

# Trends in renewable energy production and trade

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In 2015, leaders from around the world endorsed the 2030 Agenda for Sustainable Development. Among the Agenda's 17 goals is SDG 7, which calls for ensuring affordable, reliable, sustainable and modern energy for all. SDG 7 is rooted in the understanding that modern energy systems are key enablers of sustainable and inclusive economic growth, trade and development. Meeting this goal will require sustained and coordinated efforts by governments, companies and civil society at large to accelerate and scale up the supply and use of clean energy, along with the technologies needed to increase energy efficiency. International trade can serve as a powerful tool to support these efforts.

There are many benefits from a global scale-up of clean energy, not least improving access to energy, increasing energy security and facilitating progress in climate change mitigation. Growing political commitment to these goals has driven unprecedented levels of activity in the clean energy sector worldwide, in terms of trade, investment and innovation. Currently 25 per cent of electricity produced is renewable at a global level and this is expected to increase to 33 per cent in 2040 if current energy policies in place continue to be used or rise to 66 per cent under a sustainable development scenario

(IEA, 2018). The rise of renewables becomes even more visible when newly installed capacity is being considered. In 2016, for the first time, newly installed renewable energy capacity surpassed fossil fuels and nuclear energy together (Figure 1).

As can be seen in the chart as well, solar and wind energy are among the most prevalent technologies to further increase the share of renewable energy in total electricity production. These technologies have a high degree of efficiency, can be deployed in a vast number of locations and are scalable to local needs. In terms of production cost, solar energy has seen price reductions per MWh since 2012 of up to 70 per cent and has reached parity with wind energy in many parts of the world (Figure 2).

Production of renewable energy equipment is scattered around the globe, leading to substantial trade flows of these products. Trade gives access to renewable technologies to all countries in the world, helps to spur competition, encourages specialisation, economies of scale and hence drives down costs, leading to a wider dispersion and usage of renewable energy (WTO and United Nations Environment Programme, 2018). Figure 3 shows trade in wind components between major trading partners. Germany and the United States are

Figure 1: Annual power generation capacity additions in gigawatt, 2010-2017

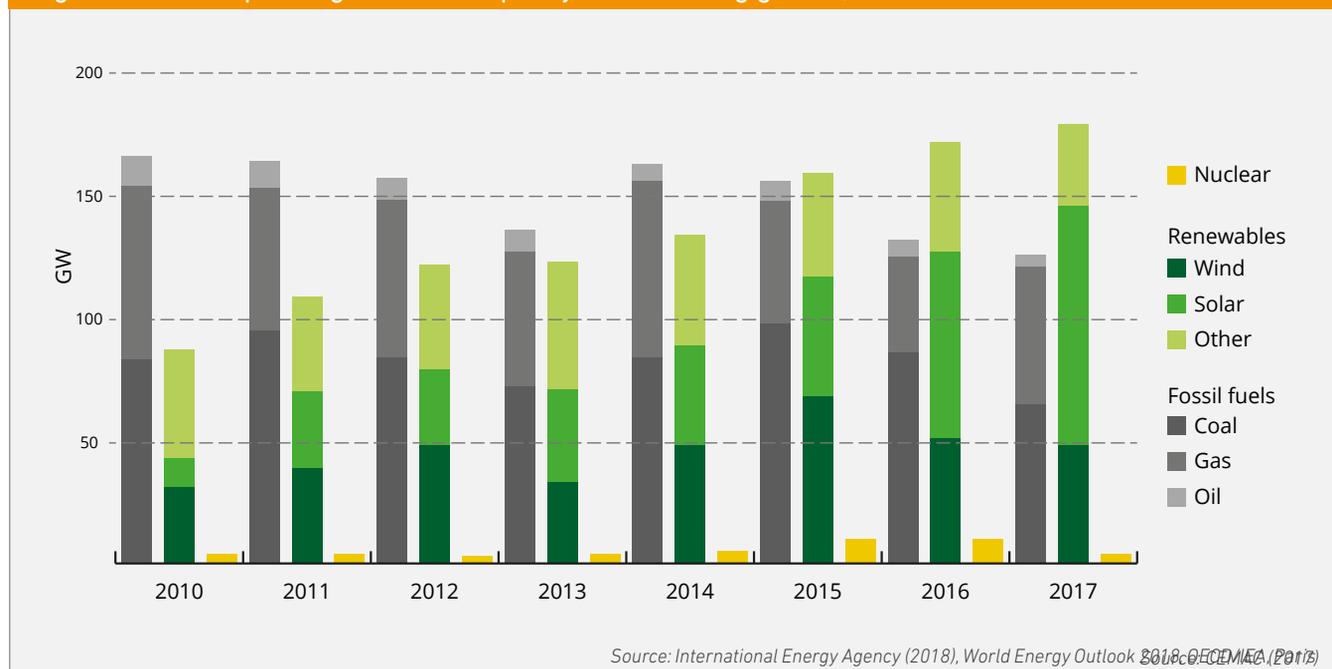




Figure 2: Levelised costs of electricity by selected technologies and regions, 2012-2017

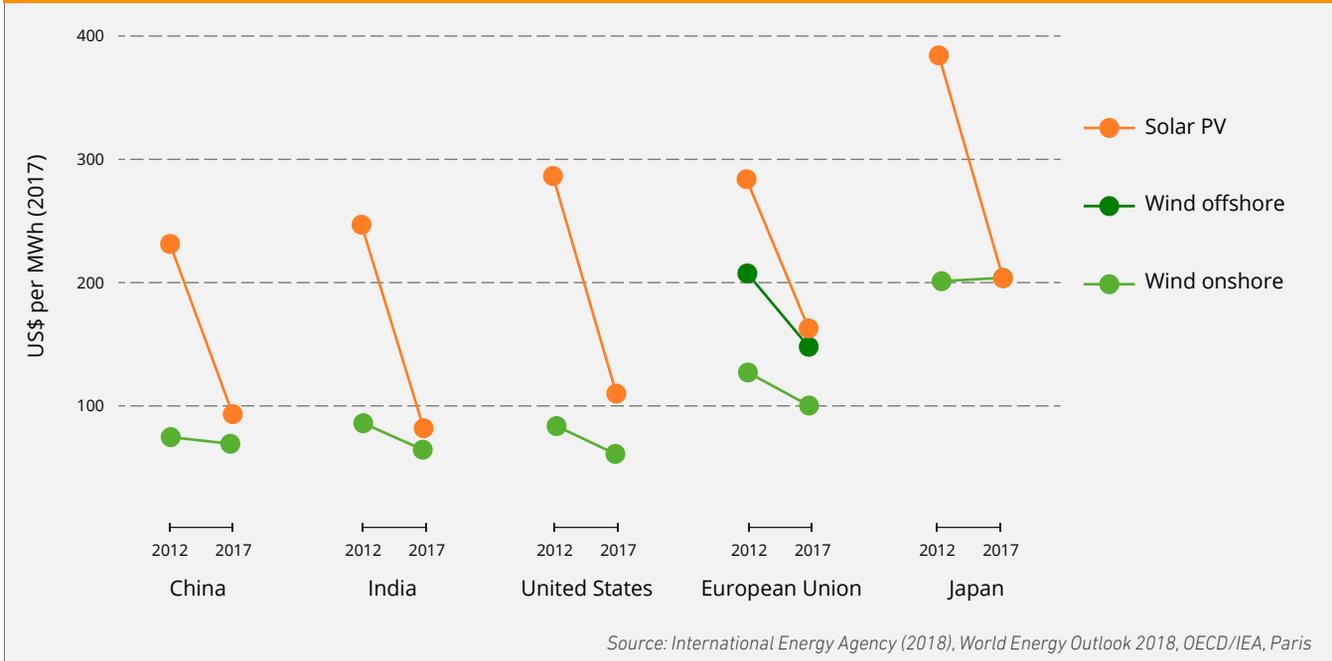


Figure 3: Balance of trade and trade flows for wind generator sets (nacelle and blades), 2014

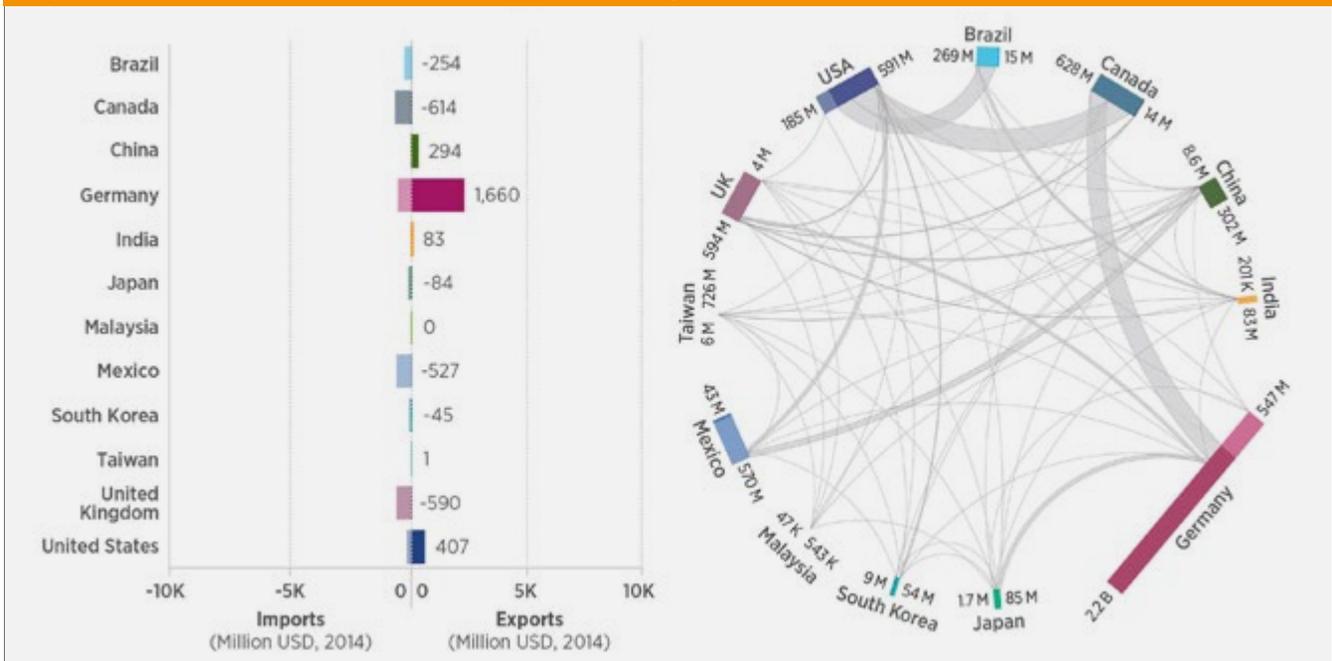
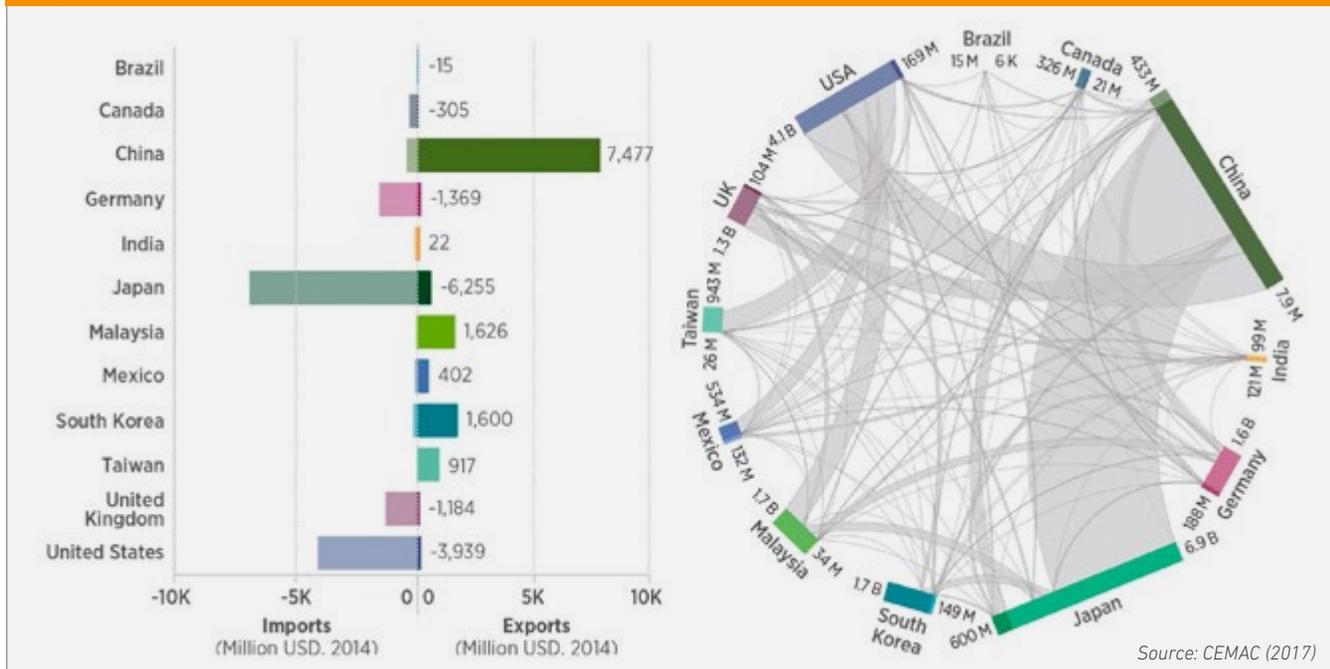




Figure 4: Balance of trade and trade flows for solar photovoltaic (PV) modules, 2014



among the main exporters, while Canada, the United Kingdom and Mexico are the main importers, but interconnections between many more countries are clearly visible.

In the case of solar energy, China is the biggest exporter of solar photovoltaic modules, while Malaysia and the Republic of Korea are also exporting more than US\$1 billion each (Figure 4). Japan, the United States, the United Kingdom and Germany are major importers.

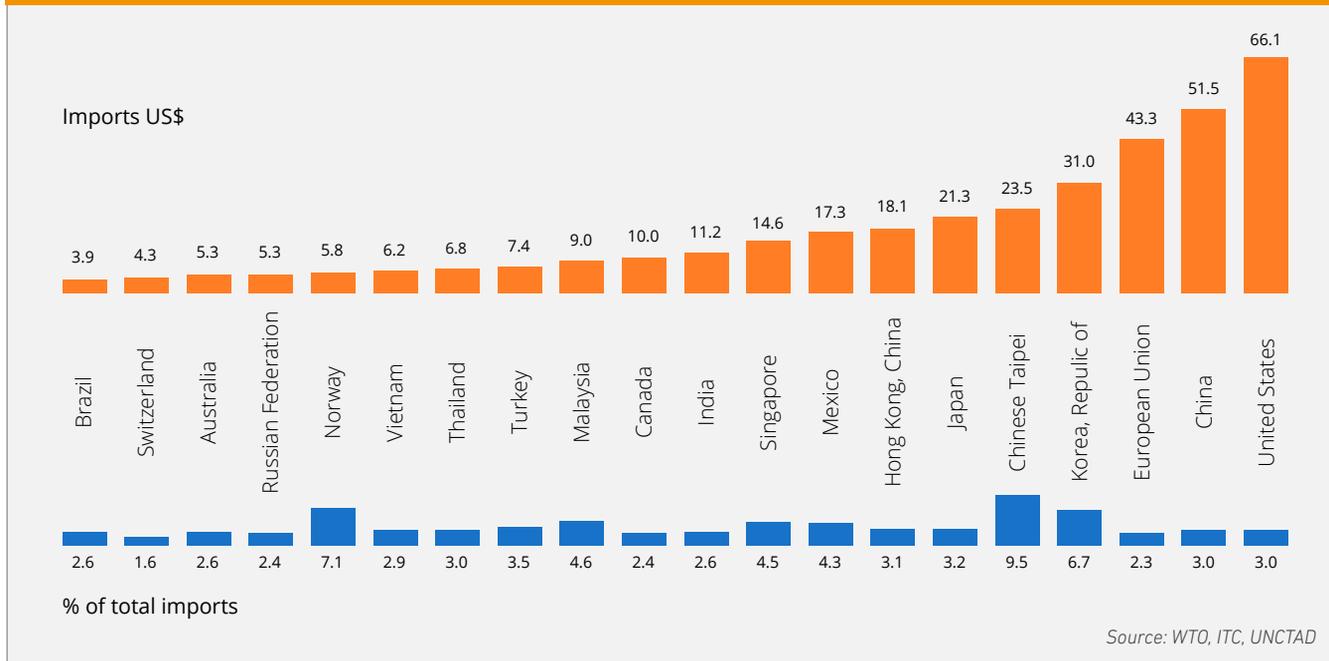
Goods most relevant for renewable energy are silicon, carbon, glass fibres, plastic sheets, metal towers, turbines, mechanical parts, water heaters, transmissions and electrical parts. The World Tariff Profiles 2019 (WTO, ITC and UNCTAD) classifies these products as related to SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all. Imports of these SDG 7-goods amounts to more than US\$400 billion globally in 2017. These numbers nonetheless have to be seen as an upper limit of renewable goods trade since tariff lines often cover many more products apart from goods directly related to renewable energy. Figure 5 shows the top-20 importers of SDG7-goods whereas the United States, China the European Union and the Republic of Korea have the highest import values. Interestingly, in per cent of total imports, the Republic of Korea, Chinese Taipei,

and Norway have significantly higher import shares, displaying their strong involvement in the renewable energy sector. Trade weighted MFN Tariffs applied on solar and wind power related goods range from zero for 8 WTO Members to a maximum of 42.2 per cent and a median value of 5.4 per cent (Figure 6). The simple median MFN tariff for goods related to solar and wind power of 5.1 per cent is almost three percentage points below the simple median MFN tariff of non-agricultural goods of 7.9 per cent. Maximum tariffs for these goods nonetheless reach more than 30 per cent in several cases.

Efforts to reduce these and other barriers to trade in renewable energy goods can be part of a broader approach to access the best environmental solutions available in the global market at lowest cost. In recognition of this, a group of 46 WTO members started negotiations in 2014 on an Environmental Goods Agreement (EGA), which would cut tariffs on environmental goods. EGA participants account for around 85 per cent of exports of environmental goods. The goods being considered in these negotiations perform a variety of functions that are critically important for sustainability and the environment, including clean and renewable energy generation. Although participants made significant progress in these



Figure 5: Top-20 Imports in Billion US\$ and % of total imports



negotiations, they were not in a position to close existing gaps in December 2016. Negotiations have not yet resumed.

It has become clear that deeper and more effective cooperation is needed to better align trade, energy and sustainable development in a way that helps build prosperous, inclusive and resilient economies around the world. In this vein, the Agenda for Sustainable Development calls for global partnerships and cooperation for sustainable development, complemented by multi-stakeholder partnerships that mobilise and share knowledge, expertise, technology and financial resources to support the achievement of the SDGs in all countries, particularly those less developed. For the trade and energy policy communities, this means working in greater concert with each other and with other stakeholders to tap into the numerous trade opportunities to help fulfil the promise of affordable, reliable, sustainable and modern energy for all. ●

References

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Figure 6: Box plot of applied trade weighted MFN tariffs for WTO Members

