



ACCELERATING SDG 7 ACHIEVEMENT

POLICY BRIEF 20

ACHIEVING SDG 7 IN CENTRAL ASIA,
EUROPE AND NORTH AMERICA

7 AFFORDABLE AND
CLEAN ENERGY



POLICY BRIEF #20

ACHIEVING SDG 7 IN CENTRAL ASIA, EUROPE AND NORTH AMERICA

Developed by

United Nations Economic Commission for Europe (UNECE)

In collaboration with

The European Commission, European Investment Bank (EIB), FIA Foundation for the Automobile and Society, International Renewable Energy Agency (IRENA)

KEY MESSAGES

Status and progress towards achieving SDG 7 in the UNECE region

- Attainment of SDG 7 is falling short in the UNECE region. While many of the energy challenges in this region are similar to those found elsewhere in the world, the region has specific climatic, economic, environmental and political circumstances leading in parts of the region to inefficient use of energy, power cuts, increasing energy costs, and unsustainable and unaffordable heating in winter.
- Some countries export large quantities of fossil fuels and feature some of the world's highest levels of energy intensity. Many countries in the region have national incomes dependent on fossil energy, and large numbers of people whose livelihoods depend on it, which has implications for attainment of SDG 7 across the region.
- The UNECE region has achieved 100 per cent access to electrical power networks and 98 per cent access to clean cooking fuels, but there are significant quality and affordability challenges. Access to distributed generation sources or to alternative energy networks must be considered. The rate of progress in improving energy intensity is insufficient to meet the 2030 goal. Improvements in energy intensity in the region recently have been around -2 per cent per annum since 2012, while a rate of -2.6 per cent is required (UNECE 2017a).
- Annual renewable energy investments in the region need to more than double to achieve the 2030 target. The UNECE region has an increasing share of renewable energy in TFC, but certain sub-regions have low and declining investment rates (REN21 UNECE 2017).

Priority actions:

- Reflect the full costs of energy production and use in energy prices, including externalities such as proper pricing of greenhouse gases, to enable sustainable management of energy resources and accelerated uptake of energy efficiency and clean energy technology.
- Rationalize the use of energy subsidies to remove market distortions while protecting vulnerable groups. Focus subsidies on overcoming short-term obstacles for the commercialization of efficient technology that can deliver national energy goals.
- Reduce market barriers to sustainable energy technology.
- Explore ways for energy suppliers to sell energy services rather than energy products to accelerate energy efficiency uptake; promote the creation of strong energy services companies.
- Develop sustainable frameworks to promote investment in renewable energy.
- Improve understanding of the interplay among efficient distribution networks, flexible fossil fuel plants and variable renewables.
- Provide support mechanisms to reduce the carbon intensity of the energy sector through worldwide deployment of high-efficiency/low emissions technologies with carbon capture and storage. Deploy best practices for monitoring and abating methane emissions; endorse and deploy the "Zero Routine Flaring by 2030" Initiative.
- Deploy the Framework Guidelines for Energy Efficiency Standards in Buildings and accelerate development of smart energy systems (UNECE 2017b) Pursue minimum energy performance standards in all sectors including testing and labelling.
- Adopt the United Nations Framework Classification as a tool to for sustainable resource management.
- Use UNECE as a forum for exchange, as a space for policy dialogue, and as a facilitator. Its knowledge platform provides opportunities to share information on technology, market design, transition processes and efficient pathways.

Energy Access

Although the region has achieved universal household electrification in terms of physical access, aging infrastructure, a lack of supply diversity and increasing tariffs lead to poor power quality and, for some, energy poverty. This situation is particularly acute during the cold winter months in the Northern hemisphere, and disproportionately affects poor and rural populations. As a result, some consumers have reverted to local sources of solid fuels for cooking and heating, and others to electricity with off-grid diesel generators.

Human comfort and safety depend on substantial heating services in most UNECE countries, a reality not reflected in the statistics on electricity network access. A significant challenge exists to upgrade older, uninsulated housing stock with locked-in fossil fuel dependence. Low-income households throughout the UNECE region make trade-offs between heat, food, and other needs. A measurable proportion of households spend more than 10 per cent of their income on energy. Addressing greenhouse gas (GHG) emissions without improving energy efficiency would worsen energy poverty.

The region achieved 98 per cent access to clean fuels and technology for cooking in 2014, up from 95 per cent in 2000, but 23.3 million people¹ in remote regions still relied on traditional fuels for cooking in 2014. They mostly live in remote regions, and rely on locally-gathered firewood. The fuel typically is burnt in a controlled combustion wood stove or a traditional high mass combined space heater and/or cooking oven. Traditional stoves offer users reliable heat from low or no-cost local resources at reasonable efficiencies and are therefore a preferred option in situations where access to commercial energy sources is impractical or expensive.

Energy Efficiency

The region reduced its energy intensity from 2012-14 by -2.0 per cent per annum, just below the global rate. Improving conversion efficiencies in fossil fuel power generation reduces inputs and emissions related to producing the same electrical output. In the UNECE region, average fossil fuel power plant efficiency improved from 36 per cent in 1990 to 41 per cent in 2014 mostly as a consequence of investment in high efficiency combined cycle gas-fired power plants (UNECE 2017a).

Most countries in the region have developed National Energy Efficiency Action Plans but there has been limited progress in improving energy efficiency. Improving building energy performance is slow, though there has been solid appliance efficiency progress in North America and the European Union. A largely untapped potential for improving industry energy

¹ 12 million from Southeast Europe, 2 million from Caucasus, 8 million from Central Asia (excluding Turkey), and 1.4 million from Eastern Europe (exclud-

productivity exists across the region. With the exception of the member countries of the European Union, vehicle fuel economy is not progressing.

Renewable Energy

The UNECE region was the only region in the United Nations system to increase the share of renewable energy in TFC from 2012 to 2014 to 11 per cent (UNECE 2017a).. This outcome was driven by strong support mechanisms and increased application of market-based approaches, such as auctions, decreased installation costs, and increased awareness of the economics of renewable energy. The region is committed to further development of renewable energy based on cost-effective application of market-based approaches (dena 2017).

For the UNECE region as a whole, renewable energy from wind, solar, and geothermal accounted for only 1.6 per cent of TPES in 2014. If hydropower, biofuels and waste are included, this figure rises to 9 per cent, compared to a global share of 14 per cent. The numbers show that modern renewable energies are still lagging. Solar and wind power had a share of 2.1 per cent in TPES in Western and Central Europe, the highest share among UNECE sub-regions (UNECE 2017a).

Policy Implications

There is no common view in the UNECE region of what sustainable energy is or how to attain it. Apart from the global challenges regarding the implementation of the 2030 Agenda and other pledges that countries have made, countries in the UNECE have divergent economic development, resource availability and energy mixes embedded in their national energy strategies. As a consequence, multiple national approaches and outcomes can be found. Choices must be economically and socially rational for each country and made in the broader context of the economy as a whole. The objective of integration of energy with other goals should be to enhance quality of life.

Existing infrastructure, including the physical, regulatory, policy, and organizational infrastructure of the energy industry, is shaping policy approaches and national energy decision making. There is evidence in the UNECE region of challenges in heating service affordability, reliability of aging systems and future resilience needs. Truly transforming the energy system will require a creative shift in policy and regulation to unleash innovation, investment, and improved energy productivity. Yet, in many countries in the region, the current political, regulatory, and industrial infrastructure is not yet ready for such a transformation as the existing energy system and players are broadly committed to current business models and approaches.

ing Israel which has 100 per cent access rates) (see UNECE 2017).

Challenges for the UNECE region

Energy security concerns These concerns impede improvements in technical, environmental, and economic efficiency, but can be interpreted in different ways. Some countries and sub-regions seek to promote energy independence or self-sufficiency while others strive for efficient integration of energy markets. Promoting mutually beneficial economic interdependence would accelerate attainment of the 2030 Agenda through integrative, nexus solutions that the notion of sustainable development offers. For energy, it is critical to think in terms of a wholly interconnected, complex system in which supply, demand, conversation, transport and transmission interact freely and flexibly.

Fossil fuel dependency Fossil fuels dominate the region's energy mix and underpin today's energy access and economic development. The locked-in dependency on fossil fuels is neglected in conversations about energy efficiency and renewable energy, which slows attainment of objectives. The TPES of UNECE countries is just over 80 per cent fossil energy. Less than half the fossil energy used to generate electricity is converted to usable energy, with the remainder lost during conversion. Even under a climate change scenario that meets a 2°C target, fossil energy will still represent a significant share of the energy mix in the region in 2050. The underlying tension between achieving SDG 7 and the impact on other SDGs is immediately apparent.

Climate commitments Given the region's dependence on fossil fuels, meeting the 2030 Agenda's climate objectives must be integrated with the remainder of the agenda to achieve the aspired decarbonization of the future energy system. Integrated solutions require clear understanding of the climate-related impacts of energy in connection with the development-related opportunities that energy represents. The two most relevant GHGs from the energy sector are carbon dioxide (CO₂), mainly from the combustion of fossil fuels, and methane (CH₄) emissions along the coal and gas value chains. The UNECE region is falling short on the relevant indicators for these emissions.

Constrained optionality Certain energy technologies (for example, carbon capture and storage, shale gas, investing in high efficiency low emission (HELE) technology, or nuclear power) are excluded in the formulation of some national sustainable energy strategies for reasons of public perception, politics, or imposed market distortions. There should be ways to discuss these options openly as they might offer options, particularly for a transition period, to improve the potential to meet the 2030 Agenda.

Energy as a service, not energy as a commodity The energy industry has succeeded in raising the quality of life around the world, most notably in the advanced economies but even in the developing world. The energy industry today is a commodity

business, in which players earn returns by producing and selling more. And yet in some areas consumer energy services are inadequate. There is evidence in the UNECE region of challenges in energy efficiency, energy access, heating service affordability, reliability of aging systems and future resilience needs. What is needed for true sustainability is to re-conceive the energy industry as a complex of service industries. Such a reconfiguration would unleash innovation, investment, and improved energy productivity, as consumer needs rather than volume efficiency would be the driving force.

Equitable access to modern energy services requires mobilizing adequate resources.

Ensuring physical and economic access to quality energy services requires investment throughout the energy value chain, from primary energy development to end use. Enabling investment requires that governments have long-term visions for providing sustainable energy services, and that they promulgate sustainable policies and regulations that allow producers and consumers to respond to a dynamically changing energy market. Such a vision should include provision of access to modern energy services for vulnerable groups as part of national poverty reduction strategies and social development policy.

Improving energy efficiency is one of the most cost-effective options for meeting growing energy demand in most countries

Significant potential for improving energy efficiency exists in the UNECE region, but attempts to improve energy efficiency often fall short because of flawed national policy frameworks: policies that artificially lower energy prices encourage wasteful consumption; production and consumption subsidies distort markets; housing stocks are poorly managed; land use management is inefficient; new participants face barriers to entry; there are inadequate norms and standards; and the statistics and information to manage energy use and track progress are incomplete. In addition, there is often a lack of public awareness and education about the long-term economic and social benefits of action to improve energy efficiency and productivity.

Renewable energy policies need to be redesigned

Renewable energy resources are gradually becoming cost-competitive in comparison to conventional resources. They offer a way to reduce the net carbon intensity of the energy sector, improve energy security, and encourage economic development. Integrating renewables into the global energy mix will be important as future energy systems are optimized both on- and off-grid. However, wider uptake of renewables requires addressing barriers to fair competition vis-à-vis conventional technology, without resorting to long-term subsidies, implementing stable long-term energy policy frameworks in a future energy system context, and deploying

innovative and targeted financial mechanisms. Policies should be designed in light of the economic circumstances (including existing infrastructure) and development challenges of countries with renewable energy potential.

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