

JUST ENERGY TRANSITION: LEGAL CHALLENGES ASSOCIATED WITH COAL PHASE OUT

The panel was convened at 3:30 p.m. on Thursday, March 30, 2023, by its chair, Paolo D. Farah, of West Virginia University, Energy Justice and Just Transition Lab, USA and gLAWcal – Global Law Initiatives for Sustainable Development, who introduced the panelists: Chamu Kuppuswamy, of the University of Hertfordshire, UK (via Zoom); Michael Addaney, of the University of Energy and Natural Resources, Ghana (via Zoom); Matjaz Nahtigal, of the University of Ljubljana, Slovenia; and Martin Svec, of Masaryk University, Czech Republic.

ENERGY JUSTICE, JUST TRANSITION AND INTERNATIONAL ENVIRONMENTAL LAW

*By Paolo D. Farah**

It is my pleasure to chair and moderate this panel organized by the ASIL Interest Group on International Environmental Law, which is entitled “Just Energy Transition: Legal Challenges Associated with Coal Phase Out.” This panel was organized collaboratively with experts from various countries and institutions, whose research focuses on different regions of the world including the European Union, the United Kingdom, the United States, China, India, Africa, and beyond. This panel has been designed to be as inclusive as possible, presenting perspectives from various regions on topical issues of energy justice and just transition. It encompasses discussions on renewable energies, renewable energy technologies, the significance of sustainability, and efforts to combat climate change. Although not universal, there is a consensus, or at least a growing consensus, that we must combat climate change. This is not the same when you are talking about coal phasing out or, at least coal phasing down, and for this reason, we have decided to focus our attention on this topic. West Virginia and the Appalachia are representative and exemplary regions in the United States of these types of conflicts and tensions. Historically, the state of West Virginia has a long tradition of coal exploration and exploitation. Its constituency has not been presented with many other options, so it is mostly supportive of these policies and politics, including all the investments in fracking for the exploration and exploitation of natural gas and shale gas, which have been defined and treated as the “new” coal.¹ It is also relevant to highlight the role that West Virginia and its political representatives have played during the

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¹ The topic has been extensively analyzed in the literature. See, e.g., David J. Hess, Rachel G. McKane & Kaelee Belletto, *Advocating a Just Transition in Appalachia: Civil Society and Industrial Change in a Carbon-Intensive Region*, 75 ENERGY RES. & SOC. SCI. 102004 (2021); Randall Jackson & Péter Járósi, *An Economic Analysis of Appalachian Power Industry Ecosystems* (2021); Kelli F. Roemer & Julia H. Haggerty, *Coal Communities and the U.S. Energy Transition: A Policy Corridors Assessment*, 151 ENERGY POL’Y 112112 (2021); Craig Holt Segall, *Just Transitions for Oil and Gas Communities* (2021), at <https://www.ssrn.com/abstract=3825778>; Tim Cronin & James Van Nostrand, *West Virginia’s Energy Future*.

Biden administration's plan to Build a Modern Infrastructure and the White House's attempts to adopt the Build Back Better Act, along with earlier iterations of the bill, as well as with the Inflation Reduction Act.

Moreover, it is the first time that at a Conference of the Parties (COP) 26 in Glasgow, the wording "coal phasing" has been mentioned. There were strong divergences and disagreements about the exact wording to use, and this was debated at length. Eventually, the wording "coal phase-out" was not the one agreed upon, but rather "coal phasing down." For this reason, I believe it is timely to discuss ways to deal with these issues.

An accelerated coal phase-out is critical to the global energy transition and climate mitigation.² According to the UN secretary-general, the phasing out of coal in OECD nations should be carried out by 2030 and by 2040 in the rest of the world. However, coal cannot be viewed only as a source of CO₂ emissions; it is also the largest source of electricity generation. The importance of coal, especially for developing countries,³ makes a transition to low-carbon energy systems particularly challenging. COP 26 in Glasgow reminded us that a global consensus on the importance of reducing greenhouse gases does not mean that the energy transition will be an easy process.⁴ Indian Environment Minister Bhupender Yadav made it very clear: "Developing countries have a right to their fair share of the global carbon budget and are entitled to the responsible use of fossil fuels." Hence, coal phase-out policies need to be accompanied by ambitious renewable energy phase-in strategies to ensure that political, economic, legal, and social risks associated with the coal phase out are well addressed.⁵ In other words, without just energy transition, the Paris Agreement can hardly be implemented. The negative impact of coal phase out on coal regions (jobs, stable and affordable electricity) is at the core of the just energy transition.

Terminology and legal terms also have a significant impact. For example, there are contrasting perspectives on the meaning and the use of terms such as "just" and "justice" and countries have diverse definitions or interpretations that might imply distinct results. The same is true for words like "transition," what constitutes a transition, and how should it occur. It should be implemented in a short time due to the gravity of climate change and greenhouse gas emissions, their impact on the Earth and ecosystem, the risks for biodiversity, which have already been endangered and, in too

² Benjamin Brown & Samuel J. Spiegel, *Coal, Climate Justice, and the Cultural Politics of Energy Transition*, 19 GLOB. ENVTL. POL. 149 (2019); Segall, *supra* note 1; Greg Muttitt et al., *Socio-Political Feasibility of Coal Power Phase-out and Its Role in Mitigation Pathways*, 13 NATURE CLIMATE CHANGE 140 (2023); Maria Pastukhova & Kirsten Westphal, *Governing the Global Energy Transformation*, in THE GEOPOLITICS OF THE GLOBAL ENERGY TRANSITION (Manfred Hafner & Simone Tagliapietra eds., 2020); Alan Ramo & Deborah Behles, *Transitioning a Community Away from Fossil-Fuel Generation to a Green Economy: An Approach Using State Utility Commission Authority*, 15 MINN. J. L. SCI. & TECH. 505 (2014).

³ *China at COP26: Coal, 1.5C and Short-Term Actions*, CHINA DIALOGUE (Nov. 16, 2021), at <https://chinadialogue.net/en/climate/coal-1-5c-and-short-term-actions-china-at-cop26>; Nils Ohlendorf, Michael Jakob & Jan Christoph Steckel, *The Political Economy of Coal Phase-out: Exploring the Actors, Objectives, and Contextual Factors Shaping Policies in Eight Major Coal Countries*, 90 ENERGY RES. & SOC. SCI. 102590 (2022).

⁴ Arthur Wyns & Jessica Beagley, *COP26 and Beyond: Long-Term Climate Strategies Are Key to Safeguard Health and Equity*, 5 LANCET PLANETARY HEALTH e752 (2021); Rob Van Den Berg et al., *What Should Evaluation Learn from COP 26? Views of Evaluation Practitioners*, 28 EVALUATION 7 (2022).

⁵ On green subsidies and their relation with the World Trade Organization (WTO), see Paolo D. Farah & Elena Cima, *Energy Trade and the WTO: Implications for Renewable Energy and the OPEC Cartel*, 16 J. INT'L ECON. L. 707 (2013); Irene Monasterolo & Marco Raberto, *The Impact of Phasing out Fossil Fuel Subsidies on the Low-Carbon Transition*, 124 ENERGY POL'Y 355 (2019); Christian Harris Slaterry, "Fossil Fueling the Apocalypse": *Australian Coal Subsidies and the Agreement on Subsidies and Countervailing Measures*, 18 WORLD TRADE REV. 109 (2019); Ohlendorf, Jakob & Steckel, *supra* note 3; Brown & Spiegel, *supra* note 2; Haifeng Deng & Paolo Davide Farah, *China's Energy Policies and Strategies for Climate Change and Energy Security*, 13 J. WORLD ENERGY L. & BUS. 141 (2020); Paolo Davide Farah & Tivadar Otvos, *Competition Law and Trade in Energy vs. Sustainable Development: A Clash of Individualism and Cooperative Partnerships*, 50 AZ. ST. L.J. 497 (2018).

many instances, compromised and damaged with no possibility of repair. How should “just” and “transition” be framed and implemented in connection to energy? Which are the legal challenges associated with coal phasing or even only coal phasing-down? What does a fair transition look like?

This panel discussion aims to critically assess the role of legal tools in accelerating the energy transition.

This panel will follow a debate format and the panelists are expected to address some of the following questions:

- 1) To what extent is the coal phase out or coal phasing-down a Western concept and to what extent is it a universal commitment? Where is there an approaching consensus on these matters? Each of the speakers should feel free to use their own case studies at global, international, regional, or local levels. Because transition is possible, phasing out of coal and transitioning to other sustainable energy sources is becoming closer to reality only through the active participation of the different regions of the world.
- 2) What are your thoughts on the recent developments in climate litigations? Do you believe that the relationship between coal phase-out and the commitment to provide climate justice is adequately operationalized, considering recent events and case law?
- 3) What are the social and economic impacts of a just energy transition, particularly in relation to phasing out coal and addressing environmental risks of fracking and shale gas? How can we effectively address strong opposition to the energy transition, especially considering that the coal industry has historically provided significant job opportunities? How do we find a balance between job creation and the imperative of pursuing sustainable alternatives?

JUST ENERGY TRANSITION, INADEQUATE DISSEMINATION, AND THE SHRINKING POLICY SPACE

*By Matjaz Nahtigal**

I. INTRODUCTION

The discussion on just energy transition should take place in a broader context of the right to development. The right to development, reiterated by the 1992 Rio Declaration on Environment and Development, is a conceptual part of the ongoing struggle against climate change. It includes reduction of global emissions, green energy, and economic transition, as well as adaption to the climate change impact.¹

The challenge of how to provide just energy transition does not pertain only to the developing countries, but also to the developed part of the world. In the several decades of primacy of global markets, private financial flows, and integration of the international economy. The developed and developing countries were unable to develop sufficient instruments, policies, and institutions to secure orderly, inclusive, and sustainable energy and economic transition. The dividing line of the modern knowledge

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¹ The UN Conference on Environment and Development, Rio de Janeiro, Vol. I, UN Doc. A/CONF.151/26 (June 3–14, 1992). Principle 3 states that “The right to development must be fulfilled to equitably meet developmental and environmental needs of present and future generations.”

economy is the following: (1) a handful of technologically advanced firms and regions with access to modern technologies, science and research, finance, know-how and with access to all other necessary resources on one hand; and (2) the rest of the economy based on traditional forms of production and semi-skilled labor without institutional support for restructuring. The latter encompasses a majority of regions and firms in developed and developing parts of the world. The dividing line of the modern knowledge economy is therefore not a classical dividing line between the developed and developing countries. It is a dividing line between a handful of advanced regions and a majority of stagnating or declining regions in developed and developing countries.²

This insight into the new dividing lines created by the modern knowledge economy in the current international and domestic institutional context, could serve as an encouragement to restructure international law and international institutions toward more inclusive, sustainable, balanced, and decentralized international developments; or as an alibi to maintain a status-quo.

II. MORE POLICY SPACE AND INSTITUTIONAL INNOVATIONS

In a search for an expanded, inclusive knowledge economy for the many in the developed and developing world, the rich industrialized countries, as well as the international organizations, should avoid an overly technocratic, paternalistic approach toward restructuring. We are reminded by the most recent literature in the field, such as *Disorder* by Helen Thompson, that the European Union foundation was the European Coal and Steel Community.³ The post-World War restructuring of Europe was based on domestic production of coal and steel before the European economies transitioned to the largely imported fossil fuels in later stages of economic and social development. Thus, we should not be surprised that many of the developing countries, without alternative energy and other resources, try to replicate the Western model of industrialization and development. No matter how outdated, such a model of early industrialization in the context of the knowledge economy really is.

Institutional innovations in the areas of inclusive, decentralized, and participatory industrial policies require legal reforms at the national and the international level. The Subsidies and Countervailing Agreement require not only redefinition of subsidies, but better delineation between (potentially) productive subsidies, outright harmful subsidies—such as subsidies of fossil fuels—and prevention of various forms of hidden subsidies.⁴ It is legally difficult, but feasible, once we better understand the characteristics of the modern inclusive knowledge economy. Reforms of intellectual property to support more sharing and dissemination of technologies and know-how is also a necessary part of any international coordinated effort in just energy transition toward a green economy. The recent experience with “vaccine nationalism” should be viewed as a negative example that should not be repeated in the international energy transition.

Carving out broad policy space with more instruments and tools in the hands of stagnating regions in developing and developed parts of the world should be a starting point for just energy transition. It should also be a starting point toward restructuring in the developed and developing countries to counter climate change, social inequalities, and economic stagnation.

Current trends in implementation of the Sustainable Development Goals, including SDG 7—affordable and clean energy—are not encouraging. As shown by the UN Sustainable

² ROBERTO MANGABEIRA UNGER, *THE KNOWLEDGE ECONOMY* 71–82 (2022).

³ HELEN THOMPSON, *DISORDER: HARD TIMES IN THE 21ST CENTURY* 39 (2022).

⁴ Robert Howse, *Making the WTO (Not So) Great Again: The Case Against Responding to the Trump Trade Agenda Through Reform of WTO Rules on Subsidies and State Enterprises*, 23 J. INT’L ECON. L. 371 (2020), at <https://doi.org/10.1093/jiel/jgaa017>.

Development Report 2022,⁵ despite advancement toward sustainable energy targets, “the current pace of progress is insufficient to achieve Goal 7 by 2030.” Even the progress that takes place remains uneven, concentrated in five large countries, whereas regional disparities remain huge. Among many important insights by the UN Report that deserve close attention, it is necessary to point to the finding that international public financing for renewable energy had already slowed before the pandemic. In other words, in addition to the already existing funding gap for the implementation of SDGs, the funding gap to enable just energy transition is similarly large. The new resources, such as the consolidated international tax base to effectively tax the highly profitable international businesses worldwide, could be a starting point. Enhanced multilateral development banking, international monetary, and fiscal reforms to support green global green transition should follow. The European carbon border adjustment mechanism (CBAM) should be divided between the EU and developing countries to support international green transition.

III. INTERNATIONAL COORDINATION NECESSARY

The EU, United States, and China are introducing comprehensive packages of support for energy and green transition, such as Resilience and Recovery Reform in the EU, the Inflation Reduction Act in the United States, and China 2025. Many other support packages may follow. The good news is, for example, that the EU has produced more electricity in 2022 from renewables than from fossil fuel for the first time. Without coordinated, inclusive international action, however, the overall outcome of these individual efforts, remains uncertain. In the period of poly-crisis, as argued by Adam Tooze, these individual, uncoordinated efforts may risk replicating the existing global hierarchies, inequalities, and inadequate protection of global public goods. The transition toward an inclusive knowledge economy for the many requires institutional reforms and innovations at all levels of international polity.

International lawyers and international law have a unique opportunity to actively shape the future framework of international norms, doctrines, and practices. In close cooperation with other disciplines, scholars, practitioners, and policymakers from the developed and developing parts of the world,⁶ a new international consensus can emerge, based on inclusive, sustainable, decentralized and diverse socioeconomic developments. Just energy transition, coal-phase out, and weaning off from fossil fuels should be seen as an opportunity to redirect international developments toward more resilient, more innovative, and participatory local communities, regions, and countries in all parts of the world.

A COAL PHASE-OUT IN THE CONTEXT OF GLOBAL ENERGY TRANSITION

*By Martin Svec**

In 1992, the international community acknowledged that change in the Earth’s climate and its adverse effects are a common concern of humankind. Ratified by 198 countries, the UN Framework Convention on Climate Change (UNFCCC) has near-universal membership. It set an ambitious objective to stabilize greenhouse gas concentrations at a level that would prevent dangerous

⁵ United Nations, Sustainable Development Goals Report 2022, 42–43, at <https://unstats.un.org/sdgs/report/2022>.

⁶ James Thuo Gathii, *The Promise of International Law: A Third World View*, 114 ASIL PROC. 165 (2020), at <https://ssrn.com/abstract=3635509>.

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anthropogenic interference with the climate system. Another equally remarkable step by the international community toward achieving the goal of tackling climate change was the Paris Agreement adopted two decades later at the COP21 in Paris. The Paris Agreement united actions of developed and developing countries. It is believed that its universality could only be obtained at the cost of the commitments being defined through a “bottom up” process.¹ There is remarkable consensus about the need to tackle climate change. However, the Paris Agreement does not specify how its objectives should be achieved. COP26 in Glasgow reminded that the historic and remarkable consensus about climate change does not imply a consensus about the implementation of the Paris Agreement. Its final document—the Glasgow Climate Pact—was the first COP final document addressing fossil fuels. It calls upon the UNFCCC parties to accelerate their effort toward the phase down of unabated coal power. It is worth noting that the final text was amended hours before the closing ceremony by an intervention from India and China seeking to weaken the effort to end coal power. The original text calling for a “phase out” of unabated coal power was replaced by “phase down.”²

A coal phase out appears to be an understandable step toward achieving objectives set forth by the Paris Agreement. According to the World Bank, the energy sector contributes about 40 percent of global emissions of CO₂. Although coal-fired plants account for just 40 percent of world energy production, they were responsible for more than 70 percent of energy-sector emissions in 2010.³ Coal is the most carbon-intensive fuel.⁴ However, a failure to aim for a coal phase out at COP26 revealed that coal should not be viewed only as a source of CO₂ emissions, but also as a large source of electricity generation, especially for developing countries. Indian Environment Minister Bhupender Yadav said in Glasgow: “Targeting any particular sector is uncalled for. Every country will arrive at net zero as per its national circumstances. Developing countries have a right to their fair share of the global carbon budget and are entitled to the responsible use of fossil fuels.”⁵

Dynamic negotiations of the Glasgow Climate Pact raised important questions. Should we view a coal phase out as the first step toward achieving objectives set forth by the Paris Agreement, or should we make no distinctions between fossil fuels? Is a coal phase out a concept created by developed countries in which coal accounts for a small share of the energy mix?

From the EU perspective, an emphasis put on a coal phase out appears to be EU’s logical choice. Decarbonization of the power sector has been central to EU energy and climate strategies for decades.⁶ As a result, the use of coal in Europe’s energy sector has substantially decreased. The economics of coal have been significantly deteriorated by the EU Emissions Trading System (ETS), national climate action related measures, or massive support of renewable energy sources. The share of coal in electricity generation in the EU has been reduced from 31 percent in 2000 to 19

¹ Anne-Sophie Tabau, *Evaluation of the Paris Climate Agreement According to a Global Standard of Transparency*, 10 CARBON & CLIMATE L. REV. 23 (2016).

² Leslie Hook, Camilla Hodgson & Jim Pickard, *India and China Weaken Pledge to Phase Out Coal as COP26 Ends*, FIN. TIMES (Nov. 13, 2021), at <https://www.ft.com/content/471c7db9-925f-479e-ad57-09162310a21a>.

³ *Id.*; Vivien Foster & Daron Bedrosyan, *Understanding CO₂ Emissions from the Global Energy Sector*, LIVE WIRE KNOWLEDGE NOTE SERIES, WORLD BANK GROUP (Feb. 24, 2014), at <http://documents.worldbank.org/curated/en/873091468155720710/Understanding-CO2-emissions-from-the-global-energy-sector>.

⁴ IEA, *World Energy Outlook 2021* (2021), at <https://www.iea.org/reports/world-energy-outlook-2021>.

⁵ COP26: *Climate Summit Approaches “Moment Of Truth,”* BBC (Nov. 13, 2021), at <https://www.bbc.com/news/science-environment-59269886>.

⁶ Samuela Bassi, Alina Averchenkova & Maria Carvalho, *The Credibility of the European Union’s Efforts to Decarbonise the Power Sector*, GRANTHAM RES. INST. CLIMATE CHANGE & ENV’T (Dec. 2017), at <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2017/12/The-credibility-of-the-European-Unions-efforts-to-decarbonise-the-power-sector.pdf>.

percent in 2018 and 14 percent in 2019.⁷ From 2018 to 2021, the EU reduced its consumption of both hard coal and brown coal by a fourth. As of 2021, Austria, Belgium, Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, Sweden, and Portugal have been coal-free. Bulgaria has been considering coal phase out. All other EU countries already announced their plans to phase out coal.⁸ In contrast, EU effort to phase out oil or natural gas is significantly less ambitious. The lack of alternatives to replace oil makes its phase out very challenging, natural gas is viewed as a transition fuel and an enabler of a coal phase out.

In contrast, both countries advocating for the wording “phase down” rather than “phase out”—India and China view coal as a cheap and readily available resource to provide electricity. According to the International Energy Agency (IEA), coal has underpinned Indian expansion of electricity generation and industry, and remains the largest single fuel in the Indian energy mix.⁹ Around 75 percent of the total power generation in India is secured by coal-fired power plants.¹⁰ Coal also holds a dominant position in China’s primary energy mix.¹¹ Approximately 60 percent of China’s electricity generation is generated from coal-fired power plants.¹²

Given the importance of coal as a source of power generation for developing countries, it is questionable whether a coal phase out should be viewed as a first step toward achieving the Paris Agreement goals, or as one of several components of the energy transition that countries approach in diverse ways, reflecting their specific contexts and needs. In other words, carbon intensity of fossil fuels may not be the sole criterion to consider, as there exist multiple pathways toward achieving climate neutrality. Additionally, without just energy transition, the Paris Agreement can hardly be implemented. Negative impact of fossil fuels phase out on jobs, economic development, and access to affordable electricity should be at the core of the just energy transition. Energy transition policies should ensure that political, economic, legal, and social risks associated with the fossil fuels phase out are well addressed. Legal tools can be particularly helpful in this regard.

The European Union has acknowledged the arduous nature inherent in the energy transition process. In order to support its member states and regions facing social, industrial, and economic challenges resulting from the energy transition, the EU has implemented initiatives aimed at enabling a just energy transition. These initiatives include the establishment of the Just Transition Fund and the Just Transition Platform.¹³ Specifically, the European Commission works in close partnership with stakeholders in coal and carbon-intensive regions, facilitating access to and utilization of available funds and programs, and encouraging the exchange of good practices. This includes fostering discussions on industrial roadmaps and addressing reskilling needs.¹⁴

⁷ Georg Zachmann et al., *Decarbonisation of Energy Determining a Robust Mix of Energy Carriers for a Carbon-Neutral EU* (Nov. 2021), at [https://www.europarl.europa.eu/RegData/etudes/STUD/2021/695469/IPOL_STU\(2021\)695469_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/695469/IPOL_STU(2021)695469_EN.pdf).

⁸ European Commission, *Coal Regions in Transition*, at https://energy.ec.europa.eu/topics/oil-gas-and-coal/eu-coal-regions/coal-regions-transition_en.

⁹ IEA, *India Energy Outlook 2021* (2021), at <https://www.iea.org/reports/india-energy-outlook-2021>.

¹⁰ India Ministry of Coal, *Generation of Thermal Power from Raw Coal*, at <https://coal.nic.in/en/major-statistics/generation-of-thermal-power-from-raw-coal>.

¹¹ Jiahai Yuan, Chunling Na, Qi Lei, Minpeng Xiong, Jingsheng Guo & Zheng Hu, *Coal Use for Power Generation in China*, 129 *RESOURCES, CONSERVATION & RECYCLING* 443 (2018), at <https://doi.org/10.1016/j.resconrec.2016.03.021>.

¹² U.S. Energy Information Administration, *China Increased Electricity Generation Annually from 2000 to 2020*, *European Union* (Sept. 22, 2022), at <https://www.eia.gov/todayinenergy/detail.php?id=53959>.

¹³ Regulation (EU) 2021/1056 of the European Parliament and of the Council of 24 June 2021 Establishing the Just Transition Fund.

¹⁴ Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the Internal Market for Electricity (recast), Art. 4.

However, there are only a few fragmented mechanisms designed to facilitate a just energy transition at the global level. There is no international organization able to address the complexity of the energy transition on a global scale, and climate-oriented international organizations, such as the UNFCCC, lack the necessary competence in this regard. It is worth mentioning that the Glasgow Climate Pact was the first COP document to include references to energy. The absence of a global legal framework concerning the energy transition emphasizes the significance of fragmented multilateral initiatives, such as the Just Energy Transition Partnership involving South Africa, France, Germany, the United Kingdom, the United States, and the European Union. This Partnership aims to support South Africa in moving away from coal and accelerating its transition to a low-emission, climate-resilient economy. Specifically, the Partnership seeks to expedite the just transition and decarbonization of the electricity system, as well as develop new economic opportunities like green hydrogen and electric vehicles, among other interventions, to assist South Africa in its shift toward a low-carbon future.¹⁵

A consensus about climate change does not imply a consensus about how the objectives set forth by the Paris Agreement should be achieved. However, international law is capable of addressing global challenges. Where others see limitations, international lawyers should strike an unfamiliar chord and play their role in the development of legal frameworks making the energy transition not only possible, but also efficient, just, and acceptable for both developed and developing countries.

PURSUIT OF NET-ZERO AND ENERGY SECURITY IN CHINA WITH REFLECTIONS ON AFRICA'S CLIMATE STRATEGY

*By Michael Addaney**

I. INTRODUCTION: CHINA'S CLIMATE STRATEGY AND ENERGY TRANSITION

In March 2021, during the annual two-session political summit in Beijing, the Chinese government approved a major policy document that will drive the country's social and economic development in the following five years. The 14th Five Year Plan (FYP),¹ a 148-page document, provides an outline of the major goals for China during the plan period, 2021–2025. The National People's Congress (NPC) of China formalized the framework for the FYP and associated long-term targets for 2035. Unlike previous ones, energy and climate targets take center stage in the plan. For instance, China has set an 18 percent reduction target for CO₂ intensity and a 13.5 percent reduction target for energy intensity from 2021 to 2025.² This is the first time of including medium- to long-term energy and climate goals in the FYP. Prior to its adoption, the Chinese president, Xi Jinping, announced the country's ambition to improve its climate pledge for 2030 as contained in China's nationally determined contributions (NDCs) under the Paris Agreement toward the

¹⁵ European Commission, *European Commission France, Germany, UK, US and EU Launch Groundbreaking International Just Energy Transition Partnership with South Africa* (Nov. 2, 2021), at https://ec.europa.eu/commission/presscorner/detail/cs/ip_21_5768.

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¹ Since 1953, the Chinese government sets itself major social and economic development objectives in a five-year policy planning cycle. The five-year plan is the backbone of all of China's sectoral, provincial, and municipal policy, covering topics ranging from trade, defense, and the environment.

² Outline of the 14th Five-Year Plan (2021–2025) for National Economic and Social Development and Vision 2035 of the People's Republic of China, at https://www.fujian.gov.cn/english/news/202108/t20210809_5665713.htm.

achievement of carbon neutrality by 2060.³ The ideas of “carbon peak” and “carbon neutrality” dominate the economic and social development targets in the plan. This was expected as influential actors from energy companies, heavy-duty industries, and technology firms featured strongly at the summit tabling proposals to achieve reduction in the country’s CO₂ emissions. An entire section is devoted to energy, “establishing a modern energy system” to provide a roadmap for sustainable energy transition. Energy and climate are lengthily addressed in the plan. For instance, four out of the twenty indicators focused on energy and climate change. This is a strong indication that China is keen to achieve climate and energy goals as part of the overall key performance indicators.

Table 1: Energy and climate sensitive economic and social development indicators in the 14th FYP (2021–2025).

Category	Indicators	2020	2025	Annual Average/ Cumulative	Nature
Green ecology	Reduction in energy consumption per unit of GDP (%)			13.5	Binding
	Reduction of carbon dioxide emission per unit of GDP (%)			18	Binding
	Share of days with good air quality in cities at prefecture levels and above (%)	87	87.5		Binding
	Share of surface water at or better than class III (%)	83.4	85		Binding
	Forest coverage rate (%)	23.2*	24.1		
Security and safety	Comprehensive energy production capacity			>4.6 bn tons of coal equivalent	Binding

Note: * is the cumulative number in five years. the comprehensive energy production capacity refers to coal, petroleum, natural gas, and non-fossil energy production capacity. Source: adapted from the Draft for Adaptation of the 14th FYP published by the NPC, 2021.

The outline of the 14th FYP commits China to 13.5 percent reduction in energy consumption per unit of GDP (energy intensity) and 18 percent reduction in carbon emission per unit of GDP (CO₂ emission intensity). China’s overall energy production is expected to reach 4.6 billion tons of coal equivalent from coal, petroleum, natural gas, and non-fossil energy. This deviates from previous FYPs which set a cap on energy production instead of a minimum. China also seeks to increase the share of non-fossil energy to about 20 percent by 2025 in terms of total energy consumption, up from 15.8 percent in 2020. This reflects the government’s pledge in 2020 to increase the ambition of the country’s NDCs for 2030 to 2060. This is important although China has yet to submit its enhanced NDC to the UNFCCC by missing the 2020 deadline.⁴ The 14th FYP affirms China’s implementation of the NDC for 2030 but does not outline new specific targets. It however requires that the

³ Matt McGrath, *Climate Change: China Aims for “Carbon Neutrality” by 2060*, BBC (Sept. 22, 2020), at <https://www.bbc.com/news/science-environment-54256826>.

⁴ Lauri Myllyvirta, *Influential Academics Reveal How China Can Achieve Its “Carbon Neutrality” Goal*, CARBON BRIEF (Oct. 14, 2020), at <https://www.carbonbrief.org/influential-academics-reveal-how-china-can-achieve-its-carbon-neutrality-goal>.

country develops an action plan containing strategies to peak CO₂ by 2030. The detailed strategies and targets for energy and carbon-intensive sectors including coal consumption and production, renewable energy development and utilization, and electrification rate and power generation would be covered in sector plans developed by the National Development and Reform Commission (NDRC) and National Energy Administration (NEA) in 2022. The mandatory provincial action plans contain technical guidelines and detailed indicators on total energy consumption, energy mix, share of fossil fuel in total energy consumption, and dual CO₂ emission caps (intensity and absolute emissions) in the industrial, building, transport, agricultural, and household sectors.⁵

Prior to the approval of the 14th FYP, an update of China's White Paper on international aid was released by the State Council in January 2021. Similar to the FYP, the White Paper is a culmination of series of reforms in China's strategy to international development in the past decade. As the leading official creditor to developing countries, including African nations, there is a considerable interest in how the White Paper will influence China's bilateral engagements in the coming decade. Thus, synthesizing the details in the White Paper and the 14th FYP is essential in informing African countries of how China intends to promote the transition to low carbon development domestically and abroad especially in developing countries. The White Paper indicates that BRI projects should "dovetail the development strategies of participating countries." This is particularly important for African countries. For example, the sectoral priorities in the White Paper, which focuses on agriculture, infrastructure, and trade, hold potential in assisting African countries to adopt low carbon development and climate resilient pathways. Considering the dominance of energy and climate targets in the 14th FYP, there is a strong indication that Chinese aid will focus on promoting the transition to clean energy sources and climate resilient development in developing regions. What are the implications of China's 14th FYP on African countries?

II. AFRICA IN CHINA'S EMERGING CLIMATE STRATEGY AND ENERGY TRANSITION

The changing climate is already mounting pressure on the limited resources of vulnerable African countries—threatening the achievement of various development goals and aspirations.⁶ The combined impact of extreme climate events on GDP in African countries is expected to grow from \$895 billion in 2018 to about \$1.4 trillion in 2023—almost half of the continent's GDP.⁷ The key areas of concern for Africa in China's emerging energy and climate strategy in the 14th FYP and other strategic policy directives are discussed focusing on energy and power production.

In the 14th FYP, energy and climate stand out as a central-policy priority, building on the existing efforts and strategies on ecological and environmental protection. Four of the twenty main indicators of economic and social development in the 14th FYP focus on energy and climate. These binding targets appear progressive but does not depart from existing trends. China's economy has diversified over the year and thus, its energy and carbon intensities have naturally decreased.⁸

⁵ Ministry of Environmental and Ecology, *Guidelines for Compiling Provincial Carbon Dioxide Emissions Peaking Action Plan* (2021), at https://en.ndrc.gov.cn/policies/202110/t20211027_1301020.html.

⁶ Michael Addaney, *Strengthening Africa's Adaptive Capacity to Climate Change: African Union Law and Implications of China's Belt and Road Policy*, in *CLIMATE CHANGE, HAZARDS AND ADAPTATION OPTIONS: HANDLING THE IMPACTS OF A CHANGING CLIMATE* (Walter Leal Filho, Gustavo J. Nagy, Marco Borga, Pastor David Chávez Muñoz & Artur Magnuszewski eds., 2020).

⁷ Abdi Latif Dahir, *Africa's Fastest-Growing Cities Are the Most Vulnerable to Climate Change Globally*, *WORLD ECON. F.* (Dec. 21, 2018), at <https://www.weforum.org/agenda/2018/12/africa-s-fastest-growing-cities-are-the-most-vulnerable-to-climate-change-globally>.

⁸ Wenjuan Yang et al., *China's Pathway to a Low Carbon Economy*, 14 *CARBON BALANCE & MGMT.* 14 (2019), at doi.org/10.1186/s13021-019-0130-z.

For instance, China's carbon intensity decline dramatically by nearly 19 percent from 2015 to 2020,⁹ more than the 14th FYP requires. There are expectations that China will continue to increase its emissions in absolute terms. Lauri Myllyvirta observes that China's carbon emissions will continue to climb through the plan period.¹⁰ China has also set a minimum annual threshold for general energy production. Thus, the FYP demands a decline in energy consumption from fossil fuels from 84 percent to 80 percent by 2025. There is however no specific target for reducing the proportion of coal in its total energy use. This is noteworthy as coal currently constitutes an estimated 57 percent of the country's energy and 65 percent of its electricity.¹¹ China currently consumes more than 50 percent of the world's coal and produces 20 percent of global total carbon emissions through its consumption of coal alone.¹²

While the 14th Plan shows that China remains committed to growing its clean economy, there are no proactive measures in the plan to shrink its fossil fuel economy. The clean and efficient use of coal remains part of China's toolbox to build a modern energy system.¹³ The plan permits the continuous development of coal power in China. A recent report from the Global Energy Monitor observes that China has about 250 gigawatts of new coal-fired generating capacity allowable or under construction in addition to the existing 1,095 gigawatts of coal capacity. Although China's continued coal expansion is consistent with its nationally determined contribution (NDC) under the Paris Agreement, this may potentially affect the global action on climate change and has far-reaching effects on poor African countries. Moreover, the 55 African countries obtain an estimated 70 percent of their electricity supply from hydroelectric power sources.¹⁴ The prospect of worsening extreme climate events such as droughts and floods as a result of business-as-usual by leading emitters including China poses a critical threat to energy infrastructure on a continent where nearly 600 million people lack access to electricity.¹⁵ Improving access to electricity across the continent will require an annual investment of \$120 billion over the next decade.¹⁶ African countries have to therefore explore multilateral and bilateral sources to secure much-needed investments in renewables and other green energy sources.

On the other hand, oil and gas exports from Africa for Chinese domestic industries may increase due to overcapacity in steel production. Africa has vast energy and mineral resources—making the mining, smelting and processing of mineral resources pivotal in China-Africa trade and economic cooperation. In 2020, China's direct investment in the energy and mining industry totaled 20.6 percent of China's total investment stock in Africa. Chinese energy enterprises including PetroChina, Sinopec, and others have been operating in Africa since the 1990s. Through investment and cooperation in oil and gas resources, China has supported Sudan, Chad, Niger, and other

⁹ Hector Pollitt, *Going Carbon Neutral by 2060 Will Make China Richer*, CARBON BRIEF (Sept. 24, 2020), at <https://www.carbonbrief.org/analysis-going-carbon-neutral-by-2060-will-make-china-richer>.

¹⁰ See Myllyvirta, *supra* note 4.

¹¹ Joanna Lewis & Laura Edwards, *Assessing China's Energy and Climate Goals*, CTR. AM. PROGRESS (2021), at <https://www.americanprogress.org/article/assessing-chinas-energy-climate-goals>.

¹² Hannah Ritchie & Max Roser, *CO₂ and Greenhouse Gas Emissions*, OUR WORLD IN DATA (2020), at <https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions>.

¹³ Lauri Myllyvirta, *China's Five-Year Plan: Baby Steps Towards Carbon Neutrality*, CTR. RES. ENERGY & CLEAN AIR (Mar. 5, 2021), at <https://energyandcleanair.org/china-14th-five-year-plan-carbon-neutrality>.

¹⁴ Ashwin West, *Hydropower Is Vital to Africa's Future*, POWER MAG. (July 1, 2019), at <https://www.powermag.com/hydropower-is-vital-to-africas-future>.

¹⁵ Andrew Herscovitz, Hela Cheikhrouhou & Milagros Rivas Saiz, *A New Approach to Finance Could Unlock Access to Energy for 600 Million Africans*, WORLD ECON. F. (Feb. 28, 2020), at <https://www.weforum.org/agenda/2020/02/a-new-approach-to-finance-energy-africa>.

¹⁶ International Energy Agency, *Africa Energy Outlook 2019* (Nov. 2019), at <https://www.iea.org/reports/africa-energy-outlook-2019>.

African countries to developed technologically advanced oil industry systems that integrate upstream and downstream operations equipped with appropriate supporting facilities.¹⁷ Similarly, in 2019, the China Nonferrous Metal Mining (Group) Co. Ltd. (CNMC) and Generale des Carrieres et des Mines jointly established SOMIDES, the largest overseas copper-cobalt resource development project invested by CNMC. An amount of U.S.\$880 million was invested in the Phase I of the project with an estimated annual output of 80,000 tons of cathode copper and 8,000 tons of cobalt.¹⁸

Fulfilling the core objectives of the 14th FYP hinges on China's energy production and consumption including securing an affordable energy supply for domestic and industrial use. Scaling up the production and uptake of clean energy from renewable sources to replace fossil fuels toward the goal of climate neutrality by 2050 is another objective. In the long term, the increasing demand for clean energy will upturn opportunities for resource-rich African countries to produce low-carbon secondary goods for export. For instance, with rich iron ore resources and significant production potential, South Africa, Mauritania, Algeria, and Côte d'Ivoire could increase their production of energy and material-intensive goods such as steel for the Chinese market. Although the FYP and other commitments from the 2021 Forum on China–Africa Cooperation (FOCAC) indicate China's directive to increase non-resource trade, it is critical to have access to new raw materials that are essential inputs in the production of clean energy and technologies such as solar PV panels, wind turbines, battery storage, and EVs with more minerals component than their fossil fuel-based counterparts. These raw materials are crucial to realizing the energy strategies outlined in the 14th FYP.

Furthermore, the growth in the use of low-carbon technologies will increase the demand for African critical raw materials (CRMs) such as cobalt, copper, graphite, lithium, and bauxite for the clean energy industries. African countries may benefit from the exports of CRMs to China as Morocco (barite and phosphate rock), Guinea (bauxite), DRC (cobalt and tantalum), South Africa (PGM) as well as Ghana, Zambia, and Zimbabwe with the potential to supply copper, PGM, and bauxite to China. Already, China is investing in CRM industries in Africa including battery plans and EVs in DRC and Zimbabwe as China's consumption of CRMs for batteries, fuel cells, wind turbines, and PVs in renewables and EVs will experience astronomical increase in the short and long term beyond the plan period.¹⁹ The DRC is the heart of global cobalt mining, a key mineral in building effective batteries, accounting for over 70 percent of the world's supply.²⁰ The DRC has become an important player in China's budding EV industry as more than three-quarters of Chinese cobalt consumption originate from the DRC's rechargeable battery and EV market.²¹ Boosting the production of rechargeable consumer electronics and electric vehicles are key to realizing China's Dual Circulation Strategy which seeks to increase domestic consumption and production to adapt to a less global and China-friendly international economy.

¹⁷ Chinese Academy of International Trade and Economic Cooperation & China-Africa Economic and Trade Promotion Council, *China-Africa Economic and Trade Relationship Annual Report 2021*, at 29 (2021).

¹⁸ *Id.*

¹⁹ Matthew Teasdale, *China and the DRC: the Geoeconomics of Cobalt and Electric Vehicles*, FOR. BRIEF (Feb. 17, 2022), at <https://www.foreignbrief.com/africa/china-and-the-drc>.

²⁰ U.S. Geological Survey, *2022 Mineral Commodity Summaries*, NAT'L MINERALS INFO. CTR. (2022), at <https://www.usgs.gov/centers/national-minerals-information-center/mineral-commodity-summaries>.

²¹ U.S. Geological Survey, *2021 Mineral Commodity Summaries*, NAT'L MINERALS INFO. CTR. (2021), at <https://pubs.usgs.gov/periodicals/mcs2021/mcs2021.pdf>.

III. CONCLUSION

African countries have significant interest in the transition to low carbon and climate resilient development pathways. Effectively addressing climate change requires creating conditions for coal phase out and rapid scale-up of renewables in the energy sector; investing in shared, electric, and low-carbon transport in cities.²² With abundant solar, wind, and geothermal resources, Africa has a comparative advantage in renewables. African countries should consequently have significant interest in being beneficiaries of investments in renewables by developed countries and economic powers such as China through opening their institutions and markets to evolving prospects in the renewable sector. However, benefiting from investments in renewable energies and climate resilient technologies as presented by China in the 14th FYP require effective regional, national and local partnerships between African and Chinese governments, businesses, and investors.

²² Ngozi Okonjo-Iweala, *Africa Can Play A Leading Role In The Fight Against Climate Change*, BROOKINGS FORESIGHT AFRICA (Jan. 8, 2020), at <https://www.brookings.edu/research/africa-can-play-a-leading-role-in-the-fight-against-climate-change>.