

One Size Fits All?

Understanding the Domestic Politics of Global Climate Change

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Abstract

To what extent can a common conceptual framework or model be used to study climate and energy policy trajectories of states whose political and economic systems differ widely? In this paper we are concerned with long-term policy trajectories rather than day-to-day politics. For this purpose, frameworks focusing on *generic forces* and *essential functions* in society seem to be the most useful. The paper outlines a framework and indicates how it may be applied to very different political systems such as those of the United States and China. Our point of departure is the assumption that in all systems policy development is driven by two generic forces: (societal) demand and (governmental) supply. These forces interact and co-produce policies, but the ways in which they do so vary significantly depending on characteristics of political institutions, cultures and other nation-specific factors. Moreover, building on classical contributions to political science, we assume that in all systems policy-making involves certain essential functions, one being the aggregation of preferences. Again, the specific institutional arrangements and processes through which preferences are aggregated will vary with nation-specific factors and be important determinants of outcomes. Yet, it seems that much of this variance can be captured and systematically analyzed by means of a model conceiving of outcomes as a function of (a) “the rules of the game”; (b) demand-supply configurations, and (c) the distribution of power. This model can be useful in understanding outcomes in autocratic as well as democratic systems, and we employ empirical illustrations from the United States and China to indicate how this kind of analysis might be designed and carried out.

1. Introduction¹

Can a common conceptual framework or model be a useful tool for explaining and predicting climate and energy policies of states whose political and economic systems differ widely? The answer seems to depend on how we answer two more specific questions. First, can we – beneath the striking contrasts found between, for example, China and the United States – find some generic forces and fundamental parameters that shape policies in *both* states? Second, if such a common core of explanatory variables can be identified, what might be the value added, if any, of framing the analysis in such generic terms? Would we not be better positioned to understand the development of American and Chinese policies if we treat each case in *sui generis* terms, focusing on specific and distinctive features rather than on some more remote common denominators?

In this paper we argue (1) that a common core of explanatory variables can indeed be identified, at least at the level of generic forces, essential functions, and fundamental parameters, and (2) that a common conceptual framework built around these variables can add value by helping us “...bring insights from a broader category of phenomena [...] to bear on particular cases...” (Steinberg and VanDeveer, 2012: 6). By conceptualizing differences in terms of scores on the same set of variables, a common framework can help scholars and students tap into reservoirs of knowledge and insight accumulated through previous research. A good framework provides a common conceptual currency that facilitates meaningful communication and comparison. To serve this function, the framework must be sufficiently flexible to accommodate a wide range of variance and yet sufficiently stringent to provide clear guidance.

We proceed as follows. In section 2 we outline a tentative conceptual framework for studying how domestic politics shape climate change policies and practices. This outline is a first cut, limited to basic architectural elements, notably generic forces, essential functions of governance, and fundamental parameters. We do realize that further development and refinement will be required before it can serve as an operational manual for comparative research. Yet, we believe that even a framework in the format of “bare essentials” can help guide empirical research. To substantiate this claim, we offer (in section 3) two brief illustrations indicating how this framework may be applied to study climate and energy policy trajectories in the United States and China. The fourth and final section examines a couple of methodological

¹ This paper is a report of work in progress on a larger project exploring likely climate and energy policy trajectories for seven key actors (the United States, the European Union, China, India, Brazil, Japan, and Russia). The project is an integral part of the research agenda for CICEP, a centre for the study of *Strategic Challenges of International Climate and Energy Policy* (www.cicep.uio.no/english), funded mainly by the Research Council of Norway.

challenges encountered in these two case studies and offers some tentative suggestions for dealing with these challenges.

2. Towards a conceptual framework: the basic architecture

The best place to start in designing a tool is to specify the *purpose* it is supposed to serve. As indicated above, the main purpose of this project is to advance our understanding of how domestic politics shape states' climate and energy policies. We focus on policy development and likely policy *trajectories* rather than day-to-day headlines. Moreover, we take particular interest in prospects for change – more precisely, policies and strategies that can help *drive change* towards a low-carbon energy future. This purpose has some important implications for our conceptual framework.

First, our interest in policy development and likely policy trajectories calls for a diachronic perspective, studying policy processes as *evolving sequences of connected events* in which decisions made and actions taken at an early stage can have significant impacts on subsequent decisions and actions. Most obviously, accumulated investments in material infrastructure – for example, power plants, grids and transportation systems – weigh heavily in estimates of present and future costs and benefits, sometimes to the point of “locking” a country or a company to a particular path (Pierson 2000). Moreover, policy processes are themselves subject to critical thresholds, determined in part by institutional parameters (such as decision rules, organizational capacities, and established routines), in part by internal feedback mechanisms that can generate momentum (or cascading collapse) and “tip” the outcome in a certain direction once the critical threshold is reached (Axelrod 1997). Normally, the amount of political energy required to *change* an established policy will be larger than the amount required for keeping that policy in place. But politics can sometimes be a volatile affair, leading to revolutionary change rather than incremental adjustment. A framework for analysing policy trajectories must capture the dynamics of volatility as well as the role of “stabilizers”.

Second, in a medium to long-term perspective, changes in underlying material parameters (such as population growth, economic development, energy markets, and technological innovation) will likely account for much of the variance observed in policies. Modelling states as unitary rational actors maximizing net national benefits will in most cases probably yield correct predictions of basic policy orientations. For example, states heavily dependent on fossil fuels for their electricity supply or as a source of income will most likely oppose ambitious CO₂ emission reduction policies, while states and groups that are highly vulnerable to climate change or have comparative advantages in “green” technologies may be expected to demand and support such policies. As we move beyond the level of basic policy

orientations, however, domestic politics variables such as the configuration of interests, values and beliefs, the institutional setting (“rules of the game”), and the distribution of power and influence become increasingly important to predict and explain policies and practices. The weighted aggregate of domestic actor preferences sometimes deviate significantly, and in directions that can be predicted, from the policies that would have maximized net national benefits (Allison 1971; Wilson 1973). Domestic politics *matter*, sometimes a lot. To offer sound explanations and predictions of climate and energy policy trajectories, we therefore have to combine an analysis of underlying material forces with a good understanding of the internal dynamics of politics.

2.1 Generic forces

We assume that in all political systems policy development is driven by two main generic forces: (societal) *demand* and governmental *supply* (Underdal and Hanf, 2000, Harrison and Sundstrom, 2010). These forces interact and co-produce policies, but the ways in which they do so vary significantly depending on characteristics of political institutions, social structures, cultures, and other nation-specific features. For example, in authoritarian and totalitarian systems governmental supply will likely be less responsive to societal demand than in democratic systems. However important, we see this difference as a matter of degree rather than as a stark nothing-or-all dichotomy.

An actor’s *demand* for a certain policy or action is an expression of preference for that policy or action over other available options. The stronger that preference is, the more the actor will be willing to “pay” to have its preferred option chosen. *Societal* demand is an aggregate measure, weighted for the relative power of the actors involved and the collective action capacity of groups of actors. Further specified, the strength of societal demand for a certain policy (P) may be conceived as a function of (a) the number of actors preferring P over other available options; (b) the intensity of their preferences for P; (c) the political “weight” of these actors; and (d) their capacity of collective action (largely a function of within-group convergence of policy preferences, the group’s fund of social capital, and its leadership).² This type of analysis can be undertaken at different levels, from citizens/voters to political parties, industry/business organizations, and non-profit NGOs/campaigns. Certain patterns are likely to be found in most if not all societies. For example, damage or mitigation costs that hit the “centre” of society will be

² Let U_i^P be the value ascribed to policy P by an actor, i , W_i be the power of actor i , and A_g^i be the collective action capacity of the i -group. The aggregate societal demand for policy P (D_s^P) can now be estimated as $D_s^P = \sum_i [U_i^P \cdot W_i] A_g^i$.

better articulated and carry more weight than those that hit the “periphery” only, and the bias will be stronger the greater the social and political distance between “centre” and “periphery”.

Data constraints will rarely, if ever, allow us to undertake the kind of measurement required to use such formulas to estimate exact strength-of-demand values. Yet, formulas can have heuristic value in pointing to the main constitutive elements of demand and help us determine the critical minimum of information about these elements required to use the concept of demand as a tool for empirical research.³

Governmental *supply* can be conceptualized along similar lines. The climate policy pursued by a government will depend on the government’s ideological profile, the distribution of power and authority among different branches of government, and the extent to which the government controls the systems of activities to be governed.⁴ Three main types of governmental actors should be considered. One may be referred to as the *Executive* (including Presidents, Cabinets and functionally equivalent bodies, their ministries, agencies and other administrative support units), the other as the *Assembly* (Parliament, Congress of the ruling party, and equivalent bodies), and the third as the *Judiciary*.⁵ Aggregate governmental supply of a particular policy may be seen as a function of the preferences of these (and perhaps other actors), their relative “weight”, and their capacities to build and sustain influential (preferably winning) coalitions. Again, data constraints will often force us to make shortcuts but a common framework can at least help us identify the main constitutive elements and guide the search for data.

Governmental supply will to some extent be a response to societal demand. The sensitivity of policy-makers to demands from groups and organizations can be expected to vary significantly, depending on factors such as (a) the source of the demands, (b) the structure of the political system, and (c) the vulnerability of the current regime and particularly its leaders. Conversely, societal demand and support will in various ways be influenced by governmental supply. Where policy distances are short and public trust in the government high, a moderate change in policies may be sufficient to calm critics or mobilize supporters. In the reverse circumstances, even a significant policy change may fail on both accounts.

³ For example, the concept of preference implies some *ranking* of options, at least at the ordinal level.

⁴ This is partly a question of the relationship between government institutions at different levels (central/federal versus regional and local), partly a question of government intervention in the production, distribution and consumption of goods and services.

⁵ The Judiciary will probably be a significant actor in policy making and policy implementation processes only in a few cases.

Demand and supply *co-produce* policies through a system of *political institutions* that lays down “the rules of the game”. Building on the definition offered by Young (2002:5), we may specify the main functions of an institution as those of defining a particular practice (such as policy-making), assigning roles to participants involved in this practice (such as Cabinet Ministers and Members of Parliament), and guiding interactions among the occupants of these roles (through decision rules and rules of procedure). In brief, an institutional system of governance specifies *who* are authorized to make decisions about *what* and *how* these decisions shall be made. Institutional arrangements vary significantly along all these dimensions.

Finally, we assume that both demand and supply will reflect some combination of material interests, values, norms and beliefs. For climate change mitigation policy, material interests can be conceived as a function of the expected damage caused by climate change and the costs of mitigation measures. A rational actor motivated by self-interest will pursue mitigation as long as, and only as long as, its marginal mitigation costs are lower than its marginal damage costs. We can find this logic at work in climate change policy-making at all levels. Yet, there is often more to the story. First, actors will likely consider also other types of costs and benefits. In some models, particularly models inspired by economics, policy-makers are assumed to be concerned with maximizing votes at elections or some other expression of support and status (Downs 1957; Strøm 1990).⁶ Similar assumptions have been formulated for societal actors. Second, demand and supply are premised on beliefs and may be guided also by values and norms. Despite the significant progress made in climate science over the past 15-20 years, beliefs about the role of human activities in causing climate change and the stakes involved seem to diverge significantly among policy-makers as well as citizens. Such differences will be reflected in policy preferences. The ambitious German plans to phase out nuclear energy and increase the role of renewables seem to be premised in part on social values and beliefs widely shared by the German population (Schreurs 2011). Similarly, if we want to understand why gasoline taxes that would appear insignificant to most Scandinavians can create widespread and vocal resistance in the United States we would be well advised to look not merely at monetary costs but also at values and beliefs embedded in popular lifestyles. More generally, the willingness to pay for mitigation measures depend on (a) the *value* attributed to certain environmental assets and services, and (b) one’s *beliefs* about the role of human activities in causing environmental damage, the vulnerability to likely environmental changes, and the relative costs of mitigation and adaptation.

⁶ In his classical outline of an *economic* theory of political behaviour, Downs (1957: 137) offered a very blunt formulation of this assumption: “Each political party is a team of men who seek office solely in order to enjoy the income, prestige, and power that go with the running of the governing apparatus”.

2.2 Essential functions

Governance involves a set of essential functions that are performed in all political systems. These functions include the *articulation* of demand and support, the *aggregation* of preferences into policy decisions, and the *implementation* of policies into specific practices and measures. In principle, they are sequentially ordered but in practice they often overlap. The ways in which these functions are performed vary substantially, depending on type of political system, political cultures, and other nation-specific properties. Yet, many of these differences can be described in terms of scores on the same variables.

Beginning with the *articulation* of demand and support, the most striking difference is that (mature) democracies provide their citizens with a wider range of opportunities for openly expressing demands – particularly demands for *change* – than authoritarian and totalitarian systems do. Democracies also provide their citizens with more effective sanctions should governments fail to deliver. In countries subject to authoritarian or totalitarian rule demand for substantial change will to a large extent be suppressed or confined to channels and arenas controlled by the regime. Also *latent* demand may, however, be politically significant, particularly if found also within the regime’s principal constituency. Even autocrats and ruling party elites may have strong incentives to worry about widespread public dissatisfaction and emerging cracks in their power base. In a democratic system, a “silent majority” sometimes exerts significant influence. Prevailing ideas about “good governance” call on policy-makers to care also about the welfare of stakeholders who are not able (or permitted) to make their voices heard in political processes. These observations suggest that vocal public articulation is not a strictly necessary condition for societal demand to make a difference. Yet, other things being equal, open channels for articulating societal demand and support will likely enhance government responsiveness and narrow the gap between the policies demanded and the policies supplied.

The outcome of *aggregation* games can generally be seen as a function of three main determinants: the configuration of preferences and beliefs, the institutional setting, and the distribution of power (more precisely, the distribution of power over the configuration of preferences).⁷ Given our interest in prospects for *change* – more precisely, policies that can help drive a transition towards low-carbon energy systems – the analysis may be focused primarily on *veto players* and *winning coalitions*. Building on Tsebelis (2002), we conceive of the *stability*

⁷ Here, we adopt a broad definition of “power”, including also relationships often referred to as “influence” and “authority”.

of an established policy (i.e., the status quo) as a function of (a) the number of veto players,⁸ (b) the policy distance(s) among them,⁹ and (c) for players that are collective actors, their internal cohesion (or collective action capacity). To determine the feasibility of a particular policy *change* option, it makes sense to begin by determining whether it is ranked below the status quo by one or more veto players. *One* veto player is sufficient to block a particular proposal. That proposal may, however, be amended and/or linked to side payment or to other issues. To determine its fate through further negotiations we therefore need a more comprehensive analysis of the political landscape and policy-making processes.

The inverse of Tsebelis' formula can be used to explore the scope of feasible policy change, although only as a first cut. To be adopted and implemented, a policy change option needs not merely escape all veto players; it must also attract the active support of a *winning coalition*. An important part of the feasibility analysis is therefore to explore the prospects of some winning coalition emerging in support of a particular policy change option. What constitutes a winning coalition may vary significantly from one country to another but one common feature seems to be that such coalitions emerge from some *package deal* in which issue linkages and (other types of) side payments are essential ingredients.

The critical threshold of active support will likely be higher for *implementation* than for policy adoption. Implementation games tend to differ systematically from those of earlier phases in terms of, inter alia, participation and influence. Moreover, the options in focus tend to become more specific, and the more specific the options the easier it will be for stakeholders and policy-makers to determine *who* will be affected, *how*, and *how much*. What was initially framed in terms of environmental protection now become matters of sectorial policies (for energy, industry, transportation). The (short term) costs of many mitigation measures will be concentrated to these or other sectors of the economy and to certain segments of society while (long term) benefits are indeterminate or accrue to society at large. This is precisely the configuration of costs and benefits that is most likely to lead to implementation failure. "Vertical disintegration" of mitigation policies, i.e., a state of affairs where the aggregate thrust of "micro-decisions" deviates more or less significantly from what policy doctrines and principles would lead us to expect, is real risk (Underdal 2000:72-74). Democratic systems will be more

⁸ Tsebelis defines 'veto players' as actors whose agreement is necessary for a change of the status quo. The number of veto players will be determined partly through institutional arrangements (in particular, the decision rules), but will depend on other factors as well (in particular, the strength and asymmetry of interdependence relationships).

⁹ In other words, the more veto players there are, and the larger the policy distances among them, the larger becomes the *range* of policy change options that at least one of them can effectively veto.

susceptible than their authoritarian and totalitarian counterparts, but mechanisms of disintegration are at work in the latter as well.

2.3 Fundamental parameters

By «parameters» we here refer to stable or *slow-changing* factors that set important *boundary conditions* within which societal demand and governmental supply interact and co-produce policies. In this paper we will briefly examine two main categories of parameters. One includes *material* factors such as a country's (energy) *resource endowments* and its *material infrastructure*. We see both as fundamental in the sense that they are very important determinants of the costs and benefits of alternative policy options that no analysis of policy trajectories can afford to neglect. Both may be changed but, with one exception, only over a longer time span and at substantial costs.¹⁰ The other category of parameters includes *political* factors, notably the *institutional setting* and the *distribution of power*. These are less stable parameters and instances of revolutionary change do occur. Yet, for time horizons limited to a decade or so the record over the past thirty-forty years indicates that for most countries institutional reforms will likely be limited and the distribution of power subject to incremental rather than abrupt and profound change.

2.4 The co-evolution of policies and practices

So far, we have described the framework essentially in terms of “closed systems”. In fact, of course, states' policies and practices *co-evolve*. Governments and societies often learn from their “peers”, adapt to consequences of actions taken by important others, and engage in international cooperation to solve common problems. Learning is often an asymmetrical process in which one party adopts ideas propounded or practices pursued by more “advanced” pioneers. Similarly, adaptation and cooperation tend to reflect asymmetries of interdependence relationships. Our two case illustrations feature powerful actors who are among the least likely to emerge as net emulators or adapters. However powerful, neither China nor the United States are entirely immune to their external environments; both of them care about what important others do. This observation applies, with even greater force, to less powerful states. A general framework for studying the development of policies and practices at the national level should therefore include international learning, adaptation and cooperation as potentially important determinants of demand as well as supply.

¹⁰ The exception: A country's *estimates* of resource endowments may change quite rapidly and at relative low costs.

3. Climate and energy policy trajectories in the United States and China

3.1. The United States

Fundamental parameters

Climate and energy policy development in the United States is to a large extent driven by energy resource endowments. The type of energy source that is most plentiful varies significantly across states. For instance, in 2010, the amount of coal produced at U.S. coal mines was 1,085.3 million short tons. However, while coal is mined in 25 states, Wyoming mines the most coal (40%), followed by West Virginia, Kentucky, Pennsylvania, and Montana (EIA 2012). Coal mining and - transportation are important job suppliers in these states. What is perhaps even more significant is the distribution of dependency on coal for electricity generation and consumption. For the United States in total, 42% of electricity in 2011 was generated from coal and is the biggest source of generation. But for some states the dependency on coal is much higher. For instance, West Virginia, Missouri, Indiana, Kentucky, North Dakota, Ohio, Utah, and Wyoming rely more than 80% on coal for their electricity generation (EIA 2012). Similarly, states like Texas, Louisiana, Alaska, California, and North Dakota have a large (and growing) petroleum industry that provides important resources, jobs, and income for the state economy.

Over the past few years, huge deposits of shale gas has been discovered and put into production with new methods like horizontal drilling and multi-stage fracturing. This has opened trillions of cubic feet of natural gas from shale formations in many states across the Midwest, South and Mountain West. The huge increase in gas availability has caused supplies to overwhelm demand, and the price has dropped as much as 85% from a peak level of \$13 per MMBtu in 2008. As a result of the price drop, big electricity producers have switched from coal to gas. In the short term, this switch cuts GHG emissions in the United States, but continued low natural gas prices could also make increased investments in renewable energy development more difficult. Such long-term commitment to continued use of fossil fuels would make a transition to a carbon free economy more difficult.¹¹

Energy resource endowments across states create economic interests that are manifested as policy preferences in climate and energy policy debates. Previous research has shown that politicians representing states with large fossil fuel endowments have a higher likelihood for voting against policies that would have a negative economic effect on the coal industry (Fisher

¹¹ Transfer to more natural gas would imply less carbon emissions, we emphasize that “low carbon” is different from a carbon-free economy.

2004; Skodvin 2010). Similarly, politicians representing states with large hydro, wind, or solar resources can be expected to be more positively inclined towards climate policies that would price carbon and hence favor other, cleaner energy resources. Also, they would likely be more positive to renewable energy subsidy schemes. In sum, energy resource endowments and the economic interests generated in states from such endowments create strong political preferences in US climate and energy policy development. These preferences are likely to be stable over time, and shape the economic infrastructure and investment horizons for important industries at the state level that have repercussions in federal politics debates. Hence, material forces like high levels of fossil energy endowments and related infrastructure create status quo stability because these implicit economic interests affect the configuration of interests as well as the distribution of power and influence among societal actors in the United States.

The US economy still is the biggest and most powerful in the world. The most important reasons are the entrepreneurship, ingenuity and flexibility that have been hallmarks of the US economy for the past 100 years. In a thriving economic condition, the willingness to risk investing in new technologies has traditionally been high. The economic crisis that developed from 2008 onwards hence has had a negative effect for political efforts to strengthen investments in low carbon technology and putting a price on carbon emissions. In step with the severe downturn in the US economy with widespread unemployment and deep mortgage debts, American business interests and voters turned their back on strong climate policies. This might change when the economy recovers.

Demand and supply: Co-producing US climate policy

Economically powerful interest groups in the United States often have interests and preferences generated by fossil energy resource endowments. These interests also affect attitudes among the public regarding the priorities they would like to see in federal energy and climate policy development. While about half of Americans (52%) in 2011 believed that human actions are mostly to blame for climate change, their willingness to endure economic sacrifice (i.e. a carbon tax or similar) were strongly linked to the state of the country's economy (Scruggs and Benegal 2012). Polling trends spanning over two decades show that when the economy is in a bad state and unemployment levels are high, Americans tend to discourage policies that could lead to higher energy costs. Conversely, in a booming economy the willingness to pay for environmental protection is much higher (ibid.). Societal demand for low carbon energy policy is therefore linked to economic output. This trend could be observed in the United States as the financial and economic crisis hit the country in 2008, and caused public support for a federal climate policy to fall dramatically between 2008 and 2012.

Both societal demand for climate and energy policy changes and governmental response to such demands often happens when a significant event spur action, for instance a new IPCC report, an oil drilling blowout, or a hike in gasoline prices. Governmental supply of policy options will then try to balance demands from societal actors and propose legislation or other policy action that mirror the government's own preferences but forecast the chance of support. While wanting to fulfill own political programs, the president and the congressional majority must always calculate how to compose a policy proposal so as to avoid legislative defeats. Proposing bills that are defeated is harmful for re-election prospects.

Policy change in the United States is more likely to happen when three key processes of agenda setting converge.¹² First, a societal condition must be recognized as a problem that needs fixing. Indicators showing increased magnitude in the condition, or one or more focusing events in the form of a crisis, disaster or personal experience, or feedback to politicians from the public or bureaucracy can help identify an issue not as a condition that can be tolerated but a problem that needs fixing. Second, changes in the public opinion (national mood) regarding an issue, and elections that bring a new administration to power and changes to the ideological distribution in Congress, combined with enhanced pressure from engaged interest groups towards the government can help place an issue high on the political agenda. New presidents, for instance, change agendas in the whole federal government and make attention to prioritized issues more likely also in Congress. Third, elected officials/politicians build consensus by bargaining – trading provisions for support, giving concessions to add new supporters, or compromising from ideal positions. Participants that receive public attention, like politicians and political entrepreneurs that are willing to invest resources in providing a credible and attractive solution to the problem, have an increased likelihood of garnering enough support to initiate policy change. Importantly, when all three processes converge – a pressing problem demands attention, a credible policy proposal is presented as a solution, and attention from high-level participants in the policy process is present – the likelihood for policy change that is more than incremental is good (Kingdon 2003: 196-208).

While societal actors and groups have demands and preferences that are expressed in public debate, in a democracy like the United States these demands must be defended and gain support within political institutions. The federal political institutions work under rules for representation and decision making that often result in high status quo stability. Legislation must have a majority in both chambers of Congress and be signed by the president to become

¹² John Kingdon (2003) discusses how windows for policy change open when problem recognition, proposal formation, participants and politics converge: See *Agendas, alternatives and public policies*.

enacted. To become a law, a bill must pass many hurdles: the House subcommittee, the House full committee, the House Rules committee, the House, the Senate subcommittee, the full Senate committee, the Senate, floor leaders in both chambers, the House-Senate conference committee, and the president. If the opposition wins at any stage, the bill fails. In other words, there are many veto players in the US system. As pointed out by Tsebelis, since the U.S. political system has a high number of veto players, and Democrats and Republicans often are far apart in ideological distance from each other, the policy stability is high and the system structure impedes significant changes from the status quo (Tsebelis 2002). As a result, few bills make it through the US legislative process. Veto players in the energy and climate policy context are closely related to economically powerful fossil energy interests, as discussed above. As a result of the strong status quo stability, policy change is more complicated in the United States than in most other democracies.

During each of the stages in the federal decision making process, veto players and coalition builders have critical roles in terms of blocking or passing the bill in question. The distribution of preferences and interests in climate policy debates makes it likely that moderate democrats representing fossil energy intensive states and moderate republicans representing states with low fossil fuel intensity in its economy are veto players in low carbon energy policy. These moderates from both parties are centrally placed within the policy issue area, and can be persuaded to vote either YES or NO with the right incentives. Hence, coalition builders will try to accommodate the interests of these centrally placed congressmen and senators in order to compose a compromise that can attract enough votes to pass (or, in attempts at building blocking coalitions, attract enough votes to block passage).

Accommodating centrally placed politicians also means taking into account vital economic interests of their constituents. Hence, coalition builders will try to incorporate amendments and titles in the bill that prioritize strong demands first simply because proposing a bill without taking care of these essential concerns and lobbies simply would not fly. All politicians are concerned with their re-election prospects, and for those purposes the satisfaction of key constituent interests is the first step (Arnold 1990).

Coalition building: Essential function in US federal politics

Typical of previous climate policy debates at the federal level, coalition building efforts was a central feature also in the 2009-10 American Clean Energy and Security Act debate in the U.S. Congress. Soon after his inauguration, President Obama announced that a top priority for his presidency was to enact a federal climate law. No previous president had been so clear in

supplying a climate policy program to the Congress. Following Obamas priorities, Representatives Waxman (D-CA) and Markey (D-MA) - representing the majority in Congress - introduced a bill in the House that proposed an economy-wide cap and trade system for the largest carbon emission sources, and a federal renewable electricity standard.

Deep cleavages existed between lawmakers representing states with different levels of energy-intensive economies characterized the debate in Congress. For example, Democrats representing coal-producing Ohio emphasized quite different aspects of climate policy than Democrats from states with less fossil energy resources, like Massachusetts or Oregon. Interest groups with a crucial economic position in the home state consulted closely with senators and representatives to express their position and to influence the design of climate policy proposals. For instance, powerful interest groups like the Chamber of Commerce, the US Climate Action Partnership (USCAP), the American Farm Bureau, Edison Electric Institute and American Petroleum Institute was called as expert witnesses in Congressional hearings on global warming and climate policy, together with environmental NGOs, economists and climate scientists. Similar exchanges of views and positions took place in other, more secluded arenas for consultation with lawmakers (Lizza 2010).

The House of Representative's debate on the Waxman-Markey bill made evident that powerful interest groups rallied around two main alternative climate policy approaches: On one hand, regulation in the form of a price on carbon and a cap-and-trade system for major emitters that would encourage more clean energy development. On the other hand, voluntary targets for carbon emissions reductions among large emitters, and more research and development into "clean coal", carbon sequestration and similar investments that would address climate change but also bind energy consumption to fossil fuels also in the future.

The coalition of "blockers" towards a cap-and-trade system represented actors that provide key assets in the economy: jobs and low-priced energy. Large firms like Exxon and branch organizations like the American Petroleum Institute and the Chamber of Commerce represent thousands of jobs. Policymakers in the US were hesitant to put heavy burdens on industries and firms that could eventually lead to higher unemployment and increased energy prices, especially as the economic crisis evolved. The political weight of the "blockers" in the climate policy debate was therefore closely linked to the key role they play in the economy, and the relatively high likelihood for reducing employment in the fossil energy industry and increasing energy prices for manufacturing industries and the agriculture sector.

The coalition of actors that supported a more stringent climate policy represented “greener” energy producers and large firms. Investments into clean energy face a different kind of risk than the risk facing “blockers”. These actors need incentives to grow new technologies and markets, but cannot guarantee success in terms of cheap electricity or creating substantial amounts of jobs. For the present, renewable energy is nowhere near the price that a coal plant can offer.

Hence, political weight of the opposing parties in this US climate policy debate was closely linked to economic weight. The perception of risk associated with “blockers” and “pushers” in the climate policy debate is different: On one hand are actors that provide cheap energy and jobs across the country, and that politicians potentially risk to put burdens on. On the other hand are actors that have a lot of potential for creating cleaner energy and new “green” jobs, but that cannot guarantee that they will succeed. The perception of risk among policy makers in this situation was likely affected by their belief in the promise of clean energy and new, green jobs at a low enough price.

The blocking coalition advocated holding on to the status quo. In effect, that meant preserving existing policies that are familiar and have well-known distributive effects. The coalition that pushed for policy change, on the other hand, needed to agree on a new distributive formula for energy subsidies and incentives. They also needed to agree on detailed provisions in the climate policy program. However, the coalition consisted of actors with very different needs and preferences for which issues should be emphasized. For instance, firms as different as Ford Motor Company, Shell, GE and Exelon agreed that a cap-and-trade system would make sense for the US, but were not in agreement regarding the details for how emission credits should be distributed. Furthermore, distribution of incentives caused worries, since more incentives for, say, nuclear than for renewables would put renewables in a disadvantageous competitive position.

Coalition building among lawmakers in Congress reflected the demands of powerful interest groups in both camps. In the House, Speaker Pelosi took charge of building a coalition that was more or less exactly large enough: the Waxman-Markey bill was adopted 219-212 in June 2009, much because the requirement was a simple majority and the Democrats had majority in the House. This was the first time a climate law won support on the floor in any of the chambers of the US Congress. Passage of the bill was a result of hard and lengthy coalition building efforts by Democratic leaders. To enable a majority of votes, concessions were given to key sectors like the coal industry, the utility sector, and the agricultural sector. After passage in the House, the Waxman-Markey bill was sent over to the Senate, where a qualified majority of sixty votes was

required for passage in order to avoid filibustering. To get to sixty votes, coalition building had to happen along many issue dimensions simultaneously, targeting nuclear interests, clean coal interests, and defenders of existing energy subsidy structures in the oil industry while at the same time making sure not to alienate liberals and environmentalists. In this landscape, issue linkage became very difficult, and building a stable majority coalition of more than 60 senator votes while satisfying all veto players and interest groups turned out to be impossible. Many of the same mechanisms described here were also in play in climate policy debates throughout the past two decades.

Future energy policy trajectory

Fundamental parameters like distribution of energy resource endowments across states and the consequences this distribution has for state economies will continue to play a major role in energy policy developments in the United States. Similarly, the manifestation of state interests in federal political institutions will continue to be crucial for what are politically feasible energy policy alternatives. Potential “game changers” will likely be closely related to these fundamental parameters. The political consequences of the ongoing shift from coal to gas in power generators in big utility companies like Southern Co., American Electric Power and Dominion could be significant. As long as gas prices are low a switch from coal to gas would make economic sense, and would also reduce GHG emissions from the utility industry. Politically, a major and sustained shift to gas as the most preferred energy source for power generators could reduce the political influence of the coal industry in the halls of Washington D.C. However, it would also compete with renewables for attracting investments in the energy sector, and could prolong a transition towards carbon free technologies.

As the economy recovers, stronger public demand for a more comprehensive response to the climate change problem is likely, especially if negative consequences of global warming also increase. The experiences from previous climate policy debates are, however, that such demand is feeble and cyclical. If and when public concern coalesces with the interests of vital industries and strong interest groups, and these interests join forces in demanding new policy solutions that are attractive by economic as well as environmental standards, can we expect more than incremental changes to US energy and climate policies. However, without such combined and increased societal demand big changes are unlikely.

3.2 China

Fundamental parameters

China is the world's most populous country with more than 1,3 billion people, covering some 9,6 square km., making it the third largest country in the world. China is a single-party state exercising jurisdiction over 22 provinces and five autonomous regions.

The political system: A closed system gradually opening up

China is one of the world's five remaining Communist states. Considering its economic system, however, it is no longer a traditional communist state, but China has an authoritarian system with strong government control over important societal functions. The National Congress of the Communist Party is the highest political body, but as it meets only once every five years, it is more of a 'rubber-stamp' institution. The de facto most powerful institution is the nine members Standing Committee of the Polit Bureau of the Communist Party, led by the President who is also the Secretary General of the Communist Party. Not much is known about the inner life of the Standing Committee, but decisions are believed to be taken by consensus. As the recent dramatic incidents over Bo Xilai has illustrated, conflicts may still run high.

Without free elections the governing bodies cannot be removed by the electorate as within liberal democracies, thereby weakening the role of public demand. However, even within a one-party system, the governing bodies will have to be sensitive to the needs of the population. There are 80 million members of the Chinese communist party and party members probably channel demand from below up in the governing system. There has also been a gradual opening up of the political system since the start of economic liberalizations. At the local level there are elements of open contested elections, although corruption has reduced its value. With weak demand channels, Chinese people frequently take to the streets and voice their dissatisfaction. The role of non-state actors is also marginal compared to liberal democracies, but over time their influence has increased somewhat. The gradually more open system has been the result of deliberate decisions by the Chinese leadership, but China has also been affected by the rapid development of social media and has the highest number of internet users in the world. Although the authorities are quick to close the regular internet when delicate matters arise, people are still able to voice their dissatisfaction with various aspects of government policies (Stensdal 2009).

Strong economic growth: sufficient compensation for lacking public political choice?

The most important domestic goal of the Chinese leadership is political stability and the key means to secure this is economic growth and the government and since the introduction of economic reform in China (end 1970s), China has been the world's fastest growing economy. It is the 2nd largest economy in the world, the largest exporter and the second largest importer. It has been estimated that some 400 million people have been brought out of poverty over the last two decades. In terms of GDP per person it is well above \$ 5000 and China is ranked as nr. 88 in the world, well ahead of East European countries like Albania, the Ukraine and Georgia. Despite its economic success, serious challenges remain, not the least the strong disparity between the relative wealthy urban areas and the country side with a high poverty rate. Another challenge is the destruction of the environment. Major Chinese cities are among the most polluted in the world and other severe problems are acid rain, desertification, water- pollution and – scarcity, droughts, sandstorms, vulnerability to floods and displacement. Still, the big picture is that strong economic growth has secured relative stability and maybe also reduced the demand for more political freedom.

Energy base: Coal dominates, but renewable on the rise

China has a fossil fuel based economy and it is the world's largest energy producer and the second largest energy consumer after the U.S. In terms of production, coal is by far the most important ingredient and production has increased, growing by some 10% from 1980 to 77,3% in 2009 as share of energy production. During the same period the share of oil production has been reduced strongly from close to a quarter down to some 10%. The share of non-fossil fuel sources has increased to some 9% in 2009, of which the largest ingredient is hydro-power (80%+), next comes nuclear power (some 10%). The new renewable sources only compose some 7%. The picture is fairly similar when it comes to consumption. The share of coal consumption has been fairly stable at around 70%, oil at some 20%, illustrating a strong increase in imports, while the share of non-fossil fuel has doubled to 8%. Over time the energy intensity has been strongly reduced, but not enough to prevent strongly increased GHG emissions. While the growth in energy production in this thirty year period has been some 400% +, growth in consumption has been even stronger, more than 500%. This development explains why China since 2007 has become the world's largest emitter of GHG gases and accounts for close to 1/4 of global emissions, up from some 7% 30 years earlier.

Supply of climate policies: From marginal issue to national priority?

The key institutions and players: a snap shot

Initially climate change was the responsibility of China Meteorological Administration (CMA). This has been seen as a result of the establishment of the IPCC and the subsequent involvement of Chinese scientist, representing an example of transnational learning. In 1998 the State Development Planning Commission, renamed the National Development and Reform Commission (NDRC) in 2003, was charged with China's climate policy. The NDRC is the most influential (macro) economic management agency directly under the State Council (The Government), illustrating the new perceptions on how to deal with climate change. NDRC is responsible for both climate change and energy policy and more than 20 government organs are involved in climate change work. The highest political body dealing with climate change is the National Leading Working Group on Addressing Climate Change (NLWGACC), established in 2007 and headed by the Prime Minister, indicating the high political priority given to the issue (Heggelund et al 2010). Daily work is carried out by the NDRC Climate Department and the NDRC National Leading Group on Climate Change (NEA). The mandates of these two bodies are broad, ranging from drafting policies and plans to international negotiations. The following Ministries are involved in both leading bodies: Foreign Affairs, Science and Technology, Industry and Information Technology, Finance, Land and Resources, Transport, Water Resources and the Ministry of Environmental Protection. The State Council is the top decision-making body and takes the final decisions.

The province level governance structure mimics the institutional structure of the central government, crucial in terms of securing implementation of the rules adopted, but we will not deal with the issue of implementation in this paper.

The policies delivered: Another snap-shot

When the climate issue became manifest through the adoption of UNFCCC in 1992, the official position of China was that this was an international problem caused by industrialized nations and they had to solve it. As far as China was concerned this was foreign policy. It was not until the turn of the millennium we can witness a more active Chinese climate policy. In 2001 the 5 Year Plan for the first time mentioned climate change and the issue was addressed in more detail in more specific plans. The more pro-active Chinese position was underscored by the new and positive attitude to the Clean Development Mechanism (CDM), as the State Council adopted rules for the CDM administration in 2005. The same year the Renewable Energy Law was adopted. From 2007 many analysts have claimed that climate change became a domestic policy

issue in its own right (Heggelund et al 2010, Stensdal 2012b). Apart from the institutional upgrading, the National Climate Change Program was issued. Although this further strengthens the impression of higher priority given to the issue, to some extent it was a re-labeling of already existing policies. Previous efforts to improve energy intensity were now depicted as climate change activities and future plans were not new 'but a continuation of earlier efforts of energy restructuring' (Stensdal, 2012b:9). While increased energy efficiency had been a stated goal for decades, a new slogan was introduced: 'save energy – reduce emissions'. This has since become a standard reference in policy texts, later supplemented by the term 'low-carbon'. Comprehensive plans and laws on energy efficiency including targets and time-tables were introduced and the first White Paper on climate change was published in 2008.

2009 saw a further expansion of China's climate policy as prior to COP 15 the State Council adopted its first carbon specific goal, a reduction in carbon intensity by 40-45% by 2020 compared to 2005 levels. In 2011 the 12th 5 year plan (2011-2015) increased and specified energy saving measures and for the first time a 5 year plan introduced a carbon-specific target. Plans for a trial carbon market were introduced and preparations to undertake a climate law were also initiated in 2011.

In short, from virtually nothing these China actors and institutions have supplied an impressive and comprehensive institutional structure and ambitious and specific laws and programs have been set up. Goal achievement has been high as there has been a 21 % decrease in carbon intensity between 2006 and 2011 (Anonymous, forthcoming 2013). This does not mean that Chinese GHG emissions will be reduced soon, but if the goals of reducing the share of fossil fuel from 92% in 2009 to 67% in 2050 and the plans of an increase in fossil consumption from 8% to 33% in the same period it will certainly make a major difference for the total global GHG emissions (Stensdal 2012a). However, the key question here is whether this seemingly dramatic change in policies can be linked to an increasing demand and influence from various types of actors.

Increasing demand: more ambitious climate policies?

The public: not a high priority issue

In Western countries the preferences of the public make a significant difference for policy-makers. The public here have been far less preoccupied with climate change since the economic downturn started late 2008, constituting one possible reason why progress has been so slow during the climate negotiations as voters do not pay much attention to the issue (Andresen and Boasson 2012). In authoritarian regimes like the Chinese such 'ups and downs' make less of a

difference for policies adopted. In this case it may be that less dependence on public opinion has in fact made it easier to step up climate change measures. In a survey conducted in 2007 on public perceptions on the seriousness of climate change it was reported that in China 42% found global warming 'very serious' while 46% thought it was 'somewhat serious'. These figures were low compared to many Western European countries (Harrison and Sundstrom, 2010: 262-263). However, it is highly uncertain what these figures actually mean. Based on rather extensive interviews with various state and non-state actors in China over the last decade, the uniform message is that preoccupation with climate change is an *elite-phenomenon*. Many of the pollution problems listed above are of grave concern for ordinary citizens, but in a *comparative perspective* climate change is still a rather long-term and indirect problem for most people compared to the direct and strong negative consequences of some of the other problems. However, as we shall have more to say about later, this may be about to change.

Up until now our educated guess is that government supply of climate policies exceeds demands by the public. Most Chinese probably would have wanted the government to use more efforts on other more pressing, direct local problems.

Non-state actors: More facilitation, knowledge and learning than demand

We concentrate primarily on the role of scientists and environmental NGO, more or less leaving out the business community. This is not because we think the latter is less important, but at present we have little or no information on these actors. However, it is fairly obvious that the renewable – and nuclear industries are happy with the political priorities of the government. On the business side China Renewable Energy Industries Association (CREIA) obviously supports the government's energy policies (Stensdal 2012b). Whether the non-fossil surge is a result of lobbying – if that is a term that can be used in China – or rather a decision taken by the leadership because they believe it is the best national interest, we do not know, but our hunch would be it is the latter. Based on Western lenses the coal industry should be strongly opposed to the government's climate and energy policies, but we do not know if this is the case, what possible influence they have and how they are organized.

We know more about the role played by ENGOs and scientists, but not to the extent that we can draw any causal inferences. The general picture is one where a) both these actors have been working to raise awareness and sensitize the government and the public to the problem and b) their influence has probably been increasing with increased activities, but c) we do not think their role can be termed accurately as 'demand', 'facilitation' seems a more apt characteristic.

Due to the perception about the dominant role of NDRC and the Foreign Ministry, there has not been much research on the role of scientists or experts, but recent studies have been conducted by Wubbeke (2010, 2012 forthcoming). His main conclusion is: “At the national level Chinese experts are having an increasing impact on policy-making” (Wubbeke, 2012 forthcoming). The share number of research articles gives a telling expression of the increase in scientific activity. In the mid-1990s there were some 200 articles on the issue in Chinese academic journals, rising to about 1000 in 2006 and then sky rocketing to 8000 in recent years (Ibid, p. 6). More recently there has been a strong increase in contributions from economists. Regular advice comes from an ‘inner core’ of semi-governmental institutions and a few universities. They have a hybrid nature, being neither governmental organs nor pure scientific bodies. One key function is simply to explain and ‘translate’ complex physical and social aspects of climate change to decision-makers. The traditional Western distance between experts and policy-makers normally does not exist as they cooperate with government officials to co-produce the Chinese climate change position and strategy. Science is also seen as a tool for supporting the political work of the government, they often have a mixed identity as expert-bureaucrats and tend to follow official positions and generally refrain from criticism of the government, reflecting “cultural norms (and) regard for national interests” (Ibid, p.7). Chinese scientists are also strongly committed to the principle of ‘common but differentiated responsibilities’ (CDR). This implies ‘climate equity’, that each human has the same right to emit the same amount of pollution and this tends to penetrate scientific work. In this regard they can provide various types of statistics specifying and supporting Chinese negotiators’ claims.

With Western glasses it would be tempting to discard their influence altogether as these relations seem to imply that the experts are mere instruments of the government, but this may be a too hasty conclusion. Based on Wubbeke’s extensive interviews with Chinese scientists, they claim they can conduct research largely independent of direct political intervention and they work according to universal objectivity standards. Cooperation with international colleagues as well as international funding is also common. Experts also play an important role during the international negotiations and some 15-20 of them are usually present, making up as much as a third of the total delegation. In 2007 a National Advisory Committee on Climate Change was set up under the National Leading Group, composed of an expanding group of experts. This is the most important advisory group to the government. Still, underlining the difficulty of determining their precise influence: “As yet the Committee has not officially issued any documents and its specific research work remains obscure” (Ibid, p. 18).

Although it is difficult to know the influence of experts there are a few illustrative examples. The most important one is their demonstration of the Chinese vulnerability to climate change. They believe that droughts in the North and floods in the South are scientific facts linked to climate change and China's vulnerability demands action also from China. This is now explicitly acknowledged by the NDRC and the increasing visibility of climate change may also contribute to a stronger public demand and involvement. Another example is the adoption of the 40-45% intensity target. This target was a direct product of the National Advisory Committee on Climate Change. However it may not have been too difficult to accept as it was based on political feasibility calculations. Another example provided by Wubbeke (2012 forthcoming) illustrates the limitations of expert advice. A suggestion by a highly influential government advisor on dropping the CDR principle and take on legally binding commitments won no support among government officials or the scientific community.

Regarding ENGOs, generally they do not act they do in the West, criticizing government and typically *demanding* more proactive policies. In the same manner as with the scientists they tend to work more *with* the government than *against* it, but that is not to say they have no effect on policies. ENGO emerged in the 1990s and they worked mostly with nature conservation but some of them worked with local governments on improving energy consumption patterns. From the turn of the century international ENGOs started doing energy saving projects in China, often financed by international sources and now major international ENGO like Greenpeace and think-tanks like the WRI have also established offices in China. Chinese ENGOS are increasingly also including climate change in their portfolios but there are mostly the large international ENGOs that have sufficient funding for larger climate-related projects. None of the ENGOs we are familiar with spend time or money on lobbying as their explicit goals are often to *help* the government. Most energy is therefore spent on doing joint (climate/energy) projects to pool resources and create synergies. Typically a foreign ENGO funds and coordinates projects while it is executed by the local government and various types of expertise. Certain provinces and cities have also been actively pursuing a low-carbon development, in part a bottom-up process, in part a top-down process.

Climate policy trajectory

The broad lines of China's climate policies are defined by its fundamental parameters, given by its huge territory, its vast and relatively poor population, the closed political system, the primary goal of economic growth and its strong reliance on coal. Add to this the Chinese value-based perception that the *prime* responsibility to deal with this issue lies with the wealthy nations, China's climate policy is bound to be rather modest and emissions will continue to rise strongly,

This being said, we have witnessed a dramatic change in China's climate policy from virtually nothing two decades ago to the present comprehensive institutional structure and ambitious plans as well as significant emissions reductions compared to a business as usual scenario. We have claimed that this can only to some extent be explained by a stronger demand for climate policies as public demand appears to be weak and ENGOs, scientists and some local level actors have been more educators and facilitators towards the government rather than 'demanders'. In fact, it may even be argued that for example the NGOs have been more suppliers than demanders of climate policies. In comparative terms these groups as well as the fossil fuel industry are all rather weak in terms of power and the actors are few. However the score is somewhat higher in terms of intensity of preferences as well as capacity, particularly in terms of awareness- rising and knowledge building. Also, to some extent we believe the external demand for more climate actions in China has had some significance, not the least after China became the world's largest emitter.

Although to some extent demand driven, the supply side has generally been very strong and driven by other forces than demand. In comparative terms, the supply side is fairly simple due to the de facto absence of the *Assembly* and the *Judiciary*. The only significant player is the *Executive*. Within the Executive Branch the economic and development paradigm represented by primarily the NDRC and to some extent also the Ministry of Foreign Affairs have been dominant, typically forming a 'winning coalition' of 'hard-liners'. However, we are not sure how well the 'winning coalition' concept fits as we have little or no knowledge of the positions, preferences and power of all the other ministries and agencies involved. But we do believe that the acronym 'where you stand depends on where you sit' is also applicable to China and there are for example indications that the Ministry of Environmental Protection as well as the Science and Technology Ministry have wanted a more forceful climate policy (Heggelund et al 2010). Still, whether there are actual in-fighting and turf battles with losers or winners like in the West, or the process is genuinely more consensus-oriented, we simply do not know.

So far, the climate politics game in China seems to have been a rather 'benign' one as the move towards a more low carbon development has coincided with long-standing development objectives of increased energy efficiency, in line with perceived national economic interests. This probably explains more about the evolving climate change policy than increased demand, but demonstration of increased vulnerability and environmental destruction have probably strengthened policies somewhat. The real test of China's climate policy will come when costs of introducing new measures will increase strongly.

4. Concluding discussion

We have outlined a conceptual framework for studying climate and energy policy trajectories in countries that are widely different in terms of political and economic systems. We find the framework to be useful to compare countries at a general level, and for identifying long-term policy trajectories. The value added of analysis at a general level is that a focus on generic forces and fundamental parameters will enable us to understand differences in terms of scores on the same variables and thereby interpret one country's "distinctive" characteristics in a comparative perspective (Steinberg and VanDeveer 2012). By identifying how generic forces like societal demand and governmental supply work at a general level in the United States and China, and by exploring how fundamental parameters like natural resource endowments, infrastructure and political institutions restrain political feasibility, we can make fruitful comparisons of very different countries. However, it is also quite clear to us that at a more specific level direct comparison on same variables becomes much more complex and therefore also less operational.

Data availability and access to information in an open democracy versus in a closed autocracy is an important consideration in this respect. We can say much more about the aggregation of preferences in the United States than in China because the rules of the game are well known, and information and data is available about the role of different actors that co-produce policy and build coalitions in political institutions.

Reflecting briefly on two findings from our analysis of US and Chinese climate policy debates help exemplify these concerns. First, a focus on political institutions as fundamental parameters made clear that an important difference between the two countries is that the United States has more veto players in policy making processes than China. The many veto players in the United States make significant policy change difficult, but also make visible where opposition to change lies. In China, we know much less about potential veto players – who they are and how they are organized. Policy analysts might get the impression that China has a consensus oriented process, but that may be because we do not have full insights into the country's process and power structures. Second, exploring generic forces like societal demand and governmental supply helped us realize that demand does not have the same driving force for policy change in China as it does in the United States. Coherent demand from a range of societal interests –especially when business interests and environmental interests pull in the same direction – is a strong driver in the United States, while in China this connection is more unclear. We do find that societal demand has had some influence on China's climate policy, especially for scientists, experts and ENGOs as knowledge brokers, and we therefore cannot fully reject the role of societal demand

for policy developments. However, whether societal demand has some actual clout for the direction of climate and energy policy is much more uncertain in China than in the United States.

References

- Allison, Graham T. (1971) *Essence of Decision: Explaining the Cuban Missile Crisis*. Boston: Little, Brown & Co.
- Andresen, Steinar and Elin L Boasson (2012) 'International climate cooperation: Clear Recommendations, Weak Commitments', in Andresen, Steinar, Elin L Boasson and Geir Honneland (eds.) *International Environmental Agreements: An Introduction*, Routledge, 49-67.
- Anonymous (2013 forthcoming) 'China's Transition towards a Low Carbon Economy: A Review of the 11th Five Year Plan'
- Arnold, D. 1990. *The Logic of Congressional Action*. New Haven: Yale University Press.
- Axelrod, Robert (1997). *The Complexity of Cooperation: Agent-Based Models of Competition and Cooperation*. Princeton, NJ: Princeton University Press.
- Bang, Guri. 2010. Energy Security and Climate Change Concerns: Triggers for Energy Policy Change in the United States? *Energy Policy* 38 (4): pp. 1645–1653.
- Downs, Anthony (1957). "An Economic Theory of Political Action in a Democracy". *Journal of Political Economy*, 65(2): 135-150.
- Energy Information Administration (2012a). Table 1. Coal Production and Number of Mines by State and Mine Type, 2010, 2009. Accessed from: <http://www.eia.gov/coal/annual/pdf/table1.pdf>. Accessed on 27 September 2012.
- Energy Information Administration (2012b). Table 1.7.A. Net Generation from Coal by State, by Sector, July 2012 and 2011. Accessed from: http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_1_07_a. Accessed on 27 September 2012.
- Fisher, D. 2004. *National Governance and the Global Climate Change Regime*. Lanham MD, Rowman and Littlefield Publishers.
- Fisher, D. 2006. "Bringing the Material Back In: Understanding the U.S. Position on Climate Change." *Sociological Forum* 21 (3): 467–494.
- Harrison, Kathryn and Lisa M Sundstrom (2010), Conclusion: 'The Comparative Politics of Climate', in Harrison, Kathryn and Lisa M Sundstrom, *Global Commons Domestic Decisions*, MIT Press, 261-291.
- Heggelund, Goerild, Steinar Andresen and Inga F Buan (2010), 'Chinese Climate Policy: Domestic Priorities, Foreign Policy and Emerging Implementation', in Harrison, Kathryn and Lisa M Sundstrom, *Global Commons Domestic Decisions*, MIT Press, 229-261.
- Kingdon, John W. 2005. *Agendas, Alternatives and Public Policies*. 2nd edition. New York: Addison Wesley Longman, Inc.
- Lizza, R. "As the World Burns," *The New Yorker*, 11 October 2010.
- Pierson, Paul (2000). "Path Dependence, Increasing Returns, and the Study of Politics". *American Political Science Review*, 94(2): 251-267.
- Putnam, Robert D. (1988). "Diplomacy and Domestic Politics: The Logic of Two-Level Games". *International Organization*, 42(3): 427-460.

- Schreurs, Miranda (2011). "Deutschland kann Vorreiter sein". Interview, *Greenpeace Magazin* 4/11 (www.greenpeace-magazin.de/index.php?id=6454).
- Scruggs, L., Benegal, S., 2012, 'Declining Public Concern About Climate Change: Can We Blame the Great Recession?', *Global Environmental Change* 22(2), 505-515.
- Skodvin, T. 2010. "Pivotal politics" in US energy and climate legislation . *Energy Policy* 38, (8): 4214-4223.
- Steinberg, Paul F. and Stacy D. VanDeveer (2012). *Comparative Environmental Politics: Theory, Practice, and Prospects*. Cambridge, MA: MIT Press.
- Stensdal, Iselin (2009) Deal or No deal a study of Chinese climate actors and China during the climate negotiations in Copenhagen, Master thesis, University of Oslo (In Norwegian).
- Stensdal, Iselin (2012a) *China's Carbon-Intensity Target Climate Actors and Policy Developments*, FNI Report 3/212, The Fridtjof Nansen Institute.
- Stensdal, Iselin (2012b) *China's Climate Change Policy 1988-2011: From Zero to Hero?* FNI Report 10, The Fridtjof Nansen Institute, 25 p.
- Strøm, Kåre (1990). "A Behavioral Theory of Competitive Political Parties". *American Journal of Political Science*, 34(2): 565-598.
- Tsebelis, George (2002). *Veto Players: How Political Institutions Work*. Princeton: Princeton University Press.
- Underdal, Arild and Kenneth Hanf (eds.) (2000). *International Environmental Agreements and Domestic Politics: The Case of Acid Rain*. Aldershot: Ashgate.
- Underdal, Arild (2000). "Conceptual Framework: Modelling Supply of and Demand for Environmental Regulation". Chapter 3 in Underdal and Hanf (eds.), *International Environmental Agreements and Domestic Politics: The Case of Acid Rain*. Aldershot: Ashgate.
- Wilson, James Q. (1973). *Political Organizations*. New York: Basic Books.
- Wubbeke, Jost (2010) *The Power of Advice: Experts in Chinese Climate Change Politics*, FNI Report 15/2012, The Fridtjof Nansen Institute, 60p.
- Wubbeke, Jost (forthcoming 2012 in *Journal of Contemporary China*) China's Climate change expert community – Principles, Mechanisms and Influence, Journal to be added
- Young, Oran R. (2002). *The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale*. Cambridge, MA: MIT Press.