

Guiding Principles for Financing Clean Energy Projects In the Context of the 2030 Agenda for Sustainable Development

Energy for sustainable development

If the world is to develop sustainably, we need to ensure access to affordable, reliable, sustainable, and modern energy services while reducing greenhouse gas emissions and the carbon footprint of the energy sector. Energy is a fundamental need as it provides the essential services of cooking, heating, cooling, lighting, mobility, and operation of appliances, information and communication technology, and machines in every sector of every country. Energy is the golden thread that weaves throughout the 2030 Agenda for Sustainable Development and is at the core of meeting the world's quality of life aspirations - the challenge is how to reconcile tight emission pathways with these aspirations.

The 2030 Agenda represents an imperative for profound and immediate changes in how energy is produced, transformed, traded, and consumed, because the energy sector accounts for 60% of total global greenhouse gas emissions. To avoid exceeding the amount of carbon that can be emitted that is consistent with the objectives of the Paris Agreement and to set the stage for future reductions in atmospheric greenhouse gas concentrations, all options for reducing net carbon emissions must be developed and pursued urgently to reduce energy sector's net carbon intensity.

Progress in renewable energy deployment

Significant progress has been made in increasing the total capacity of renewable energy in the global final energy consumption but is not yet sufficient to meet the carbon emissions target put forth by the UN Framework Convention on Climate Change. Global renewable energy consumption reached an all-time of 10.4% of global energy consumption in 2017, a 5% increase from 2016 (IEA Renewables 2018). In a sectoral perspective, most advances in renewable energy capacity has come in the electricity sector as solar photovoltaic is becoming cost-competitive with traditional thermal power generation. Much of the growth in renewable electricity generation has come in China, the European Union, and the United States. In 2017, 25% of global electricity generation came from renewable sources. Unfortunately, the heating/ventilation/air-conditioning/cooling (HVAC) and transportation sector have lagged behind, with a share of renewable energy of 10 per cent and 3 per cent respectively, though they make up roughly 80 per cent of global final energy consumption. Overall, there is still significant progress to be made, though prospects for renewable energy capacity are positive.

Improvements in energy efficiency

Energy efficiency is often considered the quickest and least-costly way to improve the share of sustainable energy in the total final energy consumption. By reducing overall consumption, energy efficiency is equally as important as transitioning to renewable energy. The use of improved home insulation and LED lightbulbs may not receive the same attention as solar panels or wind turbines, but these investments often have quick payback periods, and make economic sense without state subsidization. In 2016, global energy intensity fell by 1.8 per cent largely led by China's efforts to improve energy efficiency. Energy efficiency accounted for roughly three-quarters of the carbon emissions offset as global emissions have levelled-off since 2014. Investing in energy efficiency will also significantly affect the sustainability of HVAC and transport sectors, where investments in renewable energy have fallen short. In 2016, the world would have used 12 per cent more energy if not for the energy efficiency improvements made since 2000. This amount is the equivalent size of the EU's energy

consumption, showing that significant improvements have been made in energy efficiency, but more needs to be done.

Primary energy supply still dominated by fossil fuels

Fossil fuels dominate the energy mix with 80% of today's primary energy as they underpin energy access. Some conversations about energy efficiency and renewable energy neglect this reality and create a degree of complacency regarding progress on sustainable energy. In fact, such neglect slows attainment of Sustainable Development Goals. Even under a climate change scenario that meets a 2-degree target, fossil energy will still represent at least 40 per cent of the energy mix in 2050. It therefore must be addressed whether through efficiency improvements, emissions controls, or support for introduction of new low- or no- carbon fossil energy technologies.

All-of-the-above approach needed

Certain options for improving the overall performance of today's energy system are excluded for reasons of public perception, politics, imposed market distortions, or legitimate but possibly solvable concerns of safety or environment, notably for carbon capture use and storage (CCUS), shale gas, and new investments in the infrastructure of fossil energy. Meeting the future energy needs of consumers and mitigating climate change cannot be done simply by excluding fossil fuels from the energy conversation. Meeting the energy requirements of the 2030 Agenda and the Paris Agreement will require addressing the range of obstacles which is both a challenge of great magnitude and an opportunity for world leaders to provide mechanisms to encourage cleaner electricity production.

Improving the productivity of an economy's energy system is one of the most cost-effective options for delivering on the sustainable development goals, but much potential remains untapped. Improving the overall efficiency of the energy system is a least cost means of meeting growing energy demand in most countries. A focus on how improved energy productivity can put energy to its highest value uses can help governments move their industries up the economic value chain, thereby promoting better quality jobs and growth while reducing emissions. To achieve these results, the multiple benefits of energy efficiency, including potentially: improved energy access, improved reliability, and fiscal sustainability must be better understood. With constraints on fossil project financing in the major financial institutions supported by developed nations, countries attempting to provide their populations with electricity access have very few options to enhance energy security, improve grid stability, and diversify their energy mix if electricity access is considered a lesser priority than emissions reductions.

Options available

The Sustainable Development Goal 7 in its target 7A defines clean energy projects as: "By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including *renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology*, and promote investment in energy infrastructure and clean energy technology." Achieving such an ambitious goal will require a cross-sectoral collaboration of all involved in energy technologies and investment, from zero-carbon renewable energy to energy efficiency to low-carbon fossil fuel technologies.

With the above in mind, the Group of Experts on Cleaner Electricity Production from Fossil Fuels (Group of Experts on CEP) has identified several principal avenues of action to reconcile the conflicting goals of economic development and combating climate change. Such cross-sectoral action could be translated into recommendations to other subsidiary bodies of the Committee on Sustainable Energy. Below are some examples.

Options in renewable energy

1. The Group of Experts on CEP recommends to the Group of Experts on Renewable Energy to consider recommending minimum guidelines on where/when solar projects; photovoltaics “roof-top”; “community” and “utility-scale” projects should be financed and when/where they should not. Projects of minimum efficiency; minimum solar isolation and other climate/geographic factors could be considered.
2. The Group of Experts on CEP recommends to the Group of Experts on Renewable Energy to consider recommending minimum guidelines on where/when wind projects, both on-shore and off-shore application should be considered. Standards such as minimum/maximum wind speeds; unit efficiency; project unit availability to meet peak demand; projected maintenance cost and length of turbine life could all be considered.
3. The Group of Experts on CEP recommends to the Group of Experts on Renewable Energy that similar standards be recommended for other traditional renewables; i.e. geothermal and base hydro as well as more novel renewables-tidal; run of river, etc.

Options in energy efficiency

4. The Group of Experts on CEP recommends to the Group of Experts on Energy Efficiency to develop standards at which EE projects should/should not be financed by international lending institutions. Guidelines might include: projected “payback” periods; contributions to energy security; grid resiliency; emissions reductions; supporting SDG #7- Energy Access; poverty reduction and other SDG goals.
5. The Group of Experts on CEP offers to cooperate with the Group of Experts on Energy Efficiency to jointly consider recommendations/standards/guidelines on crossover technologies which each group bridges, i.e. demand response; distributed energy resources; energy storage; combined heat and power, etc.
6. The Group of Experts on CEP suggest to the Group of Experts on Energy Efficiency policy recommendations to international financing institutions how to remove non-financial policy barriers to accelerate deployment of energy efficiency. These might include national/provisional/local building codes; training needs; cross industry capacity building i.e. real estate related professions; local lending practices, etc.

Options in clean fossil fuel technologies

7. The Group of Experts on CEP suggests to the Group of Experts on Natural Gas recommend guidelines/standards for reducing greenhouse gas emission from production, transportation and utilization of natural gas. This could include reduced fugitive emissions from drilling, including flaring; reduced emissions from pipeline compression stations; LNG export facilities, and end-use operations. This will benefit commercial lenders as well as international financial institutions.
8. The Group of Experts on CEP suggests that the Group of Experts on Coal Bed Methane develop recommendations/guidelines on reducing emissions from coal mines; coal beds including abandoned facilities. This could include restoration/modernization of industrial facilities that could use this reclaimed methane for manufacturing facilities.
9. The Group of Experts on CEP will develop guidelines leading to an UNECE standard on financing carbon capture and storage; carbon capture, utilization and storage; and high-efficiency low-emission power generation from coal, natural gas, fuel oil, and biomass. The group will start with generic guidelines and as the technology advances lend to a minimum efficiency standard and a minimum CO₂ reduction standard. Recognizing that this may take years to accomplish. Both national and international financing institutions and private sector lenders can benefit from this process.

Conclusions

The Group of Experts on Clean Electricity see the need and value for the UNECE through the Committee on Sustainable Energy, to develop, originally guidelines and ultimately standards related as to how both international financial institutions and commercial leaders could consider financing energy projects in order to meet all of the United Nations Goals for Sustainable Development.

An “All of the Above” energy strategy on a global basis is essential. If you lack access to any energy-efficiency is not relevant. You cannot save what you do not consume. Some countries are well endowed with wind, solar, hydro, and geothermal—some are not. Some countries have access to abundant, inexpensive fossil energy resources either domestically or can trade with their neighbours—some do not.

Policymakers, the financial community and civil society should recognize and adopt an “All of the Above” energy policy in pursuit of all the United Nations Goals for Sustainable Development.
