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BOOK REVIEWS

Carbon Captured. How business and labor control climate politics by Matto Mildenerger (MIT Press, 2020). 351 pages, ISBN: 9780262538251.

Mildenerger analyses the failing climate policy developments in the US since the 1980s. He compares this experience with Norway and Australia and develops a theory of ‘double representation’. He claims that ‘carbon polluters’ in businesses and unions create obstacles to climate policy through the exceptional access they have acquired to the policymaking process. They maximise their power through strong representation on both sides of the political spectrum. No matter which party controls government, carbon polluters succeed in having their interests met.

This book is a fascinating subject for someone who has been involved in the development of climate policies at European and international level over the last 25 years. The author asks pertinent questions and analyses how the US tried several times to introduce climate policy measures at the federal level. However, his observations raise eyebrows on several occasions. I would like to make five key points.

First, the best of the book is undoubtedly the excellent historical overview of climate policy discussions in the US, and the comparison with the experiences of Norway and Australia. But one immediately wonders why Norway and Australia? Norway has a rather successful climate policy, that is a mixture of EU and domestic legislation. Australia’s record is of failure at the federal level—in contrast to the sub-federal one. The EU is not dealt with, apart from some scarce references to the EU’s Emissions Trading System. A key question, therefore, is whether the double representation of carbon polluters also occurred in the EU. And indeed, almost all political parties, whatever their colour, are divided internally on climate issues. This did not hinder the EU from developing a coherent climate policy, common to 27 Member States all with significant differences in their economic and historic contexts as well as their natural environments. Not least, their energy mix is highly diverse ranging from coal, to nuclear or renewable as the main source of power generation. More than Norway and Australia, the EU should have been added to the cases to be studied, as the EU is at least as diverse as the US is with its 51 States.

Second, the book is critical of the contribution economics has made to climate policy. Economists are accused of paying too much attention to the role of cost-effectiveness and the use of carbon pricing instruments. The author argues that the carbon price makes the costs too transparent and is therefore ‘suboptimal’ politically speaking. The author is right in criticising the naivety with which too many economists have claimed that a carbon price, and only a carbon price, would do the job in cutting emissions, and this at the lowest cost possible. He is also right in stressing the distributive impact of carbon pricing, but recognises later that this issue is inherent in any climate policy. He makes the case for more ‘opaque’ policymaking based on traditional regulation leaving the ‘obsessions’ of economists behind (p. 60). The author does not sufficiently realise that cost-effectiveness is an important issue in climate policy, because too costly measures backfire sooner or later. The European experience shows that a carbon price is an essential element in a policy mix, as it taps the reservoir of ‘cheap’ emissions reductions. But other flanking policy measures are absolutely necessary to complement carbon pricing, so as to prepare for the future by driving into the market new

low-carbon technologies. European economists also criticised the existence of ‘overlapping’ policies, but the overall policy of combining carbon pricing with specific policies related to renewables, energy efficiency, cars and fluorinated gases, for example, was both realistic and pragmatic. The European Commission paid great attention to *ex-ante* economic analysis to define a cost-effective policy mix.

Third, the author puts too much weight on measuring the success of policies by the extent to which they impose costs on big polluters. In contrast, the art of policymaking is ensuring that costs—whether perceived or real—are shared in a fair and acceptable manner. When the EU developed its Emissions Trading System, a redistribution of allowances was designed to favour Member States with more coal in their energy mix, so as to give them space for developing low-carbon investments. Equally the Efforts Sharing Regulation, that regulates sources of greenhouse gases outside the Emissions Trading System, differentiates the emissions reduction targets relative to the economic wealth of Member States, expressed in GDP *per capita*. The EU succeeded because political agreement was found through a transparent sharing of costs to ensure fairness, while the EU Emissions Trading System made sure that compliance costs for the larger emitters were kept as low as possible.

Fourth, in the final chapter the author recognises the merits of a European-type of gradual and comprehensive approach, not centred excessively, like in the US case, around one key issue, as for instance a specific tax or technology (p. 249). Indeed, the step-by-step tightening of the various climate regulations offered the opportunity of learning-by-doing to Europeans, where all actors were able to assess the results of past efforts and construct the next step with more confidence. That is the basic reason why the EU succeeded in maintaining sufficient democratic support for its climate policies despite hesitations in every political party. A combination of policies allows also to serve different audiences at the same time, united under one common climate goal. The EU is now taking a giant step forward through its European Green Deal which is in fact a large-scale, comprehensive low-carbon industrial policy.

Fifth, the author concludes in the last chapter that too much time has been wasted and calls for a disruptive policy, building on the climate movements such as the one led by Greta Thunberg, the UK’s Extinction Rebellion or the US’ Sunrise movement (p. 246). It is difficult to see how the incoming US Administration will be able to implement such a disruptive policy. Almost all policies in democracies follow a gradual approach. Businesses and unions organise themselves everywhere, maybe even in China. What matters is that policymakers force the carbon polluters to make their arguments in a pragmatic and operational manner. The European Commission developed so-called ‘Impact Assessments’ of individual policies and foresaw inclusive and transparent consultation processes. Carbon polluters were forced to make their points in a credible way if they wanted to be taken seriously.

To conclude, the double representation of carbon polluters certainly happened in the US, perhaps more markedly than in other countries. But indicating that this is the predominant factor in explaining the failed US approach to climate policymaking seems incomplete. Calling it a theory that can also be generalised outside the US is hardly convincing. Carbon polluters are present in every political party, as are those committed to address climate change. The key lies in the design of a comprehensive package of policies that can be progressively implemented, that keep down overall costs and distributes them in a fair manner. That

may sound more boring and slower than many climate activists may like, but it is the only realistic way forward.

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Power after carbon—Building a clean, resilient grid by Peter Fox-Penner (Harvard University Press, 2020). 430 pages, ISBN: 978-0674241077.

The last book written by Peter Fox-Penner presents an overall overview of some of the most evident developments occurring in the electricity sector with implications on the market design, planning and management of the grid, and the business model of energy utilities.

The book draws together a broad overview and stimulating ideas on the developments of the electricity market mainly driven by the decarbonization process and innovation. It provides useful insights for an audience that is interested in energy policy and new energy business models. In so doing, the book addresses the main choices that we will be called to take in the near future, in order to build a really clean and resilient electricity grid, both for economic and environmental reasons. However, some of the conclusions might benefit from further elaboration.

The first two chapters are mainly introductory and provide some initial indications about future trends in electricity markets, mostly driven by the sustainability agenda, with three main areas of intervention: energy efficiency, decarbonization of the electricity sector, and electrification of energy uses at the expense of fossil fuels. A significant—though uncertain—impact on the pursuit of these objectives will be provided by digitalization and artificial intelligence: on the one hand, they will contribute to optimize processes and reduce the energy consumption in many existing sectors, but, on the other hand, they could lead to new electricity consumption linked, for example, to blockchain technology, data management and the increasing digitalization of products and services.

Chapter 3 examines the transformations of energy systems determined by the development of small-sized photovoltaic plants, together with the development of storage systems and the possibility for final customers to potentially disconnect from the grid. The book examines the growth potential of local generation (in particular on apartment buildings, facades and other available surfaces), which shows high variability, as suggested by an interesting comparison among the main American cities. Conclusions, though not particularly emphasized by the author, are very dependent on assumptions and the way energy scenarios are modelled.

Chapter 4 offers some preliminary elements (resumed later) on the effects of the energy transition on grid design and management. The spread of distributed generation will not eliminate the need for large transmission systems (Big grids) but these will be increasingly complemented with micro and community grids, which will increase the complexity in terms of planning, management and balancing of the network.

Chapter 5 provides a mapping of the climatic events that are expected to make the electricity system relatively more vulnerable. Climate change is expected to increase critical situations for the network in terms of magnitude and frequency. Therefore, resilience assumes a central role in modern regulation and management of networks. The author describes the challenges

to ensure the resilience of the network and the important role that innovation and ICT can play in order to find solutions at the least cost. Furthermore, with the development of distributed generation and storage systems, the idea of microgrids emerges, as semi-independent systems of the network that can be flexibly separated, reducing the disservice for final customers and limiting the damage to the system.

Chapter 6 focuses on energy transition and its main dimensions. The chapter includes also a description of some promising technological options that can provide a contribution to the transition towards a decarbonized energy system. However, it is not well emphasized the theoretical framework behind the analysis, including the principle of technological neutrality that should guide future developments.

Chapter 7 highlights the need for an integrated - whole system approach for the planning of network developments in the context of the energy transition, which takes into account not only the scenarios for energy demand and supply but also climate goals, at both national and supra-national level. The complexity attached to this new approach is particularly high, from both a methodological and governance standpoint. The author mentions the European case (e.g., Ten Year Network Development Plan, Project of Common Interest, ACER-NRAs) as a model to look at also in the United States and in other regions of the world.

Chapter 8 touches on a series of aspects related to the energy transition, including measures for a 'just' economic-social transition of the sectors more dependent on the use of fossil fuels, and other issues connected with the rapid transformation of the energy mix such as the phasing out of coal-fired (and other polluting) generation plants. The chapter contains also some general criticism to capacity remuneration mechanisms, as potentially hindering the pursuit of decarbonisation objectives, which could be challenged.

In Chapter 9, the author examines the effects of the energy transition on the business model of energy utilities. From a relatively secure and capital-intensive business, energy utilities are becoming a relatively more complex—and potentially risky—activity, with the need to review the regulatory and pricing setting models. The author seems to propose a critique of the current regulatory models, emphasizing the diseconomies linked with the separation of network activities from upstream (generation) and downstream (supply) activities, without dwelling, however, on the justifications and remedies that unbundling models provide.

Chapter 10 points out on the transformation affecting the relation between distributor and retailer/energy service company and between retailer/energy service company and final customer. In this respect, the evolution of the final customer from consumer to prosumer, the possibility for sellers to offer an increasingly broad and tangible set of services and to differentiate the offer on the basis of customers' characteristics, as well the increasing use of artificial intelligence, pose challenges for regulators, in particular in terms of tariff regulation and cost allocation but also in the pursuit of social and environmental objectives (often part of their mandate).

This topic is better developed in Chapters 11 and 12, where the author recalls the issues related to the identification of prices for network services, the recovery of fixed costs in a context of increased distributed generation and self-consumption and the need to move towards performance-based regulation mechanisms.

The last chapters examine further factors that could change the structure of the sector and, overall, the utilities' business model with a focus, on the one hand, on the role that big tech companies, such as Apple, Google, Facebook and Amazon might potentially play in modifying existing energy business models, attracted by the value attached to the data that smart meters

and other energy appliances could provide, and, on the other hand, on the wave, and potential impact, of the so-called Energy Democracy as a force in the energy sector for local control, public-distributed ownership initiatives and ambitious climate policies.

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Towards a Climate-Neutral Europe. Curbing the Trend edited by Jos Delbeke and Peter Vis (Routledge, 2019). 223 pages, ISBN: 978-92-76-08261-3.

In December 2019, Ursula von der Leyen pledged to put Europe on a trajectory to become the first climate-neutral continent by 2050, while addressing the socio-economic challenges related to the green transformation. To do so, she adopted the European Green Deal as the flagship initiative of her European Commission.

In 2020, in the midst of the Covid-19 pandemic, the European Green Deal gathered further momentum, as policymakers across Europe committed to seize the historical moment of disruption to ‘build back better’, notably focusing on the green and digital transitions.

In less than two years, the European Green Deal has truly become Europe’s defining mission. But just as Rome was not built in a day, this ambitious initiative was neither built overnight. The European Green Deal instead builds on the solid climate policy foundations constructed by the European Union (EU) over the last three decades.

Knowing these foundations is a key prerequisite to understand the European Green Deal’s objectives, structure, current policy initiatives and future prospects. And this is where ‘Towards a Climate-Neutral Europe. Curbing the Trend’ comes into play.

It is difficult to imagine a better way to learn about how EU climate policy has evolved and developed than hearing directly from the individuals that built it, one day after another, for many years. This is the unique perspective that this book provides.

Edited by Jos Delbeke and Peter Vis, who are both European Commission’s former senior officials and played a leading role in the creation of the EU Emissions Trading System in the early 2000s, the book contains contributions from a distinguished group of policymakers from the European Commission’s Directorate-General for Climate Action.

The EU climate policy finds in this book a comprehensive and accessible illustration, that outlines the rich—and complex—journey that led to what today is the bulk of the European Green Deal.

Contributions cover all the key aspects of EU climate policy, from the EU Emissions Trading System to the energy sector and other economic sectors, including their development in the context of international climate negotiations.

This choral effort results in a real instrument for the daily work of both public and private decision-makers, scholars, students and any interested reader having/wanting to deal with the fascinating and rapidly evolving EU climate policy space.

That is, ‘Towards a Climate-Neutral Europe. Curbing the Trend’ is a book to keep at hand, so that it can be consulted at any time there is a need to dig into the details of a certain EU climate policy question.

The book has an approachable structure, setting out in each chapter an introduction to the issue and then an in-depth discussion of its various elements. The narrative is refreshing, notably thanks to a combination of facts, theories, analysis and policy experience. Each chapter's sub-section ends with a box outlining the key conclusions, a feature that provides further clarity to the reader.

Chapter 1 offers a compelling illustration of the historical evolution of EU climate policy and discuss its five cornerstones—politically-backed climate targets, carbon pricing, comprehensive policy approach, solidarity and fairness, industrial competitiveness—that have allowed a decoupling of emissions from economic growth.

Chapter 2 reviews the evolution of international climate negotiations. It discusses the UN Framework Convention on Climate Change and the Kyoto Protocol, and it describes the bumpy road from the failure of the Copenhagen climate conference in 2009 to the success of the Paris Agreement in 2015. It outlines the essential features of the Paris Agreement and finally focuses on the EU's international cooperation efforts in the field.

Chapter 3 describes how the EU learned to integrate economic and climate modelling to define its 2020 and 2030 climate targets, also presenting a detailed analysis of the economic dimension of the most relevant EU policy documents in the field.

Chapter 4 looks at the EU Emissions Trading System, discussing how it works and illustrating what kind of emissions reduction it achieved so far. A rich discussion on the various revisions made to the system over time is also presented, as an example of the EU's learning-by-doing approach in the field.

Chapter 5 discusses then how the EU tackled emissions from the non-ETS sectors with the Effort Sharing Regulation. It notably describes how the EU dealt in this area with the necessity of ensuring fairness and cost-competitiveness among Members States with different income levels.

Chapter 6 moves beyond the realm of carbon pricing and analyses energy-related policies and integrated EU climate policy governance. It discusses the EU targets on renewable energy and energy efficiency, as well as the important issues of electricity market design and of the governance of the Energy Union.

Chapter 7 focuses on transport emissions from road, aviation and shipping. It presents the EU's overall policy towards internalisation of external costs and it reviews each individual sector in detail.

Chapter 8 focuses on agriculture and forestry in the EU's 2030 climate target. It describes the position of the sector in different pillars of the EU policy as well as in international climate regimes.

Chapter 9 further broadens the spectrum of the analysis, discussing the mainstreaming of climate change in EU policies, from the environmental dossiers to sustainable finance.

Chapter 10 concludes the book with ten personal reflections by Jos Delbeke on the difficult journey towards climate neutrality, spanning from societal megatrends and the climate challenge to the need for an enlightened industrial and trade policy; from the critical importance of local authorities and citizens to the growing challenge of adaptation to climate change.

In my view, the most fascinating feature emerging from this book is the EU climate policy's persistent search for the right balance between the role of markets and public intervention, and its continued quest for fairness and solidarity in each policy action. Principles that now lie at the core of the European Green Deal, but have been progressively pursued for three decades,

providing a sense of the learning-by-doing approach the EU has necessarily had to adopt in the field—owing to its status as a global frontrunner.

What we are going to live through with the European Green Deal, perhaps without really realising it, is more than just an energy transformation aimed at decarbonising our economies. It is a real industrial revolution, which will touch every aspect of our economic systems and affect the way we live and relate to the environment. It is a challenge that can really make the world a better place for everyone—but for this we must be prepared. Reading ‘Towards a Climate-Neutral Europe. Curbing the Trend’ certainly is a first step in the right direction.

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The European Energy Transition: An Agenda for the Twenties edited by Susanne Nies (Claeys & Casteels, 2020). 603 pages, ISBN: 9789077644713.

The new edition of ‘The European Energy Transition: An Agenda for the Twenties’ is a very good handbook, with 46 authors exploring the European energy transition.

The book gives an extensive overview of different elements of the European energy transition, with a historical background (often starting with the liberalisation of the electricity markets) till the adoption of the Clean Energy Package. The different chapters are quite complementary, sometimes slightly overlapping, giving different perspectives. The main focus of the book is on the electricity markets, the views and experience from the different players, TSOs, ACER, European Commission and other actors. This is complemented by some chapters that go beyond the borders of the electricity sector, as for instance Chapter 8 on the European Border Carbon Adjustment proposal and the various chapters on newer trends like digitalization, innovation or communication. The reader learns a lot; even those who have been mostly part of this energy transition in Europe can learn or complement their knowledge. On the other side, for those who are new or newer in the field, this book is certainly an important tool to learn more about the energy transition, the different steps, the reasons behind some of the policy decisions being made today, so it helps with the understanding of the European energy policies as they are currently developing.

There are several deep dives in the different chapters, with a certain focus on the electricity markets. Several authors describe, for instance, the setting up of network codes for electricity and the steps that led to the adoption of the Clean Energy Package, in particular the electricity directive and regulation. The majority of the authors seem to have experience in electricity markets, some give a broader perspective, but generally there is a little less focus on other sectors, like industry, transport or buildings. This may represent a weakness for the book, since electricity makes up only a part of our energy systems and to achieve a clean energy transition, we would need all sectors to decarbonize.

The book covers most actors and institutions, including the Energy Community, which play a key role in the overall context. There are also some chapters explaining the interaction with other, third parties beyond Europe, like Russia or Ukraine, which are key players in the international energy world. One could expect maybe one (new) international chapter more generally on the relationship between the EU and the other major energy partners, not only

Russia and Ukraine, but for example Norway, the US and the Mediterranean countries. This could complement the picture from an even broader perspective.

Overall, I can only recommend the book as a guide for those working on or in the European energy transition. I am looking forward to the next update, on the European Green Deal, since the energy world is changing at record speed, mainly in Europe but also elsewhere.

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