



Access to modern energy services in the UNECE region

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Sustainable Energy for All (SE4ALL) Initiative

- Launched in 2012 by the UN Secretary General;
- Three goals are to: (1) ensure universal access to modern energy services (including electricity and clean, modern cooking solutions), (2) double the global rate of improvement in energy efficiency, and (3) double the share of renewable energy in the global energy mix;
- Some 70 countries have formally embraced the SE4ALL initiative, while numerous corporations and agencies have pledged tens of billions of dollars to achieve its objectives.





SE4All and UNECE member countries

Baseline:

Most of UNECE members have nearly universal access to “modern energy services”, defined as “universal access to modern cooking and heating solutions, as well as productive uses and community services”

Potential Target for UNECE member countries:

Achieve universal access to “advanced energy services” defined as “customized, affordable, and reliable access to retail energy markets supplemented by widely available self-generation, renewable energy and energy efficiency solutions”

Advanced energy access in UNECE countries

- Highly uneven, both internally and across members
- Different interpretation of consumer rights and access to energy service
- Emphasis on centralized regulation or free market solutions

Way forward:

Study, Discuss, Agree, Plan, Pursue, Achieve





Dimensions of the access to advanced energy services

- **Connection to energy grids**: opportunity for gaining affordable and non-discriminatory connection to electric, natural gas or district heating networks.
- **Reliability of power supply**: reduced frequency of blackouts and brownouts and frequency of disruptions in the central heating delivery as well as prompt restoration of access to power.
- **Access to alternative energy solutions**: availability of natural gas networks, electric grids, and district heating; choice of alternative providers; ability to install autonomous generation.
- **Access to modern renewable energy instruments**: availability of household renewable energy technologies; ability to sell excess power to the grid; access to information on renewable energy opportunities.
- **Access to energy saving instruments**: access to energy saving programs and financial incentives; availability of smart metering and smart grids; access to information on how to save energy.
- **Affordability**: affordable cost of electricity and centralized heat (including connection charges) relative to average incomes; availability of subsidized rates for disadvantaged consumer categories.





Connection to energy grids

- Close to 100% connection to electric grids (with exception of remote low-populated areas)
- Highly uneven economic and technical barriers to connecting new customers and/or increasing load for existing customers (especially problematic in Eastern Europe & Central Asia)
- Main directions to reduce connection cost and time required:
 - ✓ Set maximum connection time at for different sub-national zones
 - ✓ Regulate connection charges on a cost + fee basis
 - ✓ Adopt mid-term programs for power grid development including flexible load distribution





Reliability of power supply

- Problems with reliability exist in most of the UNECE members – major blackouts in USA, EU, and Russia during the last 10-15 years
- Measures of reliability: frequency of blackouts and brownouts; percentage of customers affected; speed of service restoration
- Major contributing factors:
 - Decreased availability of transmission capacity
 - Insufficient system-wide management
 - Poor alignment of protective systems design
- Major immediate causes:
 - Weather
 - Equipment failure
 - Operator errors.
- How to improve reliability?
 - Preventive monitoring and maintenance programs (cut trees before – not after storms)
 - Ensure power back-up options in risk-prone locations
 - Building smart-grids to handle variable loads and transmission constraints





Access to alternative energy solutions

- Alternative (traditional) energy carriers include: electricity, central (district) heating, natural gas, LPG and fuel oil
- Alternative sources of energy services include: electricity/heat from the grids and self-generated electric and heat
- Alternative providers of energy services are competing electricity, gas and other energy retailers (pioneered in EU and US, slow to be introduced in EECCA)
- The greater choice of energy solutions improves reliability and reduces overall energy cost to businesses and households
- Ways to increase consumer choice:
 - Ensure open access to energy grids
 - Stimulate expansion of existing grids to new areas
 - Promote self-generation as a measure to manage peak demand and improve reliability





Access to modern renewable energy instruments

- Consumer demand for renewable energy consumption and self-generation instruments is on the rise
- Key drivers of demand:
 - Contribution to solving the global climate change challenge
 - Cost saving and supply reliability considerations
 - Government requirements
 - "Climate friendly" image for businesses
- How to stimulate consumer choice for "green" power:
 - Free access of "green power" providers to consumers
 - Free access of consumer-generated renewable energy to the grid
 - Ample information about options to purchase and generate "green power"
 - Rebates and tax breaks for "green-power" self-generation





Access to energy saving instruments

- Dramatic improvement in energy efficiency is seen as a prime direction of climate change mitigation and a way of ensuring equitable and affordable access to energy across the globe
- UNECE consumers still have way to go to become more energy efficient
- Main instruments of saving energy for businesses and households:
 - Smart meters and smart grids allowing to effectively manage daily loads
 - Wide choice of energy efficient equipment and appliances
 - Economic incentives – differentiated tariff structures
- What the governments could do:
 - Ensure universal energy efficiency certification and labeling of equipment and appliances (e.g., EU approach)
 - Support regional demand-side management programs in high-load areas
 - Provide universal access to information and tools to manage and save energy





Affordability

- Energy poverty is rare but still could be found in some UNECE jurisdictions
- Removing subsidies in monopolistic local markets could lead to deterioration of access to basic energy services
- Access to advanced energy services in the UNECE should not depend on income levels
- What the governments could do:
 - Open retail energy markets for competing suppliers
 - Encourage alternative solutions, including self-generation
 - Subsidize low-income households
 - Reduce the costs of government-imposed procedures (e.g., licensing of generators; approval of grid expansion, etc.)
 - Facilitate and promote of energy efficient housing, equipment and appliances (e.g., US EPA Energy STAR approach)





What's next?

- In-depth study of the state-of-play of the access to advanced energy services in the UNECE members
- Feedback from UNECE members is critical for getting data and ideas for the study





Thank you for your attention!

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