in as many countries as possible to have a diversity of buyers for Azerbaijani gas, given the limited volume of available gas from the Shah Deniz project.⁵⁰³

The Azerbaijan government under the leadership of President Ilhan Aliyev has developed a strategic vision for oil- and gas-related projects. Admitting that oil production in Azerbaijan will be declining significantly starting in 2015-2016⁵⁰⁴, the current government has been working on strategies for investment in non-oil sectors such as natural gas. Moreover, given that the country's gas revenues are much lower than its oil revenues, Azerbaijan has developed a strategic long-term view to be not only an exporter of gas but also a transit country for major volumes of gas.⁵⁰⁵ This partially explains

⁵⁰¹ "Azerbaijan and the Southern Gas Corridor to Europe: Implications for U.S. And European Energy Security - Conference Report."

⁵⁰² Saz-Carranza and Vandendriessche, "Routes to Energy Security: The Geopolitics of Gas Pipelines between the Eu and Its Southeastern Neighbors."

⁵⁰³ "Azerbaijan and the Southern Gas Corridor to Europe: Implications for U.S. And European Energy Security - Conference Report."

⁵⁰⁴ *Country Analysis Brief: Azerbaijan*, Energy Information Administration (2014).

⁵⁰⁵ "Azerbaijan and the Southern Gas Corridor to Europe: Implications for U.S. And European Energy Security - Conference Report."

Azerbaijan's purchase of two thirds of the Greek Natural Gas System Operator (DESFA). With its purchase of DESFA, SOCAR will, for the first time, be able to enter the European downstream gas business, by connecting TAP with DESFA's network in Greece.⁵⁰⁶ The acquisition of DESFA will provide Azerbaijani gas access to the Greece-Bulgaria Gas Interconnector (IGB), the domestic LNG terminal in Revythousa, Greece, and the Trans-Adriatic Pipeline (TAP).⁵⁰⁷ SOCAR will also be able to obtain a minority stake in IGB, as DESFA itself used to be a 50 percent partner with Italian Edison in that interconnector on Greek territory. The interconnector opens the way for Azerbaijan to export 1.5 bcm of gas per year to Bulgaria.

Why TAP and Not Nabucco? – The Russian Factor

While Nabucco West competed directly with South Stream in terms of transit routes, TAP has been considered less of a competitor. Nabucco's transit route would run toward central and east European (CEE) countries that are strongly dependent on Russian gas supplies. Austria depends on Russia gas for 52 percent of its national energy needs, Hungary for almost 50 percent, Romania for 24 percent, and Bulgaria for 100 percent. Russia has been able to use its dominant role in the energy sectors of the central European countries to exert influence over domestic politics and business. If Nabucco were selected instead of TAP, it could help reduce Russian influence on the CEE region's

⁵⁰⁶ In October 2014, Azerbaijan's SOCAR notified the European Commission that it intends to buy 66% of Greece's gas grid operator DESFA for around \$500 million. The EC launched an investigation into whether SOCAR's proposed takeover of DESFA complies with EU merger regulations, with concerns that the takeover will reduce competition in the Greek wholesale gas markets. If the merger is cleared, SOCAR could become increasingly influential in EU gas markets, while Gazprom's 60 to 70% market share in Greece may vanish. "Socar-Desfa Deal Hinges on Remedies to Regulatory Concerns," *Interfax Natural Gas Daily*, November 13, 2014.

⁵⁰⁷ "Bulgaria, Greece and Socar Team Up," *Natural Gas Europe*, September 25, 2014.

energy markets, as Nabucco was planned to help gas supply diversification in the areas that are heavily dependent on Russia. In this respect, it seems reasonable to speculate that both Azerbaijan and Turkey opted for TAP to avoid direct confrontation with Russia.

The selection of TAP over Nabucco West was not only a commercial decision, but also a political one, as Russia put Azerbaijan under immense pressure to withdraw from Nabucco in order to allow its competitor South Stream pipeline to be built. Some observers speculate that Russia may have attempted to influence Azerbaijan and the Shah Deniz consortium's selection of TAP over the competing Nabucco West (although Russia would likely have preferred neither project to be built).⁵⁰⁸ From Russia's perspective, TAP was less of a rival than Nabucco because Azerbaijani gas will be pumped by TAP to Greece, Albania, and Italy, and onto western and northern Europe from Italy, whose markets are already diversified from Russian gas owing to alternative supplies from Algeria, Norway, Egypt, and Qatar.

The Russian Factor on Azerbaijan

From Azerbaijan's perspective, there were not only commercial and financial difficulties with the proposed Nabucco pipeline, but also a clear lack of strategic focus and political leadership in both Washington and Brussels.⁵⁰⁹ While the European Commission endorsed Nabucco over rival projects including TAP in previous years, the EC and

⁵⁰⁸ Belkin, Nichol, and Woehrel, "Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification."

⁵⁰⁹ "Azerbaijan and the Southern Gas Corridor to Europe: Implications for U.S. And European Energy Security - Conference Report."

United States changed their positions to balance between Nabucco West and TAP.⁵¹⁰ Both kept expressing equal support for Nabucco West and TAP since the 2010s, which was not what Baku expected.⁵¹¹ This neutrality drove Azerbaijan to be more cautious in dealing with EU-supported energy infrastructure projects. Meanwhile, as the likelihood of abandoning the southern branch of the South Stream pipeline became possible with Gazprom's removal of its bid for Greece's state-owned natural gas supplier DEPA in June 2013, Azerbaijan learned that Gazprom would not interfere in the gas markets of the TAP project if the Greece-Italy route was selected instead of Nabucco West.⁵¹² There was speculation that Moscow's decision to pull out from the bidding for DEPA could have been the result of geopolitical pressure from the EU and United States, as Gazprom had made a preliminary bid of €900 million (\$1.17 billion) for the acquisition of DEPA.⁵¹³ By insisting that the market liberalization directives of its Third Energy Package would be applied, however, the European Commission blocked Gazprom from controlling a monopoly in the operation of Greece's national gas grid. Thanks to Gazprom's dropping out, Azerbaijan was able to avoid direct competition with Russia, but also to achieve its goal of diversifying gas customers through the TAP, a goal which Azerbaijan had initially desired through the Nabucco project. After Gazprom withdrew, Azerbaijan's SOCAR stepped in to acquire Greece's natural gas distributor DESFA, which will connect TAP to the Balkan market.

⁵¹⁰ Vladimir Socor, "Nabucco Countries' Governments Appeal to Eu for Support of the Project," *Eurasia Daily Monitor* 10, no. 79 (2013).

⁵¹¹ Gulmira Rzayeva, "Azerbaijan's Expanding Role in the Southern Gas Corridor," in *Azerbaijan and the Southern Gas Corridor to Europe - Conference Report* (Washington, DC: The Jamestown Foundation, 2013).

⁵¹² Farid Osmanov and Elmar Baghirov, "Nabucco West or Trans-Adriatic Pipeline," *Natural Gas Europe*, June 25, 2013.

⁵¹³ Helena Smith, "Greek Gas Supplier Selloff Fails to Draw Gazprom Bid," *The Guardian*, June 10, 2013.

The Russian Factor on Turkey

While Turkey's preference among competing gas pipeline projects to build the Southern Gas Corridor remained unclear, Turkey (like Azerbaijan) did not want to take the risk of opposing Russia. Turkey's strategy is to support multiple pipeline options simultaneously, rather than fully committing to a single project. Besides its share in the Nabucco pipeline consortium, Turkey also supported TANAP with Azerbaijan granting a permit in 2011 for the construction of South Stream via Turkey's exclusive economic zone. Such a strategy seems to be clear in what Turkey's Minister of Energy and Natural Resources Taner Yildiz said, "Turkey has seen it can develop an energy project with one of its neighbors without disturbing the others."⁵¹⁴ While Turkey has often been a U.S. ally, such as in the case of the Syrian crisis, Russia is not only Turkey's main energy supplier, but also a partner for its first nuclear power plant. Turkey currently imports more than half of its natural gas (about 55 to 60 percent) and around 30 percent of its coal from Russia. The Turkish Ministry of Energy and Natural Resources (MENR)'s 2010-2014 Strategic Plan recommended that by 2015, Turkey should not depend on any country's gas imports for more than 50 percent of its energy requirements. Turkey has concluded contracts with other energy producers such as Iran, Azerbaijan, and Algeria in order to reduce its gas dependence on Moscow. Notwithstanding such attempts, however, Turkey has not been able to curb natural gas deliveries from Russia.⁵¹⁵ Moreover, the Nabucco project experience certainly left a negative legacy in Turkey as far as the energy

⁵¹⁴ Olgu Okumuş, "Russia Winner in Energy Transit Deal with Turkey," *Al-Monitor Turkey Pulse*, July 10, 2013.

⁵¹⁵ Gareth Winrow, "The Southern Gas Corridor and Turkey's Role as an Energy Transit State and Energy Hub," *Insight Turkey* 15, no. 1 (2013).

cooperation with the EU is concerned. After years of cooperation with the EU on Nabucco, in 2011 Turkey rapidly decided to change its approach and turned to Azerbaijan to speed up the development of the SGC. This choice reflected the fact that Turkey's primary aim is to realize its own energy security, but also reflected Turkey's genuine discontent towards the EU due to its continuous procrastination on the country's accession negotiations in general and to the EU's vagueness about the opening of the accession process of energy chapter in particular.⁵¹⁶ After Russia cancelled the South Stream project in December 2014, Turkey agreed to buy an additional 3 billion cubic meters of natural gas from Russia, and started negotiating on the construction of a new pipeline transiting Turkey – the so-called Turkish Stream pipeline project. In April 2015, Turkey's energy minister Taner Yıldız said Turkey no longer demands the European Union to open the energy chapter.⁵¹⁷

The 2014 Ukraine Crisis and the Geopolitical Rivalry between Russia and the EU

The South Stream pipeline was Putin's most important European project, a critical economic and geopolitical tool for achieving twin goals: keeping Europe hooked on Russian gas, and further entrenching Russian influence in fragile former Soviet satellite states as part of a broader effort to undermine European unity.⁵¹⁸ Although Russia said that South Stream was designed to eliminate its transit dependence on Ukraine, it has been mostly considered as means to prevent the Nabucco pipeline from progressing and

⁵¹⁶ Tagliapietra, "Eu-Turkey Energy Relations after the 2014 Ukraine Crisis."

⁵¹⁷ Şeyma Eraz, "Yıldız: Turkey No Longer Demands Eu to Open Energy Chapter," *Daily Sabah*, April 4, 2015.

⁵¹⁸ Yardley and Becker, "How Putin Forged a Pipeline Deal That Derailed."

partially as a strategy to exert political pressure on Ukraine by using gas supplies and prices.⁵¹⁹

EU's Third Party Access Exemption before and after the Ukraine Crisis

Ever since the EU's Third Energy Package (TEP) came into force in March 2011, Russian gas exports to EU countries have started to encounter major problems in terms of compliance with the changing regulatory environment, with respect to both existing and new pipeline capacity. One of the TEP's core provisions prohibits a single company from both owning and operating a gas pipeline (i.e., unbundling) and contains rules on third-party access that prohibit a single company from owning more than 50 percent of assets in the upstream, midstream, and downstream projects, unless an exemption under the TEP rules is granted by an National Regulatory Authority (NRA) and approved by the European Commission.

In September 2011, TAP requested a "Third Party Access exemption" from the European Commission, which proposed that the pipeline would only be used by Azerbaijan and not by other suppliers, in spite of the EU Third Energy Package rules. The EC approved the exemption in May 2013, which means that TAP can offer capacity for the export of gas volumes from Azerbaijan to Europe for a period of 25 years.⁵²⁰ On the other hand, Nabucco West acquired a partial (50%) exemption from the European Commission, which the original Nabucco project was granted in 2008-2009.⁵²¹⁵²² Namely, Nabucco

⁵¹⁹ Dieter Helm, *The Russian Dimension and Europe's External Energy Policy*, (2007), <http://www.dieterhelm.co.uk/node/655>.

⁵²⁰ "Tap Gas Pipeline Project Gets Vital Legal Approval," *Reuters*, May 17, 2013.

⁵²¹ Osmanov and Baghirov, "Nabucco West or Trans-Adriatic Pipeline."

West is a project completely under EU law and the pipeline was to be regulated by rules such as third-party access and unbundling throughout its entire length. The intergovernmental agreement on Nabucco signed by the five transit countries in 2009 provided a legal framework for 50 years, confirming that 50 percent of the pipeline's capacity was to be reserved for the shareholders of the project and the remaining 50 percent was to be offered to third-party shippers on the basis of a regulatory transit regime under the EU law.⁵²³ The situation of TANAP is clearly different. Given that Turkey has not yet adopted the EU energy *acquis* on its legislation, Azerbaijan, with a 58 percent stake in the project, will practically have the ownership and operatorship of the pipeline. Considering Turkey's reluctance to enter the Energy Community⁵²⁴ and the difficulties related to the opening of the energy chapter of Turkey's EU accession process, this situation will be unlikely to change in the foreseeable future.⁵²⁵

Gazprom did not apply to the European Commission for the third-party access exemption for South Stream, given its negative experience with the OPAL pipeline – the onshore extension of the Nord Stream pipeline. In that case, Gazprom and the European Commission negotiated over the third-party access exemption of OPAL, and the Commission was expected to approve the exemption by March 2014. However, with the

⁵²² A difference between TAP and Nabucco West appears to be that Nabucco West would offer third party access to other suppliers who could book capacities when the 'open season' would begin.

⁵²³ Christian Dolezal, "Nabucco: Delivering Diversification to the European Gas Market," *Natural Gas Europe*, May 23, 2013.

⁵²⁴ The European Commission has launched an initiative to create a European Energy Union and released its Energy Union package of proposals designed to continue developing the bloc's energy market and energy security in February, 2015. http://ec.europa.eu/priorities/energy-union/docs/energyunion_en.pdf

⁵²⁵ Tagliapietra, "Eu-Turkey Energy Relations after the 2014 Ukraine Crisis."

worsening of the EU-Russia relationship over Ukraine, the EC repeatedly postponed the decision and terminated its OPAL exemption review procedure in December 2014.⁵²⁶

Before the Ukraine crisis, Russia appeared to believe that a legal and regulatory compromise between the EC and the Russian government was possible.⁵²⁷ In fact, the TEP's argument that a set of intergovernmental agreements (IGAs) Russia signed with host countries for the construction of South Stream are in breach of the TEP regulations is somewhat flawed; the TEP in its current form does not contain any rules for construction and utilization of new pipeline capacity, and only has rules for existing pipeline capacity.⁵²⁸ However, following the Ukraine crisis and Russia's annexation of Crimea, relations between the EU and Russia have worsened and all natural gas projects have been frozen.⁵²⁹ After Crimea was annexed by the Russian Federation on March 18, 2014, the European Parliament adopted a non-binding resolution opposing South Stream on April 17, 2014. The EU demanded Bulgaria suspend construction work on Russia's South Stream natural-gas pipeline project and started infringement procedures against Bulgaria in June, 2014, which led to suspension of pipeline construction in Bulgaria in August 2014.⁵³⁰

⁵²⁶ Vanessa Mock, "Eu Postpones Russian Gas Export Decision: Further Delay on Granting Full Access to Major Pipeline," *The Wall Street Journal*, July 16, 2014; "Opal Exemption Process Halted," *Natural Gas Europe*, December 23, 2014.

⁵²⁷ Jonathan Stern, Simon Pirani, and Katja Yafimava, "Does the Cancellation of South Stream Signal a Fundamental Re-Oriented of Russian Gas Export Policy," *Oxford Institute for Energy Studies* (2015).

⁵²⁸ Ibid.

⁵²⁹ Ibid.

⁵³⁰ Norman, "Eu Tells Bulgaria to Stop Work on Gazprom's South Stream Project: Eu Warned Last Year That South Stream Couldn't Proceed before It Complied with Eu Legislation."

Relations between Russia and the EU have been badly hit by the crisis in Ukraine. The EU and the United States have imposed sanctions on a number of Russian individuals and companies following Russia's intervention in Ukraine, but Gazprom has not been targeted.⁵³¹ Putin seems to have underestimated the West's response to his aggression in Ukraine; for instance, Russia has filed a lawsuit with the World Trade Organization (WTO) over the EU's TEP after the EU's adoption of a non-binding resolution opposing South Stream. Faced with punishing sanctions from the West, however, Russia's petro economy was pushed to the brink by plunging oil prices and currency values.⁵³²

The story of South Stream shows how Putin has operated in Europe and will probably continue to do so, as well as how geopolitical concerns can limit his ability to use his energy leverage as a foreign policy tool. For instance, Bulgarian leaders initially supported South Stream, declaring that the pipeline would provide not just transit fees but also energy security. Russia has been directly involved with powerful politicians and businessmen in Bulgaria and had much control over the country: Bulgaria receives 90 percent of its gas from Russia, along a route through Ukraine that has been left vulnerable to periodic pricing disputes between Moscow and Kiev. Pipeline contracts for the construction of the Bulgarian section of South Stream were given to a company controlled by a member of Putin's inner circle and politically connected Bulgarian companies. The Bulgarian elections that led to a transition from the previous center-right

⁵³¹ Gazprom supplies 30% of Europe's gas and some 15% of it via Ukraine.

⁵³² Oil has long been the Russian government's main export earner, but its value has halved since June 2014 after the country was thrown into a recession following fighting in Ukraine. In December, the ruble had its steepest drop in a single day since the 1998 Russian financial crisis, plummeting more than 11 percent versus the dollar. Financial experts wondered if the country was headed for another currency collapse similar to the one 16 years ago that saw Russians' wages dip to their lowest level since the collapse of the Soviet Union. Alexander Winning and Valdimir Abramov, "Russian Ruble Suffers Steepest Drop in 16 Years," *Reuters*, Dec 16, 2014.

government under Boyko Borisow to the socialist-led government under Plamen Oresharski worked to Putin's advantage.⁵³³ Gazprom CEO Alexei Miller promised to finance the €3.1 billion construction of the Bulgarian leg of the pipeline. Soon after Russia annexed Crimea, Bulgaria's parliament gave initial passage to a bill that effectively exempted South Stream from a number of EU regulations that would have forced Gazprom to allow non-Russian gas to flow through the pipeline. In early June, 2014, the EC told Bulgaria to stop work on South Stream, saying that it was investigating whether the pipeline construction violated the TEP rules. When the Bulgarian government refused, the EU cut off tens of millions of euros in regional development funds to the country. In desperate need of the European funds, the Bulgarian prime minister announced the next day that South Stream would be halted until it had full European Union approval.⁵³⁴

Geopolitical Rivalry after the Ukraine Crisis: Turkish Stream?

The South Stream pipeline project failed due to the geopolitical rivalry between Russia and the West that was exacerbated with Russia's annexation of Crimea. However, Russia does not seem willing to end this geopolitical game and is now focusing its energy resources into other directions by proposing to build the Turkish Stream pipeline.

When South Stream was proposed by Russia in 2007, it seemed to have been designed to discourage the Nabucco project. However, as time goes by, South Stream's objective

⁵³³ While the previous center-right government in Bulgaria delayed a decision on South Stream for a long time, the socialist-led government traditionally has had close and economically profitable relations with Russian energy interests.

⁵³⁴ More detailed information on how Bulgaria came to the decision to suspend the construction of South Stream can be read at: Yardley and Becker, "How Putin Forged a Pipeline Deal That Derailed."

seems to have evolved to enlist transit countries, such as Bulgaria, to undermine the EU's legislation, because Gazprom desires to extend co-ownership of the pipeline into countries on EU territory, contrary to the specifications of the Third Energy Package. Gazprom wants to pursue this strategy in order to create a precedent in the South Stream transit countries and then use it to protect Gazprom's existing holdings in Germany and the Baltic states.⁵³⁵ Moscow fears that it is gradually losing its ability to set gas prices using oil indexation and monopoly pressures. In this sense, Russia fought hard to block the EU-led Southern Gas Corridor and to maintain its European market, whether through plans to build a competing gas pipeline, disinformation campaigns, or attempts to purchase the Greek natural gas distributor DEPA. However, the EU successfully put pressure on Bulgaria – where South Stream would first enter the EU after crossing the Black Sea – to block South Stream, preventing Gazprom from controlling a monopoly in the operation of Greece's national gas grid.

When Putin surprised the world in December 2014 by announcing Russia would abandon its South Stream project and named Turkey as its preferred partner to build an alternative pipeline, the so-called Turkish Stream, many in the West thought it might be merely a bluff to make the EU reconsider its opposition to South Stream. As I mentioned in Chapter 5, the cancellation of South Stream and the proposal of Turkish Stream tend to show Russia's routinized patterns of strategic behavior in dealing with geopolitical turmoil. In these cases, Russia appears to send political messages to the rest of the world that it always has other options during a crisis. Regardless of whether the Turkish Stream

⁵³⁵ "Azerbaijan and the Southern Gas Corridor to Europe: Implications for U.S. And European Energy Security - Conference Report."

proposal is just a bluff or a face-saving measure, Russia had to admit that the realization of South Stream was impossible given current geopolitical and financial realities.

First, the EU's opposition to South Stream stiffened after Russia's intervention in Ukraine, which created great difficulty for the two sides to discuss a compromise solution in terms of the EU's Third Energy Package. Second, subsequent Western sanctions arising from Russia's annexation of Crimea created financial uncertainties for the South Stream project as companies involved in it, such as Stroytransgaz and Gazprombank, have been targeted. Third, Russia had to recognize that the South Stream project was no longer affordable due to the economic problems not only stemming from sanctions but also from falling oil prices and the plummeting ruble. Building a new pipeline estimated to cost as much as \$40 billion to deliver gas mainly to small European countries such as Hungary and Serbia made little sense to Russia.

Turkish Stream is a proposed pipeline that would run under the Black Sea to the Turkey-Greece border with a capacity of 63 bcm of natural gas per year. Before discussing the Turkish Stream project in detail, it is first worth noting the timing of the decision to substitute South Stream with Turkish Stream. By the time that South Stream was scrapped, Gazprom had already spent \$4.7 billion on the Black Sea project. The pipe for the first offshore line was already on the dock of Varna, the largest city on the Bulgarian Black Sea coast, and the barges for laying the first two lines had been chartered.⁵³⁶ But since the construction of the offshore section had not yet started, Russia could recoup

⁵³⁶ "Gazprom Mulls Raising 100 Bln Rubles with Infrastructure Bonds - Paper," *Interfax Russian & CIS Oil and Gas Weekly*, July 18-24, 2013. Originally the South Stream project was planned to be two lines with a capacity of 31 bcm of gas per year, but following the January 2009 Russia-Ukraine gas crisis, this was then expanded to four lines with 63 bcm of gas per year.

much of the capital it had already spent if pipelines to Turkey could be substituted for South Stream.⁵³⁷ Given the estimate that Turkish Stream would cost Gazprom about \$10 billion, a route to Turkey seems to make more economic sense than the \$40 billion South Stream project, whose rationale had always been questionable.

Map 10. The Turkish Stream Gas Pipeline



(Source: *The Reuters*)

⁵³⁷ Stern, Pirani, and Yafimava, "Does the Cancellation of South Stream Signal a Fundamental Re-Orientation of Russian Gas Export Policy."

More importantly, Turkish Stream makes more strategic sense from Russia's point of view. First, Turkey has a strategic importance to Russia, as Turkey is the only major expansion market for Russian gas in the 2020s and is already Gazprom's second-largest gas customer in the European region after Germany, having imported 26.7 bcm in 2013.⁵³⁸ Second, the pipeline to Turkey would also partly reduce Gazprom's dependence on Ukraine as a transit route. About half of the gas Turkey imports from Russia now comes through Ukraine, and some of it would be replaced by Turkish Stream.⁵³⁹ Third, Turkish Stream would also place Russia in a powerful position to compete with gas from Azerbaijan, Iran, Iraqi Kurdistan, and any other potential sources passing through Turkey en route to Europe.⁵⁴⁰ Last, the fact that Turkey is not an EU member would make the construction of Turkish Stream easier, as it is not bound by the EU Third Energy Package.

From Turkey's perspective, the new pipeline would ensure direct delivery of Russian gas rather than Turkey remaining the last country in the geographical chain of the existing trans-Balkan pipeline route. While the Turkish government is not necessarily eager to increase its dependence on Russian gas, it needs to take into account the history of transit problems through Ukraine, which has impacted flows through the trans-Balkan pipeline. With the cancellation of South Stream, Turkey presumably has leverage vis-à-vis Russia because Turkey knows that if Gazprom cannot proceed quickly with the Turkish route, a lot of the potential cost savings may be lost. Russia already publicly offered a 6 percent

⁵³⁸ By comparison, the whole of southeast Europe (Bulgaria, Bosnia and Herzegovina, Greece, Macedonia, Romania, Serbia, Slovenia, and Croatia) imported less than 10 bcm of Russian gas in 2013, and even adding Hungary and Austria to this group, the total was only 21 bcm.

⁵³⁹ Reed and Arsu, "Russia Presses Ahead with Plan for Gas Pipeline to Turkey."

⁵⁴⁰ Stern, Pirani, and Yafimava, "Does the Cancellation of South Stream Signal a Fundamental Re-Orientation of Russian Gas Export Policy."

discount on Russian natural gas prices to Turkey, whereas Turkey, which pays substantially more for Russian gas than Germany does, is pressing for a better deal.⁵⁴¹ According to a Turkish official, Turkey appears to be trying to use Gazprom's need for a face-saving alternative to South Stream as leverage to negotiate a lower price for Russian gas. Therefore, talks between Russian and Turkish officials on matters such as the precise routes and financial terms of a deal are said to be proceeding slowly.⁵⁴²

Table 7. Prospective Southern Gas Corridor Pipelines

	Nabucco	Nabucco West	TANAP	TAP	South Stream
Length (km)	3,900	1,315	2,000	870	2,380
Capacity (bcm/year)	31		16	10	31-63*
Cost (billions of dollars)	\$10 (= €7.9)	8	\$11-14	5.3	40
Shareholders (shares in percent)	BOTAŞ (Turkey, 16.67) BEH (Bulgaria, 16.67) Transgaz (Romania, 16.67) MOL (Hungary, 16.67) OMV (Austria, 24.33) GDF Suez (France, 9)		SOCAR (Azerbaijan, 58) BOTAŞ (Turkey, 30) BP (UK, 12)	BP (UK, 20) SOCAR (Azerbaijan, 20) Statoil (Norway, 20) Fluxys (Belgium, 16) Total (French, 10) E.ON (Germany, 9) Axpo (Switzerland, 5)	Gazprom (Russia, 50) Eni (Italy, 20) EdF (France, 15) Wintershall (Germany, 15)
Transit	Turkey Bulgaria Romania		Turkey Georgia	Greece Albania Italy	Russia Bulgaria Serbia

⁵⁴¹ Reed and Arsu, "Russia Presses Ahead with Plan for Gas Pipeline to Turkey."; "Turkey in Talks with Gazprom on Price Discount, Considering Moscow's Proposal on New Pipeline," *Interfax Russia & CIS Oil and Gas Weekly* December 4-10, 2014.

⁵⁴² "Russia Presses Ahead with Plan for Gas Pipeline to Turkey."

	Hungary Austria				Hungary Slovenia Italy
Announced	2002		2011	2003	2007
Construction			2014	2015	2012 started 2014 suspended
Operational			2018	2018	

* Originally the project was planned to be two lines with a capacity of 31 bcm/year but, following the January 2009 Russia-Ukraine crisis, this was then expanded to four lines and 63 bcm/year.

CONCLUSION

The Caspian region is geographically landlocked, but at the crossroads between Western Europe, East Asia, and the Middle East. Since the breakdown of the former Soviet Union (FSU) opened up enormous potential reserves of oil and gas in Central Asia, the main issue has been *where*, not *whether*, to develop transnational pipelines to bring Eurasia's oil and gas to market. The emerging trend of transnational oil and gas pipelines in Eurasia has immense geopolitical and energy market implications. Transnational pipelines create long-term links between producer states, consumer states, and transit states. In particular, the choice of certain pipeline routes over others reflects political and energy priorities among participating countries.

Cross-border pipelines that were built in the early 2000s to transport Caspian oil to the West are quite different from the pipeline projects that are currently being discussed or planned. When the idea of the Baku-Tbilisi-Ceyhan BTC pipeline was introduced soon after the breakup of Soviet Union, there was a great degree of cooperation between Russia and the West, which enabled the Caspian Pipeline Consortium (CPC) pipeline and the BTC pipeline to be part of a two-track solution in exporting Caspian crude to market.

Such a degree of cooperation between Russia and the West is no longer possible, and decisions to choose certain pipeline routes and to develop trans-regional pipelines are now much more complicated. In the Caspian Sea region, different countries have different policy goals and are taking diverging approaches to developing energy resources. Moreover, things have been changing quickly in the region due to the Ukraine crisis, low international oil prices, the Eurasian Union, China's moves into Central Asia and the Shanghai Cooperation Organization (SCO), as well as changes with regard to the Shah Deniz (SD) consortium. The SD consortium's choice of the TAP and the TANAP pipelines over the Nabucco proposal for the Southern Gas Corridor (SGC), as well as Russia's cancellation of South Stream pipeline and its strategic move toward the Turkish Stream pipeline in the midst of the Ukraine crisis, for instance, illustrate regional power politics at work.

After examining the changing geopolitical landscape and energy markets in the region, I found the following differences between BTC and SGC. First, given that BTC was an oil project where American companies (Chevron, Hess, and ConocoPhillips) were directly involved, the U.S. government was more committed to BTC than to SGC. In a similar fashion, Europe, with its quest for supply diversification of natural gas both in terms of sources and transit routes in order to reduce dependence on Russia, has been directly involved with the SD gas project (e.g., BP is the largest shareholder) and consequently with the Nabucco pipeline project. Second, Russia is currently playing a stronger role in the region than when BTC was built, as it attempts to maintain its control over the regional energy market. Third, the relationship between Azerbaijan and Russia is somewhat different today than it was a decade ago. At that time, Baku's policy was

strongly pro-Western for both political and economic reasons, and the former Azerbaijani President Heydar Aliyev was absolutely determined to have an energy outlet to the West. However, current Azerbaijani President Ilham Aliyev is moving toward a policy of non-alignment with the West (e.g., refusing to liberalize the country's political system, becoming increasingly authoritarian, clamping down on pro-democracy activists, and freezing NGO accounts), while also trying to maintain pragmatic relations with Russia, although he is believed to be committed to the West regarding Ukraine. Fourth, there was a high degree of unity among the countries involved with BTC, which has not been the case with SGC. With the BTC, the political leaders of Azerbaijan, Georgia, and Turkey were all fully committed to the project and to each other. Now, the role of Turkey in particular has become much more complicated than before, with the emergence of energy policy fragmentation between Turkey and the EU, as well as Turkey's strategic moves into developing new forms of bilateral energy diplomacy with natural gas producing countries such as Russia (e.g., the Turkish Stream pipeline project).

However, BTC and SGC are similar in that changes in the geopolitical environment profoundly shape energy relations and affect the successful development of pipeline deals. After the collapse of the Soviet Union, the geopolitical goal of enhancing Western involvement in the energy and security sectors of the Caspian region was a key factor driving commercial decisions in the BTC pipeline development – the first oil pipeline transporting Caspian oil to international markets without crossing through Russia. Competition over the SGC pipeline project to transport Caspian gas to Europe, meanwhile, illustrates the geopolitical rivalry between the EU and Russia, as well as changing dynamics of regional power politics. Russia is trying hard to maintain its

control over the European market against the EU's quest for supply diversification of natural gas, both in terms of sources and transit routes. The EU wants to reduce its dependence on Russia due to Russia's gas disputes with key transit countries, which lead to unpredictable and consequential supply disruptions in Europe. In addition, the emergence of new geopolitical dynamics—in which Azerbaijan and Turkey, U.S. allies that worked with Washington on the BTC pipeline, now desire to avoid direct competition and maintain pragmatic relations with Russia—was one of the key elements in promoting the success of TAP and TANAP over other pipeline routes in the SGC competition.

BTC and SGC are also similar in that both represent the combined ownership structure where both national oil companies (NOCs) and international oil companies (IOCs) are shareholders in the pipeline and upstream JVs. In particular, both BTC and SGC receive oil and gas from the respective upstream fields whose PSA consortia are led by IOCs. BP is the principal shareholder and project operator both in the JV consortium of the Azeri-Chirag-Gunashli (ACG) oil field and SD gas field. While Azerbaijan's state oil company SOCAR is playing a larger role in the SGC development, as the largest shareholder in the TAP and TANAP JVs, than it played in the BTC project,⁵⁴³ the combined ownership structure of the BTC and SGC pipelines is certainly different from the Sino-Russian pipelines that are owned only by their NOCs. In contrast to NOC-owned pipelines, pipelines with combined ownership involve multiple state and non-state actors. The BTC pipeline JV consortium consists of seven countries and eleven

⁵⁴³ SOCAR held the second largest shares in the BTC pipeline JV, while it is a largest shareholder in the TAP and TANAP JVs. In the TANAP pipeline consortium, SOCAR holds the same amount of shares with BP and Statoil.

companies, and the TAP and TANAP pipeline JVs combined comprise eight countries and eight companies. As I argued, the IOC-NOC combined ownership structure does more than the NOC-only ownership structure to facilitate the successful materialization of cross-border pipeline deals, even though such an ownership structure engages a larger number of actors, including companies from non-host countries.

Finally, the Caspian pipeline cases confirmed that gas pipeline projects tend to take longer to materialize than oil pipelines. Beyond the clear market reasons that building natural gas pipelines are more technologically difficult and consequently more expensive than developing oil pipelines, natural gas trade tends to be more vulnerable to political influence than oil trade due to the fuels' inherently different characteristics. I found that political-economic arrangements in host countries have a greater impact on the speed and success of cross-border pipeline projects for natural gas than for oil. Changing geopolitical dynamics concerning the SGC shows that gas pipelines are more vulnerable in geopolitical and external crises than oil pipelines such as the BTC, and are thus more susceptible to changes in political orientation and stability among participating governments.

CHAPTER EIGHT
CONCLUSION

This dissertation project has examined what brings countries into binding cross-border oil and gas pipeline deals and why some proposed pipeline projects materialize quickly while others do not. The purpose of the dissertation is to provide a more systematic explanation of how politics and energy markets are interconnected in the choice of supply routes and of how political and economic factors play out interactively in decisions regarding cross-border pipeline projects. The key findings are the following: (1) Geopolitical factors profoundly shape energy relations and affect the likelihood of successful pipeline deals and their speed regardless of the degree of economic incentive; (2) The degree of political alignment (i.e., political trust) between host countries and the ownership structure of pipelines likely determine the success and speed of cross-border pipeline deals; and (3) The political-economic arrangements of host countries affect the likelihood of successful pipeline deals and their speed more significantly in the field of natural gas than in oil.

This chapter is organized as follows. The first section summarizes the entire dissertation, because it includes a thick and complicated description of case studies and statistical analysis. This summary helps readers see how four cases fit into my hypotheses and what the key findings of each case study contribute to my dissertation. The chapter then discusses the dissertation's policy implications for the United States.

SUMMARY

The emerging trend of cross-border oil and gas pipelines in Eurasia has immense geopolitical and energy market implications. Since the breakdown of the former Soviet Union opened up enormous potential reserves of oil and gas in landlocked Central Asia

and the Russian Far East, the main issue has been *where*, not *whether*, to develop cross-border pipelines to bring Eurasia's oil and gas to international markets. With the changing landscape of global energy markets, access to and control over future oil and gas supplies, as well as control of oil and gas transportation links and transit infrastructure, has become a priority in both key consuming and producing states in Eurasia. They have strategic reasons to forge new transit routes and to diversify supply lines with new overland (or undersea) pipelines.

Cross-border pipelines link states in long-term relationships between producer states, consumer states, and transit states. A choice of certain pipeline route over other various options reflects both energy security priorities and political relations of host countries involved in a pipeline project. Although the market can provide energy supplies, the market neither creates energy security nor has much to do with diversification of energy supply sources and transportation routes. In addition to market considerations, there are strategic reasons for developing cross-border pipelines between key producing and consuming states. It is frequently observed that some cross-border pipeline projects that are seemingly less economically justifiable become implemented because of strong political motivations. Conversely, some commercially viable pipeline projects are delayed for decades or never materialized due to lack of political motivations.

In cases where clear economic incentives do not align with strong political motivations, what political-economic dynamics bring countries into binding cross-border oil and gas pipeline deals? How do political and economic factors play out interactively in decisions regarding cross-border pipeline projects, and to what extent do political factors affect the commercial viability of large-scale cross-border energy infrastructure projects? Why do

some proposed pipeline projects materialize quickly while others do not? My dissertation examined these puzzles in order to provide a more systematic explanation of how energy infrastructure projects link states with energy markets, particularly in choices about supply routes.

Looking at both the domestic and international levels, I explored political and economic factors and their underlying interconnected mechanisms that lead states to reach cooperative trans-border pipeline arrangements. I employed combined methods of statistical analysis and case studies to test my four working hypotheses: (H1) *Geopolitical factors are likely to have an effect on the likelihood of a successful pipeline deal and its speed*; (H2) *When the level of political trust (i.e., political alignment) between host countries on a cross-border pipeline project is higher, it is more likely to increase the likelihood of a deal's success and speed*; (H3) *When pipeline ownership is shared between host-country firms (either state-owned enterprises or multi-national corporations whose national origins belong to one of the host countries) and non-host country firms (either state-owned enterprises or multi-national corporations whose national origins do not belong to any of host countries), it is more likely to increase the likelihood of a deal's success and speed*; and (H4) *The effect of political trust, geopolitical factors, and pipeline ownership structure on the pipeline deal's success and speed is more pronounced in cases involving natural gas pipelines than oil pipelines.*

The purpose of the statistical analysis is to enable a structural understanding on the international political economy of cross-border oil pipelines, which is neglected in existing studies. I have constructed my own dataset on all pipelines in the world that are operational or whose cross-border agreements are all signed and finalized, relying on the

resources that are open to public (e.g., the LexisNexis database) to keep the track of industry sources and major newspapers. Constructing my own dataset was a very challenging task due to the limited accessibility to industry data (requiring very expensive subscriptions), thus resulting in many missing values in dependent variables (deal speed of a cross-border pipeline project) and independent variables (geopolitical and external crisis factors, political trust, and pipeline ownership structure). However, the statistical results reinforce my hypotheses in the following respects. First, they lend strong evidence that geopolitical and external crisis factors are likely to delay the speed of cross-border pipeline deals. Second, a higher level of political trust (i.e., higher level of political alignment between host countries) and a combined pipeline ownership structure consisting of both national oil companies (NOCs) and international oil companies (IOCs) are likely to expedite the speed of a successful cross-border pipeline deal. Third, cross-border natural gas pipelines are more susceptible to external geopolitical factors and crisis situations than oil pipelines. Notwithstanding the constraints in my current dataset, this dissertation is among the first to quantitatively identify the key political and economic factors involved in successful cross-border pipeline projects and to provide a brief overview of all cross-border oil and gas pipelines in the world.

In addition to the quantitative analysis, I conducted four case studies that focused on two regions (China-Russia and the Caspian region): (1) the completed oil pipeline of *the Eastern Siberia–Pacific Ocean (ESPO)* from Russia to China; (2) the planned gas pipeline projects of *the Altai Pipeline* and *the Power of Siberia (POS) Pipeline* from Russia to China; (3) the completed *Baku-Tbilisi-Ceyhan (BTC) Pipeline* that has brought Caspian oil to the West from Azerbaijan, via Georgia and Turkey, since 2006; and (4) the

planned gas pipeline project of *the Southern Gas Corridor (SGC) development*⁵⁴⁴ to bring Caspian gas to Europe from Azerbaijan, via Georgia, Turkey, Greece, Albania, and Italy. While constructing a dataset, I learned that each pipeline has a different and complex story depending on domestic political and economic considerations, including countries' energy bureaucracy and industry structures, their national and foreign policies, and their interactions with their geopolitical environments and international political-economic factors. Domestic arrangements in producer-, consumer-, and key transit states help determine a pipeline project's commercial viability, security of supply, and the choice over various supply routes. Through case studies, my dissertation explained these domestic factors that are not assessed in the statistical analysis, as well as international factors that influence domestic political economies of host countries.

It is worth noting why I chose my four cases and how each of them contributes to my hypotheses. First, I chose four cases that show variations in terms of relationship between economic and political incentives (see Figure 1 in Chapter 1). In planning and developing cross-border pipeline projects in Eurasia, it is frequently observed that strong political motivations do not necessarily align with clear economic incentives. Major energy deals in Eurasia often reveal that energy cooperation between states cannot be justified through purely economic considerations. Neither economic nor political incentives alone explain why these pipelines move forward. Emerging types of strategic energy cooperation in Eurasia are much more complex than energy partnerships in other regions, because states

⁵⁴⁴ The Southern Gas Corridor includes the expansion of the South Caucasus Gas Pipeline to Turkey from Azerbaijan, the construction of the Trans Anatolian Gas Pipeline (TANAP) across Turkey, and the construction of the Trans Adriatic Pipeline (TAP) across Greece, Albania, and into Italy. The Southern Gas Corridor will bring Caspian gas from the Shah Deniz field in Azerbaijan to a major European gas market for the first time starting in 2018.

with different cultures, economies, and political regimes are developing energy ties where they find complementarity.

By paying close attention to the cross-border pipeline projects where economic and political incentives moved in opposite directions, my dissertation explored the underlying mechanisms of political-economic dynamics that led states to agree binding cross-border pipeline deals. Sino-Russian oil and gas pipelines are cases where the deals were delayed for decades due to lack of political willingness among the parties despite clear economic incentives (as these neighboring states could enjoy supply-demand complementarity – with one as a major energy importer, and the other as a major energy exporter). The BTC oil pipeline is a case where strong political alignment between states drove the deal despite a lack of economic incentives for international oil companies, particularly until the late stage of pipeline planning (e.g., a relatively small volume of oil). The SGC pipeline project is a case where the deals proceeded with a high-to-medium level of political alignment and economic incentives among host countries. The degree of political alignment among host countries for the SGC pipeline project is not resolved, given that dynamics are changing quickly in the region due to the Ukraine crisis, Russia's subsequent cancellation of the South Stream pipeline, and Moscow's strategic moves toward the Turkish Stream pipeline. The degree of political alignment among host countries seems to keep declining and is difficult to estimate because participating countries with different policy goals are taking diverging approaches to energy resources. Compared to the other three cases, however, the SGC pipeline project is a case where there are substantial political and economic incentives, rather than a case where political and economic incentives are inversely related. The SGC pipeline project also shows how

cross-border pipelines in Eurasia proceed differently from pipelines in North America or Europe, where clear and strong political and economic incentives exist within a solidified institutional basis for multilateral cooperation. My dissertation does not include any cases involving a pipeline project that has low economic and political incentives, because it is self-evident that such a project is unlikely to materialize.

Second, I chose four cases that show variations in terms of pipeline type (i.e., direct link pipeline vs. multi-state export pipeline), the number of host countries, and the speed of pipeline deals (i.e., the number of years to finalize the deals). I selected four cases that went against the prevailing assumption that the more parties involved in a cross-border pipeline project, the harder it is to negotiate, reach investment decisions, and finalize intergovernmental agreements. Intuitively, multi-state export pipelines incur more risks than direct link pipelines because multi-state export pipelines involve multiple parties including transit state(s) without overarching jurisdiction. Although Sino-Russian oil and gas pipeline deals involved fewer number of actors than the oil and gas pipeline projects to bring Caspian hydrocarbons to Europe, Sino-Russian direct-link pipeline deals took much longer to finalize than those of the multi-state export pipelines carrying Caspian oil and gas. Through the four selected cases, my dissertation examined why some bilateral deals of direct-link pipelines face or have faced many more obstacles than multi-state export pipelines in Eurasia, how the nature of energy relations in Eurasia is different from other parts of the world, and how political and economic factors play out interactively in driving the successful launch of each cross-border pipeline project.

Third, I chose four cases that are representative of other cross-border pipeline projects in and across Eurasia, falling within my own postulated categories of pipeline ownership

structure and fuel type. Sino-Russian pipelines represent the pipeline ownership and financing structure driven exclusively by NOCs, whereas the pipelines from the Caspian region represent combined pipeline ownership between NOCs and IOCs, and a joint venture (JV) consortium for the financing, construction, and operation of pipelines. The ESPO pipeline from Russia to China and the BTC pipeline from the Caspian to the West represent cross-border *oil* pipelines, while the POS and Altai pipelines from Russia to China and the SGC pipeline network from the Caspian to Europe represent *natural gas* pipelines.

The key finding of Sino-Russian pipeline cases is that geopolitical changes due to crisis situations have profoundly shaped bilateral energy relations in both oil and gas deals. Notably, the two countries' binding agreements for cross-border oil and gas pipelines were signed when 1) Russian-Western relations were at odds – with Russia's invasion of Georgia in 2008 and Russia's annexation of Crimea in 2014 – and/or 2) unexpected external factors such as the Global Financial Crisis and collapsing oil prices compelled Russia to rely on Chinese capital. Although I examined the differences between oil and gas deals (i.e., why Sino-Russian cooperation in the oil sector was easier and materialized earlier than in the natural gas sector), I also paid close attention to their similarities in order to explain why Sino-Russian bilateral deals for direct-link pipelines took much longer to finalize than the deals for multi-state export pipelines carrying Caspian hydrocarbons to European markets.

I argue that the fundamental similarity between Sino-Russian oil and gas deals is that changes in the geopolitical environment have caused both Russia and China to alter their approaches to bilateral relations. Russia decided to make concessions to China, and

became willing to compromise on the fundamental disagreements over price and equity, only as part of efforts to preserve its geopolitical leverage with major powers such as the United States and Europe at critical historical points. Without a doubt, the inflow of Chinese capital (e.g., three major “loans for oil” to Russian companies from the Chinese Development Bank) has served as a key driver to the finalization of cross-border agreements between the two countries. On China’s end, there are strong market and strategic incentives to diversify its energy import portfolio with Russian oil and gas. China’s decision to import and invest in Russian oil and gas captures how government concerns about security of supply and domestic political agendas (e.g., Beijing’s air-pollution issues and President Xi’s anti-corruption campaign) are interlinked with national oil companies’ commercial interests.

I also argue that lack of political alignment between China and Russia due to mutual mistrust was one of the key elements delaying the finalization of both oil and gas deals. Sino-Russian pipeline deals took a much longer time to finalize due to low political trust between the two countries and despite substantial economic incentives both countries would enjoy from energy cooperation (e.g., supply-demand complementarity and economic development in the Russian Far East), whereas relatively high levels of political trust (i.e., political alignment) among host countries enabled Caspian pipelines to be realized sooner despite less substantial economic incentives (e.g., relatively small volumes of oil and gas). Moscow fears that with the widening gap between a rising China and a declining Russia, increasing dependence on China as an energy export destination will eventually constitute a threat to national security. Beijing, meanwhile, is suspicious of Russia as reliable trading partner. Lack of political alignment between the two

countries—which is driven by lingering historic distrust, Russia’s perception of the Chinese demographic threat in the Russian Far East, and strategic competition over shared regions such as Central Asia—has hindered their energy ties from evolving into an enduring and comprehensive partnership.

The transactional nature of Sino-Russian energy relations has prevented the two countries from successful engagement and materialization of any major joint venture participation in the Russian upstream development so far. Although Russia has invited Chinese participation in less significant oil upstream projects and Rosneft, in particular, has consistently tried to open the Russian upstream sector to Chinese NOCs, there have been no major Chinese equity acquisitions in Russia’s oil and natural gas sector. This is not only because Russia allowed only limited foreign participation in the development of the country’s strategic oil and gas assets, but also because the two countries are still suspicious of each other on other dimensions such as politics. In addition, China and Russia have not formed any JVs in the development of oil and gas pipelines. The ESPO oil pipeline is owned and operated by Transneft, Russia’s state-owned pipeline monopoly, except for the Chinese section of the spur line from Russia. As Russia did not allow Chinese NOCs to take equity positions in Russia’s upstream, China instead financed the target supply source through loans to make sure of long-term energy security. Although the arrangements in terms of financing for the construction and gas supply of the POS gas pipeline have not been disclosed, they are likely to be in a similar format with those of ESPO.

In contrast to the similarities between oil and gas deals, Sino-Russian gas deals took much longer than oil deals because of (1) the fundamental differences between oil and

gas as commodities and (2) the contrast between Rosneft's proactive approach in oil cooperation with China and Gazprom's rigid stance toward China. First, while oil is an international commodity, natural gas is a regional commodity. While the price of oil generally refers to the spot price⁵⁴⁵ of a barrel of benchmark of crude oil,⁵⁴⁶ the pricing mechanism for natural gas displays regional differentiation. Outside of North America (where a deregulated Henry Hub pricing mechanism of spot indexation reigns), countries typically sign a contract for natural gas trade that is linked to oil prices and has a long-term (usually thirty-year) "take-or-pay" clause.⁵⁴⁷ In this respect, the gas pricing mechanism requires direct and long-term relationships between supplier and consumer states. Consequently, I argue that the gas trade is more vulnerable to the political orientation of the involved governments than oil trade because natural gas is produced, transported, and traded through regional and fragmented markets.

Second, the difference between Sino-Russian oil sector and gas sector cooperation in terms of progress lies in Rosneft and Gazprom's differing approaches toward China and Asia-Pacific. Rosneft took the lead in developing the Russian Far East through oil deals with China (via inland pipeline and shipping by sea) as the company views the Asia-Pacific market as the baseline for its future business. Consequently, Rosneft has obviously been the primary driving force of Sino-Russian oil cooperation. In contrast,

⁵⁴⁵ A spot contract is a transaction for the buying and selling a commodity, security, or currency for settlement (payment and delivery) on the spot date, which is normally two business days after the trade date. The settlement price is called spot price.

⁵⁴⁶ A benchmark crude or market crude is a crude oil that serves as a reference price for buyers and sellers of crude oil. There are three primary benchmarks, West Texas Intermediate (WTI), Brent Blend, and Dubai Crude. Other well-known blends include the OPEC Reference Basket used by OPEC, Tapis Crude (which is traded in Singapore), Bonny Light used in Nigeria, Urals oil used in Russia, and Mexico's Isthmus. [https://en.wikipedia.org/wiki/Benchmark_\(crude_oil\)](https://en.wikipedia.org/wiki/Benchmark_(crude_oil))

⁵⁴⁷ "Take-or-pay" clauses require the buyer to take an annual minimum volume of natural gas or to pay for that volume whether or not it is taken.

Gazprom retained a rigid stance toward China not only because the company enjoys its monopoly over Russian gas in the European market, but also because it does not understand the Chinese business culture (such as Chinese approach to negotiations) as well as Rosneft does. Gazprom's European-oriented business strategy caused it to delay in reaching a gas price compromise with China, which motivated China to prioritize its supply options from Central Asia, particularly from Turkmenistan. Until Gazprom was pushed to participate in the gas deal with China by Russian President Vladimir Putin given the geopolitical turmoil of the Ukraine crisis and resulting Western sanctions, Gazprom continuously delayed signing the deal because of its low profit margins. This move was driven by Gazprom's strategic decision not to lose its window of opportunity in the Asia-Pacific market, whereas Rosneft has already moved into China on account of commercial considerations.

The POS and Altai gas pipeline projects are both considered to be Putin's signature projects for finding new markets for Russia's energy resources in Asia, in response to Europe's determination to cut back its reliance on Russian energy. The geopolitical turmoil of the Ukraine crisis and resulting Western sanctions occurred right around the time China and Russia signed a final agreement on the POS gas pipeline following China's preferred eastern gas supply route. After the deal, however, Russia prioritized the Altai project through the western gas supply route that Russia prefers, given that the prolonged Western sanctions and the collapse of the Russian ruble following the steep drop in global oil prices made the POS project unprofitable for Gazprom. On China's end, however, any progress for the Altai pipeline project seems to be stalled because China's demand growth for natural gas is slowing due to the country's economic slowdown.

Given that China is reviewing its energy needs and its access to LNG is increasing due to the fall in oil prices, it is not likely that China is willing to change its priority from eastern to western gas pipeline route. Low international oil prices, if sustained for a prolonged period, may add even more complications to the second China-Russia gas deal negotiations.

After considering Russia-China oil and gas pipelines, my dissertation moved on to the cases of oil and gas pipelines carrying Caspian hydrocarbons to European markets. The key finding regarding the Caspian oil and gas pipelines is that changes in the geopolitical environment profoundly shaped energy relations and affected the successful development of pipeline deals. Both the BTC oil pipeline and the SGC pipeline network have similar motivations, in that the United States and Europe have strategic reasons to develop pipeline routes bypassing Russia and Iran. After the collapse of the Soviet Union, the geopolitical goal of enhancing Western involvement in the energy and security sectors of the Caspian region was a key factor driving commercial decisions in the development of the BTC oil pipeline. Indeed, BTC is the first pipeline transporting Caspian oil to international markets without crossing through Russia. In a similar respect, competition over the SGC pipeline projects to transport Caspian natural gas to Europe illustrates the geopolitical rivalry between the EU and Russia, as well as changing dynamics in regional power politics. While Russia is trying hard to maintain its control over the European gas market, the EU wants to reduce its dependence on Russia mainly due to Russia's gas disputes with key transit countries, which have led to unpredictable and consequential supply disruptions in Europe. In addition, the emergence of new geopolitical dynamics

involving Azerbaijan and Turkey was one of the key elements in promoting the success of TAP and TANAP over other pipeline routes in the SGC competition.

The BTC oil pipeline and the SGC gas pipeline network are also similar in that both reflect a combined ownership structure where both NOCs and IOCs are shareholders in the pipeline and upstream JVs. BTC and SGC both receive energy resources from upstream fields whose production-sharing agreement (PSA) consortia are led by IOCs. BP is the principal shareholder and project operator both in the JV consortium of the Azeri-Chirag-Gunashli (ACG) oil field (which contributes to the BTC) and the Shah Deniz (SD) gas field (which contributes to the SGC). While Azerbaijan's state oil company SOCAR is playing a larger role in the development of SGC— as the largest shareholder in the Trans Adriatic Pipeline (TAP) and the Trans Anatolian Pipeline (TANAP) JVs—than it played in the BTC project,⁵⁴⁸ the combined ownership structure of both the BTC and SGC pipelines is certainly different from the Sino-Russian pipelines that are owned only by their NOCs. As I argued, the combined IOC-NOC ownership structure does more than the NOC-only ownership structure to facilitate the successful materialization of cross-border pipeline deals, even though such an ownership structure engages a larger number of actors, including companies from non-host countries. Moreover, BTC and SGC are similar in that they both have relatively stronger political alignment (i.e., higher levels of political trust) amongst host countries than the degree of political alignment in the case of Sino-Russian oil and gas pipeline development, which

⁵⁴⁸ SOCAR held the second-largest shares in the BTC pipeline JV, while it is the largest shareholder in the TAP and TANAP JVs. In the TANAP pipeline consortium, SOCAR holds the same number of shares as BP and Statoil.

enabled Caspian oil and gas pipelines to be realized sooner than Sino-Russian oil and gas pipelines.

However, my dissertation also found significant differences between BTC and SGC. First, the BTC oil pipeline is a case where direct, consistent U.S. involvement and strong political alignment between host countries and the West drove the successful materialization of a cross-border oil pipeline bypassing the Russian territory, despite low economic incentives for IOCs. The SGC gas pipeline project, meanwhile, is a case where there are relatively high degrees of economic incentives and political trust among host countries. Facing a direct rivalry between EU and Russia, the TAP and TANAP pipelines were finally chosen over the EU-backed Nabucco pipeline and the Russia-backed South Stream pipeline. While SOCAR held the second-largest number of shares in the BTC pipeline JV after BP, SOCAR is playing a larger role as the largest shareholder in both the TAP and TANAP pipeline JVs.

Second, Russia is currently playing a stronger role in the Caspian region than when BTC was built, which is changing the regional power dynamics. Azerbaijan and Turkey, U.S. allies that worked with Washington on the BTC pipeline, now desire to avoid direct competition and maintain pragmatic relations with Russia. Azerbaijan and Turkey's changing approaches toward the West and Russia explain why the SD consortium chose TAP and TANAP over the Nabucco pipeline (that was proposed by EU) for the SGC development. Even after the deals for TAP and TANAP were finalized, things have been changing quickly in the region due to the crises in Ukraine and Syria, as well as low oil prices. Russia's cancellation of the South Stream pipeline and its strategic move toward the Turkish Stream pipeline in the midst of the Ukraine crisis illustrates regional power

politics at work. The degree of commitment that host countries made to the BTC project does not seem to exist with the SGC project, as different countries have different policy goals and are taking diverging approaches to developing energy resources, given the changing geopolitical landscape and energy markets in the region.

In summary, both statistical results and case studies generally support the hypotheses of my dissertation. First of all, the key empirical finding from quantitative and qualitative analyses is that geopolitical and external crisis factors affect the likelihood of successful oil and gas pipeline deals and their speed regardless of political and commercial alignment between host countries. However, the effect of geopolitical factors can be interpreted differently in statistical analysis and case studies. While statistical findings lend strong evidence that geopolitical factors are likely to delay the speed of cross-border pipeline deals, the cases of Sino-Russian oil and gas pipelines show geopolitical factors motivated the countries to make a strategic decision to finalize long-delayed bilateral oil and gas deals at critical historical points.

The reason why the effect of geopolitical factors is likely to be interpreted in the opposite direction in statistical analysis and case studies is mainly because of the difference in methodological approaches. While statistical analysis identifies the generalized effect of geopolitical factors on the speed of cross-border oil and gas pipeline deals in the world, case studies examine complex causal mechanisms involved in individual pipelines. In addition to geopolitical factors, other international political-economic factors such as political alignment and pipeline ownership structure, as well as domestic political-economic factors such as energy bureaucracy and oil and gas industry structure, are all interlinked in Sino-Russian oil and gas pipeline projects. In other words, the effect of

geopolitical factors in the Sino-Russian cases is embedded in the complex mechanisms of political and economic factors at both the domestic and international level. In this respect, the case study offers more nuanced and sophisticated explanations than statistical analysis as to why Sino-Russian cases of bilateral direct-link pipelines have faced many more obstacles than multi-state export pipelines in bringing Caspian oil and gas to market, and how geopolitical factors play a role in the Sino-Russian pipeline development.

Overall, notwithstanding the limitations of the quantitative aspects of my dissertation (e.g., small final sample size), these quantitative calculations form the basis for the dissertation's more in-depth qualitative case discussions: namely, that geopolitical factors are likely to affect the likelihood of successful pipeline deals and to delay their speed, whereas a higher level of political alignment and a combined NOC-IOC pipeline ownership structure are likely to expedite the deal speed. Case studies offer detailed subnational analysis of changing internal political-economic dynamics that lead countries to reach cooperative trans-border arrangements of pipeline development, in addition to detailed analysis of relevant external political-economic factors.

POLICY IMPLICATIONS

Geopolitics has been changing rapidly even after the cross-border gas pipeline deals – both the Sino-Russian deal and the Southern Gas Corridor – were signed. Russia is struggling with the Ukraine crisis and resulting Western sanctions, as well as low international oil prices and collapse of the ruble. In particular, Gazprom's contract with China to develop the POS gas pipeline offers no protection against low oil prices (which have declined by 50 percent), as the gas price under the POS contract is linked to oil

prices. There has been speculation, therefore, that Russia is prioritizing the development of the Altai gas pipeline, which is a cheaper option for Russia but more expensive for China, while postponing the POS gas pipeline project. However, any progress for the Altai pipeline project seems to have stalled at this point, given that China's demand growth for natural gas is slowing due to the country's economic slowdown. Growth in oil demand is also slowing as the Chinese economy decelerates, and the increases in demand growth for both oil and natural gas will likely halve by the end of the decade.⁵⁴⁹ China is reviewing its energy needs with its economic slowdown, which may add even more complications to the agreed-upon Sino-Russian gas deals.

On the other hand, Russia announced to abandon the South Stream gas pipeline due to strong opposition from the EU, which was stiffened after Russia's annexation of Crimea. The South Stream project was no longer affordable due to the economic problems not only stemming from Western sanctions, but also from falling oil prices and the plummeting ruble. Instead, Russia named Turkey as its preferred partner to build an alternative pipeline, the so-called Turkish Stream. Many in the West thought it might be merely a bluff to make the EU reconsider its opposition to South Stream or a face-saving measure to send political messages to the rest of the world that Russia always has other options during a crisis. Regardless of whether the Turkish Stream proposal is just a bluff or a face-saving measure, what are policy implications to U.S.?

Russia tends to pursue partnerships with countries such as China and Turkey to keep its geopolitical leverage with major powers such as the United States and the EU. Some

⁵⁴⁹ Mark Magnier and Brian Spegele, "Forecasting China's Oil Buying Grows Harder: Purchases for Stockpiles Appear to Skew Figures," *The Wall Street Journal*, February 25, 2015.

Chinese scholars argue it is an open secret that the Chinese policy elites are sympathetic to Russia, partly due to their belief that the United States, the North Atlantic Treaty Organization (NATO), and other Western countries are primarily responsible for destabilizing Ukraine in the first place, although Beijing remains neutral in the Russian-Ukrainian confrontation.⁵⁵⁰ Under pressure from Western sanctions over the Ukrainian crisis, Putin signed the energy deals with China, confronting with the West and demonstrating that Russia cannot be isolated economically and politically.

Similarly, Russia is strengthening its ties with Turkey which has had complicated relationships with the EU recently, mainly due to the EU's delay in Turkey's accession negotiations regarding EU membership and the EU energy chapter. While Turkey has been considered a U.S. ally on issues such as the Syrian crisis, Russia plays a major role in Turkey. Moscow is not only Turkey's main energy supplier,⁵⁵¹ but also a partner for its first nuclear power plant. At the same time, Turkey holds strategic importance for Russia. First, the Turkish Stream pipeline to Turkey would partly reduce Gazprom's dependence on Ukraine as a transit route. Second, the pipeline would also place Russia in a powerful position to compete with gas from Azerbaijan, Iran, Iraqi Kurdistan, and any other potential sources passing through Turkey en route to Europe. Third, the fact that Turkey is not a EU member would make the construction of the Turkish Stream pipeline easier, as the country is not bounded by the EU Third Energy Package. Meanwhile, after Russia failed to have much control over Bulgaria regarding the South Stream pipeline due to

⁵⁵⁰ Jin Canrong and Wang Hao, "Wukelan Weijizhong De Gefangboyi He Zhongguo Lichang [Relevant Parties and China's Positions on the Ukraine Crisis, 乌克兰危机中的各方博弈和中国立场]" Xushu Qianyan [人民论坛学术前沿], April 8, 2014.

⁵⁵¹ Turkey currently imports more than half of its natural gas (about 55 to 60 percent) and around 30 percent of its coal from Russia.

strong opposition from the European Commission, Russia is moving to focus on another weak state, Greece, by developing new forms of bilateral energy diplomacy.

How should the United States deal with Russia in its strategic moves into developing new forms of bilateral energy diplomacy? How should Washington view new Eurasian pipeline networks and deal with the weakening U.S. positions in the region? The United States has significant energy security and strategic interests at stake in the geography of pipeline development in Eurasia. The current trend of cross-border pipeline network across Eurasia, however, is reshaping how Washington pursues its energy security goals. The changing landscape of geopolitics and energy markets are different from the late 1990s and the early and mid-2000s when the United States had more actively sought to influence the geography of pipeline routes from the Caspian region in order to limit Russia's control over European oil and gas markets as well as over the scale and direction of oil and gas supplies to Europe and Asia after the collapse of the Soviet Union.

First, Russia and the Central Asian states have become more capable and active in pursuing their national energy interests. Russia tried hard to maintain as much control as possible over the transport of Caspian oil and gas to Western markets. Such efforts helped reassert broader Russian geopolitical and economic influence in the region, while at the same time protecting Gazprom's dominant gas market position in Europe from competition with Caspian gas. Regional powers such as Azerbaijan and Turkey, whose policies in the 1990s and early 2000s were strongly pro-Western for both political and economic reasons, now desire to avoid direct competition and maintain pragmatic relations with Russia. Second, China's rising political and economic power in the Caspian region and its strengthening energy ties with Russia will increasingly orient the

direction of the pipeline transportation grid toward the east, which will likely weaken the U.S. position in the region. Third, low oil prices and China's economic slowdown will likely decrease the prospects for the U.S. shale oil and gas imports. Given that the crude imports from major consuming countries are not growing as fast as they were in the past, the United States will have to compete with key producing countries including Russia for global market share. All these factors suggest that looming competition to determine in which direction Russia's hydrocarbon will flow (west to Europe, or south to China) and Caspian oil and gas will flow (west to Europe, east to China, or south through Iran) will be far more difficult for the United States to influence than has been the case during the past two decades.

APPENDICES

Table 8. Summary Statistics

Variable	Mean	Std. Dev.	Min
Deal Speed	11.58537	9.055318	2
Geopolitics	0.3835616	0.4896182	0
PoliticalTrust	0.8803512	0.0863885	0.55556
Ownership	0.5384615	0.5023981	0
PipeLength	1529.167	1415.331	140
CountyNumbers	2.671233	1.131061	2

Table 9. Correlation Matrix

	Deal Speed	Geopolitics	PoliticalTrust	Ownership	PipeLength	CountryNumbers
Deal Speed	1					
Geopolitics	0.4035	1				
PoliticalTrust	-0.1432	-0.0517	1			
Ownership	-0.0585	0.3669	0.2312	1		
PipeLength	0.2363	-0.0811	-0.1468	-0.3911	1	
CountyNumbers	0.233	0.1358	0.3287	0.2773	-0.0745	1

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CURRICULUM VITAE

Miyeon Oh

5230 Tuckerman Lane Apt. 1014
North Bethesda, MD 20852

(510) 388-0029
moh11@jhu.edu
miyeon.oh@gmail.com preferred)

RESEARCH INTERESTS

Energy security and geopolitics, oil and natural gas policy, cross-border transactions, national and international oil companies, strategic partnerships in Asia and Eurasia, Sino-Russian energy cooperation, Caspian energy geopolitics, international political economy, comparative political economy

EDUCATION

Johns Hopkins School of Advanced International Studies (SAIS), Washington, DC

Ph.D. in International Relations, *Expected* December 2015

Dissertation: *Cross-border Oil and Gas Pipelines: The Intersection of Politics, Geography, and Energy Markets* (defended, October 2015)

Committee: Charles F. Doran (primary, SAIS), David M. Lampton (chair, SAIS), Andrew Cheon (SAIS), Charles Ebinger (Brookings), Keun-Wook Paik (Oxford)

Specializations: International Political Economy (passed with honors),

Comparative Politics (passed with honors), International Relations Theory

Harvard Kennedy School of Government, Cambridge, MA

Master in Public Policy, May 2007

Thesis: *U.S. Financial Contributions to the UN Peacekeeping Operations*

Concentrations: Business and Government Policy, Public Sector Financial Management

Yonsei University, Seoul, Korea

M.A. in Political Science, May 2003. Thesis: *Women in the South Korean National Assembly and Major Political Parties: Their Political Recruitment*

B.A. in Sociology and English Language & Literature, May 2001

FELLOWSHIPS AND AWARDS

Dissertation Defense with Distinction, Fall 2015

Foreign Policy Pre-Doctoral Fellowship, Brookings Institution, 2014-2015

Environment, Energy, Sustainability & Health (E²SHI) Fellowship, Environment, Energy, Sustainability & Health Institute, Johns Hopkins University, 2011-2012

Four-Year Full Fellowship, Johns Hopkins School of Advanced International Studies (SAIS), 2010-2014

Study Abroad Fellowship, Indiana University, Bloomington, Fall 2002

PUBLICATIONS AND WORK IN PROGRESS

Cross-border Oil and Gas Pipelines: The Intersection of Politics, Geography, and Energy Markets (book manuscript in progress)

“Korea, the United States, and Energy Cooperation” (working paper in progress for presentation at the Center for Strategic and International Studies on January 21, 2016)

“Energy Geopolitics and Emerging Strategic Ties in Eurasia: Enduring Partnerships or Fragile Alignment?” (under revision for journal submission)

“Korea and Turkey as Middle Powers, and Emerging Eurasian Continentalism: Prospects and Challenges for Deeper Cooperation” (working paper)

“Energy Intensity, Industrialization, and Political Regime: An Empirical Analysis of Environmental Policy Results and Determinants” (under revision for journal submission)

“Korea, Energy, and the Trans-Pacific Partnership,” *The Korea Herald*, February 17, 2015

“Sino-Russian Energy Relations: Heading for a New Era?” (with Keun-Wook Paik), *The Northeast Asian Economic Review*, Vol. 1 (2), December 2013, Special Edition on Energy Issues in Northeast Asia, Economic Research Institute for Northeast Asia

“Women in the South Korean National Assembly and Major Political Parties: Their Political Recruitment” (in Korean), *Korean Political Science Review*, Vol. 38 (2), Summer 2005

INVITED PRESENTATIONS

“Korea, the United States, and Energy Cooperation,” Center for Strategic and International Studies (CSIS) Paper Presentation, January 21, 2016 (forthcoming).

“Energy Geopolitics in Eurasia: Sino-Russian Gas Deal, Central Asian Piped Gas, and Their Impacts on the Korean Peninsula,” Natural Gas Cooperation for the Unified Korean Peninsula and the Lessons from Germany, 2014 International Energy Conference (Seoul), Institute of East and West Studies & Yonsei-SERI EU Centre, Yonsei University, November 21, 2014.

“Energy Geopolitics and Emerging Strategic Ties in Eurasia: Enduring Partnerships or Fragile Alignment?” International Studies Association (ISA) Conference, Toronto, 2013.

“Energy Intensity, Industrialization, and Political Regime: An Empirical Analysis of Environmental Policy Results and Determinants,” Midwest Political Science Association (MPSA) Conference, Chicago, 2013.

TEACHING EXPERIENCE

Johns Hopkins School of Advanced International Studies (SAIS)
Teaching Assistant, Comparative National Systems, Professor Mitchell Orenstein, Fall 2011

Harvard Kennedy School of Government
Course Assistant, Budgeting and Financial Management, Professor Linda Bilmes, Fall
2006

PROFESSIONAL EXPERIENCE

University of California, Berkeley (Berkeley, CA), 2008 – 2010

Researcher. Worked with *Daniel Kammen*, Professor at the Goldman School of Public Policy and Department of Nuclear Engineering. Studied cost effectiveness of greenhouse gas emission reductions from Electric Vehicles (EVs) and Plug-in Hybrid Electric Vehicles (PHEVs) and their policy implications on China and Korea. Worked with *Michael Hanemann*, Chancellor's Professor at the Goldman School of Public Policy. Studied the role of emissions trading in U.S. domestic climate policy. Analyzed sulfur dioxide (SO₂)'s allowance market and trading behavior using the EPA database.

Worked with *David Vogel*, Professor at the Haas School of Business. Analyzed the Corporate Social Responsibility (CSR) strategies of the Dow Jones Industrial Average's and Fortune's Global Top 50 companies.

United Nations (UN) (New York, NY), Summer/Winter 2006

Advisor, 5th Administrative and Budgetary Committee. Conducted cost-benefit analysis on U.S. financial contributions to the UN and developed policy recommendations. Represented Korea in the UN General Assembly sessions of scale assessment at the 5th committee.

Summer Intern, Finance Management and Support Services, Department of Peacekeeping Operations. Reviewed FY05-FY07 budgets and presented budget recommendations. Analyzed a comprehensive database of ongoing peacekeeping operations and created an analytical tool to measure efficiency of peacekeeping operations.

Administrative Office, City of Newton (Newton, MA), September – December 2006

Volunteer Advisor for General Fund Multi-Year Forecast Project. Performed municipality research through a benchmarking study to compare Newton with eight other major cities in Massachusetts and presented fiscal policy recommendations to the Mayor's Office.

Ministry of Foreign Affairs and Trade, Korea (Seoul, Korea), September – December 2003

Program Coordinator. Managed the 1st East Asia Forum (EAF) hosted by the Korean Government and assisted the Director-General in coordinating delegations from 13 countries in East Asia.

Korean National Commission FOR UNESCO (Seoul, Korea), May – August 2003

Program Coordinator. Organized the Asia-Pacific Centre of Education for International Understanding (APCEIU)'s training programs.

LANGUAGES

Korean (native), English (fluent), Japanese (intermediate/advanced), Chinese (basic)

REFERNCES

- Charles F. Doran Professor of International Relations, Director of Global Theory and History, Johns Hopkins SAIS
(202) 663-5715 cfdoranjhu.edu
- Charles Ebinger Senior Fellow, Brookings Institution
(202) 797-4389 cebingerbrookings.edu
- David M. Lampton Professor and Director of China Studies, Johns Hopkins SAIS
(202) 663-7739 dmlamptonjhu.edu
- Keun-Wook Paik Senior Research Fellow, Oxford Institute of Energy Studies
+44-(0)-1865-889131 keun-wook.paikoxfordenergy.org