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Marusyk, Yaroslava

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9 A New Page for EU-China Energy Relations? The Impact of Trump's Withdrawal from Paris Agreement on Cooperation and Competition in Energy Transition

Yaroslava Marusyk

As the winds of change blow, some people build walls, others build windmills.¹

Introduction

This chapter seeks to analyse new forms of climate change cooperation involving the US, the EU and China, and the challenges influencing their competition in renewables following the US withdrawal from the Paris Agreement under the four-year presidency of Donald Trump (2017–2021). By rethinking traditional multilateralism, it is argued that a new dynamic of climate cooperation that involves not only states but also sub-state and non-state actors is emerging. The EU-China partnership in mitigating climate change can be better understood through operationalisation of the concept of multilevel multilateralism. More precisely, this multilevel partnership incorporates entities above the state level (engaging the EU as a supranational institution), EU member states (intergovernmental level) and sub-state actors (city, company, NGO). On the basis of these different levels of analysis, the chapter proposes sets of favourable and disadvantageous factors that impact the implementation of the global climate obligations. The four-year *de facto* withdrawal from the Paris Agreement on the part of the United States has pushed a variety of actors to try to bridge this gap and thereby strengthened the multilateral setting of climate talks, in which China and the EU emerged as global leaders with aligned interests in fighting climate change and advancing energy transition.

The analysis covers a number of issues and the most recent trends related to climate cooperation and competition in renewables between the EU and China, in the context of US inactivity, or even hostility, under the Trump administration. The first section focuses on expanding the concept of multilateralism by going beyond the state level, on the adoption of the Paris Agreement in 2015 and on the consequences for the EU and China of President Trump's unilateral decision to leave this landmark agreement in 2017. The second section addresses three

resulting challenges of climate change cooperation between the EU and China, namely the absence of transatlantic cooperation, the impact of trade wars between China and the US and the obstacles to the coal phase-out process globally.

The third section evaluates the role of state and non-state public actors in the EU-China climate partnership. Firstly, it critically assesses cooperation between China on one side and both the EU and its member states on the other, focusing mainly on the results achieved in the framework of the joint EU-China summits. Secondly, it discusses European and Chinese clean energy initiatives at the sub-state level, namely city-to-city cooperation, in the process of energy transition. This section concludes that a variety of multilevel partnerships strengthen the EU-China cooperation in the framework of the Paris Agreement and provide tangible results once concrete joint projects are being implemented.

The fourth section has two subsections and focuses on challenges of market competition between the EU and China in the solar and wind power sectors and their sustainable connectivity cooperation. In the first subsection it is argued that the role of non-state actors that foster business-to-business connections is essential in moving the EU-China climate agenda forward. In addition, the positive role of information exchange and knowledge sharing between European and Chinese companies is acknowledged in driving the development of low-carbon technologies and decreasing the costs of producing renewable energy. The second subsection analyses EU-China sustainable connectivity cooperation, including sub-state urban projects on clean energy mobility in the framework of the Green Belt and Road Initiative (BRI) that was launched by the Chinese government in 2017. China's plans for transcontinental electricity transmission supergrids are also mentioned in this section. The development of advanced clean energy grid technologies and ultra-high voltage lines can diminish electricity transmission losses over longer distances and is crucial for reducing greenhouse-gas emissions, thus helpful in view of fulfilling the targets of the Paris Agreement.

The asymmetry of the new energy partnership between the US and China as a result of the US departure from the Paris Agreement is discussed in the last, fifth section. Asymmetric state/province-to-country cooperation on mitigating climate change is analysed by describing China-California climate partnership and other climate initiatives of US states since 2017.

The concluding remarks summarise the role of multilateralism in climate action and reiterate the challenges that impact multilevel climate cooperation and competition in renewables between the EU and China. The US's non-participation in combatting climate change had a limited impact on multilateral efforts of other major signatories of the Paris Agreement like the EU and China. At the same time, it offered new opportunities for non-state actors to develop and lead a multilevel climate partnership. The new modes of multilevel cooperation permitted not only the EU and China but also the US, through the initiatives of its states and cities, to contribute to the decarbonisation of the global economy, the reduction of the environmental footprint and the development of trade in innovative technologies for renewable energy sources.

The Paris Agreement as a Multilateral Setting and the Departure of the US (2017–2021)

The project that animates this edited volume starts from what could be called a “numerical” approach to multilateralism, by including a range of institutions in which more than two states cooperate and coordinate policies (see Introduction), but then focuses on qualitative aspects of multilateralism, in a Ruggiean sense. In exploring whether and to what extent there is normative agreement amongst old and new key players in some of the major multilateral institutions of present times, the book takes a largely state-centric approach to multilateralism. As the other chapters demonstrate, this can yield highly relevant insights, but it neglects that, in the course of time, new types of agents have started to play a role in multilateral fora, including non-state, sub-state and supranational actors. This does not mean we have to completely abandon a focus on states as core actors:

Both supra- and sub-national governance entities are largely built by states and can therefore be regarded as “dependent agencies” of those states ... These new sub- and supra-entities are knocking on the door of the multilateral system because they have a tendency to behave “as if” they were states.
(Langenhove, van L. 2011)

It is certain, however, that an arena that once belonged only to states now has to be shared with regional, sub-regional, sub-state and non-state actors. Conceptually, this is the point that this chapter is contributing to the project as a whole.

Returning to the normative dimension, it is true that “multilateralism requires states to follow international norms and pay more respect to international institutions” (Tago 2017). This explains why many US policies under President Trump represented such a significant challenge to the multilateral order. Donald Trump, representing the Republican Party, came to power in January 2017, and immediately showed his disregard for multilateral norms and institutions by establishing preferences for bilateral deals in trade, and by taking unilateral actions to backtrack on US commitments in various international agreements. In June 2017 he announced a withdrawal of his country from the Paris Agreement (PA). This agreement was signed by governmental representatives from 197 countries at the 21st Conference of Parties (or “COP 21”) of the United Nations Framework Convention on Climate Change in Paris on 12 December 2015 and entered into force on 4 November 2016. Unlike in past proposals that failed, each signatory of the PA can set its own emission reduction targets, so-called Nationally Determined Contributions (NDCs), and pursue its own climate mitigation policies. During Trump’s term the US implemented energy policies that contradicted the Paris Agreement across the country. Thus, “the US government has sidelined itself and China has welcomed a natural partner in the EU” (James 2019).

A number of experts have already addressed the history of the US non-participation in the process of climate change mitigation and the issue of Obama’s complicated legacy in driving the low-carbon economy agenda (Urpelainen &

Van de Graaf 2017). They concluded that American non-cooperation in the Paris Agreement has roots in “particularities of the US political system, i.e. it is a structural problem” and creates risks for financing climate change mitigation efforts, as “it does not alter U.S. emissions” fundamentally. On the one hand, Trump’s decision to withdraw ultimately presented a threat for global climate cooperation. On the other hand, it provided opportunities for the EU, China, India and other emerging economies to become leaders in global climate policy.

Poignantly, the US withdrawal became effective on 4 November 2020, one day after the US presidential elections in which Joseph Biden was elected as the 46th president of the United States. In 2021 President Biden renewed his nation’s commitments to multilateral efforts towards global climate agenda and in his executive orders pledged to return to “an irreversible path to achieve net-zero emissions, economy-wide, by not later than 2050” (Pinner & Rogers 2021, p. 2).

Examining the trilateral energy dynamics between the US, China and the EU, it should be noted that they are the major energy consumers and energy transition pioneers. They account “for three quarters of total global investment in renewable energy in 2017,” meaning that investment in clean energy continues to be predominantly concentrated in these three places. According to the IRENA jobs database, “the bulk of renewable energy employment is in Asian countries, which accounted for 63% of jobs in 2019” (IRENA 2020, p. 20). China ranks first with 4,361,000 jobs in the renewable sector, the EU is second with 1,316,000 and the US comes fifth with 756,000 jobs in this sector (IRENA 2020, p. 20).

As the institutional embodiment of global climate action, the Paris Agreement provides the necessary context in which the EU and China can fill the gap left by the US over the past four years, exercise their power and, upon mutual agreement, pursue shared goals in sustaining a multilateral approach to fighting climate change and multilateral institutions more in general. By launching the EU-China Energy Cooperation Platform (ECECP) in May 2019, the two global energy market leaders have committed to a shared vision on how to meet global climate change targets (Haddad 2019). This 3.5 million euro project is aimed at enhancing mutual trust between China and the EU. By strengthening its cooperation in climate change with China, the EU has been able to project its regional ownership of the climate action to a global level and to engage in the joint implementation of the Paris Agreement.

Understanding the Challenges of Climate Change Cooperation between the EU and China in a Multilateral Context

This section addresses three main challenges that impact the EU-China climate change cooperation in a multilateral context, predominantly looking at the level of states and intergovernmental organisations, while the next sections of this chapter analyse the role of non-state actors and entities at the sub-state level. The first challenge is the absence of transatlantic cooperation on climate change, the second issue is transpacific trade wars (between the US and China) and the third

issue is a slow process of coal phase-out globally that negatively affects climate action and disrupts a faster transition to renewables.

Firstly, the construction of a “transatlantic cooperation bridge” on climate change has always encountered difficulties. Unlike Americans, “Europeans have not viewed climate change as a technological or an economic issue. They have viewed it as a matter of basic common-sense morality, politics, economics and culture” (Antholis 2009). The EU has been striving for leadership in building a global climate change regime for decades while the US caused a significant setback for global climate change cooperation by not ratifying the Kyoto Protocol.² By vehemently denying climate science and claiming it to be a “hoax,” President Trump has led the US to unilaterally exit the Paris Agreement and thereby further weakened transatlantic climate cooperation. As a result, in the realm of climate change, the transatlantic alliance ceased to exist during Trump’s term (Cross 2018, p. 584).

Secondly, since 2018 the intensifying trade war between the US and China has been casting “a shadow over international climate talks” (Jing 2018) and complicating climate change cooperation in the multilateral setting. Underlining the need to adhere to the principles of multilateralism and positioning itself as a leader in global climate action, “the Chinese government has warned that the collapse of normal trading conditions between the United States and China is putting at risk global efforts to limit global warming” (FERNYHOUGH 2019).

Thirdly, the EU-China climate commitments can hit roadblocks unless both actors promote the phase-out of coal in order to curb carbon emissions globally. Some EU member states have still not agreed to phase out coal-fired power plants domestically and China has still been financing their construction around the world, including in Europe (for example in the Balkan states, Greece and Romania). The EU-China alignment in climate change mitigation has also suffered from the actions taken by the Czech Republic, Estonia, Hungary and Poland to block a new climate strategy for 2050 at the EU Council in June 2019. Their position contributed to slowing down the climate change mitigation efforts because these countries tend to protect the interests of the fossil fuels industries since their economies remain heavily dependent on them. For example, Poland relies on coal for 80% of its production of electricity. The most polluting coal power plant in Europe is the Bełchatów power station located in southern Poland; it emits 37.18 million tons of CO₂ per year (in 2013). It was ranked the number one climate-damaging thermal power plant in the EU (Gutmann et al. 2014).

China’s energy production, despite the stated intentions, has also been dominated by coal power plants. Its investing companies, with governmental support, are looking for opportunities in the coal sector abroad. Beijing is “involved in more than a hundred coal-fired power plant projects in active planning or construction phases” around the world (Aggarwal 2017). China Development Bank and China Export-Import Bank are “major funding sources of coal- and other fossil-based energy supply” (Quitow et al. 2019, p. 7).

It has been argued by some climate activists that Trump’s “climate U-turn” in 2017 (Farand 2019c) has removed incentives for China to curb its carbon

emissions and revealed the limits of European efforts to compel China, the biggest environmental polluter (and the world's largest emitter of greenhouse gases), to ramp up climate change mitigation. So the question was whether the EU was still able to use its trade deals with China effectively as leverage in the global fight against climate change. Thus, in the absence of US leadership, proponents of climate action believed that China needed further impetus from the EU as its sustainable energy partner (Farand 2019b). Following the US decision to return to the Paris Agreement, in April 2021 the Chinese government announced its decision to start phasing out coal from 2026 in order to reduce carbon emissions. President Xi Jinping pledged “to bring China’s emissions to a peak before 2030 and make the country ‘carbon neutral’ by 2060” (Stanway & Cadell 2021).

Summing up, this section addressed three main challenges that influence climate change multilateralism between the EU and China. The transatlantic climate alliance was absent during the Trump era and its potential was curbed as a result of the US withdrawal from the PA. Next, continuing US-China trade wars jeopardised the establishment of an international carbon market and, lastly, continuing investments in coal-fired power plants by China and the reliance on coal production in some EU member states curtailed the potential for state-level cooperation on climate change. Despite these obstacles, a multilevel multilateral dynamic has been developing due to the increasing participation of non-state and sub-state actors in jointly driving the global climate governance, i.e. cities, provinces, mayors, firms and NGOs.

A New Page of Energy Partnership: State and Non-State Public Actors in the EU-China Climate Change Mitigation Process

This section focuses on the EU and China as pivotal players on state and sub-state levels in global climate policy, in particular in terms of their joint urban initiatives. Further, it critically evaluates the progress of transition towards renewables under their leadership, the emergence of a new form of energy partnership and “a global normative shift” by examining these new patterns of cooperation.

Climate Change Cooperation between China, the EU and Its Member States

The determination of the EU and China to tackle climate change dates back to 2005 when both actors agreed upon a Partnership on Climate Change in which they declared their cooperation on “zero-emissions” advanced coal technology based on “carbon dioxide capture and geological storage” (European Commission 2005). This Partnership also promoted other clean energy sources, including renewables, energy efficiency and conservation and placed climate action at the centre of China-EU relations. The two sides confirmed the need to further accelerate climate-resilient development at their annual joint summits, like for example in 2018: “The Paris Agreement is proof that with shared political will and mutual trust, multilateralism can succeed in building fair and effective solutions

to the most critical global problems of our time” (European Council, EU-China Leaders’ Statement on Climate Change and Clean Energy 2018, point 6).

This high-level political framework of the 2005 Partnership was further enhanced with joint statements in 2010, 2015 and 2018 (European Commission 2018a). However, it needs to be acknowledged that EU-China joint statements mostly serve as documents of intentions, and are of a declarative nature, and proclaiming long-standing partnership does not necessarily result in the implementation of specific projects.

The EU-China Summit scheduled to take place in September 2020, where climate change was the major agenda topic, was postponed as well as the COP 26 UN climate summit in Glasgow due to the Covid-19 pandemic. The coronavirus recovery may provide an opportunity for the EU and China “to craft a ‘green partnership’ focused less on specific emission targets” but on speeding up the transition to a decarbonising global economy and on finding agreement to direct investments towards low-carbon energy production. Both could be major pillars of a prospective EU-China climate deal. EU-China climate talks focus on “developing international standards for sustainable finance” as well as “greening supply chains, revamping biodiversity frameworks” and cooperation on green investments in developing countries, especially on the African continent (Waldholz 2020).

The last pre-pandemic EU-China Summit took place in April 2019 and assured the commitments of both parties to multilateralism, the 2030 Agenda on Sustainable Development and the EU-China Energy Dialogue. It also endorsed the establishment of the EU-China Energy Cooperation Platform (ECECP). While underlining their compliance with the Paris Agreement, both sides expressed the need for “carbon pricing and fossil fuel subsidy reform” and further cooperation on green finance (European Council, EU-China Summit Joint Statement 2019, p. 5). Furthermore, while visiting France in March 2019, President Xi Jinping agreed with his French counterpart Emmanuel Macron on mobilising finances and carbon pricing to meet the goals of the Paris Agreement. The business deals struck between the two countries included “a Chinese order for 300 Airbus planes, as well as renewable energy, gas and transport infrastructure contracts” (Darby 2019). Further, both countries called for upholding multilateralism in combatting climate change jointly and strengthening the climate plan.

The European Green Deal adopted in 2019 defined a roadmap for Europe to be the first climate-neutral continent in 30 years. It involves all sectors of the economy, “notably transport, energy, agriculture, buildings, and industries such as steel, cement, ICT, textiles and chemicals” (European Commission 2019). As “a part of the EU’s post-pandemic response,” European leaders endorsed green transition and green policies at the EU summit in March 2020 (Simon 2020). In order to transform the political commitment to decarbonising all sectors of the economy into a legal obligation, the European Climate Law was agreed upon by member states in April 2021. The EU will reduce carbon emissions by “at least 55% compared to levels in 1990” (European Commission 2021). By stepping up its action to demonstrate its global climate leadership, the EU aims to develop the

clean circular economy “where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use” (European Commission 2020).

The sub-regionalisation of China-EU relations, especially in Central and Eastern Europe (CEE) through the 17 + 1 multilateral dialogue, and the phenomenon of multi-layered multilateralism have been the subject of previous academic research. The EU as a supranational entity is being challenged by these geopolitical developments, and there is concern that China might use a “divide and rule” approach to “undermine the integrity of the EU” (Jakobowski 2018, pp. 668–669). Another perspective defines cooperation between China and the EU as multi-layered multilateralism with “three distinct levels of interactions – regional, sub-regional and bilateral” (Song, Pavlicevic 2019, p. 277). China’s multidimensional approach then aims “to increase the value of ‘16+1’ to CEE countries, develop the sense of ownership by maximizing opportunities available to individual countries.” According to the authors, in this way China hopes to be viewed by the EU “as a positive contributor to the region, rather than a threat” (Song, Pavlicevic 2018, p. 300).

Summing up on cooperation at the level of member states and the above-state EU level, it is evident that the multilateral political landscape is shifting in recent years as Chinese and European visions on global climate action are progressively aligning, a development that has been under way for more than a decade, with or without American participation in mitigating climate change. Despite certain setbacks in some joint projects (in particular on carbon capture and storage), overall EU-China cooperation on decarbonising the global economy has opened a new page of energy partnership by demonstrating their commitment towards multilateralism and exercising leadership in the implementation of the Paris Agreement globally. Cooperation in mitigating climate change and trade in renewables has better prospects between the EU and China than between China and the US, not least because they do not view each other as security and military rivals.

Thus, two main insights can be drawn from this section. First, China-EU climate cooperation goes back to the 2005 Partnership on Climate Change, with various developments since then. Second, China-EU cooperation has been developing a particular multilevel structure, including for example the 16/17 + 1 format, but also bilateral engagement between China and individual member states. The next section will demonstrate that this cooperation has gone even further, becoming of a multi-layered nature. It covers EU-China multilevel and multilateral climate action and demonstrates the decisive role of European and Chinese urban initiatives in promoting the low-carbon global economy.

EU-China City-to-City Cooperation for a Low-Carbon Global Economy

Twenty years ago, prominent global governance scholar James Rosenau, while writing about gloomy perspectives for sustainable development and lack of clarity about how “authority gets exercised in a decentralised world” (Rosenau 2003, p.

11), cited a book by Hilary French, an advisor to the UN Environment Programme. She stated that “reversing ecological decline in the early decades of the new century will require innovative partnerships between many different actors, including NGOs, businesses, governments, and international organizations” (French 2000, p. 164). Rosenau was concerned about the contrast between the speedy proliferation of environmental regimes between 1985 and 1997 and the low level of compliance with global environmental treaties. He argued that the humanity is “still deeply ensconced in a paradigm that locates authority exclusively in states and environmental challenges exclusively in their shared problems” (Rosenau 2003, p. 28).

In line with Rosenau and French, this section emphasises the crucial role of sub-state actors and argues that climate-friendly urbanisation can be achieved only if cities are involved as main actors of this process. Rapid urban growth resulted in consumption-based emissions. According to the global environmental network C40 Cities, 7% of cities are impacted by various consequences of climate change like flooding, rising sea levels or dangerous storms in coastal urban areas (C40 Cities 2021). Therefore, cities as centres of financial and human (intellectual, social) capital are main drivers in reducing greenhouse-gas emissions.

The Partnership on Urbanisation as an open political platform between the EU and China was established in 2012. Its reports, predictably, outline mostly positive dimensions of joint urban climate action that contributed to the development of “sustainable and low-carbon Chinese cities” and provided “business opportunities for European companies as well as ushering closer city-level sub-national ties” (China-EU Energy Cooperation Roadmap (CEEER) 2020, p. 15) Cooperation in sustainable urban growth has indeed intensified in the past years, as visible in the implementation of many concrete projects. For example, in 2017 Urban EU-China was launched as an innovation platform on sustainable urbanisation in order to strengthen “coupling between city-level, national, and supra-national programmes, planning, policies, and projects” (Urban EU-China 2020).

This partnership has been “pioneering a new type of relations” (CEEER, 2020, p. 14) and become one of the main institutional mechanisms of EU-China cooperation. It established the annual Urbanisation Forum and the Mayors’ Forum, which launched new approaches in the process of transitioning to a global low-carbon economy. The EU-China Mayors Charter was signed in Brussels in 2012 in order to exchange best practices between Chinese and European cities, thus redefining traditional state cooperation in energy and offering a new instrument for EU-China relations. Under this framework 12 city pairs signed cooperation agreements on developing low-carbon cities, smart cities, new-energy cities, low-carbon planning, green cities and urban mobility, providing “innovative delivery mechanisms of the Partnership” (CEEER 2020, p. 15).

China is one of the most important partners in terms of sustainable urban development and climate change mitigation under the framework of the International Urban Cooperation programme (IUC) that is funded by the EU. This programme consists of three main components, namely city-to-city cooperation on sustainable urban development, sub-national action under the Global Covenant of Mayors Initiative and inter-regional cooperation on innovation for local and regional

development. For example, since 2020 Rome (Italy) and Liuzhou (China) have both been working on adapting the concept of the “sponge city” and “smart city” while scaling up “on issues of rainwater/flooding and ground permeability” in their contexts of high levels of urbanisation (International Urban Cooperation 2020). Both cities are studying measures to build urban drainage systems and construct new green city spaces (Kotlker et al. 2020, p. 13). In order to achieve the goals of the Paris Agreement, the Sustainable Development Goals and the Urban Agenda, this platform provides city pairings in order to develop sustainable urban policy, promote green “smart cities,” reduce carbon emissions and guarantee access to clean and affordable sources of energy for urban residents.

Aside from the EU-China framework for city cooperation, member states have taken similar initiatives *vis-à-vis* China. The most prominent example is the *Sino-German Urbanisation Partnership* that has provided dialogue for sustainable cities since 2013 and is funded by the International Climate Initiative (IKI) of the German Ministry for the Environment, Nature Conservation and Nuclear Safety. Its mission is to tackle issues related to the “rising rates of urbanisation, a higher frequency of climate change-induced natural disasters and increasing levels of environmental degradation.”³ For example, in 2019 governmental officials from Tianjin visited the Ruhr area, namely Essen, Bottrop, Duisburg and Herten, to learn more about the transformations that took place after the decline of coal and steel industries there. Currently, the Ruhr area is promoting the use of renewable energies and successfully dealing with re-training former miners’ families for the services industries. In Herten, the largest former coal mining town in Europe, hydrogen filling stations for fuel-cell powered electric vehicles were built to ensure innovative solutions for the transport and storage problem of the renewable sources of energy (Sino-German Dialogue for Sustainable Cities 2019). Specifically, fuel cell technology may be combined with the production of green hydrogen via wind power electrolysis, which contributes to reducing carbon emissions. Starting from 2021, Linde Engineering, a global engineering company, is developing high-performance green hydrogen fuelling stations in Herten that will primarily be used to supply both public and private transportation vehicles (Linde Engineering 2021).

Thus, city-to-city cooperation provides a new mode of interlinked state and sub-state cooperation in the context of climate cooperation between the EU and China. This is embedded in multilateral mechanisms that progressively move beyond states and tend to include more and more actors at multiple levels. It supports the realisation of concrete urban projects, ensures a variety of partnership forms and strengthens cooperation under the Paris Agreement as a multilateral setting. The next section will now turn to other new initiatives in the context of the PA and the broader China-EU climate change partnership, with special attention to the role of businesses.

EU-China Competition vs Cooperation

The focus on new modes of jointly combatting climate change does not mean that cooperation is always harmonious and free of tension. This section will

highlight competitive dynamics amidst cooperative efforts in two contexts. First it briefly analyses business-to-business cooperation between Chinese and European companies in the wind and solar power sectors and discusses the challenges of competition. The second subsection then focuses on EU-China cooperation approaches to sustainable connectivity and the Green Belt and Road Initiative.

Solar and Wind Power Sectors

Transitioning to renewables, especially solar and wind energy, presents new technological opportunities in tackling climate change. Global climate action is closely linked to the development, trade, deployment and consumption of renewables. China plays a key role in developing low-carbon energy technologies, has the most extensive high-speed rail network and is the biggest producer of solar panels and wind turbines in the world. Its investments into the renewables infrastructure are higher than those of the EU and the US combined. Collaboration with China as a global leader in the mass production of low-carbon energy technologies is important for the European renewables industry. Owing to China's investments, technologies that are necessary to meet climate change targets have become cheaper and can now compete with fossil fuels on the energy markets (Helveston & Nahm 2019). Thus, this section briefly analyses how businesses, as another type of non-state actors, contribute to international cooperation on climate change in the context of multilevel multilateralism. It focuses on two challenges that characterise EU-China competition and cooperation in renewables, as well as the tensions and opportunities this implies in the context of their global climate partnership.

Firstly, the main challenge that Chinese wind and solar energy industries face domestically is not the deployment of renewables and installing new capacity, but the need to ramp up the consumption of electricity produced from renewable energy. China is an unquestionable leader in manufacturing renewable technologies “with wind power capacity accounting for one third of the world's total and PV [photovoltaic] power capacity accounting for one fourth” (Renewable Energy World 2019). However, coal remains a main source of electricity production in China and the use of clean energy must be increased in order to fulfil its global climate obligations. Furthermore, while China reports impressive statistics about installation and planned renewables capacity, it still has “a far less sophisticated energy system ... horrible levels of curtailment, terrible yields (capacity factors) compared with other (European) wind and solar farms and un-integrated, un-competitive, provincially segregated energy system” (James 2019).⁴ Thus, the consumption of electricity from clean energy sources needs to be increased in order to meet the climate targets, which would also multiply business opportunities, both for Chinese and European firms.

The second challenge that characterises EU-China business competition and cooperation in renewables is about mutually beneficial interdependencies in doing business and about creating opportunities for best practice sharing and knowledge exchange in the process of energy transition. Looking at how German and

Chinese companies shaped the global solar PV market, Quitzow argues that “a set of dynamic and mutual inter-dependencies between an industrialized country (i.e. Germany) and an emerging economy (i.e. China) have driven development and diffusion of technology in the field” (Quitzow 2015, p. 127). Chinese and German competitors enabled the dynamic market growth of solar PV and contributed to industry expansion. Describing cross-country interdependencies, the scholar underlines that “Chinese industrial development was facilitated not only by the profits generated in Germany, but by important inflows of knowledge and finance. German equipment suppliers played a central role in transferring state of the art equipment and related know how.” While Quitzow calls such processes “cross-country interdependencies or transnational linkages” (Quitzow 2015, pp. 138–139), these processes could be also viewed as cooperation or interdependencies between non-state actors – corporations (Chinese pioneer firms, German equipment suppliers), citizens (consumers), R&D centres and cities. The role of a central government (Chinese or German) is no longer paramount when energy transformation stimulates the decentralisation of energy systems. Thus, the network-like nature of multilevel multilateralism is also supported by interdependencies in the business sector between China and the EU.

Meanwhile, European solar panel and wind turbine manufacturers face challenges in staying competitive on the market. In the framework of the EU-China Energy Cooperation Platform (ECECP), launched in 2019, there are calls for reciprocity and the creation of a level playing field between European and Chinese companies in renewables: “no special advantages, merely parity of opportunity for Chinese and EU firms in either market” (James 2019).

Similar to the aforementioned analysis of solar PV dynamics, an earlier study on cooperation and competition in the wind power sector found that Chinese and European industries have developed distinct models of competition and cooperation, and that it would be too simplistic to describe green technology trade and investment relations in terms of winners and losers only (Lema et al. 2011, p. 35). In the past, the European wind energy market was dominated by Spanish, German and Dutch firms. However, this situation is changing as Chinese firms are expanding and “the competition will intensify as Chinese firms manage to throw in different price equations, consortia models and financing options” (Lema et al. 2011, p. 36). According to the scholars, it remains to be seen whether lower costs of wind turbines will drive competition in innovation, or whether the firms will compete on the basis of quality.

Further, the cooperation platform ECECP provides opportunities for European companies to share best practices of cooperation amongst transmission system operators (TSOs), like the European Network of TSOs – Electricity (ENTSO-E), and the European Network of TSOs for Gas (ENTSO-G),⁵ and explore possibilities for joint TSO organisations with China. They have sufficient experience with the type of “network sophistication (codes, smart grid, cross-border exchange-based trading etc.) necessary to take advantage of efficient, intermittent renewables at scale” (James 2019). This knowledge sharing will help the Chinese energy sector to deal with the need to integrate cross-provincial energy systems. Currently the grid

is partitioned and the majority of solar and wind farms are deployed in the North and the West of the country. Closer EU-China ties, that are now institutionalised in ECECP, promise to contribute to growing energy partnership and may help to turn commitments into actions despite disagreements, competition in trade and other setbacks.

It is important to acknowledge that in the past two decades both Chinese and European (mostly German) companies benefitted from cooperation in the solar and wind power sectors, driving the development of the low-carbon energy technologies further and creating conditions for using clean energy to mitigate climate change. Overall, China is trying to achieve its strategic goal of developing new markets for its solar and wind industries, especially in the developed countries. Sub-state and non-state cooperation is essential in sustaining the leading role of the EU and China in the global climate change arena. The involvement of interest groups, non-profit NGOs and for-profit business actors in the renewables sector contributes to creating equal and fair market conditions for European firms in China and overall benefits a dynamic network of energy relations and climate partnership between China and the EU. Despite existing trade rivalry and competition between solar panels and wind turbines producers, if China and the EU aim to fulfil their climate obligations, not only the EU but also China must commit to reaching net zero greenhouse emissions by 2050 (not by 2060) and further embrace their multilevel multilateral cooperation, now with the renewed commitments on the part of the United States as well.

Thus, this section has further illustrated the multilevel nature of climate cooperation, between the EU and China, in multilateral settings as well. It involves not only above-state, state and city levels of cooperation but also businesses, as another type of non-state actors, and business-to-business connections.

Sustainable Connectivity in the Framework of the Green BRI

This section evaluates the approaches to sustainable connectivity implemented by the EU and China. The Belt and Road Initiative (BRI) and, in particular, Green BRI, is analysed in terms of the EU-China sub-state level cooperation on green urban mobility and construction of giant electricity supergrids. I will show that these projects are developed in accordance with the EU's and China's climate obligations under the Paris Agreement. The BRI as China's global infrastructure development and international cooperation strategy was launched by China's President Xi Jinping in 2013. This ambitious project consists of two trade routes, notably the Silk Road Economic Belt (by land) and Maritime Silk Road (by sea), covering more than 70 countries, incorporating about US\$1 trillion in investments and engaging about 65% of the world's population (EBRD BRI 2020).

Starting from 2017, in the context of the 21st-century "New Silk Road," China has placed more and more emphasis on the *Green* Belt and Road Initiative based on "ecological civilization philosophy," sustainable development and environmental protection concepts.⁶ It aims to significantly reduce the risks of environmental

pollution and climate change by reducing costs for the production of renewable energy and stimulating global investments in solar photovoltaics and wind power energy.

Following the launch of the BRI, the EU-China Connectivity Platform was established in 2015 in order to find synergies between China's approach to connectivity via the BRI and the EU's policy, including the Trans-European Transport Network (TEN-T). The main goal of this platform is to achieve "greater transparency, reciprocity in market access and a level playing field for businesses in the area of transport infrastructure development" (EU-China Connectivity Platform 2020). Thus, by enhancing "regulatory quality and level playing field of connectivity" via this framework of cooperation, the EU aims to "strengthen regional order and focus on multilateral approaches to connectivity" (Mohan 2018, p. 5).

As an important trading and investment partner for China, the EU has proposed a number of projects for Green BRI that include "sustainable urban transport, sustainable urbanization and sustainable industrialization." Both China and the EU agree on the need to achieve a transition to green mobility that runs on sustainable energies (electricity, hydrogen) in the cities along the BRI route in order to successfully mitigate climate change. In 2019 the BRI International Green Development Coalition was launched by the Chinese Ministry of Ecology and Environment in order to develop green transport, green finance (that entails renewable energy investments), agriculture, green standards and innovations (Green BRI 2019). The European Commission is a partner of the Green BRI Center which was founded also in 2019 in Beijing. Hence, Green BRI is closely related to the Paris Agreement climate targets and provides one more framework for institutionalised cooperation between the EU and China in the multilateral setting of the PA.

Besides clean energy transport systems, transcontinental transmission infrastructure and sustainable grid connectivity⁷ constitute one of the main strategic goals for the Green BRI in which solar PV can play a decisive role. "Less than 4% of the maximum solar potential of the region could meet the BRI's electricity demand for 2030" (ScienceDaily 2019). This growing potential of renewables for the planet's largest electricity grid connectivity was highlighted by the International Renewable Energy Agency (IRENA). "China is at the forefront of the energy revolution ... The initiative ... can also expand electricity markets to countries with extremely high renewable energy potential, including those in Central Asia" (IRENA 2017). In order to implement the Paris Agreement, it is crucial to install "as much as 2,000 GW of interconnection capacity ... for enough renewables to be deployed" before 2050 (IRENA 2017).

In 2015 the Global Energy Interconnection (GEI) initiative was established by Liu Zhenya, chairman of the State Grid Corporation of China. It is the largest utility company in the world and can "potentially ship electricity from Beijing to Bangkok" (Temple 2018). Stretching for 37,000 km and covering 88% of China's territory, it is estimated that its ultra-high voltage lines can transmit an output of 150 gigawatts of electricity, which is equivalent to the production capability of

150 nuclear reactors. This giant electricity network has over 1 billion customers and about 1 million employees. It can connect electricity systems of neighbouring countries into “transcontinental ‘supergrids’ capable of swapping energy across borders and oceans,” thus demonstrating China’s “rising global ambitions” (Temple 2018).

It is notable that at the beginning of developing this giant transmission grid, the State Grid collaborated with European companies (ABB from Sweden and Siemens from Germany). However, over time it has developed its own expertise in power transmission technology that allows the supply of renewable energy to be balanced in predominantly the Northern and Western provinces with increasing electricity demand in highly populated urban Eastern provinces of China. Furthermore, this giant electricity grid is able to provide a constant supply across different time zones and to address the intermittency problem of renewables by rotating the use of solar, wind, geothermal or hydroelectric energy.

Why is supergrid connectivity for electricity transmission important for the multilateral setting of the Paris Agreement? Foremost, it would allow greenhouse-gas emissions to be significantly reduced along the BRI route via advanced clean energy grid technologies and newly built ultra-high voltage lines that can diminish electricity transmission losses over longer distances. Additionally, by steadily increasing the amount of renewable energy use, China can showcase its leadership on climate change, thus adhering to its commitments.

To conclude, on the business-to-business level this section briefly analysed cooperation and competition challenges of Chinese and European firms that are operating in the wind and solar power sectors. On the above-state level, the EU is committed to collaborating with China on the sustainable connectivity projects in the framework of the Green BRI. The sustainable connectivity projects implemented by the EU and China’s Green BRI are constitutive pillars of lowering greenhouse-gas emissions and fulfilling targets set out multilaterally by the Paris Agreement.

The following section discusses how, despite Trump’s decision to isolate his country from climate action and the Paris Agreement’s commitments, a new form of energy partnership between the US and China continued to address the challenges of carrying forward climate change.

Asymmetric Cooperation on Climate Change Mitigation: The Example of the US and China

Although US-China cooperation on mitigating climate change following Trump’s decision to pull out of the Paris Agreement is not the main topic of this chapter, it is extremely useful to examine the role of American sub-state and non-state actors in global climate governance as it shows the emergence of new forms of energy cooperation beyond national borders. Thus, this section focuses on asymmetric forms of climate partnership as a result of Trump’s energy policy.

One of the direct consequences of the US departure from the Paris Agreement is the adoption of the declaration “We Are Still In” signed by city mayors,

business leaders, university presidents and governors of a number of American states in June 2017. The document has over 3,500 signatories from all 50 states, and points out that the climate actions of non-state actors, such as cities, universities, small and big business enterprises (Apple, Google, Tesla, eBay, Adidas, Facebook, Nike and others), religious communities and cultural institutions, represent “a constituency of more than half of all Americans, and taken together, they represent \$6.2 trillion, a bigger economy than any nation other than the U.S. or China.”⁸ The members of the network believe that what is good for the environment, can also be good for business (Perkins 2017).

Another sub-national climate action initiative that was launched in response to the US withdrawal from the PA was the Vermont Climate Pledge Coalition. The state of Vermont has pledged, together with a group of municipal, business and non-profit partners from across the state, to continue implementing the national and state climate goals set by the US in the Paris Agreement, namely “a 26–28% reduction in greenhouse gas emissions by 2025 from 2005 levels” (Vermont Climate Pledge Coalition 2018). This network has set the goal of covering “90% of Vermont’s energy needs from renewable sources while virtually eliminating reliance on oil” by 2050.⁹ However, it remains to be seen what will be the results of these advocacy campaigns and whether they do not only have declarative nature, with the primary goal to show protest and disagreement with the Trump administration’s energy policy.

The same month “We Are Still In” was launched, in June 2017, China and California signed a deal re-committing to work on climate change, thus bypassing the federal government’s decision. Trump’s course constitutes nothing but a “a temporary setback,” in the words of California’s governor Jerry Brown (Guardian 2017). California and China are not a surprising climate diplomacy tandem because China is the world’s second-biggest economy and California, counted as a separate economy, would be in the fifth place after the US, China, Japan and Germany. The governor of California has promised to Xie Zhenhua, China’s special representative for climate change, “to keep working on developing low-carbon technologies and markets together” (Guardian 2017).

But the China-California climate partnership goes back further, and it has developed on the basis of commercial ties and the expanding markets for solar and wind energy technologies. It was in 2015 under the Obama administration that the “US-China Governors’ Accord on Clean Energy and Economic Development” was signed by the governors of California, Nevada, Michigan, Oregon, Iowa, Washington and different Chinese provinces (thus symmetric, unlike the 2017 deal between California and China). First and foremost, the agreement promoted “trade and investment supporting the commercialization and deployment of renewable energy and clean technologies” (US-China Governors’ Accord 2015). It contributed to developing export opportunities for Californian clean-technology companies.

Even though the US has been driving “innovations in electric cars, renewable power and other sectors of the industry,” the country has not been a global leader in the development of a clean energy agenda, not even before Trump’s energy

policy favouring coal and oil industries. However, “California, with the largest economy of any U.S. state, as well as some of the strictest climate controls, has been at the forefront of the sector” (Brown 2017), and it is well-placed to benefit from further cooperation with China. At the same time there is little to gain for the US from protectionism and unilateralism in this field, as “US clean-technology tariffs, support for sunset industries and retrenchment from climate negotiations will do little to combat Beijing’s growing influence in emerging renewable-energy markets” (Reynolds 2018).

The intention of this section was to show that climate diplomacy moved from the state to the sub-state level, fuelled also by business ties between certain American states and Chinese provinces in the development of trade in renewables and including even asymmetric state-to-sub-state cooperation. The sub-state and non-state actors are involved in mitigating the impact of climate change and in the deployment of renewables, despite the policies of the Trump administration, which aimed at prolonging the existence of domestic coal-fired power plants, coal mining and oil industries.

Conclusion

The retreat of the Trump administration from the Paris Agreement and withdrawal from the process of global climate change mitigation is yet another example of the turn from multilateralism to unilateralism in US foreign policy. While the United States under Trump has been withdrawing from multilateral organisations, China has continued to enhance its engagement in such institutions. The election of Qu Dongyu in 2019 as the first Chinese director-general of the Food and Agriculture Organization (FAO), the UN’s largest technical agency, is a recent example that illustrates this trend (Farand 2019a).

The main findings of this chapter are the following. Firstly, China and the EU stepped in after the US left the PA. This situation provided more opportunities to develop bilateral cooperation that filled the gap left by the US and created leeway for the EU and China to become leaders in global climate diplomacy. Secondly, their example shows the importance of the sub-state level of cooperation for multilateralism in climate change. Thirdly, the asymmetric US-China cooperation further underlines the relevance of the sub-state level, in some cases even against formal positions of a national government. Furthermore, multilevel climate partnerships (involving sub-state and non-state actors) between the US and other PA participants reveal that the official policies of the US government are of less effect than many would expect. As a result, the impact on the implementation of the PA climate targets remained relatively limited.

The global fight against climate change is a particular realm where the interests and visions of the EU and China are aligned. Both actors believe in the irreparable consequences of global warming, pollution, arctic ice loss and, therefore, the urgent need to transition to clean energy systems. A coordinated EU-China engagement in a far-ranging global climate policy contributes to implementing

the PA targets on the global scale. Returning to the conceptual points proposed in the introduction to this volume, this might suggest that in the realm of climate change there can be a high level of agreement amongst core players. Interestingly though, this has not translated into ordering principles that are binding on states, but rather a minimally binding multilateral agreement in the classical sense, that has enabled a broad network of non-state actors to interact, promote the fight against climate change and also put pressure on state governments.

The retreat of the US under Trump demonstrates the challenges of “multipolar multilateralism,” in which a set of (older and newer) dominant players engage with each other on the basis of norms and principles that every one of them adheres to. At the same time, the dynamics of multilevel multilateralism also imply that multipolar agreement is not necessarily indispensable, at least not in all fields. After the US government voluntarily stepped aside, rejecting values on which the Paris Agreement was built, the EU and China were able to develop a new model of multilateralism in climate change mitigation. This would suggest that multilateralism is not in danger, even if a single core player retreats temporarily. Instead, multilateralism is evolving. In the realm of climate change it has come to include a variety of non-state actors that play an ever growing and more and more decisive role in driving forward the global climate agenda. European and Chinese cities, corporations and consumers have shown that transnational cooperation amongst non-state actors can efficiently contribute to the process of energy transition and a global low-carbon economy. By involving non-state actors, the EU and China are building a new form of energy partnership and offering multilateral solutions on the global scale.

Admittedly, there are a number of obstacles and challenges, mentioned in this chapter, which complicate multilevel climate partnership. Among others, there are the US-China trade wars; the absence of transatlantic climate cooperation during Trump’s term; the divergence of interests in mitigating climate change among certain EU members (Poland, Czech Republic, etc.); the EU-China trade competition in solar and wind production and challenges of creating transparency and a level playing field for business; China’s continued investments in coal power plants in developing countries and uncertainties related to global economy recovery plans after the Covid-19 pandemic. The potential for unparalleled electricity grid connectivity in the framework of the Green Belt and Road Initiative might be impeded by a number of factors ranging from geopolitical concerns and environmental consequences to continuing investments in coal mining and post-pandemic growth problems for the world economy.

Also, there are plenty of other contentious issues between the EU and China that complicate cooperation but are beyond the scope of this chapter, like long-term disagreements on trade, confrontation launched by the US against Chinese company Huawei being chosen as a 5G infrastructure supplier in the EU, human rights issues and the recent escalation on the status of Hong Kong. It remains to be seen whether the EU and China will be able to sustain their climate leadership and multilevel partnership among a global post-pandemic economic recession, growing trade competition tensions and geopolitical and security concerns.

At present, the EU and China continue to remain allies in the sphere of climate change mitigation. The role of the EU is crucial in providing impetus for China to become more energy efficient and to curb its carbon emissions. China supports the Paris Agreement, as an existing multilateral structure, does not attempt to modify it and continues to adhere to the NDCs by cutting carbon dioxide emissions as declared.

In the post-Covid-19 recovery period, the global energy transition and implementation of the Paris Agreement will be significantly influenced by the ability of China to further invest in renewable versus carbon-intensive industries (Gosens & Jotzo 2020, p. 250). The liberal international order has been beneficial for China as it could realise its trade potential as a world leading exporter of low-carbon energy technologies, including solar panels, electric vehicles and batteries. In this context, China clearly does not play the role of a revisionist power because it benefits from the global trade in renewables. Multilevel climate cooperation between the EU and China also demonstrates that China is likely to support the existing order, at least in the framework of the PA. The US retreat created political and business opportunities for the EU and China to become global sustainability leaders and competitors in clean energy innovations by further expanding their markets for solar and wind energy technologies. However, the multilevel nature of cooperation under the multilateral PA allowed for sub-state entities in the US to keep the momentum of climate change measures despite the official policies of the Trump administration.

By analysing triangular interaction between the EU, China and the US in the multilateral setting of the Paris Agreement, this chapter has shown that multilevel cooperation, involving states and non-/sub-state actors, contributes to the implementation of climate goals while national sovereignty issues are becoming less important. Hence, a new form of energy partnership emerged as a result of increasing non-/sub-state cooperation between the EU and China and due to their shared sense of obligation to reduce the global carbon footprint.

Doubtlessly, the Biden administration's decision to re-join the Paris Agreement, re-committing to the NDCs and aspiring for net zero emissions by no later than 2050, strengthens multilateral efforts to mitigate climate change and re-establishes trilateral dynamics of cooperation and competition in clean energy technologies between the EU, China and the United States. But the uncertainties of US domestic politics may have less impact on the global efforts at mitigating climate change than many observers feared initially.

Notes

- 1 Chinese proverb (2013) 'Chinese Culture: Ancient Chinese Proverbs'. 1 June. Available at: <http://www.vincequek.com/2013/06/chinese-culture-ancient-chinese-proverbs.html>
- 2 The Kyoto Protocol, aiming at reducing greenhouse-gas emissions and introducing an international emissions trading scheme, was signed in 1997 and entered into force in 2005. The total number of the states-signatories is 84. The EU ratified the treaty in 2002 while the US Bush administration refused to ratify it after the Clinton administration signed the Kyoto Protocol in 1998.

- 3 See 'Sino-German Dialogue for Sustainable Cities', available at <https://www.sustainable-urbanisation.org/en/about>
- 4 The term "curtailment" is related to the oversupply of energy generated by solar panels (during the days with strong sunshine) and by wind turbines (on very windy days). "Curtailment is the reduction of output of a renewable resource below what it could have otherwise produced. It is calculated by subtracting the energy that was actually produced from the amount of electricity forecasted to be generated" (California ISO). Among other solutions, storage technologies and self-scheduled cuts of energy generation could potentially address the problem and minimise the oversupply.
- 5 There are 42 electricity transmission system operators (TSOs) from 35 European countries and together they form the ENTSO-E. This network was established in 2009 in order to liberalise the gas and electricity markets in the EU. The set-up of the Internal Energy Market entails support for the climate agenda and integration of renewables into the EU's energy systems. Available at: <https://www.entsoe.eu/about/inside-entsoe/objectives/>. ENTSOE was established to enhance the functioning of European gas markets and optimise cooperation between national gas TSOs. Available at: <https://www.entsoe.eu/about-entsoe>
- 6 See 'Guidance on Promoting Green Belt and Road', available at <https://mp.weixin.qq.com/s/Ee0kwbOjUVfcDjYccl41BQ>
- 7 According to the Green BRI Center, sustainable infrastructure connectivity means "the free flow of goods, people, services, technologies, ideas and other elements among regions by tightening regional connection at the construction phase." It includes transportation (road, railway, airport, port), energy (oil and gas pipelines, power grids) and telecommunication (cross-border fiber-optic cable, broadband) and institutional connections, such as policy frameworks and standards (Wang 2019).
- 8 See 'We Are Still In', available at <https://www.wearestillin.com/about>
- 9 See 'Vermont Climate Pledge Coalition', available at <http://vermontclimatepledge.org/>

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