SUBSIDIES



he European and global energy landscapes are changing fast, and the biggest winners are renewable technologies, Dr Fatih Birol, Executive Director of the International Energy Agency (IEA), told attendees at the November launch of the 2018 World Energy Outlook – even as green subsidies decline.

Birol believes that renewables are maturing, meaning that additional subsidies and tax breaks may lose some of their importance: 'By 2040, 45% of the growth in global energy demand will be met by renewable energies – solar and wind – which we think will be the number one source of power generation in Europe, but also bioenergy, hydropower and geothermal,' he said, adding that 30% of electricity demand globally will come from renewable sources by 2030.

In the 1990s, government subsidies and incentives such as feed-in tariffs helped to assure the rise of renewables, especially in Europe, where there has been strong political support for green energy. Feed-in tariffs, offering guaranteed higher prices for renewable energy producers helped create a critical mass in scale for the industry.

For example, citizen cooperative UrStrom invested in wind turbines and solar installations around Mainz, Germany. Under the tariff policy, its renewable energy producers could sell their electricity at above-market prices guaranteed for 20 years. This scheme jumpstarted renewable power in

Subsidies still needed despite falling renewables costs?

Will subsidies disappear as Europe's renewable energy sector matures? The answer isn't clear cut, writes *Liz Newmark* in Brussels.

Germany and was copied Europe-wide.

As green energy grows, policymakers have sought to bring market discipline to the sector to promote efficiencies, and these concerns have worked their way into European Union (EU) policy. In April 2014, the European Commission adopted EU guidelines on state aid for environmental protection and energy 2014–2020, to 'provide more efficient public support measures that reflect market conditions' and reduce costs for customers.

These rules have tempered the green energy subsidy freedoms that existed before, and were designed to encourage commercial renewable development, with auctions or bidding processes open to all green energy generators competing equally for government funds. Following a 2015–2016 pilot phase, all member states have had to hold tenders to support new green power facilities from 2017.

According to the International Renewable Energy Agency (IRENA), this trend has not been limited to Europe, with 67 countries implementing renewable tender policies by early 2017, up from just nine in 2009. In 2017, the Agency estimated that almost half of the renewable energy capacity to be added until 2022 would be auctiondriven.

This change has been spurred by dramatic price drops in wind and solar generation. According to IRENA, solar photovoltaic (PV) module costs have been slashed by 80% since 2009, while the cost of electricity from onshore wind fell by 22% between 2010 and 2017. By the end of the decade, the organisation has estimated that the average cost of power generation from all commercially available renewable energy technologies will be competitive with fossil fuels.

Subsidy-free future?

Whether this will ultimately lead to a subsidy-free renewable sector remains to be seen. Industry supporters say it still



Many millions of Euros of subsidies have poured into Europe's green energy sector – is the financial tap going to be turned off? Photo: Avii needs subsidies – particularly to compensate when the sun stops shining or the wind stops blowing and as a proactive policy tool to ensure Europe meets its climate goals.

Andrew Canning, Press and Communications Manager at Brussels-based WindEurope, formerly the European Wind Energy Association, told Energy World that renewable energy subsidies have decreased, but have not been abandoned. He noted their reduction has been caused mainly by falling costs. 'Renewables need less public support than they once did,' he explained. 'Money is no longer given on a lump sum basis, but via auctions, increasing competitiveness.'

Canning pointed out that transitioning from government allocated feed-in tariffs to an auction-based system - such as a feed-in-premium where producers sell electricity on the market and get a 'top up' on market price - still means subsidies are being paid. And the way they are paid means costs fall: 'Governments will now allocate capacity for renewables and wind farm developers then compete to win this capacity, creating downward pressure on prices,' Canning says.

'This has helped to spur technological innovation. For example, wind turbines are now more powerful and can capture the wind at lower speeds. Combined with economies of scale as the market grows, the result is that onshore wind is now the cheapest form of new power generation in

Solar power, such as these installations in Spain, is being built on a grand subsidies?

Wind turbines, such as this installation in the Netherlands, are becoming increasingly cost effective do they need subsidies any more?

Photo: Melaniepoort





scale - why do they need Photo: Abengoa Solar

many parts of Europe,' he said, 'with offshore wind not far behind.'

What Canning and other environmental experts like to underline is that while the increasingly competitive wind industry is being integrated into free markets, subsidies are still paid to the fossil fuel sector. In September 2017, The Guardian reported that the governments of 11 European nations were providing subsidies totalling more than £80bn a year to the fossil fuel industries.

Electricity sector leads the way

At present, the share commanded by renewables in different EU energy segments is largest in the electricity sector, followed by heating and cooling and finally transport, Danske Energi Senior Consultant Kristine van het Erve Grunnet told Energy World. According to IRENA, renewables will continue to grow in the electricity sector, providing almost 30% of power demand globally in 2023, up from 24% in 2017.

'The expected cost of electricity production based on renewable energy has fallen considerably,' Grunnet said. 'It is cheaper today to produce electricity by deploying onshore wind rather than building a new coal plant.'

While biomass (including organic waste) remains the primary source of renewable energy in northwest Europe – followed by wind and supplemented by hydro and solar it will only play a secondary role in electricity production in future, as the fall in the cost of wind and solar far outstrips the development of biomass.

Grunnet believes it might be possible to invest in offshore wind under pure market conditions during the next ten years. Meanwhile, solar PV and onshore wind will be close to being profitable on market terms by 2025. A higher emissions trading scheme (EU ETS) quota price would facilitate this process, she argued.

With the cost models shifting, attitudes to renewable energy and energy subsidies currently vary across Europe. 'Germany has really changed in the last year, it is not the green energy front runner it once was. Denmark too is waiting to see what other countries are doing, Dirk Hendricks, senior policy advisor at the European Renewable Energy Federation (EREF), told Energy World. 'Austria will definitely continue [as a front-runner] though.'

Germany heads towards 80% renewables

Electricity generation from renewables in Germany almost doubled between 2009 and 2016 to more than 188 TWh. The share of renewables in the country's electricity consumption rose from less than 5% in 1990, to almost 37% in 2017. But the country needs more to meet EU and national goals. Germany's Climate Action Plan 2050 says that, by 2050, at least 80% of Germany's electricity supply should be from renewables.

The country's renewable energy association, Bundesverband Erneuerbare Energien (BEE), says: 'We must remove or at least significantly raise established limits on promoting renewable energy and also find appropriate prices for carbon emissions.' This will protect the climate, is cost efficient and will help the ongoing linking of renewable sectors (electricity, heating/cooling, transport), the association said in a report, Energy Political Demands.

BEE also demands 'guaranteed prioritisation of fed-in electricity from renewable sources' as stated in Germany's Renewable Sources Act. But despite past feed-in priority, several renewable energy systems, notably in the wind sector, have been taken off the grid in favour of fossil power plants that supply electricity reliably and steadily. For example, in summer 2016, windfarms in northern Germany were producing so much energy

that their state governments sometimes had to pay renewable energy companies to switch off their turbines to stop congesting the power grid.

In Germany's first competitive power auction in spring 2017, its federal network agency accepted four bids for 1,490 MW offshore wind capacity in the North Sea with only a 0.44/kWh subsidy. This was because Denmark's DONG Energy (now Ørsted) submitted a bid with a zero-subsidy rate.

The neighbouring Netherlands aims to make 16% of all energy consumed in the country sustainable by 2023 and to achieve 100% sustainable energy by 2050. The government wants to use low carbon energy sources such as solar, on and offshore wind, biomass, geothermal and hydropower. It offers renewable energy grants for large energy projects using geothermal heat and solar parks, and grants for smart technologies combining production and storage or contributing to smart grids. Tax credits are available for other energy efficient technologies.

The UK also benefits from unsubsidised renewable energy schemes, especially solar. Clayhill Farm in Bedfordshire, which started operating in September 2017, was billed as the UK's first subsidy-free plant. Two more sponsored by Wirsol – Outwood Solar Park, Essex, and Trowse-Newton Solar Park, Norfolk – are under construction.

Political sensitivities

However, the question – to subsidise, or not to subsidise – is a politically sensitive one

in the UK. Indicating a lack of current consensus on the issue, a spokesperson from the UK's Renewable Energy Association told *Energy World*: 'It would be difficult to give our view on renewable energy subsidies without alienating a number of our members.'

The association did, however, publicly slam a proposal by Ofgem to remove grid charge benefits for small renewables plants in its *Targeted Charging Review* consultation, published last November.

'For the price of saving some consumers the equivalent of a cup of coffee a year, these proposals will make it tougher to build small-scale renewables and punish homes and businesses that have taken the socially and environmentally responsible decision to install renewables such as solar,' the association's Chief Executive, Dr Nina Skorupska, said in a statement issued in November.

Skorupska added that the plans, although not finalised or due for implementation until 2021 or 2022, came on top of current proposals to end support for new small-scale renewables from 2019, with the closing of the UK's current feed-in tariff scheme. The UK government has since begun consulting on a replacement 'Smart Export Guarantee' scheme.

Grunnet told *Energy World* that for Denmark and Europe: 'with a continued strengthening of the ETS and better transmission of power across countries, and further electrification, we do not see a need for subsidies for mature technologies such as wind and solar in the near future. However, it will be necessary to support less mature technologies such as batteries and electrolysis.'

And even for wind and solar, auction-less funding continues. On 20 December last year, the European Investment Bank granted a €70mn loan to Spain's Talasol Solar to build and operate a plant in Talaván, Spain. This is one of the first photovoltaic energy projects to be financed in the country outside renewable energy auctions.

Renewables costs continue to fall, though unevenly according to technology and electricity system details, making it unclear exactly when we will pass from a subsidy to non-subsidy system. Most likely this will involve a set of processes over a number of years. ●

EU guidelines have tempered the green energy subsidy freedoms that existed before, with auctions or bidding processes open to all green energy generators competing equally for government funds

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