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Opinion

Renewable Energy and Sustainability Co-Impacts

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Abstract

The objective of this opinion paper is to point to synergies and trade-offs between efforts to achieve the renewable energy-related sustainable development goal (SDG7) and delivery of the 2030 Agenda as a whole. Synergies include reduced impacts from climate change; improved air quality and human health; water conservation (for example from reduced water evaporation from floating solar); increased agricultural yields of shade-tolerant crops; and coastal protection from flooding and erosion by wave energy installations; Trade-offs comprise increased mining of rare earth metals; reduced local land rights; increased threats to cultural heritage as a result of mining; increased greenhouse gas emissions from land use change; fork – feed – fuel trade-off associated with agro-fuel production; and reduced biodiversity resulting from land use change. Therefore, an energy transition involves much more than replacing fossil fuels by renewable ones because any form of energy provision and consumption is associated with a variety of social and environmental co-impacts. There is a need of more holistic energy planning that balances trade-offs and synergies among and within the individual SDGs.

Keywords: Sustainable development goals (SDGs), Agenda for Sustainable Development, renewable energy, Co-impacts

Introduction

Climate change mitigation and adaptation efforts rank high among environmental policy objectives to bring about an energy transition towards renewable sources of energy. The European Union, for example, with its "Green Deal", wants to transform Europe into the first climate-neutral continent. The "Green Deal" is also the Commission's plan to make the EU's economy sustainable, by 2050. Other major global economies have already announced similar long-term objectives.

The 2030 Agenda for Sustainable Development consists of 17 interconnected Sustainable Development Goals (SDGs) and 169 related targets. SDG7 (affordable and clean energy) is accompanied by five targets to be achieved by 2030: ensure universal access to affordable, reliable and modern energy services; increase the share of renewable energy in the global energy mix; double the global rate of improvement in energy efficiency; enhance international cooperation to facilitate access to clean energy research and technology; and promote investment in energy infrastructure and clean energy technology.

The objective is to point to synergies and trade-offs between efforts to achieve SDG7 and delivery of the 2030 Agenda as a whole. Clear linkages can be expected with climate action (SDG13), no poverty (SDG1), zero hunger (SDG2), good health and well-being (SDG3).

Discussion

It appears that in many cases the quest for clean energy involves dirty deals. For example, turning off coal and nuclear power plants in Germany requires the import of electricity, based on coal and

nuclear energy, from neighbouring countries. Renewable sources of energy, resulting from their intermittency, increase the volatility of electricity generation, thereby jeopardising security of supply. According to the European "climate taxonomy" nuclear power and natural gas are considered sustainable. It can also be questioned whether renewable forms of energy should be classified as sustainable. Renewables can contribute to climate change mitigation if they manage to displace fossil fuels at a global level. However, increasing the use of renewable energy in one part of the world can lead to an increasing demand for fossil fuels elsewhere, as a result of lower fossil fuel prices, and thereby counteract the policy's original intention.

Improved air quality and human health are undoubtedly benefits of renewable energy, as is the reduced water evaporation from floating solar. In some cases, there appears to be a competition between agricultural and energy production but in some cases renewable energy can even increase agricultural yields. Harnessing of wave energy can contribute to coastal protection [1].

Additional mining of rare earth metals and other materials as a result of the increasing electrification of space heating (heat pumps) and mobility (electric cars) obviously challenges the sustainability of renewable energy use. This kind of energy transition is likely to result in new geo-strategic dependencies. Reduced local land rights and increased threats to cultural heritage have been reported from developing countries. Increased greenhouse gas emissions from land use change, reduced biodiversity, also due to land use change, and the well-known fork-feed-fuel trade-off are other factors that question the suitability of renewable energy as the single most important contributor to a global sustainable energy system. The negative impacts of hydro power are also well documented. Surprisingly, the role of energy efficiency and energy conservation does not get as much attention as supply-side options like renewable energy [2].

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Conflict of interest

None

References

1. UNGA (2015) Transforming our world: the 2030 Agenda for Sustainable Development. United Nations General Assembly. Open Element.
2. European Commission (2019) The European Green Deal. COM.