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The Role of Business in Driving and Shaping Renewable Energy Policies in China

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Abstract

This report investigates the role of business actors in shaping China's renewable energy policy process and governance. It finds that with the tremendous growth of renewable industry over the past two decades, a new government–business coalition is taking shape in China. Business actors such as the manufacturers of wind turbine or solar PV and investors in renewable energy projects play a key role in this coalition. The coalition has been exerting notable influence successfully at both the policymaking and policy implementation stages to advance its strategic preference for the continuous expansion of renewable industries, mainly by accommodating conflicts or scepticism from actors outside the coalition and integrating other major social actors' interests both at national and local level, namely the grid companies and local state officers. Consequently, its influence has generated profound impact on the speed, scale and quality of China's renewable energy development. The study reveals a rather different political economy of China's policymaking process in the climate governance domain, compared to a traditional description of 'top-down' or 'command-and-control' mode of governance where Chinese central government is often believed to be the only crucial actor to steer climate-related policy. Rather, it is argued in this report that central government's autonomy in the policy process is largely constrained by the rising business interest groups who possess considerable material and institutional power to change policy orientation.

Abbreviations and acronyms

CCS	carbon capture and storage
CNREC	China National Renewable Energy Center
CREIA	Chinese Renewable Energy Industrial Association
CWEA	China Wind Energy Association
GHG	greenhouse gases
GW	gigawatt
MIIT	Ministry of Industry and Information Technology
MOF	Ministry of Finance
MW	megawatt
NDRC	National Development and Reform Commission
PV	photovoltaic
SERC	State Electricity Regulatory Commission
SGCC	State Grid Corporation of China
SOE	state-owned enterprise

1 Introduction

Decarbonisation is an urgent and critical task for the future of humanity. China, as the world's largest greenhouse gases (GHG) emitter and a rising global power, could play a major role in accelerating the low-carbon transformation at the international level (Mathews and Tan 2015; Schmitz 2013; State Council 2014a). In the past few years it has become increasingly clear that the Chinese central government has demonstrated strong determination to curb its soaring GHG emissions. The 12th Five-Year Plan adopted by the Chinese government in March 2011 devotes considerable attention to energy-saving and climate-change issues and establishes a comprehensive set of targets and policies for the period 2011 to 2015. China is setting ambitious emissions reduction targets (The *Guardian* 2015; Qiu 2009), constructing domestic emission trading schemes (Lo 2013; Shen 2015), and supporting a massive scale of investments in low-carbon technology development (Dong, Qi and Spratt 2015; Lewis 2013; Spratt *et al*. 2014). As a result, by 2014 the country's energy and carbon intensity, calculated as units of energy or GHG emissions per unit of gross domestic product, had dropped significantly by 29.9 per cent and 33.8 per cent respectively compared to the 2005 level. There is little doubt that the energy-saving targets in the 12th Five-Year Plan can be achieved successfully (CNTV News 2015). Besides these achievements, in November 2014, China committed in a US–China joint announcement to peak its emissions by 2030 and endeavour to meet its target sooner rather than later (*Xinhua News* 2014). It is expected that, domestically, more intensive and stringent policies on emission reduction are to be designed and announced in the country's 13th Five-Year Plan due in March 2016.

However, little is known regarding which actor groups are driving these ambitious climate policy processes within China. It is often assumed that this process is largely state-led with Chinese central government playing the dominant role to initiate and steer these low-carbon policies in a top-down fashion (Beeson 2010; Gilley 2012; Lewis 2013; Zhu *et al*. 2015). State actors consequently became the centre of the research focus to understand the policymaking process, as they are believed to be the only relevant actor groups. This report challenges such state-centred studies by arguing that treating China's complex climate policy process as an orthodox state-led effort, and either endorsing or criticising it based on this rather simplistic perspective, is in itself problematic. A state-led perspective has constrained us in fostering a better and comprehensive understanding of the reality of Chinese climate policy process. At the outset, the underlying assumption that central or local state institutions are the only relevant actors in China's policymaking process is increasingly being questioned by a small group of scholars (Kennedy 2005; Lieberthal and Oksenberg 1988) due to the growing importance of non-state actors, particularly business actors, which are gaining prominence in the low-carbon policy process.

This research aims to provide empirical research regarding the influence of business actors by focusing on China's renewable energy sector and its policymaking and implementation processes. It aims to challenge the state-centred approach by going deeper to unpack the power dynamics between state and market actors behind these policy processes, and by interrogating multiple non-state or sub-state preferences within China's fast-growing wind and solar industry to shape the policy orientation. It is noted that most of the policy outcomes are no more than the consequences of these power dynamics, and we need to identify whose preferences are driving or shaping renewable energy policies in China and how it is done (even in a seemingly highly centralised political system). Therefore, this report is based on a more pluralistic framework (Hill 1997) that puts business actors at the centre of the analysis. Its main argument is that climate policies in China are not generated solely from the state will, as business actors are playing an ever-important role in Chinese climate policymaking and implementation process today. In addition, in an effort to break up both state and non-state spheres as monolithic groups, this report aims to identify government–business dynamics through a case study of renewable energy policy clusters, namely wind

and solar energy policies, because this policy segment has been the main pillar of China's emission reduction efforts and climate policy. It is also a good site to observe the political economy of China's energy sector, as the burgeoning renewable industry has been developed and delicately woven into China's traditional energy systems and politics.

The research is based on a number of field investigations carried out between 2012 and 2014 in Beijing and Yichang, which initially focused on the Clean Development Mechanism and carbon market development in China. However, during the field investigations the way in which many stakeholders engaged in the policymaking process caught the researcher's attention, particularly the stakeholders in the wind and solar sector because they represented the largest portfolio segment of carbon market at that moment. The way they entered the policy domain at central level and shape policy orientation through project implementation at the local level became one of the core elements during the interviews. Of all the interviews (45 in total), 15 have significant content regarding this issue. So the empirical evidence of this report is largely based on the scripts of these interviews and intensive document analysis at a later stage of field investigation. The content of the report will be structured as follows: Section 2 will provide a brief literature review mainly concerning two trends, namely the studies on business (mainly Western multinational corporations) in global climate politics, and the studies on China's climate governance in particular. Important theoretical and empirical gaps in the existing literature will be discussed.

Section 3 will focus on state–business dynamics around policymaking stages. I will explain how a pro-renewables coalition is built and who are the key members and features of this coalition. Analytical focus will be given to the coalition's effort to establish a coherent framing and deter or even accommodate opposing framings and institutional preferences. Section 4 will look at the policy implementation stage, which is significantly under-researched among previous studies of China's climate policy but has recently been explored by Dai (2015). I will particularly look at the power dynamics at the local level where most of the central policies need to be grounded in the form of renewable projects or investments. The role of centrally owned state-owned enterprises (SOE) (*yangqi* or 央企) in the policy implementation phases as intermediary actors between local and central states is the central axis of the analysis. According to the neo-pluralist theory, the coalition is never static as the content and structures need to be constantly changed to meet new challenges either from within or from outside; therefore, in Section 4 I identify the possible changes of China's renewable coalition in the future, with the focus on the present conflicts among the key actors within the coalition.

2 Literature review

The role of Western business, particularly multinational corporations, in shaping domestic and even international climate policies is a long-discussed issue (Falkner 2009; Kolk and Pinkse 2004; Levy and Newell 2005; Meckling 2011; Newell and Paterson 2010). These studies reveal that business actors possess significant material and technological power to shape climate policies both at national and international level. Scepticism and reluctance to support climate change policies is found at the initial stage, as these policies are often believed to have negative impacts on business operations and profit prospects. However, once both the scientific evidence and the narratives of climate change became dominant, business actors are found to use their influence in the climate policymaking process to promote more moderate or cost-effective emission reduction policies such as market instruments or carbon markets in order to avoid direct or devastating emission control. Unfortunately, most of these studies on business influence in climate politics are set in the advanced democratic and market economy context. So their findings can offer only limited reference for business power in the climate policymaking process in emergent markets. In addition to that insufficiency, these studies also largely focus on the coalitions against progressive climate change policies; few studies look at coalitions supporting such policies and their contribution to drive the national low-carbon policy process.

Although previous studies on business power in climate governance are Western-focused, some provide useful theoretical tools to analyse the relations between state and market in the climate domain. This research echoes with the neo-pluralism approach as the state is conceived as a site of struggle for interest group influence (McFarland 2007), and therefore policies are the reflections of the underlying balance-of-power dynamics between different interest groups (Falkner 2009). States in this regard still retain their authority in some core functions (Strange 1996) such as national energy security or independence. States remain (powerful) gatekeepers in some policy areas that have become more open to the influence of non-state actors (Drezner 2007). Business is regarded by neo-pluralists as a privileged interest group based on its economic contribution to the national welfare, and hence it possesses and sometimes exercises powers that may limit state autonomy (Falkner 2009; Meckling 2011).

In contrast to their studies on Western political economy of climate politics, researchers seldom look at Chinese business actors when analysing China's climate politics. It is as if so long as China is still labelled as an authoritarian country, the state-led climate policymaking process is self-evident. However, there are increasingly divided opinions regarding the effectiveness of China's climate policy. Some academics endorse its efficiency in catching up in the race for clean technologies investment and accelerating transformation towards a low-carbon society (Lewis 2013; Mazzucato 2013). Others are more sceptical about its transparency, social inclusion and implementation barriers, among other problems that are often embedded within a top-down regulation system (Beeson 2010; Dai and Xue 2015; Gilley 2012; Zhu *et al*. 2015). These critical studies often argue that although policy outputs in China's climate change domain can be highly efficient under this top-down governance approach or with strong central government support, policies and regulations are more often crafted without sufficient consultation of stakeholders at the policy design and making phases (Gilley 2012), and consequently there is in effect a lack of transparency and legitimacy in the policy output, which leads to a weak enforcement system and unpredictable consequences, hence leading to significant implementation gaps (Eaton and Kostka 2014; Economy 2004; Wu 2009). This worry is particularly relevant at the local level where pollutants are generated and need to be controlled (Zhu *et al*. 2015). In general, arguments for or against China's so-called state-led mode of environmental and climate governance are hugely divided even if many of these studies are grounded on limited empirical evidence.

In previous studies, business actors, particularly state-owned enterprises (SOEs) in China, are often seen as mere representatives of state interests, and the independence or autonomy of business actors is given and tightly controlled by the party-state (Zhang 2003). Zweig (2002) once refers to businesses in China as the 'barnacles on the ship' who are solely dependent on state agencies or their guardian ministries for survival. It is often regarded as a typical example of state corporatism (Dickson 2008; Schmitter 1974), in which a ruling party is acting as a mediator between the workers, capitalists and other prominent state interests by institutionally incorporating them into the ruling mechanism. Such understanding of Chinese political culture drives the researchers to focus mainly on the central or local governments and their interactions or confrontations, as they are believed to be the only dynamics that matter for the policy process. However, these early beliefs can be problematic after two decades of continuous economic reform, which changed the traditional public–private configuration significantly. Non-state actors, and business actors in particular, have been growing significantly during the reform era and are playing an increasingly more important role in various domains of the public policy process including those concerning environmental issues (Kennedy 2005; Mol and Carter 2006). There are occasional studies of business interests in China's climate political process (Dai and Xue 2015; Harrison and Kostka 2013) but no systematic analysis has been undertaken. In these ground-breaking studies the cooperation between public and private actors is often viewed as the consequence of the state's intentional effort to 'bundle' or 'integrate' non-state interests for a unified political purpose and pathway. The underlying presumption is still state corporatist in nature and that non-state actors are merely the passive receivers of the state's invitation as a partner in the state-led coalition or networks, which ultimately arise from the state control of key governance resources (Li *et al*. 2008).

3 The business of renewable energy policymaking

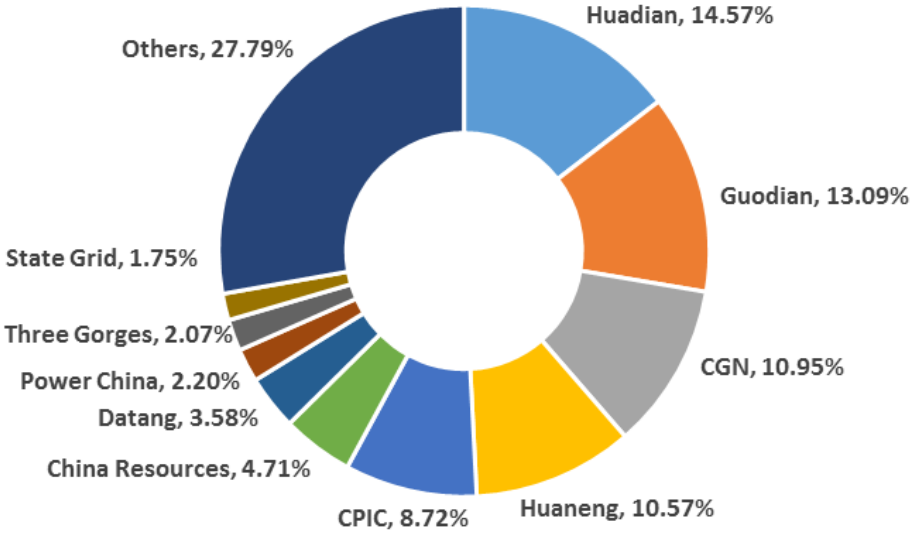
In this section, a historical account is provided of how a government–business coalition around the Chinese renewable energy industry is built and how the strategy of this coalition is framed and implemented. It is argued that after a decade of massive development of wind energy generation facilities and solar photovoltaic (PV) manufacturing capacities (CWEA 2015; CREIA 2014), the governance of renewable energy industries has been concentrated in the hands of a small number of bureaucrats, investors and manufacturing corporations who have formed an informal coalition that has the capabilities to negotiate, shape and even deter renewable energy policy development. It is noted that this coalition prioritised growth in the speed and size of the renewable energy market, often in terms of new installed wind and solar energy capacities, as their strategic preference. In the past decade, this coalition has successfully reset the framings of renewable energy as a crucial industry not only with tremendous environmental or climate benefits but at the same time critical for China to take over the commanding height regarding the national energy security and independence, economic development and even global leadership in industrial and technological innovation in the years to come.

3.1 Renewable coalition: an enclosed community with common goals

Increasing the proportion of renewable energy has become the cornerstone policy of China's 12th Five-Year Plan, which targets 11.4 per cent of non-fossil fuel in the total energy consumption mix by 2015 (State Council 2013). In the last decade, China's renewable energy industry, wind and solar in particular, have experienced spectacular growth both in terms of its installed capacity and its technology development (Lewis 2013). By March 2015, the accumulated installed wind capacity exceeded 100GW (gigawatt) and the target for the 12th Five-Year Plan has been met earlier than expected (CWEA 2015). For solar capacity, it reached 28GW by 2014 with over 10GW installed within a single year in 2013 (CREIA 2014). That is nearly 25 per cent of the world's total new instalment of grid-connected solar energy in that year. Given the scale and speed of the capacity development and technology catch-up, it is often believed that the Chinese central government is behind the wheel to steer the process of this dramatic progress through the initiation of a comprehensive set of supporting policies and mechanisms, such as the concession bidding programmes organised by the National Development and Reform Commission (NDRC), financial subsidies or feed-in tariffs from the Ministry of Finance (MOF), tax exemptions or refund schemes designed by the Ministry of Industry and Information Technology (MIIT) and many local governments, and hand-picking and rewarding technology champions (Kang *et al*. 2012; Lewis 2013; Zhang and He 2013).

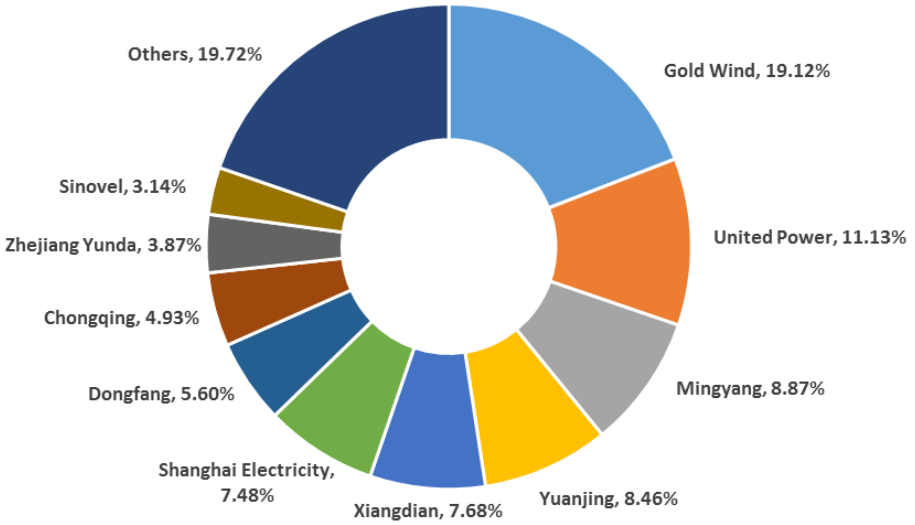
What is often ignored in previous studies is the rapid growth of the influence of the key business actors in the renewable industries as a result of highly concentrated markets with these large investors and manufacturing corporations starting to seize the lion's share of the market opportunities and squeeze small and medium-sized companies out of the competition (CWEA 2015; Zhao, Wang and Wang 2012). Taking the wind energy industry as an example, although currently there are around 50 investors in developing wind farms plus 30 or so turbine manufacturers in operation by 2015 across China (CNREC 2015), the top ten wind farm investors took up 72 per cent of total wind capacity development in 2014, and the top ten turbine manufacturers took over 80 per cent of the market share (see figures 3.1 and 3.2). From this perspective, the development of the wind energy industry is actually in the hands of fewer than 20 enterprises.

Figure 3.1 Top ten wind energy investors in 2014 and their market share



Source: Data adapted from CWEA (2015).

Figure 3.2 Top ten wind turbine manufacturers in 2014 and their market share



Source: Data adapted from CWEA (2015).

Compared to the wind energy market, solar PV production was once a highly dispersed market with 243 PV panel producers before 2012 (CREIA 2014). Unlike wind turbine manufacturers whose main market is domestic, the solar PV industry is export-oriented with over 80 per cent of its products made for the overseas market, particularly the European market before 2012. However, the anti-dumping and anti-subsidy investigation started in 2012 by the European Union, plus a rising protectionist policy trend among major renewable countries (Lewis 2014) has forced many PV producers out of operation. Consequently, there has been a massive wave of merger and acquisition within the industry since 2012, endorsed by state ministers as a trend to cultivate 'backbone' enterprises in the Chinese solar industry. According to a recent policy from the MIIT, the government is happy to see a more concentrated market in which the total market share of the top ten solar PV producers can be elevated to over 70 per cent by 2017 (MIIT 2015). Meanwhile, in order to rescue the solar PV industry from the market slump Chinese government launched ambitious plans to kick off the domestic solar power generation market. But investment is also concentrated in the hands of

large utility SOEs who took up more than 50 per cent of the accumulated installed capacity by 2013 (CNREC 2014). The leading manufacturing companies and investors have accumulated considerable material and technological power as they become the engines of market expansion and technological innovation. The collapse of these business groups would mean the collapse of China's rising renewable energy sector as a whole, which makes them a significant lobbying power in the renewable policy system in China.

The regulation system for Chinese renewable energy development is also highly concentrated, with the Energy Bureau under the NDRC being the major authority responsible for the overall planning and targets of renewable energy development at national and provincial level. It also retains the decision power for the approval of all the new investment activities across the country and supervises the operation of all existing renewable projects. In 2013, the State Electricity Regulatory Commission (SERC), another powerful government agency once responsible for administration and regulation of the electricity and power industry, was disbanded and its governance functions were integrated into NDRC's Energy Bureau, making it the sole directly responsible state regulator for the booming renewable energy industry in China.

Consequently, the core state and market actors of the wind and solar sectors have been increasingly confined to a small number of organisations during the market expansion, which is centred on the Energy Bureau of the NDRC, state-owned power utility companies as the major investors for renewable projects, grid companies, and large manufactures for wind turbine or solar PV panels. They constitute a rather restricted group that controls policy process in the renewable energy sector, surrounded by other peripheral actors such as financiers, line ministries, small manufacturers or local investors, and business associations. The field investigations reveal that there are intensive day-to-day contacts between these actors at project level because successful implementation of any given wind or solar project needs the joint efforts of these key actors. Meanwhile at policy level, the development of all the renewable relevant policies, such as the renewable development target in the national energy mix, renewable energy quota for utility companies, renewable subsidy schemes, will be comprehensively communicated and discussed among these actors since these policies would have a direct impact of all the core members.

Previous studies illustrate how an informal coalition may arise when state and business actors establish active cooperation towards a common goal in the policymaking process (Bräutigam, Rakner and Taylor 2002; Peiffer 2012). According to these studies, a coalition should meet the following criteria: it has to contain intensive cooperative activities and it should have clear policy objectives and shared expectations for policy outcomes. Based on these understandings and field observations, I argue that an informal coalition has been taking shape in China's renewable energy sector, as the core market players mentioned have a clear common goal of sustaining market growth.

As a newly established coalition its boundary is both blurred and fluid. There is not yet any formal institution at the current stage, but informal norms aiming at influencing both policy process and policy substance can be observed. For example, there are regular meetings among these actors when an important policy is in the design phases. The meetings are often organised by state officers from the Energy Bureau to invite key business actors to express their opinions and concerns regarding the content of the new policy in design. Such meetings, often in the name of policy consultation meetings (政策征询会), are an innovative instrument to test the private actors' reaction to a new policy. The structure and process of such meetings are often not standardised, as there are no specific rules that require state officers to consult market actors' opinions before launching the policy, but the frequency of such meetings is high and leading manufacturing enterprises and utility SOEs are more often invited than small companies. In addition, business associations or academic scholars are

sometimes invited to join the consultation meetings on an *ad hoc* basis but play a rather limited role.

These findings basically echo Kennedy's (2005) study, which found that in China, markets dominated by large SOEs or private companies tend to have a direct state–business interaction pattern and intermediaries such as business associations often play an insignificant role for lobbying state actors. It is noted that such a pattern of direct interaction has a long tradition that can be traced back to the central planning era, when China's economic planners had to negotiate with the factory leaders regularly regarding the production plan and output targets (Kennedy 2005). However, the consultation meeting is a significant development from the traditional pattern of public–private interaction in the pre-reform era for several reasons. First, the state actors now have to sit in a group meeting and negotiate with a consortium of business actors rather than an individual corporation, which significantly weakens their negotiation power if their policy preference is confronted by the business preference as a whole. Group lobbying is typically stronger than an individual company's persuasion, as can be illustrated in the example of the tariff cut of wind energy projects discussed below. Second, the discussions are now held in an arguably more transparent manner compared to the secretive and one-to-one interactions that often happened behind closed doors in the past. The group meetings that involve a number of key business actors also mean that it would be difficult to conceal the content of the discussion or debates from the media. As a result, the division of business and state interests is no longer a complete mystery to outsiders; the preferences of each party and the policymaking process are partially open to the public. This also significantly reduces the possibility of the traditional top-down model, which allows little room for public discussion of the policy content in the mass media.

These changes indicate that the regulators and leading corporations in the renewable sectors are working closely during the policymaking process and state actors no longer have the dictatorial power to control the policy process (Gamson 1961) and paradigm by themselves. Policy decisions are made jointly by a small group of private and public actors as the core members of the renewable energy coalition via internal discussion, negotiation and debate. A recent example of such policy debate between state and private actors concerns the adjustment of feed-in tariffs for wind energy. The adjustment was finally launched in January 2015 after several rounds of consultation meetings. Long before its formal adoption, intensive informal lobbying activities against this policy could be noticed as the majority of business actors were rejecting it on the grounds that a significant cut in the feed-in tariff would further constrain an already turbulent wind energy market since 2012 (*Xinhua News* 2015). Leaders of utility companies and business associations expressed their opposing arguments on tariff cuts through various media channels. Consequently, between 2012 and 2013 the NDRC's several attempts to adjust the feed-in tariff were deterred, forcing the NDRC to propose a more moderate adjustment plan: cutting only 2 yuan RMB per kilowatt in the latest version from 4 yuan RMB per kilowatt as initially intended. In addition, some wind energy companies' opinions are also reflected in the final policy output. For example, the price cut is applied only to those projects in the zones with rich wind resources, and the tariff of the projects in the 'low-wind' zones in the eastern part of China remain unchanged (NDRC 2014b). This policy will encourage developers to stay away from the overheated market in the northern and western part of China, which faces tremendous over-supply pressure and connection problems after a decade of massive wind investment, and start to focus on eastern coastal areas where wind resources are not high quality but grid connections are in better shape and electricity demands are considerably higher.

In short, the business preferences are picked up and integrated in this new policy. The implications for this case are twofold. First, the empirical investigation indicates that the overall goal of the coalition is to develop and build up renewable energy capacity, so that the industry, consisting of both leading project developers and top technology or equipment

suppliers, could gain a strategic commanding position within both the domestic energy system and global renewable markets. Second, although a continuous expansion of renewable industry is the common goal shared by all the members of this informal coalition, such a strategic preference can be contradictory to each individual actor's goal at any given time (Gamson 1961). In the above example, the preferred areas to develop wind farms was commonly agreed, but regarding the cost of wind investment and the amount of subsidies, state officers and private actors were in deep dispute. But behind the dispute around tariff cuts is the different understanding of the obviously overheated market development. One manager from the grid company during the interview described the situation as driving a fast car on a bumpy road:

> *You need to hit the brake from time to time to prevent the car from tumbling over, but you can never let the car completely stop. It is when and how hard to hit the brakes that usually arouses massive debate between state and private actors.*

3.2 Reframing the coalition strategy

Renewable energy is a relatively new industry in China and most of the key actors are newly established organisations within existing energy policy or business communities. For example, the Energy Bureau of the NDRC was only established in 2008 and its bureaucratic power was reinforced by integrating the former SERC in 2013. Its Renewable Energy Department is the newest section within the bureau compared to other traditional departments regulating fossil fuels and nuclear energy. In the private sector, the largest wind and solar project investors were *de facto* the subsidiary companies of the utilities SOEs established in the early 2000s. As for the leading turbine or solar PV manufacturers, some of them were spun off from former large electricity or heavy machinery producers, such as Sany Heavy Industry Co. or Dongfang Electric Corporation, which only entered the turbine or solar PV manufacturing market during the market boom (Lewis 2013); but the majority of renewable manufacturers are relatively newly established companies dedicated to renewable energy equipment.

Therefore, in order to regulate this young but fast-growing industry, the policymaking activities are essentially a learning-by-doing process; the policymakers are often not certain of the consequences and impacts of the policies in design (Hill 1997), so there is a pressing need to listen to the private actors at the policy designing phase.

The interview with the NDRC officers revealed that the regulators of the wind and solar industries rely hugely on business companies to provide companies' operational data, market analysis and trend forecasts as the basis of their policy design. More importantly, the officers know well that their administrative power is relying on the expansion of the industry they regulate. For example, the Renewable Energy Department (新能源司) under the Energy Bureau, as the direct authority for renewable industries, is competing with other departments of the Energy Bureau, such as Electricity Department (电力司), which is responsible for regulating the development of the thermal power industry, or the Nuclear Power Department (核电司), which is responsible for development of nuclear power. In this regard, the performance of these regulators is largely in accordance with the performance of the specific energy industry they are regulating. In order to outshine their peers the officers have to make sure that the expansion targets of their supervising industry are met, which can only be achieved by cooperating sincerely with the key business actors within that industry. In the same vein, competing preferences can be found among private actors from various forms of energy industries. Renewable companies need to ensure a high speed of growth to exhibit their importance or strategic value to enhance the coal-dominated energy mix. As one interviewee from the Energy Bureau remarked during the interview: 'If renewable energy stays at only 3–5 per cent of the national energy mix, nobody will treat you seriously.' As a result, a general consensus is achieved among key private and public actors to consistently

expand the share of renewables in the energy mix so that they can gain a more prominent status in the national energy and economic system.

The picture emerging from this analysis is substantially different from the findings of previous studies, which claim that China's environmental policy is usually developed in a speedy and effective way because the legislation or policymaking processes are passed without sufficient consultation with the stakeholders (Gilley 2012). As illustrated in previous sections, consultancy processes do exist and are becoming increasingly standardised even though they are often carried out within a rather restricted circle with state utility companies, grid companies and leading manufactures as its core members. The present study illustrates that the state cannot alone determine some basic elements of policies such as its main objectives, enacting time and its narratives and framings. On the contrary, business actors at least have a strong impact in contributing to these essentials in policymaking efforts.

In order to push forward the strategic preference of the renewable energy coalition, new narratives regarding the importance of the renewable energy industry have to be developed. Traditionally, the environmental and climate benefits of renewable energy are highlighted by the public and private actors within the coalition, who often emphasis the inseparable link between renewable energy and ecological civilisation (生态文明 or *shengtai wenming*), a popular political slogan in the official narrative (Geall and Ely 2015). However, the explosive growth of renewable industry attracts considerable scepticism and criticism regarding the actual benefits of the 'wind and solar rush' (explained in further detail in the following sections). In facing these challenges, new narratives have been developed to elevate the importance of renewable energy to a new height, which argues for contributing to both economic development, social welfare and benefits, national (energy) security and independence, and China's global leadership.

For example, the Party's mouthpiece newspaper (*Guang Ming Daily* 2013) also picked up this new narrative to describe renewable energy as the revolutionary driving force for the third industrial revolution (第三次工业革命), and emphasise its strategic value for China to shake off the negative geopolitical impact of fossil fuels imports and to achieve energy independence and national security. The interviews in the field investigation also reveal that most of the stakeholders in China's renewable industries now believe renewables are not only environmentally important for China's low-carbon development but also economically, technologically and politically crucial. In this regard, the renewable energy coalition in China has successfully defended itself as a core element of the 'solution' by continuous efforts to elevate the status of wind and solar in the national energy strategy, hence making the industry a leading pathway among various transformational options towards a low-carbon society (Leach, Scoones and Stirling 2007; Scrase and MacKerron 2009).

3.3 Accommodating conflicts

Developing a unified strategy and favourable narratives does not guarantee the safety of the coalition. On the contrary, external and internal conflicts would always challenge the stability or even the very existence of the coalition. Externally, the challenges of the coalition come from other blocs of bureaucrats and industries that stand for alternative low-carbon pathways, such as nuclear and clean coal technology or carbon capture and storage (CCS). It should be noted that in China the impressive renewables expansion in the last decade received very little challenge from traditional fossil fuel industries for two reasons. First, the growth of thermal power and other fossil fuels did not slow down as a result of the renewables expansion. The neck-breaking economic growth has led to a rocketing energy demand that can accommodate the fast development of both thermal power and renewables. Second, most of the investment in renewables is carried out by giant state-owned utilities that are also the major investors of coal-fired power facilities, so renewables and thermal power investment are therefore growing under the same roof and both are being developed

in a parallel but coordinated way in the hands of the large state utilities. Consequently, the conflict between fossil fuel and renewable industries that is often seen in Western countries (Levy and Newell 2005; Mitchell 2008; Newell and Paterson 2010) is nowhere to be found in China. Internally, the major challenge comes from various preferences among the members of the coalition. Although the expansion of the renewables industry is the common goal, the specific priority of different actors can vary largely. Some actors may be more profit-oriented, aiming to enhance the prospect of returns on individual investments, while other actors may attach greater importance to the rapid growth of the overall market size (see Figure 3.3). For example, solar PV and wind turbine manufacturers may prefer the top-right scenario of Figure 3.3 because they face a huge over-capacity problem and faster market expansion means more sales of solar panels and better business prospects. But for wind farm or solar energy investors the top-right scenario in Figure 3.3 is simply unrealistic because the marginal profitability of new investment would inevitably decrease after a huge amount of new projects have been developed, so their preference can only be a sub-optimal top-left or bottom-right scenario in Figure 3.3 at any given time. For the grid companies, a bottom-left scenario in Figure 3.3 is preferred because they face tremendous connection pressure for the renewables projects scattered around remote areas, and the high profit of these projects usually means high tariffs need to be paid out by the grid under the power purchasing agreement.

Figure 3.3 Different preferences within the coalition

	Profitability Low ← → High	
Capacity Fast ↑	Fast market development with low profitability prospect	Fast market development with high profitability prospect
Capacity ↓ Slow	Slow market development with low profitability prospect	Slow market development with high profitability prospect

It should be noted that at different stages of market development the actors' preferences may change significantly. Taking state-owned utility companies as an example, their initial drive into the renewable market was not profit-driven as they were mainly attracted by the long-term market potential of the renewable energy industries. In addition, these utility SOEs had to meet the renewables quota imposed by the government anyway, so they would even invest in new projects under the scenario of negative monetary return. However, at a later stage once their investment volume became big enough they began to worry about the overall profitability of these investments and became more sensitive to the profitability-related policy such as tariff adjustment, as mentioned earlier. Consequently, they may shift their preferences from top-left scenario to bottom-right one. Such a shift will also be reflected in the change of renewables policy orientations throughout various stages of development of the renewable industries in China.

As for the external conflicts, it is noted that the renewable energy policy experienced four stages of development between 2005 and 2012 in China (Zhang, Andrews-Speed and Ji 2014), from early piloting experiments or showcase projects to full-fledged rapid expansion, during which the growing industry faced tremendous challenges from powerful state and non-state actors outside the coalition. Therefore, one of the major missions of the newly built coalition was to effectively dissipate or accommodate the contestations from the outside. One typical example is that in late 2010 a Chinese vice minister of the MIIT announced, at

the National People's Congress, that most of the wind farms were merely 'show business', which delivered neither economic nor environmental benefits (*Jinghua Times* 2010). Such a claim received tremendous counter-arguments from the key business actors and local officers within this coalition. This is a rather exceptional case, since senior officers in Beijing are rarely challenged overtly by non-state actors or junior officers in the highly centralised and hierarchical China. The incidents may well illustrate the growing power of this coalition.

However, as the wind power projects started to mushroom in an uncontrollable fashion since 2010 the scepticism over its effectiveness has grown stronger. Probably the most powerful dissidents in a booming renewable market are the grid companies who face tremendous pressure to connect all the newly established power generation facilities. Since most of the renewable investments are often located in remote areas where the grid networks are outdated if existing at all, the large quantity of wind and solar energy feeding into the grid is often viewed as a potential risk for the safety and reliability of grid operation. More and more wind farms and solar power stations face difficulties to connect to the grid and frequent curtailing of renewable energy has become a normality in some parts of the Chinese wind energy bases. The State Grid is often criticised and portrayed by the renewable coalition as a deterrence force or bottle neck for further development of renewable energy. The coalition uses the Renewable Energy Law as its weapon, because this law requires the grid company to purchase all the renewable electricity unconditionally. Grid companies, instead, called for a more centrally coordinated wind development plan as some of the local projects were initiated in such a reckless fashion that project developers were not even considering connection possibilities before starting project construction. In short, the State Grid was requiring the regulators to 'hit the brake harder' in the aim of cooling an overheated market.

The lasting and heated debate has ignited a series of significant policy changes since 2012. Grid companies are finally given the governance autonomy to design a national connection standard for wind and solar energy investment and have the right to reject any renewable energy project that fails to meet these standards (NDRC 2012). In addition, all localities are required to report to the Energy Bureau their annual development plan for the potential wind and solar facilities within their purview in order to avoid 'hidden or surprising' projects. Projects not on local development plans would not receive a permission letter from the Energy Bureau for their construction. Thus, all new projects are indirectly controlled by the Energy Bureau before their initiation. Meanwhile, grid companies take up the opportunity to demand generous funding from the state to invest hugely in renewable energy-related research and to upgrade their outdated networks since 2010, portraying themselves as solid supporters rather than a hindrance to green energy development via many senior State Grid directors' talks before the media. In August 2012, the then Premier Wen Jiabao highly complimented the achievements of the State Grid for its dedicated efforts to solve connection difficulties for renewable energy (SGCC 2012).

Although curtailments of renewables are still common, the intense conflicts between developers and the grid are now largely reconciled as the latter exhibited its willingness to conform to the overall strategy of the coalition. The accommodation of the conflicts with the grid company also led to a significant shift towards a more quality-oriented policy approach from the previous singular purpose-driven strategy of only pursuing expansion of aggregated generation capacity. In addition, grid companies are now involved in all the policy consultancy and design activities just like SOE investors and manufacturing companies. The Energy Bureau even delegates to the grid companies its right to develop the complete sets of technological standards for renewable energy access system. As grid companies start to commit to supporting the development of renewable energy, the grid's identity is changed from being a major barrier to becoming an important member of the coalition.

4 Renewable policy implementation: business power at local level

In Section 3, it is argued that business actors have been playing an important role in exerting influence on almost every aspect of the policymaking process in China's renewable energy industry. They have successfully organised a strong coalition with state regulators to create favourable narratives, shape and even deter new policy development, and change the overall paradigms or strategic direction of renewable energy development, and they have got their preferences reflected in policy content via various forms of formal and informal lobbying. However, it should be noted that business influence is not just confined to the policymaking stages but continues during the policy implementation phase too. This report argues that the successful implementation of renewable policies is no longer solely dependent on central or local regulators in a 'command-and-control' fashion, where orders from Beijing are received by the provincial leaders and then repackaged and passed on to the county- or village-level bureaucrats to carry out specific tasks as required.

It is argued that the establishment of the coalition mentioned in the previous sections has changed this traditional vertical decision chain of governance. The business actors within the coalition have a decisive role to play at policy implementation stage, particularly at local level where renewable energy projects such as wind farms and solar energy power stations are planned and constructed. At this local level, the actors are often from the same organisations, such as power utility SOEs, renewable manufacturing corporations or grid companies, but with lower ranks as they are mainly project managers, finance staff or engineers who are working closely with local state officers on daily basis. Due to these actors' lower official or business rank their roles in the renewable energy policy process have often been overlooked in previous studies, but these are essentially the 'street level bureaucrats' (Lipsky 2010) or crucial gatekeepers that possess significant power to determine the outcome of the renewable policies via their day-to-day coordination, negotiations and confrontations around individual wind or solar projects. Although the major role of these actors is to make sure that each project can be successfully implemented, their operations and preferences would produce an aggregate effect to shape the outcome of the renewable policies that are designed to govern these project activities.

4.1 Central SOEs at local level: policy intermediaries

In the previous section it is explained how a new narrative of renewable energy is developed to make sure the industry can be promoted as having tremendous political, environmental and economic value for China's future. However, such grand narratives would have difficulties in speaking to the local interests. China's environmental governance has long been characterised with ambitious political rhetoric at central level and ineffective policy implementation at the local level (Economy 2004, 2006; Schroeder 2012). This central–local gap indicates profound setbacks of the command-and-control way of governing environmental crisis (Lieberthal 1997). Environmental issues are often played down by local leaders' strong pro-growth commitment in the past 30 years (Economy 2006; Jahiel 1998), which also leads to a weaker position of environmental protection units in officialdom. Two trends need to be noted. First, with the shift from a centrally planned economy to a more market-oriented one, authoritarianism in Beijing is waning and local government autonomy is gaining prominence (Breslin 2007; Chung 1995; Oi 1995). Local authorities at different levels in China are powerful enough to decide whether to adhere to central regulation or not, or, as an old Chinese proverb goes, 'wherever there is a measure from above, there is a counter measure from below' (上有政策, 下有对策).

Second, environmental governance resembles the overall Chinese political system in terms of its 'fragmented authoritarianism' (Jahiel 1998; Lieberthal 1997; Mertha 2009), where multiple bureaucratic structures overlap and sometimes conflict with each other. New regulation that collides with the existing regulations is often the main source of confusion and bureaucratic battles, though they are not intentional consequences. In this regard too much regulation is even worse than too little regulation (Breslin 2007). The level of fragmentation is particularly high in environmental governance because most of the environmental issues are trans-sectoral and therefore trans-institutional in terms of their regulation and governance (Wu 2009). This high degree of fragmentation is believed to be the main reason for poor co-ordination, low capacity and slack rule enforcement in environmental areas (Harkness 1998).

The waning and fragmented authoritarian political tradition in the past few decades is reflected in renewable energy governance too. Dai (2015) pointed out that local government and business actors have ambitions that are rarely about mitigating climate change as they are more concerned with promoting local economic development, creating jobs, increasing local government tax revenue and generating business profits. Since most of the renewable projects are located in remote areas, how to unite local state support at project level becomes a crucial precondition for any successful implementation of a central renewable policy. From land acquisition to local purchase or employment, any renewable project could not possibly be developed without the help of local state. Previous studies illustrated that a huge gap between central political vision and local economic interests is the major source of ineffectiveness of implementation or enforcement of most of the renewable energy policy (Dai 2015). However, theoretically different priorities and preferences among various levels of bureaucracy can be synergised. The fast development of wind and solar projects indicates that such synergy must be in place, because without it the mushrooming project activities in the past decade would be inexplicable. The crucial question is then, while most of the environmental issues in China are caught in constant struggles between the central and local officers (Qi and Zhang 2014), why did renewable energy policies became such an extraordinary exception that received both central and local officers' sustained support?

I argue that the coalition mentioned in previous sections played a significant role, as the business actors, particularly the centrally controlled SOEs, have helped tremendously to synergise the various interests between central and local officers. Central SOEs' influence during the local policy implementation process may vary owing to the uneven economic power of the various localities, as wealthier localities may retain greater autonomy and leverage over detailed investment implementation plans than poorer regions (Dai 2015; Hendrischke and Feng 1999; Van Aken and Lewis 2015). Since the late 1990s the centrally controlled SOEs have been growing dramatically in terms of their total assets, output and profit during the latest phase of economic reform (see Huang 2008 for a detailed account of this phenomenon). Chinese leaders wish to cultivate a number of competent state-owned companies to explore the overseas market. In 1992's Congress report, the then Chinese president Jiang Zemin claimed that China should adopt a so-called 'going out' strategy (走出去战略), meaning to encourage Chinese companies' overseas investment or international business operation. Strengthening and fostering a 'national champion team' of central SOEs was deemed as the most important preparation for implementing this strategy. However, once these companies started to grow they believed there was an easier option for profit making and business expansion than exploring highly competitive and volatile foreign markets. This was to expand their business across various localities in China. The 'going out' strategy was replaced by a 'going down' one. Central SOEs soon became the most welcomed investors by local politicians due to the massive amount of credits these companies promised to supply for local economic development (Zhang 2011). SOEs' impressive ability to secure a large amount of upfront capital for wind and solar investment from the state banks was also highly admired by local officers. 'Linking up with central SOEs' became a common development policy at local level in the early 2000s. The ongoing renewable 'great leap forward', typically in the wind and solar energy field, is just one of the

examples of this political trend. The massive plan to build up gigawatt-level facilities has provided tremendous opportunities for local economic development. Since most of these projects are located in the relatively poor areas of inner China provinces where local leaders are desperate to boost the local economy, these newly emerged investment opportunities received strong local support.

Another advantage of SOEs is their closer contact with the central officers than the local state officers have. Hence most of the local states in the end delegate the networking functions with their senior officers to the managers of these large SOEs. Previously, Oi (1999) observed that networking with senior officers over specific investment decisions or project approvals was a daily routine of local officers, whose diaries were filled with trips to higher municipals or to Beijing. However, this role has been significantly diminished along with the expansion of centrally controlled SOEs at the local level, as these organisations usually have closer contact with the central officers than the local state officers have.

As one interviewee from the SOEs explains: 'We know the rules, approval system and gatekeepers better than anyone else. Local governments would mainly assist us to prepare the documents or gather information and data at the local level. We believe such an arrangement is more efficient'.

Therefore, the centrally controlled SOEs become essentially the policy intermediaries of central–local communications on the issues around renewable project development and implementation. A large part of the updated policy and related information is transmitted from central to local via these SOEs rather than the officially established hierarchies, often due to SOEs' closeness to central officialdom and their more efficient internal policy transmission mechanisms. As previously discussed, these companies are the core member of the coalition and are deeply involved in the policymaking process. As most of the policy updates are crucial to the implementation of individual investments, the head offices often have to maintain constant communication with local managers to disseminate important information to the project level. Such communication channels are usually more effective and timely than the communication channels between central and local officers.

In this regard, local states are willing to give up part of their governance duties in order to trade for the central SOEs' 'political resources' in Beijing. The only side effect is that local officers' control of the project activities has been largely reduced during this process. In order to carry out the investment and maintenance of the wind farms or solar power stations, a dedicated SOE subsidy is usually established at the project site in the form of Special Purpose Vehicles, which are *de facto* an integral part of their parent SOE groups and whose operational strategy can hardly be affected by the local governments. However, the paramount objectives of local states and SOE investors closely match in the renewable energy area, as these two groups of actors focus more on the economic benefits of renewable projects and attach less significance to the environmental or political benefits. Such understanding provides a common ground for the local state actors to consent to business actors performing some of their roles, such as lobbying senior officers in Beijing over the initiation and approval of certain projects.

4.2 Counter measures to deter and shape central policies

The previous section has indicated that one of the major conflicts of wind and solar policy is to strike a balance between the capacity-driven and quality-driven policy orientations of renewable investments at the current stage. Different interests and preferences are contested along the capacity–quality spectrum during the policymaking process for a more favourable policy outcome even if, in the long run, the continuous expansion of renewable energy is a common goal of all the coalition members. One typical example is the sharp contrast between central government's policy objectives and the operational guidelines of the key business actors. Since 2013, the Energy Bureau has passed several measures to deal

with the wind curtailment and connection problems (NDRC 2012, 2013, 2014a), which exhibited its dedication to enhance the operational quality of the existing wind energy projects where over 30 per cent of the wind generation capacity is believed to be wasted annually (National Energy Bureau 2015). Meanwhile, most of the wind farm investors continue to add new capacity to the grid, as their priority for business development pays much less attention to the impact of their new facilities on the grid operation. As an anonymous manager revealed to the researcher, before 2014 their head office in Beijing evaluated its branch managers' performance mainly by the amount of newly added installed capacity of the year, indicating a preference for quantity over quality at corporate level.

The strong coalition with local officers allows significant scope for business actors to react to the central policies that are not fully in compliance with their strategic preferences. Taking wind farm projects as an example, before August 2011, local governments had approval right for projects smaller than 50MW (megawatt). Owing to a strong desire for wind energy investment, local government allied with project developers and initiated a large number of 49.5MW projects to avoid central surveillance. Large investment plans were amputated and repackaged into small multiphase projects so that they could be approved more conveniently by local governments. Consequently, more than 60 per cent of the new projects were 49.5MW facilities in 2009 and 2010 (CWEA 2013), which was later referred to as the '49.5 phenomenon' by Chinese policymakers and business practitioners. The large amount of small projects further increased the difficulties for grid connection and accommodation, as many projects were unknown to the grid companies until they were erected. Consequently, the Energy Bureau had to take the approval power back from the localities (NDRC 2011). In 2012, the year-on-year installed capacity grew at only 21 per cent, the lowest figure for a decade, and the sharp deceleration of market growth generated a massive impact on major turbine manufacturers. Companies such as Sinovel and Mingyang reported huge losses in 2012, while Goldwind's profit shrank over 70 per cent the same year (CWEA 2013). Fearing a market collapse, after only two years the Energy Bureau decided to give the approval rights back to the localities, and this time not only for small projects but for large ones too (State Council 2013). Meanwhile, Energy Bureau officers also pledged to simplify the project approval process in order to further stimulate the market and industry.

Project approval rights is often treated as a treasure trove for government officers for the potential rent-seeking opportunities embedded in these approvals. Officers who have the power to decide the fate of one investment or another are often regarded as officers who possess 'real authority' (有实权). So the moving around of wind farm approval rights between 2011 and 2013 was phenomenal, with two important implications. First, business operations at the local implementation level have a tremendous impact on the policy outcome and sometimes such impact can be strong enough to cause deviation from the original policy objectives (Hill 1997). In the above example, the Energy Bureau's intention of sharing the governance burden between central and local government for project approval was speculated on by the businesses and local governments to expand their control over the project development and to move the quality–quantity spectrum according to their own preferred direction. Second, it is noted that since most of the renewable policies are developed in a learning-by-doing fashion, little is known in advance about the actual impact of the new policies. Therefore, the implementation outcome becomes an important criterion for the policy change. The withdrawal of approval rights from the localities leads to a drastic slump in the wind manufacturing market, which threatens the fundamental goal of the renewable coalition as a whole and forces policymakers to change back to the status quo. Here the structural and economic power of business actors plays a decisive role because of its central role in the national economy and it serves as the main source of economic growth, employment and technology innovation (Falkner 2009). As the central pillar of China's low-carbon strategy and new growth component for its economy, the wind and solar industries are too important to fail. That is why once policymakers realise that their policy has become too stringent for the business they will tune it back to keep the industry safe and sound.

5 The future of the coalition: challenges and potential for changes

The creation and development of the wind and solar energy market is based on the Chinese central government's political will of promoting low-carbon development. At least at the initial stage these markets are well nurtured and protected by favourable policies in order to empower the sector and to compete with traditional fossil fuel industries. However, as renewable industries keep growing and expanding, the business actors involved in its development have gained tremendous leverage both materially and politically. For many state utility companies, wind and solar projects are no longer a side-line business but a central unit of their operation with strategic values. For example, Longyuan Power, as the dedicated renewable energy subsidy of the Guodian Group, one of the 'Big Five' state utilities, has become the most profitable unit of Guodian Group since 2013. As the renewable energy industry became increasingly important to the national economy and energy security, and as renewable investment became a core element of corporative strategy, it is argued in this report that a coalition centred on leading firms and manufacturers emerged in the past decade to defend both the strategic position of the renewable industry in the national political and economic system and corporative benefits. Although the boundary of this coalition and its influencing strategies are not yet fully institutionalised, it already exhibits the strong capability to deter and shape the renewable policies at both policy designing and implementing stages. The coalition exerts this influence by accommodating conflicts with major sceptics such as grid companies and networking with local state officers successfully. The power interactions among these actors may lead to new norms, standards and patterns of cooperation along with market development (Benecke *et al*. 2007).

However, it should be noted that the policy influence of this coalition is far from stable and decisive. Falkner (2009) argues that business's power and interests are constrained by both external and internal countervailing forces so that it does not itself determine the policy outcomes. This is particularly the case in renewable industries as a new policy cluster where the policy development is so fast to cultivate new conflicts among the key members. In addition, new policy initiatives may collide with existing external regulations and bureaucratic interests. These conflicts lead to uncertainties of the policy outcome, and it is unrealistic to assume that business interests will always triumph. But that is exactly the need for the coalition to actively engage in lobbying activities, because if business interests always prevail in climate politics, there is no need for any form of lobbying (Meckling 2011). The analysis of this report identifies at least four sources of uncertainties that may affect the outcome of business influence. First, the struggle between capacity- and quantity-oriented policies of renewable industries will probably continue in the years to come. Behind this policy struggle is *de facto* the conflict between the need to contain the negative impact of the massive market expansion to the operational quality of power transmission, and the need to deal with the urgent task of dissipating huge overcapacities in the turbine and panel production system. Manufacturers and local governments, therefore, clearly stand for pro-capacity policies while central government, grid companies and, increasingly, the utility SOEs are keen to pursue a more quality-oriented or balanced policy mix, aiming to address problems resulting from massive capacity development in recent years, such as equipment performance warranty, project maintenance, grid connection difficulties or renewable energy curtails. Recently, central government officers already expressed in public that in the 13th Five-Year Plan the capacity instalment target will play a much less important role (Wu 2014). How this dynamic would evolve will largely determine the policy orientation.

The second battlefield is between the central government and the rest of the coalition members, mainly due to the fact that the fast-growing renewable market has almost depleted the renewable subsidy pool in the last few years and the subsidy payment (mainly via a

special fund managed by the Ministry of Finance) to the power producers is significantly delayed (Shen and Luo 2015). In facing a vast gap in subsidy, central government is eager to push the reform of a renewable pricing system to lessen government direct support on renewable prices and encourage market competitiveness in renewable energy price. Officers in Beijing have announced unofficially that wind energy generation will no longer receive any subsidy from 2020 and the same with solar energy from 2025 (State Council 2014b). Such policy change will surely be opposed unanimously by the business communities, with the exception of the grid companies as they are the payment window for these subsidies to the power producers. The cancellation of subsidies would benefit the grid companies not only by reducing their workload but also slowing down the overall development speed of the market, which is always a good news for an already highly stressed grid network due to the intermittent nature of wind and solar energy. Therefore, the arguments around subsidy policy and tariff reform are essentially a problem of the appropriate role and level of government support for renewable energy development in the future. It is the government who now wishes to see a more autonomous renewable energy market while business insists on keeping renewable energy a protected market.

The third set of conflicts looming over the renewables coalition is the challenge from other energy sectors. In the past decade, renewable energy was developed in an almost completely parallel track with other energy forms because of the huge potential and gap for energy investments. There was little substitution effect between renewables and fossil fuels in the last decade and both experienced massive growth (Mathews and Tan 2015), but such a situation will be changed dramatically in the near future when China's economy is slowing down and energy consumption is about to peak. The peaceful coexistence of various energy resources may be broken up as the cake is no longer growing and distribution among each energy resource becomes a crucial problem when the ceiling is now fixed. Renewables will be in direct confrontation with other technologies such as nuclear, clean coal and CCS. China re-opened its nuclear plan in 2012 and aims to enhance the nuclear capacity to 58GW by 2020 (State Council 2012). In 2015, the Energy Bureau announced its most ambitious policy towards the clean coal plan, which prescribed detailed targets to enhance the efficiency of coal industry. In such a case, the role of utility SOEs would become utterly critical because they are the largest investors for both traditional and renewable energy projects in China. Their preferences among various energy sources will consequently have a decisive impact on the future development of the renewable industry and the coalition.

The last source of contestation to the coalition is at the local level, where local states are gaining much greater autonomy and decision power in the renewable sector. Local officers are now the important gatekeepers for the local wind and solar projects and depend less on the SOEs for project investment, which may in a way destabilise the previous alliance between the two. Many local states believe that they did not benefit from the previous renewable rush because those projects they once supported did not deliver promised economic benefits as expected. The manifestations of local officers' changing attitude towards renewable projects are obvious. For example, in 2011, the government of Inner Mongolia, one of the largest wind resource bases in China, enacted several local measures to essentially constrain its wind energy development by substantially increasing the entrant barrier for its new wind projects (Inner Mongolia Development and Reform Commission 2011). Another observable effort of local officers to strengthen their governing roles is to start cultivating local expertise in renewable sectors in the hope of being less dependent on outsiders. Local governments are enthusiastically encouraging 'home grown' enterprises to recruit 'best brains' from the renewable SOEs or top manufacturers. The growing autonomy of local officers also spurs a number of protectionist measures, which often require raising the proportion of locally produced equipment and employment for the renewable projects within the political purview, which may cast shadows for the current local state–business coalition. The strong entrepreneurship of local states is not likely to be changed in the foreseeable future, and their coalition with business actors is unlikely to be completely

disbanded. But waning local support for renewable investment would at least generate a profound impact on the dynamics and power configuration of the renewable political economy in China.

To sum up, there are powerful forces opposing the progress of renewable energy expansion from within and outside. Central government seems to be no longer willing to protect the fast-maturing market with generous subsidy schemes. Local governments are not willing to support renewable projects as they are generating limited local economic benefits. Clean coal and nuclear technologies are competing hard with renewable energies in order to take the commanding height of China's future energy strategy. Lastly, within the coalition, various company groups also hold different opinions regarding the speed and priority of project development and investment. All these dynamics are shaping the coalition's strategy and it is estimated that the 13th Five-Year Plan will be a crucial guideline to determine the future role of renewables in China's low-carbon transformation.

6 Conclusion

In this report I provide an alternative view of who drives China's climate policy. Using the newly emergent wind and solar industry as a case study, it is noted that, after a decade of a 'great leap forward' development in the renewable energy sector, a strong but informal state–business coalition is taking shape and this coalition is influencing and shaping China's renewable policymaking and implementation process according to its own interests and preferences. Although direct confrontation with the party-state is impossible under the authoritarian nature of the political system, business actors are playing a more important role in this coalition as they have learned how to network various segments of bureaucracy at both central and local level to advance their strategic preference. However, this coalition is far from stable because the power dynamics are constantly evolving both internally and externally. Grid companies, project investors and manufacturers as the key coalition members are pursuing various goals within the coalition, and traditional fossil fuel industries may start to press the living space of renewable industries as the latter is expanding savagely into the former's territory. The research argues for the necessity to reject the notion of treating the Chinese state and business communities as monolithic groups because different segments of business and state are forming various coalitions to shape policy process. Therefore, future researches should focus on the contest that might reshape and reconfigure the power structure and relationships of the renewable coalition in order to understand the struggles behind renewable energy policy process specifically and climate policy at large. I argue that both internal and external challenges deserve future academic attention, as these dynamics may change the policy paradigm in China as it transforms into a low-carbon society.

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