The EU-China Energy Cooperation

*An Institutional Analysis*
This paper expresses the views of the author and not the views of the European Institute for Asian Studies.
The EU-China Energy Cooperation:

An Institutional Analysis

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Abstract

As one of the components of the EU–China relations, the EU–China energy relationship has experienced an evolution of institutionalization for over two decades. Now, an EU–China energy cooperation institutional framework has been constructed. These institutions have been playing a significant role in helping EU–China energy cooperation by promoting bilateral dialogues and fostering cooperation projects. However, they still face some flaws. The EU and China should continue taking the construction of institutions seriously, and commit to optimize the institutional framework to make it more representative, pragmatic and efficient.
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<th>Full Form</th>
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<tr>
<td>ASEM</td>
<td>Asia–Europe Meeting</td>
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<td>DG ENER</td>
<td>Directorate–General for Energy</td>
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<td>DG TREN</td>
<td>Directorate–General for Energy and Transport</td>
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<td>EC</td>
<td>European Commission</td>
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<td>EC2</td>
<td>EU–China Clean Energy Centre</td>
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<td>EU</td>
<td>European Union</td>
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<td>ICARE</td>
<td>Institute for Clean and Renewable Energies</td>
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<tr>
<td>MOHURD</td>
<td>Ministry of Housing and Urban–Rural Development</td>
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<td>MOST</td>
<td>Ministry of Science and Technology</td>
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<td>NDRC</td>
<td>National Development and Reform Commission</td>
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<td>NEA</td>
<td>National Energy Administration</td>
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<td>SCLAO</td>
<td>State Council Legislative Affairs Office</td>
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1 Introduction

There are few doubts on the significance of energy as it is so obviously engaged in people’s daily lives and as such contributes to the economy. In short, it is at the core of the way of living in the modern societies. Beyond the economic sphere, energy is also considered as a security issue. The EU and China have been interacting on energy since as early as 1981, and energy is also one of the earliest fields that have been institutionalized in the EU–China relations. For the EU and China, the two sides face some common challenges, such as climate change, energy security and energy transition.¹ These common challenges lay the foundation for the EU–China energy cooperation.

This paper discusses the EU–China energy relationship from an institutionalist point of view. Its purpose is to outline the institutional framework of the EU–China energy relationship, find out its flaws and give corresponding recommendations. The remainder of the paper is organized as follows: The second section discusses the evolution of the EU–China energy relationship. Based on an institutionalist perspective, the evolution of the EU–China energy relationship is divided into three phases. The third section includes a detailed analysis of the institutions in the EU–China energy relationship on three levels. Section four analyses the rationale of the institutions in the EU–China energy relationship, including the roles and limits of institutions and gives some recommendations. The final section provides concluding thoughts.

In 1981, a delegation from the Directorate-General for Energy (DG ENER) paid a visit to China. This was the first official contact between the EU and China in the energy field, and thus marked the beginning of EU–China energy cooperation. Following this visit, the EU and China soon implemented a few cooperation projects. However, energy had been playing second fiddle in the EU–China relations which was long dominated by economy and trade. In 1994, with the opening of the first EU–China Energy Conference, the EU and China began to further boost their energy relationship with the help of institutions.

Based on an observation of the institutions in the EU–China energy relationship, EU–China energy cooperation has gone through three phases: 1981–1993, when the EU and China began to explore energy as a field for cooperation, and initiated a few projects; 1994–2011, when the EU and China witnessed the rise of energy in their bilateral relations, and established multiple cooperation institutions; 2012–present, marked by the opening of the EU–China High-level Energy Meeting, a new institutional framework of the EU–China energy relationship has been constructed and their cooperation has been lifted to a new level.

**Phase I: 1981–1993**

The visit of the DG ENER delegation to China in 1981 opened new avenues for cooperation. In 1982, the EU and China began to carry out the China–EU Energy Training Programme in energy management and energy efficiency in five Chinese cities: Hangzhou, Nanjing, Shanghai, Tianjin and Chongqing. It was generally operated by ways of inviting EU experts to give training courses to Chinese engineers and managers, representing industry, government and regional organizations and, on the other side, inviting Chinese delegations to pay visits to the EU. In 1985, the EU and China signed the *Trade and Cooperation Agreement*.

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and mentioned energy for the first time in an official agreement. In 1987, the two sides began to implement the Dachen Island Complementary Energy Resource Demonstration Cooperative Project. This project is one of the most successful and largest projects that the EU and China implemented in the 1980s. It was funded by the EU and consisted of three sub-projects: the upper and lower Dachen seafloor cable network; terrestrial satellite reception, television transposer, and solar energy battery applications systems; and wind-powered electricity generation.

**Phase II: 1994–2011**

In 1994, the first EU–China Energy Conference was held in Brussels. The EU–China Energy Conference, organized by China’s Ministry of Science and Technology (MOST) on one side and DG ENER on the other, was the most prominent and high-level conference on energy between the EU and China. It was held in Europe and China alternatively every two or three years. Marked by the opening of this conference, the EU–China energy relationship was institutionalized. In 1995, the EU released its first policy paper on China. In this policy paper, the EU recognized the seriousness of the increase of China’s energy consumption and thus its potential damage to China’s environment. In 1998, the EU published its second policy paper on China. In this paper, which was entitled *Building a Comprehensive Partnership with China*, energy enjoyed much more attention than it did in the last policy paper in 1995. In addition to the emphasis on the necessity of transferring the EU’s environmental and energy know-how to China, it also recognized the necessity of the EU and China dialogue on Central Asia, as both sides were sharing strategic interests in this region. In China’s 2003 EU policy paper—the first of its kind, energy was listed as an element of economic cooperation. By doing so, China expressed its particular interest in cooperating with the EU on energy structure, clean energy, renewable energy, and energy efficiency and saving. The establishment of the EU–China partnership on climate change in 2005 brought new opportunities for EU–

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China energy cooperation. Due to the key role of energy in dealing with climate change, it was given prime importance in their climate change partnership.⁹

**Phase III: 2012–present**

After a three-decade development, EU–China energy cooperation finally welcomed a new era, with the opening of the EU–China High-level Energy Meeting in May 2012. During that meeting, which was attended by the then Chinese vice-premier Li Keqiang and president of EC Barroso, the two sides announced the establishment of the EU–China Urbanization Partnership and the EU–China Strategic Energy Consumer Partnership. The opening of this meeting and the establishment of these two institutions not only symbolically elevated energy to a new level in EU–China relations, but also helped to lay a new institutional foundation for the future of EU–China energy cooperation.

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3 The Institutional Framework of EU–China Energy Cooperation

3.1 The interregional level

3.1.1 Energy in ASEM

As one of the many topics covered by ASEM, “energy” was mentioned as early as the Chair’s Statement of the first ASEM meeting held in 1996. It was listed jointly with agriculture and transport as one of the sectors that were seen as important for strengthening the economic links between the two regions.\(^{10}\) In 2006, energy was elevated to a higher level on the ASEM agenda. During that meeting, energy was first described as a security issue for Asian and European countries.\(^{11}\) After that meeting and echoing the importance that the Asian and European leaders attached during the 6th ASEM, the first ASEM Forum on Energy Security Policy was held in 2008, Vietnam. In June 2009, the ASEM partners held the first ASEM Ministerial Conference on Energy Security, with the aim to explore an agenda for future dialogue and possible opportunities for practical cooperation in ASEM.\(^{12}\) In addition to these conferences and forums, some seminars and roundtable meetings were also organized. For example, the ASEM Seminar on Nuclear Safety which was first initiated in 2012, has been held annually since then. The ASEM Roundtable on Green Building, which was first launched by India in 2014, has been organized twice by the time of writing.

Although such a number of institutions have been established and dialogues have been initiated, one should be aware that ASEM is an ultra-light forum. It is not institutionalized, has no funding and is not based on hard commitments, due to which one should not expect results beyond dialogues and mutual understanding.\(^{13}\) The declarations of the ASEM are widely viewed as no more than policy guidelines,\(^{14}\) and it is difficult to quantify the real contribution of ASEM on a


particular issue, such as energy, since no formal negotiations take place within it.\textsuperscript{15} In this case, compared with the bilateral institutions between the EU and China, the cooperation within the ASEM is much looser. This is not only due to the fact that ASEM is much younger than the general EU–China cooperation, but also the informal nature of the ASEM, while the direct relationship between the EU and China is much more focused and productive.\textsuperscript{16}

3.1.2 Energy in the EU-China Annual Summit

The EU–China Annual Summit is undoubtedly the most significant institution in EU–China relations. In the 7\textsuperscript{th} Annual Summit (2004) held in The Hague, leaders of the two sides signed an agreement on nuclear energy to launch research cooperation on the peaceful use of nuclear energy and give access to research facilities for researchers from each other.\textsuperscript{17} During the 8\textsuperscript{th} summit in 2005, in addition to the establishment of the EU–China Climate Change Partnership, the EU and China also created the EU–China Dialogue on Energy and Transport Strategies.

In the Joint Statement of the 9\textsuperscript{th} EU–China Annual Summit (2006), energy was put on a more prominent position with an article elaborating on the EU–China energy cooperation, in which the EU and China indicated their primary common concern on global energy issues. The two sides recognized that "global energy security is crucial to ensuring economic growth and livelihood of people, maintaining world peace and stability and promoting development worldwide."\textsuperscript{18} They agreed to "take appropriate measures to further strengthen dialogue and cooperation on energy in an effort to create a stable, secure, efficient and clean energy environment to support sustainable economic and social development."\textsuperscript{19} The 10\textsuperscript{th} Annual Summit reaffirmed the support of the EU and China on their energy cooperation institutions and identified four cooperation priorities: renewable energies, energy efficiency, smart grids and clean coal technologies. During that summit, the European and Chinese leaders also endorsed cooperation in establishing the EU–China Clean

\textsuperscript{15} ASEM, Achievements, Retrieved from http://www.aseminfoboard.org/content/achievements.
\textsuperscript{19} Ibid.
Energy Centre (EC2). This plan was confirmed during the 11th Summit held in 2009, with the signing of the Joint Statement on Europe–China Clean Energy Centre. In November 2013, the EU and Chinese leaders met in Beijing for their 16th Annual Summit. This summit led to the production of the EU–China 2020 Strategic Agenda for Cooperation. In this agenda, the EU and China put energy as a subtopic under sustainable development and particularly addressed global energy security within the framework of their energy dialogue.

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Figure 1: Institutional Framework of the EU–China Energy Relationship
3.2 The sectoral level

In addition to the ASEM and the EU–China Annual Summit that constitute the first level of the EU–China energy institutional framework, on a lower level (the sectoral level), the main institutions include the EU–China High-level Energy Meeting, EU–China Energy Dialogue, EU–China Urbanization Partnership and EU–China Strategic Energy Consumer Partnership.

3.2.1 EU-China High-level Energy Meeting

Energy is one of the first institutionalized fields in EU–China relations. The EU–China Energy Conference, which was initiated in 1994, aimed to gather “all interested parties in energy-related issues, including scholars, enterprises and universities.” In October 1996, the second EU–China Energy Conference was held in Beijing. During that conference, the officials from the then Chinese State Scientific and Technological Commission and the European Commissioner for Energy signed a joint statement on energy cooperation, and announced the birth of the EU–China Energy Working Group. Since then, the EU–China Energy Conference has been held six more times by 2010. Using these conferences as collaborative platforms, EU and Chinese officials explored the possibilities of cooperation in almost all the areas of energy, such as energy supply and security, energy market reform, clean energy, nuclear energy.

In 2012, the EU–China High-level Energy Meeting was held in Brussels. Under the themes of energy development strategy/planning and energy supply/securities, around 200 representatives from industries, academia and governments discussed such topics as energy infrastructure construction, energy investment and trade, and energy geopolitics. During this meeting, the EU and China signed three documents on energy: Joint Declaration on the EU–China Partnership on Urbanization, EU–China Joint Declaration on Energy Security and the Joint Statement for Enhanced Cooperation on Electricity Markets. The signing of the first two documents declared the establishment of the EU–China Urbanization Partnership and the EU–China Strategic Energy Consumer Partnership.

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3.2.2 EU-China Energy Dialogue

During the 8th EU–China Annual Summit held in 2005, the EU–China Dialogue on Energy and Transport Strategies Memorandum of Understanding was signed. In this memorandum, the then EC Directorate–General for Energy and Transport (DG TREN)\textsuperscript{24} and the Chinese National Development and Reform Commission (NDRC) decided to set up an EU–China dialogue on energy and transport strategies. According to the memorandum, the dialogue will be held alternatively in China and Brussels, and aims at “strengthening mutual understanding on energy and transport developments of each party, to promote the exchange of information on energy and transport policies and technology, to exchange opinions on certain issues, and to develop relevant cooperation activities.”\textsuperscript{25} The first dialogue on energy and transport strategies was held in 2006, and since 2009 a dialogue on energy has been organized.\textsuperscript{26} In 2010, the 4th EU–China Energy Dialogue was held in Shanghai, with attendance on a ministerial level for the first time.\textsuperscript{27} In 2011, during the 5th dialogue held in Brussels, the EU and China reached on four consensuses, among which the EU and China agreed that the EU–China High-level Energy Meeting will be held in 2012.\textsuperscript{28} In addition, the two partners decided to set up a working group for transport and a working group for energy. The working group for energy is to introduce the state of play in each side’s energy industry, discuss the specific cooperation projects and problems in the EU–China energy cooperation, and explore future cooperation possibilities.\textsuperscript{29}

\textsuperscript{24} The DG TREN divided into EC DG ENER and EC DG for Mobility and Transport in 2010.
\textsuperscript{25} Zhang Min, 探析中欧能源合作政策、机制和方式 (Analysis of Policy and Mechanism of China-EU Energy Cooperation), pp. 26-34.
\textsuperscript{26} Zha Daojiong and Lai Suet Yi, China-EU Energy Governance: What Lessons to be Drawn?, p.136.
document.pdf.
3.2.3 The EU-China Urbanization Partnership

The EU–China urbanization cooperation on the institutional level was first recorded in 2012. In May 2012, back to back with the High-level Energy Meeting, the first High-level Conference of the EU–China Partnership on Urbanization was held in Brussels, with the attendance of the then Chinese vice-premier Li Keqiang and the vice-president of European Committee Almunia. That conference declared the establishment of the EU–China Partnership on Urbanization, which aims at “tackling challenges together through cooperative efforts between the stakeholders at all appropriate levels, including national, regional and local levels.”30 Their partnership on urbanization is coordinated by the EC DG ENER and the Chinese NDRC. To institutionalize this partnership, the EU–China Urbanization Forum is established and held annually in the EU and China.

The first EU–China Urbanization Forum was held in Beijing in November 2013. This forum was organized with five sub-forums on innovative city, smart city, green city, cultural city and urban mobility. This forum reached a series of achievements, among which, the signing of 12 cooperation agreements between European and Chinese cities was one of the most significant. Under the framework of the EU–China Urbanization Partnership, these cities are implementing fruitful cooperation. For example, Changzhou city and its partnership city – Essen, Germany, are now promoting the construction of the “Sino–German Innovation Park”, meanwhile Haiyan city and Sonderborg, Denmark are cooperating in turning the ZERO-house concept into reality.31 The second EU–China Urbanization Forum was organized in Brussels in 2015, with the joint attendance of the Chinese premier Li Keqiang and the EC president Jean-Claude Juncker. This forum was themed with “Cooperation, Innovation and Practice”, and addressed four topics: smart cities, sustainable urban mobility, climate change and covenant of mayors, and EU–China forum on sustainable cities.

In addition to the regularly held EU–China Urbanization Forum, the EU–China Mayors Forum and the EU–China Exhibition on Urban Development also joined the Urbanization Forum to “ensure an innovative way of looking at China’s urbanization challenges.”32 The EU–China Mayors Forum was first proposed by the EU and

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31 A list of these projects, please refer to: http://ec.europa.eu/energy/sites/ener/files/documents/12_cities.pdf.
32 EC2, China-EU Energy Cooperation Roadmap 2020 (Concept Note). p. 15.
Chinese leaders at their 14th annual summit held in February 2012. In September 2012, the first forum was organized in Brussels. It aimed to “support and facilitate contacts and direct cooperation between mayors and local authority representatives from the EU and China, echoing the concerns of citizens and companies from their territories and finding mutually beneficial cooperation opportunities.” As the most notable outcome of this forum, 14 Chinese mayors and an equivalent number of EU counterparts signed the EU–China Mayors Charter. Together, they committed to share their experience and know-how in building low-carbon eco-cities and promoting sustainable development. In November 2013, accompanying the first EU–China Urbanization Forum, the EU–China Exhibition on Urban Development was organized in Beijing. Under the spirit of the Joint Declaration on China–EU Partnership on Urbanization, this event gathered 158 exhibitors with 123 from China and 35 from Europe.

3.2.4 EU-China Energy Consumer Partnership

The EU–China Joint Declaration on Energy Security signed in 2012 ushered in the creation of the EU–China Strategic Energy Consumer Partnership. In this joint declaration, the two sides agreed to “engage into a strategic energy consumer partnership through aligning concepts of energy security, increasing exchange about energy infrastructure construction and promoting open dialogue and cooperation.” Under the framework of this partnership, in July 2012, both parties agreed on the establishment of the China–EU Energy Security Working Group.

In December 2012, a high-level forum on EU–China energy security cooperation was held. This forum aimed to discuss the further cooperation under the framework of the EU–China Joint Declaration on Energy Security. It was introduced that the EU and China would take three major aspects for future cooperation, including enhancing communication institutions between two sides through working groups and platforms, achieving consensus on the roadmap on energy through legislation, technology and market-based institutions and encouraging businesses to


35 A new EU-China Joint Declaration on Energy Security was signed during the 16th EU-China Summit, 2013, in responding to the restructuring of the NEA and related change of leadership.

cooperate. During that forum, three roundtable sessions on cooperation in renewables, oil/gas and clean coal, and nuclear safety were organized. In February 2013, the first meeting of the EU–China Energy Security Working Group took place in Beijing, in which the process for the definition of the Roadmap was officially initiated. A concept note of this roadmap was published in March 2015, while a final draft: EU–China Roadmap on Energy Cooperation (2016–2020) was agreed in June 2016. This roadmap is viewed as a sign that cooperation on energy for the EU and China is becoming more important than in the past.

3.3 The sub-sectoral level

The third-level (sub-sectoral) institutions are defined as those institutions created for specific energy issues. Considering the fact that there are numbers of energy issues, this study uses here the six priority areas identified by the EU and China (renewable energy, smart grids, energy efficiency in buildings, clean coal, nuclear energy, and energy legislation) to make the analysis.

Renewable Energy

Nowadays, EU–China cooperation on renewable energy is basically implemented through the Institute for Clean and Renewable Energies (ICARE), jointly built by the EU and China in March 2012. This institute locates at Wuhan, and is co-funded by the EU and China, with a budget of EUR 10 million from the Europe (70.52 percent of total budget). ICARE mainly undertakes the educational activities by its Master diploma education, vocational training and cooperated research and consultancy activities, in the fields of solar energy, wind energy, biomass, geothermal energy and energy efficiency. In addition to this institute, some activities were also organized, such as a workshop on renewable energy and grid integration in May 2010.

Smart Grids

38 Information obtained through interview.
The year 2010 can be described as “the year of smart grids” for the EU and China. In January 2010, led by a group of European companies, the EU–China Smart Grid Working Group was created. The Smart Grid Working Group is a sub-working group of the EU–China Energy Working Group. It aims to help European companies respond to market growth and policy changes in China’s smart grid sector. In April, a two-day seminar on smart grids was organized at EC2. In May, the “Sino–EU Smart Grid Technology and Standardization Forum 2010” was held in Beijing. In November 2010, the “GRIDS 2010” conference was organized by the European Wind Energy Association in Berlin. Using this opportunity, DG ENER organized a meeting among European and Chinese experts on smart grids and renewables, in particular on wind energy. This is the first tangible result of cooperation by the EC and the Chinese National Energy Administration (NEA) in smart grids. Attracting 16 European and 10 Chinese participants, it functioned as the first of a series of events set up at expert level to promote mutual understanding and possible cooperation between the EU and Chinese industry. Following the first seminar on smart grid, another seminar was organized in December 2010, with the participation of the EC.

**Clean Coal**

Up to now, the EU–China interaction on clean coal has been basically by means of the EC2 set up in 2010. The EC2 was a five-year cooperation project funded by the EU and organized by the EC, the NEA and the Ministry of Commerce of China. Its main task was to promote the increased use of clean energy in China and to support the Chinese government’s efforts to shape a more sustainable, environmental friendly and efficient energy sector. Differentiated from the various dialogues between the EU and China that happen occasionally, the EC2 was “a permanent body, which is administered independently by a consortium of European and Chinese experts in the field of energy, environment and climate change”. It “constitutes a stable and independent platform for exchange on energy and environmental issues, which is expected not to be subject to eventual occasional

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political tensions that might arise between China and the EU".\textsuperscript{45} In addition, there were also two workshops on clean coal. The first workshop was held in October 2008 in Beijing, covered the topics from emission monitoring and control, coal gasification and coal to liquids, to clean development mechanism and CO2 capture. The second workshop on clean coal was held in October 2010. It had a focus on power plant modernization and clean coal-fired power plant technologies, and attracted around 80 participants from Europe and China.\textsuperscript{46}

\textit{Nuclear Energy}

The EU–China bilateral cooperation in nuclear energy is generally under the framework of \textit{Agreement between Euratom and P.R. China for R&D Cooperation in the Peaceful Uses of Nuclear Energy} signed by Euratom and the MOST in 2008. It is implemented by a joint steering committee co-chaired by the DG Research and Innovation representing Euratom and the MOST, the China Atomic Energy Authority and the National Nuclear Safety Administration. Since 2011, the Steering Committee has met annually, meanwhile four sub-committees have been created namely: a sub-committee on fission-coordinated actions, a sub-committee on nuclear security and safeguards, a sub-committee on nuclear safety, and a sub-committee on fusion energy research.\textsuperscript{47}

\textit{Energy Efficiency in Buildings}

The EU–China cooperation on energy efficiency in the building sector is generally carried out under the framework of \textit{The Memorandum of Understanding on Cooperation Framework on Energy Performance and Quality in the Construction Sector} signed by the then EC DG for Enterprise and Industry, DG TREN and the Chinese Ministry of Housing and Urban–Rural Development (MOHURD), during the 12\textsuperscript{th} EU–China annual summit held in 2009. The signing of this memorandum of understanding “opens the way for improving the energy efficiency of China’s buildings and construction process working jointly on the management system of energy performance certification of buildings, energy standards for buildings as well as research and technologies.”\textsuperscript{48} It is viewed as a major breakthrough in EU–

\textsuperscript{46} Ibid.
\textsuperscript{48} EC2, \textit{China-EU Energy Cooperation Roadmap 2020 (Concept Note)}. 

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China bilateral cooperation since the EU will be able for the first time to work with China in its highest energy consuming sector, and should therefore be taken as the most significant outcome of the 12th EU–China Annual Summit.

The EU and China have implemented a series of dialogues, workshops, seminars and cooperation projects on energy efficiency in buildings. One of the most significant platforms that the EU and China are using to promote their dialogue is the annual International Conference on Green and Energy-Efficient Building and New Technology and Products Expo (IGEBC) organized by the MOHURD. Europe has been an active participant since the first conference in 2005. During the 7th IGEBC in 2011, a seminar on building energy efficiency evaluation and certification system was organized, while an EU–China seminar on near-zero energy buildings was organized during the 8th conference in 2012. The year of 2013 witnessed the opening of another conference between the EU and China on “Policies for the Benchmarking of Large-scale (Commercial) Buildings”, while in the 2014 IGEBC, two activities were organized: a workshop on the “EU–China Exchange on Building Energy Efficiency Technologies and Policies” and the “EU–China Conference on Strategies for the Development of Energy-Efficient Buildings”.

Energy Legislation

Since 2005, the Chinese authorities have commenced to draft an energy law. In 2007, a draft of the energy law was completed, but at the time of writing, it is still being reviewed. During this progress, China has expressed its interest in the international experience on energy legislation, including that of the EU. In June 2009, a meeting between State Council Legislative Affairs Office (SCLAO) officials and officials from the EC DG TREN took place at the premises of SCLAO. During the meeting, both sides confirmed their intention to cooperate on the drafting process of the new energy law. As a consequence, in November 2009, the SCLAO and EC jointly organized a workshop on energy law in Beijing, which was attended by around 70 officials and specialists from China and the EU. This workshop focused on topics such as the relationship between general laws and specific laws on energy, energy planning, role of the market mechanism, energy prices and pricing, fossil energy, new and renewable energy, and energy technology.

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49 EC. Concrete cooperation projects under the EC-China Energy Dialogue.
51 EC. Concrete cooperation projects under the EC-China Energy Dialogue.
The Rationale of the Institutions in the EU-China Energy Relationship

The three levels of institutions have been playing a crucial role in promoting EU–China cooperation on energy. However, they are still suffering from some serious flaws. Recognizing these flaws, more efforts should be taken to further nurture the EU–China energy relationship.

4.1 The roles and flaws of the institutions

Generally, the institutions in the EU–China energy relationship have been functioning in three ways. First, those institutions have been helping to enhance bilateral understanding between the EU and China. Working as platforms for the parties to enhance bilateral and mutual understanding, and thus eliminate misunderstandings is one of the basic functions of institutions. In the case of EU–China energy cooperation, this function of institutions has been well exploited. For example, among the sectoral institutions, both the Energy Dialogue and the Strategic Energy Consumer Partnership are basically functioning as dialogue platforms, while on the sub–sectoral level, a series of workshops, seminars and forums are also playing such a role.

Second, the institutions have been promoting the implementation of cooperation projects. In the EU–China energy relationship since 1981, although not all the implementation of projects can be recognized with an institutional background, some of them clearly benefited from the institutions. For example, during the 11th EU–China summit held in 2009, the announcement of the establishment of the EC2 was made. Moreover, taking the second EU–China Urbanization Forum as an occasion, the cities from Europe and China reached agreements for bilateral cooperation, while by using the Mayors Forum to exchange their experience in eco-cities building and express their interest in future cooperation.

Third, the institutions have been helping to create new institutions. By doing this, multilevel institutions have been created and thus the general framework has been constructed. For example, the EU–China Annual Summit has been facilitating the birth of sectoral institutions. During the 2005 EU–China Annual Summit, the EU–China Dialogue on Energy and Transportation Strategies was officially established, which finally became the EU-China Energy Dialogue. The EU–China High–level Energy Meeting also played a similar role. As one of the achievements of that meeting, the EU–China Urbanization Partnership and the EU–China Strategic Energy Consumer Partnership were established.
Although an institutional framework has been constructed and helping EU–China energy cooperation, it is still facing some flaws. First, the potential of current institutions is not fully explored. Despite the good intention, some institutions do not fulfil their roles and are not working as they are designed to. A gap exists between design/purpose and the actual implementation. For example, the urbanization forum is supposed to be held annually, however, it was not organized in 2014, while in 2016 just a signing ceremony was recorded. Besides, the energy working group that was created in 2005 shows no evidence of activity.

Second, the current framework is fragmented. It is particularly lacking of a high–level decision–making institution. During the history of EU–China energy cooperation, it was the High–level Energy Meeting (2012) and the EU–China Energy Conference (1994–2010) that have been functioning as a high–level decision–making institution. Now, there is no similar institution playing such a role, as the High–level Energy Meeting was not held again after 2012. One should be reminded that except for the EU–China Partnership on Urbanization and the EU–China Strategic Energy Consumer Partnership, which are focusing on specific areas, the only institution that can be expected to provide a general guidance to the development of EU–China energy cooperation is the EU–China Energy Dialogue. However, the Energy Dialogue is implemented by the Chinese NEA and the EC Commissioner for Energy, which is a much lower level than the High–level Meeting, and is mainly designed to promote the exchange of information and opinions. Meanwhile, the EU–China Annual Summit which covers a broad range of issues should not be expected to provide specific guidance to the EU–China energy relationship.

Third, the current institutions are lacking of representativeness. Before 2012, one of the notable features of the EU–China energy institutions was the extensive representativeness, largely due to the work of EU–China Energy Conference and High–level Energy Meeting. Now, the EU–China Energy Dialogue, which is the only channel that the EU and China can discuss general energy issues, is just attended by a small number of energy officials. This situation also applies to the EU–China Strategic Energy Consumer Partnership. Although, under the framework of the EU–China Urbanization Partnership, the Urbanization Forum, Mayors Forum and the Exhibition on Urban Development also provide platforms for different energy sectors from EU and China, the dialogue and cooperation under this framework are more focused on urbanization. Meanwhile, the Mayors Forum and the Exhibition were only organized once, and as discussed earlier, the Urbanization Forum is not held regularly. Compared with the EU–China Energy Conference and the High–level
Energy Meeting, which gathered a large number of representatives from governments, enterprises, research and development sectors, etc., the current institutions are particularly lack of representativeness.

Fourth, the current institutions are largely empty. Although, in the history of EU–China energy cooperation, institutions have been playing roles more than dialogue platforms, under the current institutional framework, the function of promoting dialogues is more prominent while its ability to make decisions is weak. For example, at the sectoral level of the EU–China energy cooperation institutions, except the High-level Energy Meeting which was held only once, both the Energy Dialogue and the Strategic Energy Consumer Partnership are designed to “strengthen mutual understanding”, “promote the exchange of information” or “promote open dialogue and cooperation”. An overemphasis on the dialogue function has led to the critique to institutions as “talk shops”.\footnote{52 Information obtained through interview.} Certainly, this does not necessarily mean that institutions are not important. They are necessary, but need to be more practical and lead to tangible consequences. Therefore, how to put things into practice is also one of the great challenges in the EU–China energy relationship.\footnote{53 Information obtained through interview.}

Fifth, the relationship between the institutions in the energy field and other fields is not well coordinated. Energy issue is a very broad issue, which also relates to such issues as trade, technology, environment and climate change. Thus, the institutional arrangements in these fields may overlap. Take the EU–China Urbanization Partnership as an example, it could share similar targets and functions with the EU–China Low–carbon Cities Partnership, which aims to “promote mutual exchange on policies, planning and good practices for low-carbon and climate resilient cities,” and is actually under the framework of the EU–China climate change cooperation.\footnote{54 EU–China Joint Statement on Climate Change, Retrieved from http://www.consilium.europa.eu/en/press/press-releases/2015/06/29-eu-china-climate-statement/} Under this partnership, the EU–China Low-carbon Cities Conference was held in June 2016, and was attended by the Director–General of DG ENER and the Chinese Special Representative on Climate Change Issues.

4.2 Recommendations

Reviewing the evolution of the EU–China energy relationship, one can find out that the number of institutions have witnessed a great growth which greatly helped their energy cooperation. However, there are still some problems in these institutions,
which generally concern their current functioning, the construction of the institutional framework, and the coordination with institutions in other fields. Therefore, to forge a better energy cooperation, the EU and China can take some measures in line with the following recommendations:

First, attach high importance to the institutional construction. In the last two decades, those institutions have proven their value in promoting the EU–China energy relationship by providing platforms for the European and Chinese participants to introduce policies, exchange ideas, explore business opportunities, coordinate positions and implement projects. Stick with the way that the EU and China have already opened in their energy relationship, which is the institutional way, is the rational option for the EU and China to make further progress in this relationship.

Second, make full use of the current institutions. Various institutions have been constructed in the history of EU–China energy cooperation, and the two sides have developed a very good conception to these institutions. Therefore, dig out the potential and fully achieve the targets of these institutions is the low-hanging fruit for the EU and China. For example, it is widely agreed that the fast-developing urbanization in China could be a great win-win opportunity for the EU and China. The EU–China Partnership on Urbanization and its corresponding institution– the EU–China Urbanization Forum, could play a great role in turning this potential into reality. Thus, the full use of this forum is of particular significance for the two sides.

Third, optimize the institutional framework. The significance of institutions in EU–China energy cooperation has been widely recognized, and thus should be paid more attention to optimize the institutional framework. The EU and China can consider holding the EU–China High-level Energy Meeting regularly, and put the EU–China energy relationship under high-level guidance. In addition, the EU and China can consider institutionalizing the Mayors Forum to provide a solid platform for the EU and China to conduct cooperation on a city-to-city level.

Fourth, the institutions should have more pragmatic focus. The EU and China should try to promote the transformation of the functions of institutions, and make them more powerful in making decisions. Also, both sides should eliminate institutions that are more dialogue-oriented and can be integrated into other institutions. For example, the EU–China Strategic Energy Consumer Partnership and its working group are coordinated by the Chinese NEA and EC DG ENER, while, the Energy Dialogue is implemented between NEA and EC Commissioner for Energy. These two institutions can be considered being integrated as one.
Fifth, the involvement of third parties should be more emphasized. As analyzed above, the lack of an institution to function as a platform for the European and Chinese interests parties is one of the flaws of the EU–China energy institutional architecture. In this case, it is becoming more necessary to hold the High–level Energy Meeting regularly, as it can not only provide a platform for decision–making, but also gather a large number of representatives from all energy related sectors. Meanwhile, the EU and China should keep seeking the possibility of building new institutions between different parties from diverse levels, including the local governments and specific business sectors.

Sixth, coordinate the relations between the EU–China energy institutions and those in other fields. The EU and China might consider defining the targets and functions of the institutions more clearly, and thus better draw the border of each institution. Also, the EU and China should strengthen the coordination between institutions and eliminate those institutions with little value. For example, considering the overlap between the EU–China Low–carbon Cities Partnership and the EU–China Urbanization Partnership, and the fact that in over one year since the establishment of the Low–carbon Cities Partnership, only one conference was held, the true value of this institution is not without doubt.
5 Conclusion

From an institutional perspective, there is still space for further progress to make for the EU and China in their energy relationship. Now, it is clear that institutions are playing a crucial role in EU–China energy cooperation, and thus, the further optimization of this framework should be taken as one of the priorities for the two sides. Certainly, while the EU and China are trying to improve the institutions within the framework, they should also pay attention to its coordination with those institutions in other areas. The European and Chinese energy policy makers should always endeavor to make the institutions in their relationship be more representative, more pragmatic and more efficient.
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Interviews

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