Reaction of ETIP-PV to

COM(2018) 773 Clean Planet for All

12 Feb 2019

Positive overall impression

All in all, **ETIP-PV is highly supportive of the EU's interest in following a pathway that leads to a max-1.5°C warmer world and encourages it to put in place the policies that will achieve this as cost-effectively as possible. This means acting soon.** Zero net-carbon emissions are required by 2050, as shown in Figure 4 of COM(2018) 773 (main document). They will be achieved with a fully decarbonised and expanded power sector that provides services in heating and cooling, transport and possibly chemical feedstocks. The deployment of carbon-negative technologies including in the years leading up to that date may also be needed, which Figure 6 of COM(2018) 773 (main document) shows. Electricity will be needed for this, too.

EC overestimates PV's cost

A key technology to realise this decarbonisation and to reduce the associated GHG emissions is Solar PV. Already today it is not only more efficient and cheaper than conventional energy sources but also, in most parts of the world, other renewable energy sources. It has vast potential for further energy cost reduction, which will allow services it had been unthinkable to provide with electricity to be provided in just this way.

Since 1980, prices of complete PV systems (€/kW) as well as the levelised cost of PV electricity (€/kWh) have come down by a factor 50 to 100 and efficiencies have been increased by a factor 2. Roadmaps to reach higher increases (up to 24%) with high probability exist.

Our view is that the cost assumptions used to model PV in COM(2018) 773 are far too conservative. 710 €/kW is used as typical investment costs for a plant in a medium-potential site in Europe in 2020 and 454 €/kWh for those costs in 2050. The 2050 value will be achieved long before 2025, and a realistic value for 2050 should be no higher than 250 €/kW. PV installed capacity is underestimated by about a factor 2 as a consequence. Scaling up Solar PV production and installation further will bring down costs by another factor of (typically) 3 to 4 in the medium term. ETIP-PV members are writing scientific papers supporting these claims, which they expect to publish soon.

A larger role for PV would address another odd result from the modelling work presented in COM(2018) 773: the approximately 1:1 relationship in the installed capacities of wind and Solar PV. The capacity factors assumed for wind and PV to prepare the Communication are realistic, meaning that Solar PV would generate roughly half the MWh of wind. But modelling work presented in Dec 2018 (Figure 1) has shown that by 2040 both should generate equal amounts in Europe; and in 2050, Solar PV roughly twice as much. Far more Solar PV must be installed than wind.

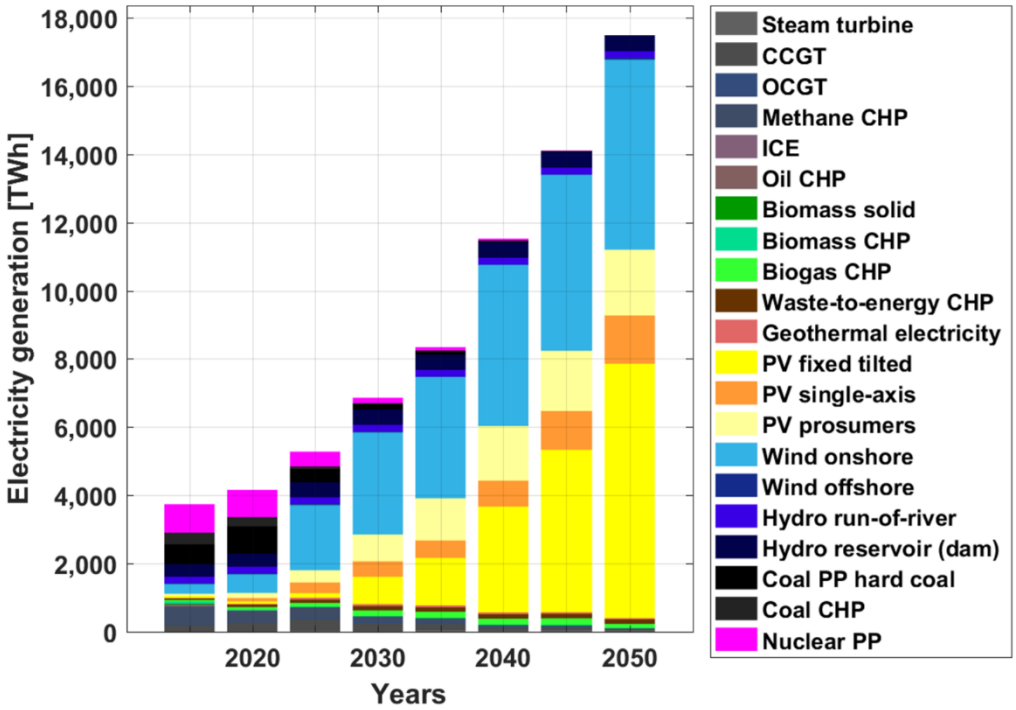

Figure 1 Source of electricity in Europe's supply under a +1.5°C-compliant, cost-optimal scenario for various years up to 2050 (source: Energywatch)

EC appears to overestimate nuclear's contribution

According to Figure 25 of the in-depth analysis accompanying the Communication, 4 GW of new nuclear capacity will on average be added annually between 2016 and 2030, and between 3-6 GW in the period 2031-2050. These additions will at most replace nuclear capacity that is being retired: Figure 24 shows that nuclear's cumulative capacity will be the same in 2050 as in 2015, or slightly decline.

Yet any significant deployment of nuclear is highly improbable. Gen III nuclear is assumed to have a CAPEX of 4.7-6.0 k€/kW depending on the year of deployment and whether economies of scale are present. It is difficult to see how an investment case may be made for this technology. No country that doesn't have a commitment to nuclear weapons will build nuclear plants.

Another odd statement in COM(2018) 773 is that "by 2050, more than 80% of electricity will be coming from renewable energy sources (increasingly located off-shore) [and] a nuclear power share of ca. 15%". This is difficult to reconcile with the capacity factors quoted in Technology pathways in decarbonisation scenarios and the capacities read off Figure 24 of the in-depth analysis. For this statement to be true, the ratio of the weighted average capacity factor of RES technologies in 2050 to the average nuclear capacity factor needs to roughly twice the values calculable from the Technology pathways data.

Points of agreement

- The direct and indirect electricity demand for the transport sector presented in Figure 21 of the in-depth analysis is plausible.
- Digitalisation in the new energy mix is correctly identified as an important theme.
- Energy transition requires efficient energy markets that provide a level playing field for all stakeholders. The Communication is therefore right to say that “more liquid and more flexible markets” have helped the “power sector [to make] the most important steps towards decarbonisation”