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Invited Commentary

"Zweckoptimismus" and the Paris Process Will Not Save the World from Climate Catastrophe

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EDITOR'S NOTE:

This is 1 of 6 invited commentaries in the series "Practices & Challenges for Integration of Climate Change Adaptation." These peer-review commentaries describe the state-of-knowledge with respect to planning and implementation of actions that respond to the threats and vulnerabilities posed by a changing climate.

ABSTRACT

Politicians, government officials, business representatives, and nongovernmental climate activists all in various ways emphasize what they see as progress being made in the aftermath of the Paris Agreement, even if they continue to warn of the dire consequences of business as usual. Indeed, there is no lack of encouraging private and public sector initiatives on climate change. Some macro trends seem to be moving in the right direction, as well. But, closer scrutiny shows that these positive trends are still far from adding up to the necessary fundamental shift in the global energy economy. Furthermore, the public may greatly overestimate the advancement of renewable solar and wind energy technology, which contributes to a false sense of progress and lessens political urgency. Without determined and reinvigorated political leadership from the European Union (EU), there is little hope that necessary emission reduction goals to stay below 2 °C above preindustrial levels can be met. The EU has driven international climate policy from the beginning of climate negotiations, and there is unfortunately no other source of leadership in sight. It will require difficult political decisions to be taken sooner rather than later to force a much quicker domestic energy transition and to raise financing to help developing countries with their own energy transition and adaptation to a rapidly warming world. *Integr Environ Assess Manag* 2018;14:198–201. © 2018 SETAC

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INTRODUCTION

"Zweckoptimismus" is a German word that combines the word "purpose" with the word "optimism." Loosely translated as purposeful optimism, it well describes the current approach to the follow-up to the Paris Agreement (UNFCCC 2015). Politicians, government officials, business representatives, and nongovernmental climate activists all in various ways emphasize what they see as progress being made in the aftermath of the Paris Agreement, even if they continue to warn of the dire consequences of business as usual. Anything else would concede inevitable disaster. But, focusing too much on punctual progress rather than the big picture threatens further delays with far-reaching consequences.

Indeed, there is no lack of encouraging private and public sector initiatives all over the world to reduce greenhouse gas emissions and adapt to a warming world (UN 2017a). Some macro trends seem to be moving in the right direction, as well. Global emissions from fossil fuel burning have remained flat for 3 y in a row, at least until they rose again in 2017 (IEA 2017a; Jackson et al. 2017), and investments into renewable energy in 2016 were outpacing investments in traditional fossil fuels (REN21 2017). Closer scrutiny, however, shows that these positive trends are still far from adding up to the necessary fundamental shift in the global energy economy.

In December 2015, at the Paris climate conference, countries pledged to keep global warming to below 2 °C above preindustrial levels based on voluntary nationally determined commitments (NDC) (Clémençon 2016a). While an important first step, even full implementation of current pledges would let the world warm somewhere around 3.2 °C by 2100 (UNEP 2017, xviii; Climate Action Tracker 2017). In 2016, global average warming reached 1.1 °C over preindustrial times, and 2016 set new records in extreme weather events around the globe (WMO 2017). As I write this, California is fighting the most devastating forest fires the state has ever experienced just weeks after a string of hurricanes caused death and destruction in Puerto Rico, Florida, and Texas, USA (in September and October 2017). One can only imagine what a 3.2 °C warmer world might be like.

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Yet there appears little sense of public urgency. Opinions about the seriousness of the problem differ widely among countries and within them (Broadbent et al. 2016; Dunlap et al. 2016). One of the reasons might be public misconceptions about the rate at which the world is transitioning out of fossil fuels.

OVERESTIMATING THE SPEED OF TRANSITION TO RENEWABLE ENERGY

Between 2006 and 2015, installed wind power capacity increased by 600% worldwide, and solar energy capacity increased by 3500% (REN21 2017). In the summer of 2016, Portugal covered 100% of its electricity demand from renewables for 4 d. Germany for the first time achieved one 100% renewable electricity day in May 2016 to considerable media attention (Nelsen 2016). In 2016, Denmark and Portugal produced more than 50% of their electricity from renewables—mostly wind and solar—and Germany has reached 39% (REN21 2017, p 191). China and India account for the fastest growth rates with installation of wind power and solar. Glossy news stories about large-scale wind farms and solar installations abound.

The political support for and increasing popularity of electric cars plays further into this narrative that things are moving quickly in the right direction. With more than 2 million electric cars on the road and more than 750 000 electric vehicles (EVs) sold worldwide in 2016, a new record has been achieved in the electrification of individual transportation (IEA 2017b). Electrical vehicles are expected to bring down persistently high urban air pollution in the world's major cities, and in a local and regional context they may accelerate adoption of renewable energy technologies. But as long as 39% of the world's electricity is generated by burning coal (IEA 2017c, p 30), a shift from fuel-efficient gasoline and hybrid vehicles to electric cars will boost and not reduce CO_2 emissions globally. Germany, a leader in renewable energy, still generates 44% of its electricity by burning coal (Fischer and Keating 2017).

Perhaps it is no wonder that the public may far overestimate the current role that renewable energy contributes to total energy production and the speed at which it increases its share in total energy production. One indication for this comes from my own admittedly unscientific survey of students at the University of California, Santa Barbara, California, USA. Asked how much wind and solar contribute to total primary energy consumption in the United States and globally, the median answer among some 200 upper division undergraduate students in sociology and global studies was 15% for both questions, with a large minority picking 20% and 30% (survey given in the spring and fall of 2017).Multiple-choice options were 1%, 5%, 10%, 15%, 20%, 30%, and 50%.

By the end of 2016, solar and wind contributed only about 1% of the world's total primary energy consumption and 5.5% of the world's total electricity consumption (wind 4% and solar 1.5%; REN21 2017, p 33), significantly below the estimates given by students. For the United States, wind and solar provided only 2.7% of total primary energy consumption in 2016 and only 6.5% of US electricity consumption (wind 5.6% and solar 0.9%) (EIA 2017).

The questionnaire furthermore revealed that students are unclear about the categories "electricity generation" and "total primary energy production." Some may also be thrown off by a focus just on solar and wind. The renewable energy category usually includes hydropower and biomass, which account for the largest percentage of renewable energy sources (3.6% of global primary energy production and 16.6% of global electricity production).

Solar and wind outperform traditional energy sources in terms of growth in production, but their overall share is growing only slowly given the almost equally strong growth in overall energy demand globally. In addition, the use of traditional biomass for heat, which makes up nearly half of all renewable energy globally, has not kept up with the growth rate in total demand (REN21 2017, p 30). Constrained by low fossil fuel prices and lack of policy support, renewable heating and cooling technologies have seen only modest improvements.

These examples show that the big energy transition is not happening as quickly as news and government reports might lead one to believe. A slowdown in momentum is also seen in investment flows into renewables. Although they rose continuously in recent years, they dropped from US$312.2 billion in 2015 to only $241.6 billion in 2016 (REN21 2017, p 21). The installed renewable energy capacity nevertheless did continue to grow from 785 to 921 gigawatts (GW), as technology prices declined, but the decline in investments shows the effect a fickle political environment has on private-sector commitments.

INTERNATIONAL CLIMATE NEGOTIATIONS CAN ONLY BUILD ON MOMENTUM GENERATED ELSEWHERE

The Paris Agreement is a noteworthy achievement compared with languishing international negotiations in other areas (I have explored the pros and cons of the Paris Agreement in detail elsewhere: Clémençon 2016a). But, its only legally binding provision is a commitment to a process to review and revise the adequacy of the voluntary nationally determined commitments (NDC) for the first time in 2020. For better or worse, it has abandoned a binding burden-sharing approach among rich and poor countries.

Climate negotiators are now working on a "rulebook" to guide how the accord will be implemented in the decades to come. This will require resolution of politically tricky questions with often high technical complexity, particularly related to monitoring, reporting, and verifying national emissions. Key political controversies have not gone away. Chief among them is whether a differential treatment of countries according to economic development stages and responsibility for past emissions will be included and how much financial support to poor developing countries for both climate adaption and mitigation is adequate.

A massive mobilization of resources is needed to help developing countries leapfrog into the green energy transition and grow their economies sustainably. Africa's

population is projected to double from today's 1.25 billion by 2050 and to reach 4.5 billion in 2100 (median projection, UN 2017b). Many African countries sit on large coal reserves, but their energy needs could be met by largely untapped renewable sources (Hermann et al. 2014). Yet resource mobilization through multilateral and bilateral channels to realize this potential is barely a trickle (OECD 2015).

The new US President Trump—who has vowed to take the United States out of the Paris Agreement—has only reinforced the polarization on key questions before climate negotiators. The US opposition to differential treatment of countries and to legally binding international emissions reduction targets had not changed since the Bush administration stepped away from the 1997 Kyoto Protocol in 2001. President Obama tried to lead the United States to a more constructive role in climate negotiations, but with little substantive change in the US negotiating positions.

Trade rules continue to run directly counter to ambitious climate policies as they prevent countries from requiring foreign imports to meet energy content standards, which would protect domestic industries that fall under more severe energy efficiency requirements than their foreign competitors (Clémençon 2010). Energy intensive industries in key developed countries have been exempted from CO_2 taxation. Countries are forbidden to subsidize the export of renewable energy technologies under antidumping rules, as the fight over cheap Chinese solar panels shows (Oremus 2014). Carefully designed and targeted, trade rules would go a long way to encourage ambitious domestic and regional climate policies, and regional and bilateral trade agreements could lead the way.

There will be no miraculous breakthrough to a negotiated grand international climate bargain given the complex political realities many countries are dealing with today. Neither is an automatic massive private sector awakening or technological revolution in the works. Both need nurturing political framework conditions to blossom and do not emerge on their own—at least as long as fossil fuel prices are as low as they have been for years now.

THE EUROPEAN UNION MUST SHOW MORE DECISIVE LEADERSHIP

The best hope for speeding up the great energy transition and strengthening the Paris Agreement therefore lies with the countries that have already developed the societal and political consensus to do so. The European Union (EU) has long been the driving albeit reluctant force behind climate negotiations (Clémençon 2010, 2016b; Oberthür 2016). Germany, Denmark, and Spain are recognized as having introduced the strongest policy packages to encourage renewable energy, followed by the United Kingdom (Hagemann 2017).

Europe's economic prospects have grown brighter in 2017, and both French and German elections have reinforced centrist political mandates that can serve as the basis for a reinvigorated leadership role of the EU on climate change. Together with China, which is taking an increasingly aggressive approach to encourage renewable energy technologies and to move away from coal, and subnational actors such as the US states of California and New York, the EU can create the critical momentum toward more decisive action to fight global warming. The EU must step up its ambition toward the first review of NDCs due in 2020. This will require overcoming internal resistance from the Eastern EU member countries who are still heavily dependent on coal. It will involve difficult political decisions to force the domestic energy transition and to raise much more financing to help developing countries accelerate their own transition to renewable energy and to adapt to a rapidly warming world. But Zweckoptimismus is no alternative.

Data Accessibility—No data are referenced in this commentary.

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