



Analytical Brief on Climate Ambition and Sustainability Action

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Energiewende and Innovation

Are we Transitioning Fast Enough?

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Key Questions >>>

- Can *Energiewende* serve as a useful framework for both developed and developing countries?
- What are the gaps in *Energiewende* driven responses in the current situation? What needs to be done to address these gaps? Which institutions need to be further strengthened and which actors need to be further empowered?
- What innovation and research agenda is required for *Energiewende* worldwide?
- How can *Energiewende* help in fulfilling modern energy needs in developing countries to meet the targets under Goal 7 while maximizing co-benefits with other targets of the Sustainable Development Goals?

Introduction

In 2000, the *Energiewende*, a term that literally means the energy transition or revolution, began in Germany as a bottom-up movement when legislators were persuaded by grassroots campaigners to support renewable energy growth through feed-in tariffs (Buchan 2012). Through the years, policies and foci have expanded and so have the number of countries that have undertaken actions towards an *Energiewende*. It is now also embedded in the ambitious European energy and climate policy framework. However, several challenges remain. Within Germany as well, *Energiewende* is under question. This is because the country is off course to meeting its 2020 emissions reduction targets, and longer-term goals look uncertain as well. Despite these challenges,

Germany remains a front-runner in initiating an ambitious *Energiewende*.

Today, *Energiewende*, is a term used globally. It refers to the fundamental transformations necessary in the way we source, produce, distribute and use energy in order to meet climate goals and protect our planet. While the initial focus of the German policy, that heralded the use of the term, was on decarbonizing the economy and moving away from nuclear energy, *Energiewende* today is more comprehensively understood as essential to achieve multiple purposes. Fighting climate change is still considered the primary imperative. However, reducing energy imports and increasing energy security, fostering innovation and green growth, reducing the risks of nuclear power, and strengthening community engagement and local economies are critical additional reasons why

governments are initiating policies towards an *Energiewende*.

Is the transition occurring rapidly while also expanding access?

Fossil greenhouse gas emissions from energy use and industry, which dominate total GHG emissions, grew 2 per cent in 2018, reaching a record 37.5 GtCO₂ per year (UNEP 2019). Overall, progress towards decarbonizing the world economy has been inadequate, though there are encouraging signs in some countries of increasing efforts towards decarbonizing their economies. The world is also not on track to meet the energy transition related targets encapsulated in Goal 7 of the Sustainable Development Goals, which calls for ensuring “access to affordable, reliable, sustainable and modern energy for all” by 2030 (IEA, IRENA, UNSD and WB 2019). While pronounced progress in expanding access to electricity has been made in several countries in recent years, Sub-Saharan Africa remains a region with a large access deficit and where progress is slower than required to meet the target. Access to clean fuels and technologies for cooking has been expanded in several countries, but globally the number of people dependent on polluting solid fuels remain unchanged since over a decade because population growth has outpaced the rate of which access is being provided.

Performance in renewables and energy efficiency

In 2016, the share of modern renewables (that is, excluding traditional uses of bioenergy for cooking and heating) in total energy consumption reached 10.2%, up from 8.6% in 2010 (IEA, IRENA, UNSD, WB, 2019). The use of renewables to generate electricity has increased rapidly since 2010, but the share of renewables in heat and transport sectors remains very low. A substantial further increase of renewable energy is needed across all sectors of the economy for achieving rapid decarbonization. Energy efficiency improvements have also increased steadily in recent years, thanks to strong policies in major economies, like China. However, the global rate of improvement in primary energy intensity still lags behind the SDG target, and estimates suggest that improvements slowed in 2017 and 2018 (IEA, IRENA, UNSD, WB, 2019). Decarbonization of the global energy system through a major up-scaling of renewables and energy efficiency efforts is needed to dramatically cut emissions.

Transition options for countries

The UNEP Gap report highlights five transition options with clear co-benefits for other developmental goals (UNEP 2019). These include:

- Expanding Renewable Energy for electrification
- Phasing out coal for rapid decarbonization of the energy system
- Decarbonizing transport with a focus on electric mobility
- Decarbonizing energy-intensive industry
- Avoiding future emissions while improving energy access

Maximizing synergies with other Sustainable Development Goals (SDG)

The *Energiewende* must be implemented in a way that maximizes co-benefits with other SDG and avoids potential trade-offs. This also implies that the energy transition needs to be just, inclusive and equitable. Policies must be designed such that they take an integrated and holistic perspective of multiple policy objectives. While increasing energy access has a wide range of benefits across multiple SDG, decarbonizing energy systems by promoting renewables and increasing energy efficiency could cause price shocks, and so prevent universal access to modern energy supplies. Because some of the poorest parts of the world have some of the highest renewable energy potential, making use of this potential could help to reduce poverty. Deploying renewables and energy-efficient technologies should be done in ways that encourage innovation and reinforce local, regional and national industrial and employment objectives (ICSU 2017).

The future *Energiewende* needs to occur much more rapidly than the pace of historical energy transitions that have occurred rather gradually in the past. This also requires much faster paced technological change and innovation and in systemic alignment with actions addressing sustainable development goals. The political, economic, social and technical feasibility of solar energy, wind energy and electricity storage technologies has improved dramatically over the past few years, while that of nuclear energy and carbon dioxide capture and storage (CCS) in the electricity sector have not shown similar improvements (Allen et al. 2018).

Key questions

The above review raise the following key questions:

1. Can *Energiewende* provide a useful framework for both developed and developing countries?
2. What are the gaps in *Energiewende* driven responses in the current situation? What needs to be done to address these gaps? Which institutions need to be further strengthened and which actors need to be further empowered?
3. What innovation and research agenda is required for *Energiewende* worldwide?
4. How can *Energiewende* help in fulfilling modern energy needs in developing countries to meet the targets under Goal 7 of the Sustainable Development Goals?

References

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The brief series, brought out jointly by the World Sustainable Development Forum and the Protect our Planet Movement, seeks to highlight a topical issue relevant to the realization of the sustainable development goals and ambitious climate actions. This brief is to feed into the discussions of the Second World Sustainable Development Forum to be organized in Durango, Mexico (5-7 March, 2020).

About WSDF

The World Sustainable Development Forum (WSDF) is a not-for-profit organization incorporated separately in Europe, Norway and the U.S. Its North American arm WSDF-NA, headquartered in Washington, DC carries 501c3 tax exempt status. WSDF is a global initiative to promote and mobilize global action for effective implementation of both the Paris agreement on climate change and the Sustainable Development Goals (SDGs) adopted by the UN General Assembly. WSDF's relevance and role lies in acting as a facilitator for helping with implementation of actions required under these two sets of agreements.

About POP Movement

Protect our Planet (POP) Movement believes that the impacts of climate change will not affect a single country but the planet, in its entirety. POP believes that the power of the youth of the world will unite and to address this challenge. POP believes that the time to act is now and that knowledge is the true currency of changing the future.



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