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Shifting Policy Priorities in EU-China Energy Relations: Implications for Chinese Energy Investments in Europe

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Highlights

- Compares dominant framings of energy policy in China and the European Union in the period 2005–2015.
- Shows that there has been a convergence of policy frames between China and the EU over this period.
- Argues that this convergence of frames is a necessary but not sufficient condition for stimulating Chinese investment in EU clean technology sectors.
- Shows how trends in Chinese investments in the EU energy sector mirror the convergence in energy policy framings between China and the EU.

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Abstract

Shifting energy policy priorities both in China and in the EU (European Union) have transformed their bilateral relationship. In order to assess the impact of domestic policy priorities on bilateral energy cooperation and climate policy, this comparative study traces the evolution of EU and Chinese approaches to energy policy – and their relative emphasis on factors and frames such as *availability*, *efficiency*, *affordability* and *environmental stewardship*. Drawing on government documents and a data set of interviews with Chinese policy-makers, experts and academics 2015-2016, the article argues that while the EU started with a strong emphasis on *environmental stewardship* and moved towards a focus on *affordability* and *availability*, China started with a strong emphasis on *availability* and has moved towards a greater emphasis on *environmental stewardship*. This shift in frames on the Chinese side and subsequent changes in subsidy structures and targets can partially explain the increase in investments in renewable energy technologies. The article concludes that the Chinese and EU perspectives have become more aligned over the past five years, coinciding with an increasing trend towards renewable energy in Chinese energy investments in the EU, for example in Italy and the UK.

Keywords

Energy, China, European Union, Framing, FDI

1. Introduction

Over recent years, China's significance as a source of outward Foreign Direct Investment (FDI) has grown considerably. European Union (EU) member states have been a key destination for Chinese FDI, and the energy sector has featured prominently in Chinese investments. These investments are taking place against a backdrop of shifting policy priority with respect to energy investments in China and the EU, as well as globally. The negotiation process leading to the 21st Conference of the Parties to the UNFCCC in Paris in December 2015 summit generated political momentum on climate change around the world, including within China and the EU. Energy policy is one of the key instruments combating climate change.

This article seeks to make sense of the changes in energy policy over the past ten years, and argues that these provide a context within which decisions on FDI flows take place. Drawing on the energy security literature, the article identifies four relevant framings of energy policy: *availability*, *affordability*, *efficiency*, and *environmental stewardship* (Sovacool and Brown, 2010). It traces the relative importance of these four frames in Chinese and EU energy policy over the period 2005–2015. These four frames are not mutually exclusive, and the empirical analysis also identifies how they interact with one another. These frames provide a conceptual framework aiding the interpretation of Europe-China energy relations. Hence within the Special Issue, the article builds a conceptual basis for the other contributions which focus on more concrete issues and policies.

The article argues that there has been a perceptible shift in the period from 2005 to 2015, with a particularly striking change in the past five years. In China, ever-worsening air quality and other environmental threats have brought concerns over the sustainability of China's development model closer to the centre of energy policy making, boosting the *environmental stewardship* frame. Meanwhile, in the EU there has been a shift away from *environmental stewardship* and towards a focus on *availability* (security of supply) and *affordability* (competitiveness), driven by factors such as the economic crisis and the conflict in Ukraine.

Previous research has traced the evolution and changing context of energy policy-making in China (e.g., Cao and Bluth, 2013; Li and Wang, 2012; Xia et al., 2011) and in the EU (e.g., Kanellakisa et al., 2013; Maltby, 2013). Building on these single-country/bloc case studies, one innovative aspect of this paper is that it compares the evolution of energy policy across both jurisdictions over time, drawing attention to changing patterns of divergence and convergence. Moving beyond government rhetoric, in the discussion section the study makes a connection between these changing frames and Chinese investments overseas (specifically in the EU). This is based on the concept that aligning frames and similar ways of viewing energy policy will manifest themselves in bilateral energy relations (Gippner, 2014). The content analysis of official government strategy documents can only be meaningful if it leads to observable observations in practice, otherwise, there would be a gross mismatch between rhetoric and action. Chinese FDI provides a particularly good measure since it has been increasing rapidly over the past five years. As a distinct new

development in the bilateral relationship one expect these new FDI flows to better mirror broader policy changes. To confirm this relationship, for instance, we test whether the convergence on the *environmental stewardship* frame has led to increasing investment in renewable energy infrastructures. In the discussion section, we will focus on this basic hypothesis. The detailed changes in Chinese investments overseas and its regional direction and sector focus themselves have been the subject of past research (Lv and Spigarelli, 2015; Sun et al., 2014) and are the subject of this special issue.

The article proceeds as follows. The next section outlines the theoretical approach to framing that will inform the empirical analysis, and identifies a set of relevant energy policy frames. Section 3 sets out the methodology that will be used. Section 4 traces the presence of these frames in Chinese and EU energy policymaking over the past ten years. Section 5 then links these evolving frames to changes in patterns of Chinese FDI flowing to the EU energy sector. Section 6 concludes and identifies policy implications.

2. Framing Energy Policy

Framing is a process by which actors construct and represent meaning to understand a particular event, process or occurrence (Spence and Pidgeon 2010, Goffman 1974, Gray 2003). In political science, framing research began in the 1980s with studies by Tversky and Kahnemann (1981), and Putnam and Holmer (1992). Frames are particularly important in the phases of agenda-setting, as they are organizing

principles that enable a particular interpretation of a phenomenon. Framing also relates to the interaction between different actors. Shared understandings, values and methods between individuals in different organizations facilitate communication, and frame alignment is a necessary but not sufficient condition for cooperation between parties (Gippner 2014). It is also a significant – though not the only – factor shaping investment decision-making.

Theories related to social movements provide a way to distinguish the various functions issue frames can fulfil (Benford and Snow 2000, Snow and Benford 1988). Hope (2010) has provided a helpful tool to distinguish the various ways frames have been assigned by different political schools of thought. Stemming from the linguistic turn in social science theory, frame analysis is typically associated with discourse analysis methodologies. Starting from the most general to the more detailed, people makes sense of the world around them through primary frameworks, meta frames, and issue frames. Finally, “objective” issues are defined as problems through the choice of a certain kind of framing dimension (Hope 2010, 4-5).

In order to provide a set of relevant policy frames to structure the analysis, we draw on the work of Sovacool and Brown who provide four important components of energy policy (Sovacool and Brown 2010, see also Sovacool and Mukherjee 2011). See Table 1 for a brief overview of each of these frames. The first frame is “availability”, which emphasises the importance of safe and secure access to a diverse range of energy sources. Evidence of this frame includes references to concepts such as

“security of supply”, a focus on securing access to diverse energy fuels from a variety of sources, and also an emphasis on fuel transit infrastructure such as gas pipelines. The second frame is “affordability”. This frame stresses the importance of affordable access to energy sources for households and firms, and equitable access to energy services. Evidence of this frame includes references to keeping fuel prices low, the creation of an “EU internal market” which creates competition between energy providers and thereby ensuring that industries are not put at competitive disadvantage by energy policies, and providing assistance to households that struggle to meet their energy bills.

The third frame is “efficiency”, which focuses on more efficient use of energy sources and deployment of more efficient equipment. Evidence of this frame includes references to reducing fuel use and increasing the utility of each unit of energy used. The fourth frame is “environmental stewardship”, which emphasises sustainability, particularly ensuring that harmful emissions from energy production do not exceed relevant absorptive capacities of relevant ecosystems. References to this frame include both consideration of the local environmental impacts of energy use such as air pollution as well as global commons impacts, most prominently the impact of unconstrained fossil fuel use on the earth’s climate system. Although the approach work of Sovacool and colleagues is not without its critics (see, for example, Cherp 2011), it provides a non-exhaustive but nonetheless extensive set of categories of potential energy policy frames. This was not the original intention of that framework, which was aimed to provide a more broad-ranging and comprehensive

measure of energy security. However, the framework provides a set of categories that are relevant not just to energy security but to overall energy policy. These can be used to analyse the shifting landscape of energy policy frames in the EU and China. It also allows us to examine whether or not there has been convergence in frames, in the sense of the EU and China increasingly placing similar relative emphasis on these four frames in their energy policies.

[Table 1 “Energy policy frames” about here]

In order for cooperation and investment between major powers such as the EU and China to take place, we would expect them to adopt a similar interpretation of the problem, a similar prescription of solutions of climate change, and a common motivation to address it.

3. Methodology and Sources

Chinese and EU frames of energy policy are derived from government documents and from secondary literature sources, and can be likened to overarching trends and lines of argumentation that run through these individual sources rather than a text-based discourse analysis. As an empirical, qualitative study, the article draws on interviews with policy-makers, experts and academics to identify the frames used by Chinese and European stakeholders in energy policy. The analysis of this paper

focuses on the rhetorical side of issue framing. It specifically draws on a data set of 10 interviews with Chinese policy-makers, experts and academics conducted by both authors 2015-2016. The article also undertakes a content analysis of key official documents with respect to both the EU and China.

In the case of the EU, we analyse the content of the European Council Conclusions from December 2005 to December 2015. The European Council meets 3-5 times a year and the Conclusions reflect the European Union's strategic and rhetorical focus. Table 3 shows the aggregate information for each year (drawing on three or four council conclusions respectively, as well as one document in the starting year of 2005). European Council Conclusions allow aggregating the different member states positions, since the European Council brings together all the heads of state and government in the EU and operates on the basis of consensus. In the case of China, we analyse the content of three Five-Year-Plan documents, which were agreed in the time period from 2005 to 2015. Although the 13th Five-Year-Plan (2016-2020) covers a time period outside the period of analysis, the document itself provides a snapshot of the government's understanding of energy policy and its rhetoric in 2015. Using the programme MAXQDA, each document was first screened for mentions of the word "energy". Then each mention was individually assessed on which of the four frames provide the context: *affordability*, *availability*, *environmental stewardship*, or *efficiency*.

While these represent only a small subset of possible documents from which we could draw, in each case they are particularly high-level and influential statements of governmental objectives. The article focusing on high-level rhetorical framing of policy priorities, an approach which could be criticized because “talk is cheap” and the content of such policy documents does not necessarily translate into action. While this critique has some validity, expressions of overarching governmental priorities are meaningful in themselves because very significant policy-making time and effort is expended on their formulation, and because in each case they are widely considered to set the framework within which more specific and concrete policies and measures are developed.

In the case of the EU, an additional critique of our approach is that high-level EU policy documents do not reveal the depth of member state disagreement, which is particularly consequential in a policy domain such as the energy mix which is still a member state competence. We know, for example, that eastern member states are more dependent on Russia for energy supplies, which drives energy policy preferences (CIEP, no date).. Although member state level politics are at the core of energy policy decision-making, their aggregation in EU policy documents represents a valid proxy indicator for the overarching direction and underlying trends shaping the big picture of energy policy framing in Europe. Such high-level statements of policy orientation are the subject of intense negotiations among member states. Moreover, although recent turbulence caused by the UK “Brexit” vote combined with longer-term forces are combining to diminish the importance of the EU level for

energy policy making in Europe, over the period of our study European Council conclusions did represent of member state preferences, perhaps more so than they do at present. In addition, an analysis of energy policy framing by each member state is beyond the scope of this article, but future analysis could focus more on intra-EU variation in this respect.

By undertaking this framing analysis, the article captures the new global dynamics that have been characteristic of energy policy making from 2005 to 2015. In a discussion section we relate these attitudes back to investment statistics and a trend of increasing FDI in renewable energy infrastructure in Europe. The individual trends of FDI will be analysed in more detail in the other articles of the special issue.

When analyzing the development of Chinese FDI in Europe, FDI statistics are not readily available but have to be inferred from annual reports by the Chinese Ministry of Commerce, Eurostat and the European Central Bank numbers, as well as information from member states' Statistics Bureaus and Central Banks. Furthermore, they do not always match. Information from the Chinese Ministry of Commerce, Eurostat, the European Central Banks and consultants' analyses provide a large spectrum (see Jia 2015, 3 and Liedtke 2016, for an in-depth discussion of the various data sources). With that limitation in mind, we draw on the broad trends of overseas FDI and how overall volumes have changed over the past decade.

4. Comparing Chinese and European framing of energy policy

This section traces evolution in the framing of energy policy in China and the EU. It highlights the changing relative emphasis on the four frames identified above: *availability*, *affordability*, *efficiency*, and *environmental stewardship*, as well as they are presented by relevant stakeholders as complementary or conflictual with one another. We show that there has been a convergence in the respective frames over the period in question, with significant changes in the period since 2010 relative to the period before then.

4.1 Chinese energy policy frames

Table 2 shows the number of times energy policy was mentioned in the Chinese Five-Year-Plans (FYP). Where appropriate, these were coded according to the frames in which they appeared, choosing from the four frames identified in the previous section. The number of the text sections marked as one of the four frames does not add up to the same amount the term “energy” was mentioned, since some sections simply mention energy policy without providing a particular context.

[Table 2 “Content Analysis of Frames in Chinese Five-Year-Plans (11th-13th)” about here]

All three FYPs have plenty of references to the topic of energy, in particular the 12th Five-Year-Plan (2011-2015), with 80 references. While in the 12th FYP the language is mostly about encouraging solar and wind, the 13th FYP is all about integrating networks and transmission lines, decentralized and demand-oriented energy provision, as well as the creation and support of industries. Competitiveness is the buzzword of the 13th FYP. Notably, the argument about energy security (*availability*) reduces absolutely towards the 13th five year plan. This is not surprising given China's considerable overcapacity of coal generated energy. Furthermore, the detail of planning shows a significant process of sophistication of the energy landscape during the fifteen years under observation. For instance, the 13th Five-Year-Plan has many references to the issue of control and implementation of regulatory standards, for example. Similarly, the legal dimension and the protection of water and energy rights, compensation and investment gain importance in the plan of 2015. The issue of attracting external FDI also comes to the fore. For instance, the plan encourages FDI in central and western regions for high-tech, R&D and energy saving. It also highlights the importance of access to infrastructure in Asia, Europe and Africa, as well as central Europe along the Belt and Road initiative.

Going through the different frames one by one, Chinese energy policy has changed since 2005.

The *availability* frame dominated Chinese energy policy making during the 2000s (Godement 2007). This was a result of shifts in the energy intensity of the Chinese

economy. During the period 2002-2006, China's total commercial energy consumption grew by more than 50 percent, increasing more rapidly than GDP. This was driven by a combination of central government policy at the time which favoured construction and heavy industry, as well as a surge in trade and investment which resulted from China's admission to the World Trade Organization in December 2001 (Meidan, Andrews-Speed, and Xin 2009). This increase in the energy intensity of the Chinese economy resulted in blackouts across China, except in the largest cities.

Other energy policy frames were also in evidence during the late 2000s. In terms of *environmental stewardship*, the central government announced in 2004 that sustainable use of energy was a key priority for the whole country. The "Medium and Long Term Energy Conservation Plan" noted that China's heavy reliance on coal was "giving rise to increasingly serious environmental problems" and that "[t]he area affected by acid rain due to emission of sulphur dioxide constitutes one third of the national land area" (NDRC 2004).

This was driven by a growing awareness among the Chinese leadership of China's worsening local environmental pollution. Already in 2007, China had 16 of the world's top 20 polluted cities. 90 percent of Chinese water is polluted, some of it almost completely, while the pace of desertification had doubled since the 1970s (Brown 2007, 36). Moreover, these local environmental stresses were recognized publicly by the Chinese Government, including in an unusually frank interview with

Der Spiegel in 2005 by Pan Yue, Vice Minister in the State Environmental Protection Administration (Der Spiegel 2005).

This can be seen clearly in the content analysis in which the environmental stewardship frame more than doubled in importance from the 11th to the 12th Five-Year-Plan. It declined somewhat relative to the *affordability* frame in the 13th Five-Year-Plan, which could be a reflection of Chinese reduced growth and the effects of the global recession. In this process of maturation of domestic industries, overseas investment and international cooperation on renewable energy became an increasing interest for Chinese foreign policy as well.

The *affordability* frame was perhaps not as dominant as the *availability* and *environmental stewardship* frames. This is surprising as the developing nature of Chinese economy and often voiced rhetoric that China must develop first before taking care of the environment, would suggest bigger prominence of this frame. The content analysis, however, shows that in its official documents the affordability frame only increases in relative importance in the 12th and 13th Five-Year-Plan. The principal manifestation of this frame concerned the need to keep down the costs of deployment of renewable energy in the context of a greater emphasis on *environmental stewardship*. This is particularly evident in the “Medium and Long Term Renewable Energy Development Plan”, published in September 2007 by NDRC (NDRC 2007). As well as setting overall and sectoral targets for renewable energy, the Medium and Long Term Renewable Energy Development Plan aimed to

make China self-sufficient in terms of innovation by bringing in foreign technology in the short term and then building up domestic innovation capacity in the longer term (NDRC 2007).

Finally, the *efficiency* frame was also prominent during this period, evident for example in the publication of the “China Medium and Long Term Energy Conservation Plan” in 2004 and the enactment of the Energy Conservation Law in 2009. Moreover, all of these frames were seen as complementary and advocated as part of an overarching approach to energy policy. A report from the Development Research Centre of the State Council, the most authoritative report of this period, recommended greater emphasis on energy conservation and energy efficiency, integration of environmental priorities into energy policy, a decrease in coal use and an increase in non-fossil fuels, and the development of alternative transport fuels (Meidan, Andrews-Speed, and Xin 2009). While such measures can be seen to have *environmental stewardship* co-benefits, the primary driver was *availability*.

Recent years have witnessed a greater emphasis on the *environmental stewardship* frame and a less central—though still important—role for *availability*. This has been driven by two sets of factors. First, China’s position with respect to import dependence of coal, the most important fossil fuel for power generation, improved over the second half of the 2000s and into the 2010s, as Figure 1 illustrates. While consumption has continued to out-strip production over the past decade, the amount of coal China needs to import increased rapidly from 2005 to 2009 before

narrowing significantly over the period since 2010. This is true even in absolute terms: China's net imports of coal averaged 125 Mtoe per year for the years 2006–09, but fell to an average of 59.2 Mtoe for the years 2010–13 (BP 2015).

This was confirmed by expert interviews. According to one Chinese energy policy expert, “energy security was previously very important. The previous thinking was in terms of securing supply of energy, and energy policy was largely built to support this objective. The definition of energy security is now changing, looking at consumption as well as production. There is recognition that reduction of use is also very important for energy security” (Interview, 17 July 2015). This suggests that the *efficiency* frame has come somewhat to the fore. According to another expert informant, “security of supply was a big issue 5–10 years ago...but right now it is better, possibly because of the bad economy” (Interview, 9 July 2015). Another interviewee stated that “China is well supplied for fossil fuels”, and argued that China has mitigated its energy security challenge by investing in upstream supply sources, shipping, and developing a global presence (Interview, 2 July 2015).

[Figure 1 “China Coal production and consumption” about here]

The second important factor is the rise in the *environmental stewardship* frame, particularly since 2012, which has been driven by chronic air pollution in major cities

in particular, one of the most noteworthy episodes being what some called “airpocalypse” in January 2013. Extremely poor air quality coupled with increasing access to air-quality information by the public drove Premier Li Keqiang to announce a “war on pollution” at the annual meeting of the National People's Congress in March 2014 (Reuters 2014).

This was confirmed by expert interviews. One interviewee at a Chinese state-affiliated think tank reported that “air pollution in cities is a serious problem. Public awareness is much higher. It is a concern of the public and the government” (Interview, 17 July 2015). Another interviewee argued, “the government was surprised by public reaction to PM2.5. A year ago, the Ministry of Environmental Protection was saying it was too difficult to monitor. Now there is monitoring in 300 cities” (Interview, 9 July 2015).

However, it is not the case that the *environmental stewardship* frame has replaced the *availability* frame. As a Chinese academic expert noted, “priorities continue to change. Security of supply is still important, but sustainability is now a much bigger priority than it was previously” (Interview, 24 June 2015). A Chinese expert at a state-affiliated think tank argued that “air pollution and energy security are still significant drivers in the short run. The NEA [National Energy Administration] still worries a lot about energy security. It’s good that there are different drivers and different actors. Renewable energy is expensive and we need multiple reasons to act” (Interview, 15 July 2015). Another expert argued “The priority is still growth of

the economy. Nobody has stopped talking about growth, though there is more focus on new concepts like ‘green growth’” (Interview, 17 July 2015).

In short, all four frames were evident in China’s approach to energy policy over the past decade. However, their relative importance has changed over time. The most notable developments in this regard have been the significant increase in the *environmental stewardship* frame over recent years, particularly in the period since 2012. While it is not true to say that the *environmental stewardship* frame now dominates China’s energy policy making, it has certainly increased in importance over recent years.

4.2 EU energy policy frames

Table 3 shows the number of times energy policy was mentioned in the European Council Conclusions. Where appropriate these were coded according to the frames in which they appeared, choosing from the four frames identified in the previous section.¹ The analysis of European Council Conclusions over time shows how energy policy was an EU priority at several points in time such as in 2006 and 2007, while attention was lower in the economic crisis years of 2009 and 2010. 2011 and 2014 brought further spikes in energy-related declarations.

¹ Again, the number of the text sections marked as one of the four frames does not add up to the same amount the term “energy” was mentioned, since some sections simply mention energy policy without providing a particular context.

[Table 3 “Content Analysis of Frames in European Council Conclusions (2005-2015” about here]

In the second half of the 2000s, EU energy policy was framed around three pillars: security of supply, competitiveness, and sustainability. These correspond to the *availability*, *affordability*, and *environmental stewardship* frames set out above. The *efficiency* frame was not given the same priority within this “three pillar” approach. Moreover, *environmental stewardship* was given rhetorical priority among these three frames. This is most clearly illustrated in the European Commission’s January 2007 Communication entitled “An Energy Policy for Europe” (European Commission 2007). This document identified the three frames as the key challenges facing EU energy policy. However, in setting out the principal strategic objective of EU energy policy, the Commission gave the following goal and rationale:

In this Strategic Energy Review the Commission proposes that the European Energy Policy be underpinned by:

- An EU objective in international negotiations of 30% reduction in greenhouse gas emissions by developed countries by 2020 compared to 1990. In addition, 2050 global GHG emissions must be reduced by up to 50% compared to 1990, implying reductions in industrialised countries of 60-80% by 2050;

- An EU commitment now to achieve, in any event, at least a 20% reduction of greenhouse gases by 2020 compared to 1990 (European Commission 2007, 5).

The Communication justified this position on the basis that it would contribute to all three frames: “(i) CO₂ emissions from energy make up 80% of EU GHG emissions, reducing emissions means using less energy and using more clean, locally produced energy, (ii) limiting the EU's growing exposure to increased volatility and prices for oil and gas, and (iii) potentially bringing about a more competitive EU energy market, stimulating innovation technology and jobs” (European Commission 2007, 5). But, importantly, it was the greenhouse gas emission target that took centre stage in the Commission's proposal.

The March 2007 European Council endorsed the European Commission's January 2007 proposal, and underlined “the vital importance of achieving the strategic objective of limiting the global average temperature increase to not more than 2°C above pre-industrial levels” (European Council 2007). Building on this, the European Council agreed to a set of targets for the period to 2020, including the headline goal of a 20 percent reduction in greenhouse gas emissions by 2020 (relative to 1990 levels) to be raised to 30 percent in the context of a global agreement involving all major emitters, including large emerging economies such as China (European Council 2007, 12).

The *availability* frame was also present during this period, but this frame was linked successfully with the development of EU climate change policy, thereby making the *availability* and *environmental stewardship* frames compatible. Concern with energy security was driven by the volatility of global oil and gas prices, and the cut-off of Russian gas supplies to Ukraine in January 2006 which had knock-on effects for several EU member states (Oberthür and Roche Kelly 2008, 43, Adelle, Pallemmaerts, and Chiavari 2009). Interestingly, in contrast to China, the frame of *availability* was rising in waves after these crises and again after 2010, in particular as the lacking connections in transmission systems become apparent (see Table 3).

Similarly, the *affordability* frame was evident during this period. In the content analysis the *affordability* frame is very prevalent in two ways: acknowledging the burden of high energy prices on consumers and companies as well as the need for stronger integration of national energy markets to reduce costs (especially since 2014). But, again, strong attempts were made by various policy entrepreneurs to make the *affordability* frame compatible with the *environmental stewardship* frame by arguing that tackling climate change presented an economic opportunity for the EU rather than a cost. The UK Government under Tony Blair was particularly active in reframing the debate in these terms. One of the most significant contributions of the UK Government to the climate change debate came in the form of the Stern Review, which sought to make the case that the short-term costs of mitigating climate change would be significantly less than the longer-term costs of inaction (Stern 2006). The German Government of Angela Merkel followed broadly the same path as the Red-

Green coalition that preceded it, adapting the “ecological modernization” concept into an “ecological industrial policy” (Jänicke 2010, 134).

Within the EU context, the *efficiency* frame was seen as subsidiary to these overarching goals of European energy policy, and as a means of achieving them. The EU’s 2007 energy and climate targets included a target to achieve a 20 percent improvement in energy efficiency by 2020. However, the Energy Efficiency Directive, intended to achieve this target, was not enacted until 2012, three years after the climate and energy package was agreed upon, indicating that efficiency was a lower priority than the three principal EU energy policy pillars of sustainability (environmental stewardship), security of supply (availability), and competitiveness (affordability).

However, within a short number of years the framing of EU energy policy had changed significantly. The Commission’s 2010 energy strategy paper, “Energy 2020: A strategy for competitive, sustainable and secure energy”, set out five priority areas which focused respectively on: efficiency; building an integrated energy market; ensuring affordable, safe and secure energy for consumers; technology and innovation; and strengthening the external dimension of the EU’s energy policies (European Commission 2010). While there was a residual focus on *environmental stewardship*, the emphasis had shifted significantly towards the other energy policy frames.

Over the following years, there was a decline in the *environmental stewardship* frame. EU leaders focused considerably less attention on climate change as they became ever-more preoccupied by the European sovereign debt crisis. This left little room for consideration of EU climate change policies at the highest political level, contrasting sharply with the 2005–09 period, during which climate change featured regularly on the agenda of European Council meetings (Oberthür and Dupont 2010). Some newer member states, led by Poland, became increasingly assertive in expressing their opposition to strengthening EU climate policy (Skovgaard 2013). Poland was central to opposition to increasing the level of ambition of EU climate policies in the period to 2020 or setting targets for the period beyond 2020. For example, in March 2012 and again in June 2012, Poland vetoed EU proposals for EU climate change targets beyond 2020 (Euractiv 2012a, b).

Related, the *affordability* frame came to the fore, but in a very different form to its previous incarnation in the late 2000s. Climate action was now framed as a threat to competitiveness. The economic, fiscal, and employment crises which afflicted many member states undoubtedly strengthened the hand of those claiming that the EU could not afford “expensive” climate policies. This was compounded by the shale gas “revolution” which transformed the US energy market from the late 2000s onwards, leading to dramatic decreases in energy prices for US firms (Ladislav et al. 2013, Stevens 2012). This drove increased competitiveness concerns among European business interests, fearful of a renaissance of manufacturing in the US. Moreover, the “green jobs” framing of EU climate policy began to be undercut by competition from

low-carbon industries in other jurisdictions, most notably China. Other countries began increasingly to capture the economic fruits of these sectors. This trend was illustrated graphically in the 2012-13 trade disputes between the EU and China, and also between the US and China, focusing on subsidies to solar panel manufacturers.

The *availability* frame also came prominently to the fore, again in a more conflictual manner vis-à-vis the sustainability frame. This was driven primarily by the crisis in EU-Russia relations over Ukraine that began in late 2013. This drew political attention away from the climate challenge. On 28 May 2014, the Commission published a “European Energy Security Strategy” in response to a request by the March 2014 European Council (European Commission 2014). This set out a range of proposed actions for reducing the EU’s dependence on imported energy sources, including immediate actions to prevent a major disruption in winter 2014/2015 as well as longer-term objectives such as developing energy technologies and diversifying supply. In 2015 *availability* and *affordability* were the most important rhetoric elements, while the element of *environmental stewardship* (7th point in the list of priorities) had given way to a much more pragmatic tone of the argument (European Council Conclusions 19 and 20 March 2015). One has to be careful not to misinterpret this only in terms of a reduction in the *environmental stewardship* frame, since energy policy is always grouped along with climate policy in the European Council conclusions of this time period.

Thus, while all four frames remain in evidence in EU energy policymaking, their relative importance has changed significantly over time.

How should we interpret these findings in terms of overall frame alignment between when comparing China and the EU? Both certainly have moved in opposite directions, but from very different starting points. While the EU started with a strong emphasis on *environmental stewardship* and moved towards a focus on *affordability* and *availability*, China started with a strong emphasis on *availability* and has moved towards a greater emphasis on *environmental stewardship*. However, it would be overstating the argument to suggest that they have moved past each other and now occupy opposite sides of this spectrum. Rather, Chinese and EU framings have converged over the past 10 years.

5. Discussion: Changing frames and FDI

Since China's move to a greater focus on *environmental stewardship* through stronger emphasis on low-carbon growth, changes have been taking place at the level of central strategic thinking as well as actual bilateral business relations. In this section we reflect on what the changing frames of energy policy mean for concrete areas of bilateral relations between the EU and China. We chose the area of Chinese FDI in European energy infrastructures as part of China's "Go Global" policy to look for manifestations of overall frames in policy directives.

Chinese foreign direct investment in the EU has been increasing since 2011. Most of the funding has gone into technology and energy investments in fossil fuel, renewable energy, and utility assets. There was a dip in 2013-2014 in Chinese investment in energy assets, as the appetite of state-owned firms for foreign energy assets reduced and there were cuts in feed-in tariffs in the EU. Overall, by 2014 the UK was the biggest recipient of Chinese FDI in the EU: cumulative total of €12.2bn; in comparison Germany as second with €6.9bn and France third with €5.9bn (Anderlini 2015). In 2014, the UK was also the biggest European recipient in general (UNCTAD, 2015).

According to Jia, Chinese FDI has evolved in three phases (Jia 2015). From 2001-2008, during China's admission to the WTO and deregulation, only a small portion of FDI went to EU member states, while the large majority went to the Asian region. The EU itself heavily invested in China for years. While European FDI by far exceeded Chinese investment in Europe, during the financial crisis (2009-2012), there was a policy encouraging investment in Europe, which was met by European countries actually competing for Chinese FDI.² What Jia calls "post-crisis", sees a further strategic push on the Chinese government side as well as a more sophisticated strategy on the part of Chinese companies. Chinese companies have particularly been buying infrastructure assets from privatisation in countries, such as Greece and Portugal (Macauhub 2014; Roberts 2015). The EU side initiated the negotiations for

² In the second quarter of 2016, China invested \$3.8 billion in FDI transactions in the EU, compared to \$1.0 billion in EU FDI transactions in China (Rhodium Group, 2016: 3, 6). Chinese FDI transactions in the EU reached an all-time high with \$18 billion in 2014 (Rhodium Group, 2015).

an EU-China investment treaty (BIT) in order to achieve reciprocal treatment in the Chinese market, for example concerning intellectual property rights (Jia 2015, 3).

[Figure 2 “FDI trends 2001-2015” about here]

The overall trend for Chinese FDI in the EU has been upwards. When looking at the specifics of energy investment, there are two main directions for energy investment: new renewable and green technology projects, as well as electricity infrastructures that are being privatized. In terms of investment amounts, however, emissions-intensive sectors such as chemicals and automotive manufacturers are large recipient sectors (Hanemann and Rosen 2012).

For the purpose of this article, we did not differentiate each mention of FDI as to whether it was carried out by a Chinese state-owned company, a sovereign wealth fund, an individual or by private investors. We acknowledge that Chinese companies active abroad cannot be presumed to be fulfilling government strategy. In fact, recent reforms relaxed the bureaucratic requirements for overseas FDI (Page

2014). Yet, government support systems and domestic debates for renewable energy are seen as influencing also companies' attitudes (Tan et al. 2013, 11). Learning effects for Chinese state-owned utilities and companies, who are simultaneously investors, affect companies back home. In particular the element of technology transfer from European companies can be an important motivation alongside commercial benefits for these actors and can be expected to feature in the investors' decision-making. So-called strategic asset seeking to acquire technology and other intangible assets like branding and marketing knowledge (Amighini et al. 2011) are increasingly motivating these decisions, while previous studies tended to be more related to market-seeking in developed country markets (Buckley et al. 2007; Cheung and Qian 2008; Hurst 2011; Kolstad and Wiig 2012; Curran and Spigarelli 2015).

As described in the section on framing of domestic energy and climate policy, China has increased its overall investment in renewable energy technologies, a trend which is mirrored in its overseas direct investment. First, initiatives like "Belt and Road" combine the new Chinese role as a global investor with energy security and *availability* interests (NDRC 2015). The Chinese government is pushing towards a more competitive energy market in the area of renewable energy, where it is world leading in some areas, such as solar power, and to some extent nuclear power.

Reflecting the strong focus on *environmental stewardship*, this resulted in the growth of domestic renewable industries even leading to overcapacity (Interview, 19 April 2016). This is in line with China's reform of its economic system, which includes

opening its capital markets as well as “Going global” by increasing investment and aid flows overseas (OECD 2014). The existing system of economic growth has been driven by investment in domestic infrastructure, creating overcapacities in some sectors and being increasingly difficult to sustain. Hence, China is putting in place laws and targets for renewable energy, which encourage private and state-owned companies to develop the technologies and make them more competitive (Bloomberg News 2015). Through target setting, the Chinese National Development and Reform Commission (NDRC) has encouraged companies to expand their operations. Domestic markets are falling short of their subsidy promises, and restrictive permits and administrative procedures are keeping Chinese companies from expanding at the encouraged speed. As a result, many of them are looking for opportunities to invest overseas (Bloomberg News 2015). Coupled with the EU anti-dumping measures against solar photovoltaics, companies are furthermore less inclined to export their products but instead circumvent the restrictions through foreign direct investment (Interview, 20 April 2016).

The coincidence of a spike in Chinese FDI during the European financial crisis symbolizes the stark shift in European frames and narratives of energy policy towards *affordability* in the face of reducing public budgets.

There has been a gradual reduction in the share of fossil fuels in overall FDI in the European energy sector. Prior to 2011, European oil, gas and mining firms were more attractive for Chinese investors, than their US counterparts, since these

investments were less restricted. These investments related to assets held outside Europe, including a USD 3.3 billion stake in GDF Suez's overseas gas exploration by China Investment Corporation, and a USD 256 million investment by China Railway Materials in African Minerals (Hanemann 2014, 138, Fernandez and Garcia 2015). Switzerland was the largest recipient of Chinese FDI in the energy sector in Europe. Within the EU, Germany is the main recipient of solar FDI, Bulgaria the main recipient of FDI for wind power (Curran and Spigarelli 2015).

As Jia shows, the second phase of Chinese FDI around 2008-2012 actually saw European countries competing for that investment (Jia 2015, 3), to the extent that opposition only arose over investment in nuclear power, such as in France and the UK, which raise hard security concerns. French nuclear company Areva has officially deepened its ties with China in June 2016 and there are plans by the China National Nuclear Corporation (CNNC) and China General Nuclear Power Group (CGN), both state-owned companies, to obtain considerable shares in the French company. In line with that trend, CGN has bought a 33.5% stake in the British Hinkley Nuclear Power Plant.³

Environmental stewardship concerns are not exclusively determining increased Chinese FDI, neither are purely *availability* considerations. Instead, the EU and more specifically the member states' emphasis on *efficiency* drive the openness to Chinese capital in European energy projects. This is demonstrated in investments in

³ The project raised concerns by security experts (Kottasova 2015), which led to a delay in project approval under the new British Prime Minister Theresa May (ETEnergyWorld 2016).

privatized electricity providers, such as a 30% share in Malta's Enemalta, which draws 100% of its electricity from two oil power plants (Sansone 2014).

We thus see two sets of frame developments in the EU and China. The Chinese frame on energy policy shifted towards *environmental stewardship* from around 2007, when overall climate policy also witnessed a dramatic shift: accepting responsibility for current emissions and moving away from a frame of justice between developed and developing countries (Gippner 2014). Chinese FDI has been on the increase since then, both in terms of investment stock and deals struck. With the financial crisis a window of opportunity opened for Chinese overseas investment. On the European side, initial Chinese FDI was received with skepticism, but the financial crisis strongly shifted the Chinese attitude towards energy policy towards considerations of *efficiency* and *affordability*. Companies were suddenly competing for Chinese FDI, in particular in the hardest hit member states. In addition, trade disputes concerning solar panels and ensuing anti-dumping measures around 2013 actually served as further motivation to invest. As argued by Curran and Spigarelli, investment can be a means of accessing foreign markets when companies are faced with actual or potential trading restrictions (Curran and Spigarelli 2015, 1).

The European financial crisis thus became the key turning point of EU frames of energy policy as well as an opening for Chinese "going out" efforts to materialize.

In the later years of the crisis, the European frame of *affordability*, which also translates into the ability of European companies to remain competitive, has risen to

the surface. To protect domestic energy companies and industries, the EU is working towards regulating investments through the EU-China investment agreement, which is currently under negotiation (Hallinan 2016). Until now, there have been no official limits to Chinese investments in sensitive infrastructures in Europe. The only true trade restriction between the EU and China remains the arms embargo. Addressing the lack of reciprocity between China's own FDI and what it allows European countries to invest in, the EU has been pushing hard to conclude a bilateral investment agreement (Dollar 2016). The treaty will have several clauses protecting standards and intellectual property, for example. However, in the absence of a European regulatory framework until then, member states differ greatly in the non-tariff restrictions they impose on Chinese investment. This may also explain the low levels of oil-related FDI, regardless of a consistently high Chinese demand.⁴

6. Conclusions and Policy Implications

Shifting energy policy priorities both in China and in the EU have transformed their bilateral relationship on energy and climate towards a convergence of frames. While the EU started with a strong emphasis on *environmental stewardship* and moved towards a focus on *affordability* and *availability*, China started with a strong emphasis on *availability* and has moved towards a greater emphasis on *environmental stewardship*.

⁴ Other factors are the low resource endowment in Europe and European security concerns (Wang and Livingston 2015).

The article argued that shifts in frames and policy frameworks create the context which structures the type of investment decisions and direction of cross-border FDI flows, which is the focus of the rest of this special issue. Chinese overall interest in investing abroad increased was affected by other factors such as favorable investment conditions due to the financial crisis. The changed focus on renewables in China and European technological advancement on renewable technology were necessary but not sufficient conditions for China's higher interest in investing in European renewable technologies.

The timing of these frame shifts, however, has not been aligned: it was the financial crisis which initiated the EU shifting from a strong focus on sustainability and supply security towards a stronger framing in terms of competitiveness. China, conversely, has since 2007 shifted from a strong focus on supply security towards greater emphasis on sustainability. This shows in the increasing trend towards renewable energy in Chinese energy investments in the EU, for example in Italy and the UK. Simultaneous investments in more traditional electricity infrastructure that draw on fossil fuel generation, however, demonstrate that potential rates of return are equally interesting to developing energy technologies for Chinese investors. Increasing frame alignment thus also increased renewable energy FDI, yet it does not represent a sea-change of FDI overall strategy.

The analysis above has important implications for European policy makers. The observed convergence of framing can serve as a common ground for bilateral

relations, though as noted above such convergence should not be assumed to lead automatically to improved bilateral cooperation. Rather, frame alignment should be thought of as a necessary but not sufficient condition for cooperation. It is clear that there are commonalities of interest in energy policy. While this can generate competitive tensions as both European and Chinese industries increasingly compete for the same regional and global markets, it also provides an opportunity to create agreed frameworks for bilateral and global trade and investment.

At the bilateral level, recognition of greater frame alignment could inform ongoing EU-China investment treaty negotiations. In January 2016, trade negotiators from the EU and China reached agreement on the scope of a Bilateral Investment Treaty (BIT). The two sides agreed that the BIT will include rules on the environmental aspects of foreign investment. Whether and how to include environmental and other “social” standards in trade and investment agreements has long been a source of tension in EU-China relations, but also in north-south relations more generally. The convergence of energy perspectives between the EU and China opens the door to greater potential scope for such rules. This could include, for example, a clause committing to non-lowering of environmental standards. Beyond the EU-China bilateral context, efforts should continue to forge a plurilateral “Environmental Goods Agreements”. These negotiations have been ongoing since July 2014 among seventeen parties including the EU and China. Such an agreement could capitalize on the greater alignment of interests highlighted by the analysis above, and could

help in managing trade tensions in cleantech sectors such as solar which have become increasingly prominent in recent years (Król 2013, 1).

Finally, considering the importance of Chinese FDI for the European Union, it is important to develop a comprehensive and methodologically sound database accounting for all Chinese FDI in Europe, including whether the investor is private or public and what type of investments they are. This also means consolidating already-existing studies.

Looking to the future, the argument made about changing frames and relative importance of availability, efficiency, affordability and environmental stewardship priorities can only explain the very broad trends of Chinese FDI in the European energy sector. The fact that other countries, not only China, have caught up with the EU's stance on environmental stewardship, also means that the EU's green economy will be under increasing competition. This might lead to protectionist moves by some of the member states. While the Brexit vote diminished the EU's ability to speak with one voice, the British government has already signaled its willingness to continue cooperation on energy policy with the other EU member states. British expertise as one of the drivers of European energy policy, however, will create a void to fill.

For EU-China energy relations this will mean an engagement at eye-level in particular in regions of common interest, such as Central Asia. Concerning Chinese

FDI in European energy infrastructures, a more case-by-case and country-by-country decision-making can be expected. Acknowledging the complex restrictions for European countries, Chinese companies will continue to play a cooperative role in the bilateral relationship. A conclusion of the Bilateral Investment Treaty will also create more consistency and a common and trusted environment to work in.

Below these trends there are other crucial factors, which are not within the scope of this study but are dealt with in some of the other contributions to this special issue. Country-based differences, non-tariff barriers and the different investment actors, such as sovereign wealth funds, state-owned companies or individual investors, further magnify or diminish the degree and direction of these investment flows. Furthermore, the EU does not provide a unified regulatory framework, which would encourage Chinese investors to develop “pan-European” strategies (Fernandez and Garcia 2015; Pareja-Alcaraz 2015). On a micro level, perceptions of the European and Chinese investment partners and the climate of cooperation between them are deciding factors (Vaccharini, Lattemann, Spigarelli, Tavoletti 2015). In order to explain individual investment decisions the following studies in this special issue, therefore provide differentiated analyses of the energy sector and the actors involved, set in the atmosphere of changing mindsets about green economy and the value of renewable energy investments.

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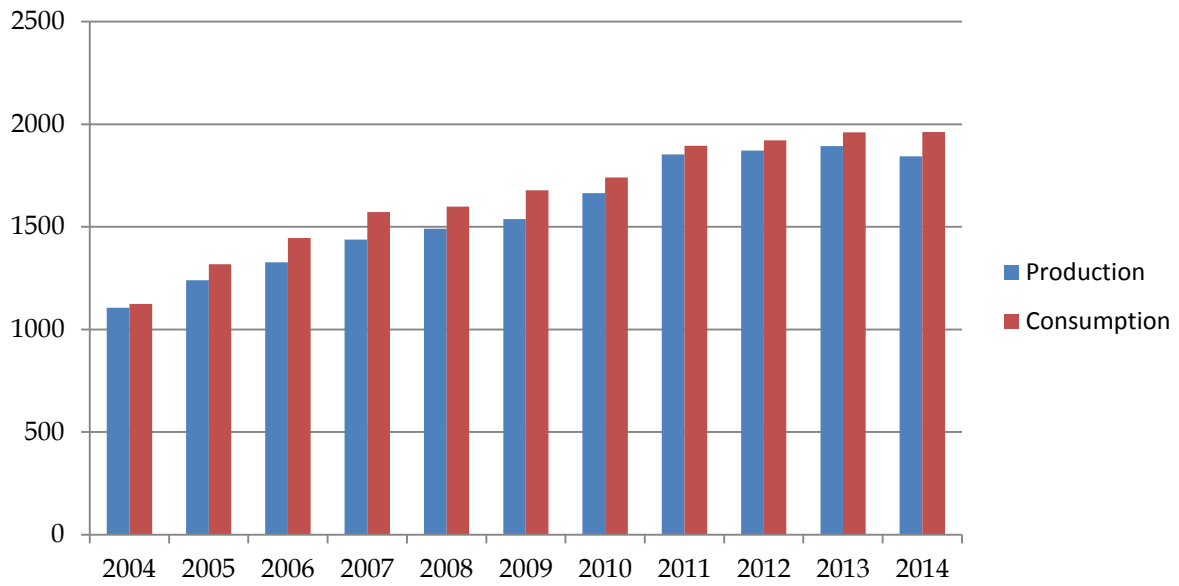
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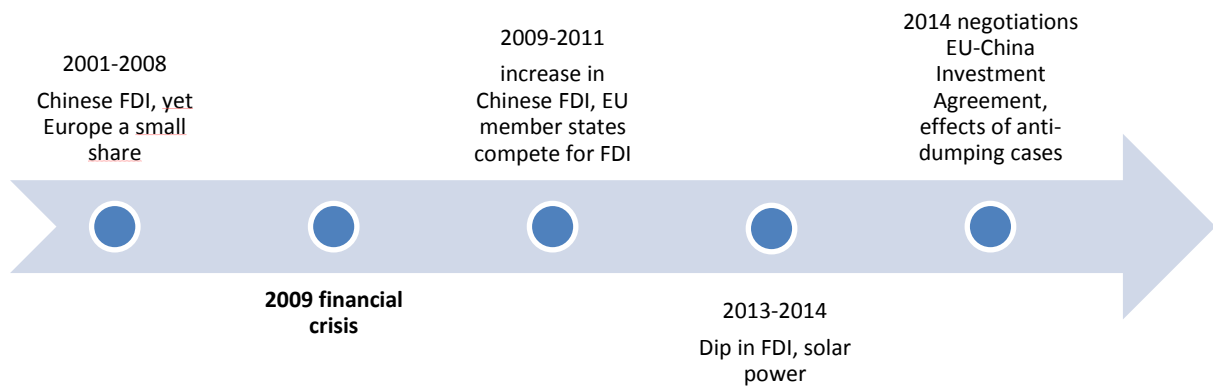
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Figure 1: China Coal production and consumption



Source: BP Statistical Review of World Energy, 2015.

Figure 2: FDI trends 2001-2015



Source: Authors' research.

Table 1: Energy policy frames

Frame	Explanation	Examples of terms looked for in content analysis
Availability	Emphasises importance of safe and secure access to a diverse range of energy sources.	Energy security, supply routes
Affordability	Stresses importance of affordable access to energy sources for households and firms, and equitable access to energy services.	Affordable, competitive, internal market
Efficiency	Focuses on more efficient use of energy sources and deployment of more efficient equipment.	Energy efficiency, energy saving
Environmental stewardship	Emphasises sustainability, particularly ensuring that emissions from energy production do not exceed relevant absorptive capacities of relevant ecosystems.	Sustainable, climate change objectives, low-emission

Source: Sovacool and Brown (2010), authors' research

Table 2: Content Analysis of Frames in Chinese Five Year Plans (2005-2015)

	Energy	Availability	Affordability	Environmental Stewardship	Efficiency
Chinese FYP (11-13th)					
11 th FYP (2006-2010)	64	10	6	10	17
12 th FYP (2011-2015)	80	5	18	21	21
13 th FYP (2016-2020)	58	6	18	15	18
SUM	202	21	42	46	56

Source: Authors' research

Table 3: Content Analysis of Frames in European Council Conclusions (2005-2015)

Council Conclusions	Energy	Availability	Affordability	Environmental Stewardship	Efficiency
2005 (15/16 December only)	4	0	0	3	1
2006	99	12	8	8	9
2007	94	2	1	6	1
2008	76	13	10	21	14
2009	35	17	2	3	4
2010	10	1	1	4	1
2011	49	12	9	8	12
2012	15	0	10	1	4
2013	45	2	7	1	0
2014	105	26	22	12	18
2015	21	6	5	2	3
SUM EUROPEAN COUNCIL CONCLUSIONS	553	91	75	69	67

Source: Authors' research