**A paradigm shift in the governance of sustainable development: Citizens’ empowerment**

**By  
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# **Introduction**

This chapter examines a novel approach to sustainable development by focusing on the potential role of citizens in international trade, climate change mitigation, and sustainable energy. This chapter argues that this novel approach is crucial to reach sustainability.[[2]](#footnote-2) This chapter aims to explain the paradigm shift in the governance of sustainable development: the 20th century was characterized by a top-down approach to the governance of climate action (eg., the Kyoto Protocol), energy (eg., inter-governmental energy agreements), and international trade (eg., inter-governmental trade agreements).

The 21st century, however, offers a bottom-up approach, marking one of the mega-trends of the 21st century: in climate action, the implementation of the Paris Agreement on Climate Change is done from the bottom up via citizens, NGOs, mayors, governors, businesses, or smart cities;[[3]](#footnote-3) in energy governance, we are observing energy democratization by decentralizing the governance of energy security and creating new energy actors, namely prosumers[[4]](#footnote-4) and renewable energy cooperatives.

How about the governance of international trade? How can it be governed from the bottom up so that there is an open trading system in political, legal, and economic terms? How can we have greater involvement of civil society? How can we empower citizens in trade diplomacy? Traditionally, trade policy has been conducted by trade diplomats. Should we not listen to citizens’ concerns and those of small and medium enterprises?

Moreover, politicians suffer from short-termism for obvious electoral reasons. This phenomenon, however, is not the case of entrepreneurs, who have proven time and time again that they have a long-term approach to their vision and actions. We argue that this approach will expedite the necessary change to mitigate climate change and enhance international trade.

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## **From top-down to bottom-up governance**

Multilateralism does not seem to be doing well these days.[[5]](#footnote-5) Arguably, sometimes one needs unilateralism to improve multilateralism. The US intends to withdraw from the Paris Agreement on Climate Change and President Trump questions the validity of the US contribution to the UN; multilateral trade negotiations at the WTO seem to go nowhere and the WTO’s dispute settlement system is stagnated.[[6]](#footnote-6) It seems as if the WTO has not been up to par with economic change. State-centricity seems to be making people unhappy. There seems to be a fundamental lack of trust in current goverance structures.

All of this puts into question the hegemonic stability theory that predicates that the international system is most likely to be stable when a single state is the dominant power in the world. Based on the view that one should never waste a crisis to reach reform, would it be the right time to think of alternative ways of governance? It is often the case that what citizens think is overlooked by policymakers. Would greater involvement of citizens make a difference for a better and more effective global economic governance? Big crises can lead to big reforms and positive developments.

A top-down guidance to sustainable development will come from inter-governmental decisions (i.e., high level of abstraction), whereas a bottom-up approach means that action/implementation will happen from consumers'/citizens' participation (i.e., low level of abstraction).[[7]](#footnote-7) National governments are essential, but are no longer the only key actors. This raises the question whether cities can make effective change if national governments do not deliver. At what point should businesses have to step up if politicians fall short? Businesses have taken on a leadership role in climate change mitigation and cities around the world are demonstrating innovative strategies for advancing solutions to climate change. Via this bottom-up approach to governance, citizens can ask states for reform.

In the case of international trade, during the WTO Ministerial Conference in Seattle in 1999 there were large crowds of people angrily demonstrating on the streets, asking trade technocrats to be transparent and share the outcome of multilateral trade negotiations that were happening behind closed doors. Those were the days when multilateral trade was sexy. More recently, with the rise of mega-regional trade agreements (as examples of plurilateralism, which seems to be the way forward in international trade)[[8]](#footnote-8) such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP),[[9]](#footnote-9) there have been large demonstrations on the streets of the US, UK,[[10]](#footnote-10) Germany, and Austria against the Trans-Pacific Partnership (in the case of the US) and the Trans-Atlantic Trade and Investment Partnership [TTIP] (in the case of the other countries). All of this shows an increasing interest among citizens in international trade negotiations, who are concerned that the outcome of such negotiations may affect their daily life negatively as a result of “openness to investment from other members, the protection of patents, and environmental safeguards.”[[11]](#footnote-11) So in addition to the top-down process to trade governance, we propose a bottom-up process, with greater citizen participation.

Softer, informal tools of goverance, rather than treaties, seem to be central to the current crisis/ transformation of multilateral governance. In the field of energy governance, regulatory alignment, technology alignment, and buidling common institutions might all help enhance sustainable energy. New actors are emerging. One of them is the citizens.

## **New concept: Empowering citizens**

Empowering citizens has implications for societal change as it provides a human element to governance.[[12]](#footnote-12) More direct participation by citizens is increasingly necessary to reach good governance. In the field of energy governance, one of the aims of this chapter is to explore how to effectively place citizens at the center of the transformation of the grid by allowing greater citizen participation and access to information. Citizen participation will bring stability, facilitate citizens’ wellbeing, provide better access to energy, it will put pressure on companies to do the right thing,[[13]](#footnote-13) and provide better management of climate change and environmental issues. By doing so, we are moving away from energy poverty towards a transition to energy democracy,[[14]](#footnote-14) energy citizenship,[[15]](#footnote-15) decentralized energy,[[16]](#footnote-16) energy enhancement,[[17]](#footnote-17) more effective climate change mitigation and greater presence of citizens in trade policy/diplomacy.

Since more prosumers are entering the market, all of this, in turn, will lead to the creation of scalable micro-grids for prosumers[[18]](#footnote-18) and utility companies, new policies and regulatory frameworks for smart grids, as well as a better grid management. It will also encourage prosumers towards a more energy-efficient behavior. Further, it will change citizens’ attitudes from being passive to active consumers by presenting a variety of local engagement opportunities. Local renewable energy communities are at the grassroots of the movement to change the current energy-security system. For instance, how can legal technical barriers to energy technology be reduced or eliminated for smart grids to take off in different jurisdictions?[[19]](#footnote-19) How could the legal environment be developed to benefit technology and create, say, a single smart grid in supranational structures like that of the EU?[[20]](#footnote-20) Such a system would make energy security cheaper.

The use of behavioral economics in public policy has been increasingly on the agenda. In energy policy, “it has become clear that efforts to steer people towards “better”—that is, more energy efficient—choices and behaviours are much needed.”[[21]](#footnote-21) As suggested by Lucia Reisch, there is increasing evidence that the right incentives do spur behavioral change.[[22]](#footnote-22) This has certainly been the case in Nordic countries, where the so-called Nordic model has failed in top-down policies (such as the creation of common defense policy, a single currency), but has been very successful in the design of bottom-up approaches to policies with the right incentives and market integration.[[23]](#footnote-23)

This shift in the governance of sustainable development implies putting citizens at the center of this process. The phenomenon of what we describe as a ‘bottom-up approach’ in the *democratic*[[24]](#footnote-24) (in the true sense of the term, namely that power remains with the citizens) implementation of climate change mitigation plans—a creation of the Paris Agreement, which has become the locomotive of climate action—is one of the mega-trends of the 21st century.[[25]](#footnote-25) Since the majority of the world population lives in cities[[26]](#footnote-26) (and this trend is on the rise),[[27]](#footnote-27) since 50% of global waste is produced in cities,[[28]](#footnote-28) since 80% of global economic activity takes place in cities,[[29]](#footnote-29) and since between 60% and 80% of GHG emissions comes from cities,[[30]](#footnote-30) this new mega-trend of climate action at the city level with a much greater participation of citizens is very promising.[[31]](#footnote-31)

So why should cities (and therefore citizens) take climate action? Because today the majority of the world’s population lives in cities,[[32]](#footnote-32) and this trend to urban migration is on the rise;[[33]](#footnote-33) because cities are the main polluters and the main implementers of legislation;[[34]](#footnote-34) and because mayors of cities are pragmatic with global issues such as climate change, poverty or terrorism.[[35]](#footnote-35) Also because such issues are too big for nation-states and because cities arguably offer better governance on these matters. Moreover, mayors tend to come from the cities they govern and therefore have a much higher level of trust than politicians at the national level.

What should be the role of citizens in the shift towards a circular economy (i.e., recycling and reusing products) and in trade diplomacy? What should be the role of the emerging environmental goods and services sector? In the specific case of international trade, one could imagine as citizens’ empowerment the involvement of civil society, as stakeholders of trade agreements, in committees on trade and environment via their participation during the negotiation process of future trade agreements. Moreover, with the rise of e-commerce, one could think of the increasing participation of micro, small and medium enterprises via apps on their smartphones. How can trade policy have more contact with private companies that are involved in international trade? Regarding the process of negotiation of trade agreements, potential areas for improvement and participation at the grassroots level are transparency,[[36]](#footnote-36) NGO involvement, the implementation of trade agreements, information asymmetry, and due process, among others.

### b.1. Energy transition: The role of citizens

The energy transition, which is happening at a slow pace, is an opportunity to protect the planet, as is also to create jobs and provide economic growth. The long-term goal in the energy field is 100% energy use from wind, solar, and hydropower. Since the energy sector and the economy go hand in hand, the future of the energy transition and the future of countries’ economies will inevitable go hand in hand. There are several factors to take into account in the energy transition: circularity/cradle-to-grave principle (recycling over and over again), consumer’s engagement, decarbonisation, long-term thinking, minimizing social impact on consumers, multilevel governance (at local, regional, national, supranational, international level), simplicity, speed (namely making sure that the energy transition happens within a reasonable timeframe), affordability, and transparency with data.

Moreover, one can think of five ‘D’s when analyzing what is shaping the economy and the energy transition:

* Democratization;
* Digitalization;
* Decarbonization;
* Decentralization; and
* De-regulation.

But what are the main drivers of the energy transition in the energy market? Several factors seem to come to place: access to information, communication, energy decentralization which, as a result, brings energy democratization[[37]](#footnote-37) via a multilevel governance system, citizens’ empowerment[[38]](#footnote-38) aiming at a state of autarky (in as much as this is possible) in a customer-centered system that enables them to exploit market opportunities, new business models, innovation, stronger and smarter grids, better and smarter regulation aiming at reducing or eliminating technical barriers,[[39]](#footnote-39) and electrification because it drives the deployment of renewable energy.

What is the role of the market in securing a successful energy transition? It is, among other things, to set price signals, to provide regulatory adjustments to new situations, to influence the drivers that will make the energy transition a reality, to provide a level playing field, to act as an enabler for business models, to drive competition, to provide further economic liberalization, to drive consumer behavior (and vice versa, i.e., consumer behavior will drive the market), and to enable innovation.

The implementation of the energy transition will inevitably vary from country to country, based on access to technology and economic conditions.[[40]](#footnote-40) It will require the convergence of centralized with decentralized energy systems. For instance, in the case of the EU, it will require solar and wind energy integration for the implementation of the energy transition. Greater flexibility will be necessary for cross-border energy trade and for local/regional smart grids.

The energy mix is changing to low carbon and is getting cheaper. Moreover, in addition to the power sector, heating, cooling, and transport are sectors where fossil fuels need to be gradually replaced with renewables. Sector coupling may be a way to make this possible within the energy sector and between the energy sector and other sectors.[[41]](#footnote-41) In addition, reducing energy demand may not be an option in the future, given our life style in the West, which is increasingly replicated in the rest of the world. Instead, what is needed is a smart policy design for energy demand, which needs to be complemented with technological and institutional improvements on the supply side. If we succeed at a more efficient and sustainable energy system, energy imports and energy dependency will gradually fall, costs will be cut and GHG emissions reduced. One can also provide incentives for CO2 emissions reduction.[[42]](#footnote-42)

How can we get there? By empowering citizens in access to energy.[[43]](#footnote-43) Gordon Walker has identified four types of community-owned means of renewable-energy production in the UK: 1) cooperatives, 2) community charities, 3) development trusts, and 4) renewable-energy projects with shares owned by a local community organization.[[44]](#footnote-44) In addition, there are examples of cooperative models for wind turbine companies in several EU countries (namely Austria, Germany, Denmark, The Netherlands), which are illustrations of innovative models of citizens’ participation and community involvement in energy production.[[45]](#footnote-45) What citizens want from the grid is security of supply, lower bills, protecting the environment, and smartness.

Moving forward, several key challenges seem to emerge:

* A modern and clean energy economy: The energy transition trend has been from a centralized system in the past to a current decentralized sytem and smart technologies, to a future smart, data-centric system and electrification of tansport. This will happen with innovation and if the appropriate investment will take place to empower prosumers and renewable energy cooperatives and to manage data;
* A fair energy system with access to energy for all: No one and no country should be left behind. In other words, the energy transition must be designed in a fair manner;
* The enhancement of existing regional cooperation at all levels of governance: The current normative complexity would need further cooperation between various parties involved in the energy-transition process and at all levels, whether it is the EU, national level, regulators, distributors, stakeholders, or transmission system operators (TSOs)[[46]](#footnote-46);
* Digitalization: Cyber security in energy will inevitably have cascading effects in other sectors such as finance and transport;[[47]](#footnote-47) and
* A global level playing field: The Paris Cimate Agreeement is a case in point. The objectives of the Paris Agreement would need to be in alignment with the objectives of future legislation on clean energy. But what about international trade and investment?[[48]](#footnote-48) How can the objectives of the Paris Agreement be aligned with those of future trade agreements?

### b.2. Climate action

International cooperation is crucial for climate change mitigation. A promising way forward is bringing together environmental NGOs and businesses for greater and close cooperation on issues of climate action.[[49]](#footnote-49) A case in point that became a surprising fact is the very well organized social movement in the US to implement the Paris Climate Agreement as soon as President Trump announced his intention to withdraw from that Agreement. Cities, states and businesses gathered together for climate action. Outside the main conference building of the 2017 UN climate summit, a coalition of people gathered under the heading ‘We are still in.’[[50]](#footnote-50) Equally, joint actions between countries could have a ‘trickle-down effect’ from governments to citizens and businesses for the promotion of business opportunities in clean energy, especially for small and medium enterprises (SMEs), the facilitation of trade and investment in environmentally friendly goods and services such as energy efficient goods and services, and cooperation on trade-related aspects of climate change mitigation.[[51]](#footnote-51)

### b.3. International trade

Citizens’ empowerment is a relatively new concept in global governance. In December 2017, the EU Commission announced the creation of a new advisory group on EU trade agreements.[[52]](#footnote-52) The aim of the group is to increase transparency and inclusiveness in EU trade policy. The EU Commission is committed to this cause.[[53]](#footnote-53) The perspective of this wide group of stakeholders[[54]](#footnote-54) (consumer groups, trade unions, and other non-governmental organizations) on EU trade policy will certainly help towards better trade policymaking in the future. The EU Commission has also acknowledged elsewhere EU citizens’ expectation that EU trade agreements should support sustainable-development objectives such as climate action.[[55]](#footnote-55)

The role of citizens and micro, small and medium-sized enterprises (MSMEs) in international trade governance is another example of a bottom-up approach to sustainable development governance that would shift the current paradigm. A report authored by the WTO Secretariat states how the current trade governance system can support MSMEs in their participation in the international trading system:

1. By helping them meet sustainability standards and conforming with other international regulations to take advantage of the opportunities resulting from global supply chains;
2. By ensuring that MSMEs can trade their goods and services in a timely and competitive manner, which will result in greater consumer confidence; and
3. By making sure that trade finance is available. Doing so will contribute to gender equality, increasing economic growth, fostering innovation, and increasing participation in international trade.[[56]](#footnote-56)

Trading is not possible without trust. Trust is based on incentives. Citizens need to have the necessary framework that enables them the required trust to believe in a trading system where they can be participants. For instance, green consumer behavior in trade (such as gradually getting rid of using fossil fuels) will help towards the mitigation of climate change. The more harmonized the market, greater economic incentives will derive from it. A key ingredient to improving trade (in energy) is better and more efficient connection between markets.

# **Conclusion**

No solution to the above big challenges is possible without cooperation with governments, companies, researchers (whose role is to provide good information to create good policy), and social mobilization. Business may have a role to play when politicians fall short and help decarbonize the economy at large. While elected politicians may be too shy to risk failure and seem to suffer from short-termism, entrepreneurs seem to be riskophiles and persistent, with a long-term commitment, especially multibillionaire entrepreneurs—think for instance of Elon Musk’s companies Space X and Tesla—thanks to whom change may come (sooner than later). Technology seems to be the resource to success. To that, one should add the optimism of Steven Pinker that things will only get better in the future because people generally think reasonably and logically[[57]](#footnote-57) and that the geopolitics of clean energy may make the world more peaceful and stable.

Regarding the energy transition, as the world reduces its oil dependence, the winners in this race will be those that will be able to produce and export green technology and rely on clean energy, whereas the losers will be those that will continue to depend mainly on fossil fuels. Two ingredients may help move forward the energy transition: international collaboration and energy decentralization. Potential international collaboration can be achieved in the field of technology, for which international trade will certainly play a major role. Initiatives such as “Breakthrough Energy Coalition”[[58]](#footnote-58) of visionary billionaires determined to provide energy that is reliable, affordable and carbon-less are an excellent way forward. Another initiative called Mission Innovation[[59]](#footnote-59) brings together a group of 22 countries and the EU[[60]](#footnote-60) that aim to reinvigorate and accelerate clean energy innovation throughout the world to make clean energy affordable for all. As for energy decentralization, the emergence of micro-/minigrids dealing with locally produced wind and solar energy, as well as electric-vehicle batteries is the way forward. All of this will not only help to have better access to energy, but it will also decentralize economies.

When it comes to the fight against climate change, winning slowly is the same as losing the fight. However, when opportunity meets willingness, action takes place. Change in behavior by citizens (and businesses) is key, since policy targets come from governments, but policy implementation will be done by citizens. Change in behavior implies enabling people the choices of change. There is evidence that young people want to consume in a sustainable manner, which is a positive change and will make the future brighter. Equally, as pointed out by David Korten, changing the story will change the future.[[61]](#footnote-61) So citizens need to have a voice to change the story of their future. Being pragmatic and practical at city/company level will help.

Lastly, two counter-intuitive trade-related points deserve to be mentioned. First, that trade agreements may be more effective legal instruments than environmental agreements for environmental-protection purposes is both counter-intuitive and surprising. Just as the huge improvement in quality of life after World War II was largely due to the expansion of world trade by lowering technical barriers, one can use the international trading system (whether regionally, bilaterally, plurilaterally, multilaterally or in any other form) to help mitigate climate change and enhance sustainable energy. If multilateralism is currently in crisis, plurilateralism might be an effective platform to work on the links between trade and climate action. How? By making sure that major GHG emitters conclude mega-FTAs between major economies that liberalize green goods and services.

Second, on the trade-climate change nexus, whether clean-energy technology eventually triggers a healthy competition or geopolitical friction will depend on international trade. If the Trump administration ends up creating a trade war, there will be less trade, therefore, less international shipping for the transnational movement of (clean) goods, therefore fewer emissions of GHGs, which is good for climate change. In conclusion, a trade war would be beneficial for climate change.

All of this would need to be implemented in terms of bottom-up governance. Recent examples of citizens’ discontent in EU governance show the apathy among voters for supranational parliamentary elections, whose participation has decreased in each and every election since the first in 1979. Instead, there is an increasing interest in national/sub-national parliamentary politics, as exemplified by Brexit and the Catalonian independent movement, which are closer to the citizens than metanational/supranational/international entities. Greater use of social media (Twitter, Facebook, videos on YouTube) could be a very effective means to educate youth—which is the segment of society that makes most use of it—on the links between trade and climate change, raise awareness, and involve them in parliamentary elections.

1. \* Jean Monnet Chaired Professor of EU International Economic Law, Queen Mary University of London (Centre for Commercial Law Studies). The financial help from two EU grants is greatly acknowledged: Jean Monnet Chair in EU International Economic Law (project number 575061-EPP-1-2016-1-UK-EPPJMO-CHAIR) and the WiseGRID project (number 731205), funded by Horizon 2020. Email: [r.leal-arcas@qmul.ac.uk](mailto:r.leal-arcas@qmul.ac.uk) [↑](#footnote-ref-1)
2. R. Leal-Arcas, “[Sustainability, common concern and public goods](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2915150),” *The George Washington International Law Review*, Vol. 49, Issue 4, pp. 801-877, 2017. [↑](#footnote-ref-2)
3. It is remarkable to see the transformation of climate change agreements in terms of governance structure in such a short period of time: in less than 20 years, the 1997 Kyoto Protocol as an example of a top-down approach to climate change mitigation, and the 2015 Paris Climate Agreement as an example of a bottom-up approach to climate change mitigation. For an analysis of the Paris Climate Agreement, see D. Bodansky, “The Paris Climate Change Agreement: A new hope?” *American Journal of International Law*, Vol. 110, Issue 2, April 2016, pp. 288-319; Bryan H. Druzin, “A Plan to strengthen the Paris Climate Agreement,” FORDHAM LAW REVIEW RES GESTAE, Vol. 84, pp. 18-23, 2016. [↑](#footnote-ref-3)
4. It is interesting to see the conceptual evolution of this phenomenon over time: Initially, one referred to an energy user, then consumer, then customer, and now prosumer. For an analysis of prosumers, see R. Leal-Arcas et al., “Prosumers: New actors in EU energy security,” *Netherlands Yearbook of International Law*, Vol. 48, pp. 139-172, 2017. [↑](#footnote-ref-4)
5. The US has been withdrawing from a number of multilateral fora since President Trump came to office. As of June 2018, the most recent example was the withdrawal from the UN Human Rights Council. See Gardiner Harris, “Trump Administration Withdraws U.S. from U.N. Human Rights Council,” *The New York Times*, 19 June 2018, available at https://www.nytimes.com/2018/06/19/us/politics/trump-israel-palestinians-human-rights.html. [↑](#footnote-ref-5)
6. US Trade Representative Robert Lighthizer has repeatedly made the point that the WTO needs to be reformed and that US trade policy has gone in the wrong direction since the creation of the WTO. See S. Donnan, “We need to talk about the Lighthizer Doctrine,” *Financial Times*, 12 February 2018, available at https://www.ft.com/content/7335e48c-0fe7-11e8-8cb6-b9ccc4c4dbbb?desktop=true&segmentId=7c8f09b9-9b61-4fbb-9430-9208a9e233c8#myft:notification:daily-email:content. [↑](#footnote-ref-6)
7. For a previous analysis, see R. Leal-Arcas, “[A Bottom-up Approach for Climate Change: The Trade Experience](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1978731),” *Asian Journal of Law and Economics*, Vol. 2, Issue 4, pp. 1-54, 2011. [↑](#footnote-ref-7)
8. The following is evidence that plurilateralism, as opposed to multilateralism, seems to be the way forward in international trade negotiations: In December 2017, during the WTO Ministerial Conference in Buenos Aires, some, but not all, WTO Members (therefore, making this procedure an example of plurilateralism) issued joint statements that were signed by subgroups of WTO Members. The aim of these plurilateral statements was to deal with specific topics, including informal work programs for Micro, Small and Medium Enterprises (WT/MIN(17)/58/Rev.1), investment facilitation (WT/MIN(17)/59), electronic commerce (WT/MIN(17)/60), fossil fuel subsidies (WT/MIN(17/54)), as well as on services domestic regulation (WT/MIN(17)/61) within the WTO Working Party on Domestic Regulation. For an analysis of plurilateral governance in climate change, see Leal-Arcas R, ‘Alternative Architecture for Climate Change – Major Economies’ (2011) 4(1) *European Journal of Legal Studies* 22-56. [↑](#footnote-ref-8)
9. After the US decided to withdraw from the Trans-Pacific Partnership, which never entered into force, it was agreed in January 2018 that negotiations would start on a new trade agreement called the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. To see the newly agreed text, visit https://www.mfat.govt.nz/en/trade/free-trade-agreements/free-trade-agreements-concluded-but-not-in-force/cptpp/comprehensive-and-progressive-agreement-for-trans-pacific-partnership-text/#chapters. Crucial side letters were not yet available as of February 2018. [↑](#footnote-ref-9)
10. Anecdotally, it is interesting to note that more people signed an anti-TTIP campaign in the UK—which is known as a free-trade country—than in France—which is known as a protectionist nation. See The Economist, “The politics of trade deals: Not so global Britain,” 10 February 2018, pp. 27-28, at 27. [↑](#footnote-ref-10)
11. The Economist, “Banyan: Trading places,” 27 January 2018, p. 47. [↑](#footnote-ref-11)
12. R. Leal-Arcas, “Empowering citizens for common concerns: Sustainable energy, trade and climate change,” *GSTF Journal of Law and Social Sciences*, Vol.6, No.1, Jan. 2018, pp. 1-37. [↑](#footnote-ref-12)
13. See for instance the initiative ‘The consumer goods forum,’ at https://www.theconsumergoodsforum.com/. [↑](#footnote-ref-13)
14. C. Morris and A. Jungjohann, *Energy democracy: Germany’s Energiewende to Renewables*, Palgrave Macmillan, 2016. [↑](#footnote-ref-14)
15. See for instance P. Devine-Wright, “Energy citizenship: Psychological aspects of evolution in sustainable energy technologies,” in J. Murphy (ed.), *Governing technology for sustainability*, Earthscan, 2007. [↑](#footnote-ref-15)
16. K. Orehounig, R. Evins, and V. Dorer, “Integration of decentralized energy systems in neighbourhoods using the energy hub approach,” *Applied Energy*, Vol. 154, 2015, pp. 277-289. [↑](#footnote-ref-16)
17. See for instance N. Omar, “Future and emerging technologies: Workshop on future battery technologies for energy storage,” Luxembourg: Publication office of the European Union, 2018, available at file:///C:/Users/lcw197/Downloads/FETWorkshoponFutureBatteryTechnologiesforEnergyStorageA4webpdf.pdf. [↑](#footnote-ref-17)
18. For further details on prosumers, see Leal-Arcas, R. *et al*., “Prosumers: New actors in EU energy security,” *Netherlands Yearbook of International Law*, Vol. 48, 2017. [↑](#footnote-ref-18)
19. According to Stanford University researchers, ‘utilities around the world can rely on multiple methods to stabilize their electricity grids in a shift to 100% wind, solar, and hydroelectricity.’ See T. Kubota, “Jacobson study shows multiple paths to grid stability in 100% renewable future,” *The Energy Mix*, 14 February 2018, available at http://theenergymix.com/2018/02/14/jacobson-study-shows-multiple-paths-to-grid-stability-in-100-renewable-future/. [↑](#footnote-ref-19)
20. For an initiative in this direction towards energy cooperation between the North Seas countries, see The North Seas Countries’ Offshore Grid Initiative, available at <http://www.benelux.int/nl/kernthemas/holder/energie/nscogi-2012-report/>. Similar thinking is taking place for the creation of a single, shared 5G wireless network. See The Economist, “Telecoms: Next-generation thinking,” 10 February 2018, pp. 11-12. [↑](#footnote-ref-20)
21. L. Reisch, “Nudging Europe’s Energy Transformation,” *The Globalist*, 20 August 2012, available at https://www.theglobalist.com/nudging-europes-energy-transformation/. [↑](#footnote-ref-21)
22. Ibid. [↑](#footnote-ref-22)
23. Hans-Arild Bredesen, Terje Nilsen, Elizabeth S. Lingjærde, *Power to the People: The first 20 years of Nordic power-market integration*, 2013. [↑](#footnote-ref-23)
24. For analyses of democracy, see P. Deneen, *Why liberalism failed?* Yale University Press, 2018; D. Frum, *Trumpocracy: The corruption of the American Republic*, Harper, 2018; S. Levitsky and D. Ziblatt, *How democracies die: What history tells us about our future*, Crown, 2018. [↑](#footnote-ref-24)
25. Daniel Esty of Yale Law School has developed 10 mega-trends of the 21st century, one of which is a bottom-up approach to climate action. [↑](#footnote-ref-25)
26. *See World’s Population Increasingly Urban with More than Half Living in Urban Areas*, U.N. DEP’T OF ECON. & SOC. AFFAIRS (July 10, 2014), http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html. [↑](#footnote-ref-26)
27. By 2050, 70% of the world’s population is expected to live in cities. *See* Mark Wilson, *By 2050, 70% of the World’s Population Will Be Urban. Is That a Good Thing?*, CO.DESIGN (Mar. 12, 2012), https://www.fastcodesign.com/1669244/by-2050-70-of-theworlds-population-will-be-urban-is-that-a-good-thing [↑](#footnote-ref-27)
28. UNEP, “Resource efficiency as key issue in the new urban agenda: Advancing sustainable consumption and production in cities,” available at <http://web.unep.org/ietc/sites/unep.org.ietc/files/Key%20messages%20RE%20Habitat%20III_en.pdf>, p. 1 [↑](#footnote-ref-28)
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