

Experiences of the State Aid Guidelines: allowing innovative renewables to develop

Innovative renewable technologies face market failures which require direct policy intervention

Emerging renewable energy technologies cannot compete directly with already-established energy technologies. Established technologies have benefited from cumulative learnings over decades of operation, allowing them to generate power at extremely low cost, relative to newly emerging technologies.

Without policy intervention, this market failure would result in new technological innovation not making it to the market. European consumers would not benefit from new technologies and players entering energy markets and the EU's capacity to fully decarbonise its energy system by 2050 would be hampered.

Maintaining technology-specific tenders for innovative renewable technologies is key to help them reach the market

Technology specific tenders are the only way to bring innovative new technologies down the cost curve, where they can compete with already-established technologies, without intervention. They help promising industries achieve savings through scale and technology learnings, and deliver affordable, decarbonised and predictable energy for EU citizen in the medium term.

Recent Experience:

- Reserved auctions for specific technologies or 'less established renewable technologies' such have enabled important deployments that would otherwise not have occurred. Offshore wind is a clear example –technology-specific auctions, have forced costs down dramatically in recent years. E.g. a recent French tender was awarded to a project which will produce power for less than €50/MWh;
- The UK's 'Renewables Obligation Certificate' system allowed additional tradable certificates for energy from ocean energy projects. This enabled tidal energy demonstration projects which have furthered the technology considerably and reduced costs. See below for more information.

Conclusion: The Guideline's provision for technology-specific tenders have had a very positive impact and should be safeguarded to ensure that the EU's energy transition can continue.

Demonstration projects are essential for innovative renewable technologies to overcome ‘Valley of Death’ market failures

Demonstration projects are essential to allow new and improved renewable energy technologies to reach the market. They allow large cost reductions, significant performance improvements and generate learnings for future deployments.

Demonstration projects are very small – generally a few MW – and so they do not unduly impact the wider market.

Demonstration projects are capital intensive and risky. They typically cannot generate a sufficient return for investors in isolation and cannot attract sufficient private financing. Public funding is therefore a necessity.

There is a clear and workable definition of ‘demonstration projects’ in the Guidelines and in Regulation 2019/943 on the Internal Market for Electricity

Recent Experience:

- The MeyGen project is one of the first tidal pilot farms. It involves the deployment of 4 grid connected 1.5MW turbines. The project’s objective is to demonstrate that the development of tidal array projects is both commercially viable and technically feasible. Lessons will feed into subsequent projects. In 2018, the Meygen project generated 8 GWh - only 0.2% of the electricity generated in the UK.
- Nova Innovation has deployed 3 grid-connected 100kW turbines at its Shetland Array. The Array is currently being increased to 6 turbines. The project will demonstrate that high-reliability and performance can be achieved using best practice maintenance and array layout.
- These 2 operational demonstration projects will have capacity of no more than 6.6MW when complete – less than 0.1% of total 2017 electricity capacity in the UK¹.
- These 2 projects have made an important contribution to the development of the technology. The EC’s Joint Research Centre found that energy costs of tidal energy decreased by more than 40% between 2015 and 2018.²
- The Normandie Hydro and NEPHTYD projects are not yet operational. Their combined capacity would be just 0.02% of total 2017 generation capacity in mainland France.³ Their average annual electricity production would be just 0.01% of total 2017 electricity generated in mainland France.⁴

¹ See Table 5.7 of

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/736152/Ch5.pdf

² ‘About Cost-reduction of Ocean Energy: Lessons from Horizon 2020’, SETIS Magazine, May 2019

³ See page 24 of https://www.rte-france.com/sites/default/files/rte_elec_report_2017.pdf

⁴ Ibid, page 26. Project generation figures taken from Normandie Hydro & NEPHTYD State Aid decisions

- The European Commission concluded that both projects pursued objectives of common interest, with neither having an undue distortive impact on competition.

Conclusion: Ocean energy demonstration projects strongly contribute to wider objectives and require public intervention. Their small size means that they have no distortive impact on markets. Existing provisions for demonstration projects have worked well and should be maintained. Demonstration projects should in future be exempted from the requirement to notify, where aid is below certain levels.

Demonstration projects do not distort competition and should be exempted from notification requirements under certain thresholds

Current rules make a notification mandatory from EUR 15m of investment per undertaking onwards.

Demonstration projects are already challenging to enact. A consortium of parties must be brought together, finance must be obtained from different sources, and consenting must be secured in regimes which have no prior experience of ocean energy deployments. Technology and project developers are often SMEs with limited resources. Requiring State Aid notification for smaller demonstration projects adds additional risk and complexity to these projects, which is not justified by any threat of distortion to competition.

Solution:

2. NOTIFIABLE ENVIRONMENTAL AND ENERGY AID

(20) Individual aid granted on the basis of an aid scheme remains subject to the notification obligation pursuant to Article 108(3) of the Treaty, if the aid exceeds the following notification thresholds and is not granted on the basis of a competitive bidding process:

(a) investment aid: where the aid amount exceeds EUR 15 million for one undertaking *or EUR 50 million for one undertaking in the case of demonstration projects,*

Tailored market rules help demonstration projects reach their innovation objectives

Priority dispatch and exemption from balancing responsibility should be maintained. These are an efficient means of reducing costs and risks and facilitating greater deployment of new renewable energy technologies.

Demonstration projects are designed to generate as much operational experience and data as possible – excessive curtailment will undermine the goal of these projects. Deployed technologies are in development with limited testing, so performance cannot be very accurately predicted. Experience of technical problems are an important learning outcome of demonstration projects, and should not be disincentives by any balancing responsibility.

Ocean energy technology developers are often SMEs that cannot cope with the same duties fulfilled by mature technology developers. Furthermore, demonstration projects are limited in scale, and so a supportive policy framework will not unduly impact the wider market.