

**CEER**  
**Council of European  
Energy Regulators**



Fostering energy markets, empowering **consumers**.

## **CEER Paper on Unsupported RES**

**Renewable Energy Systems Work Stream**

**Ref: C19-RES-64-04a**  
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## INFORMATION PAGE

### Abstract

This short paper (C19-RES-64-04a) provides a first assessment of the status quo of formerly-supported Renewable Energy Sources (RES) installations. It aims to identify the recent changes (if any) made to the market model. This paper is a summary of a comprehensive internal CEER analysis which followed three main objectives: (1) Assessing the magnitude of RES installations which will be running without support, notably after their support time has ended, in the coming years; (2) identifying the upcoming regulatory challenges and, if needed, the changes to the legal framework; and (3) showing the alternative business strategies for RES installations running without support. This short paper will cover these objectives without detailed data for individual EU Member States.

### Target audience

European Commission, energy suppliers, traders, electricity customers, electricity industry, consumer representative groups, network operators, Member States, academics and other interested parties.

### Keywords

Support schemes; renewables; renewable energy; renewable energy sources (RES); end of support time; solar; wind power.

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## Related documents

### CEER Documents

- [Status Review of Renewable Support Schemes in Europe for 2016 and 2017](#), December 2018, Ref: C18-SD-63-03.
- [Status Review of Renewables Support Schemes in Europe 2014 and 2015](#), April 2017, Ref. C16-SDE-56-03.
- [Key support elements of RES in Europe: moving towards market integration](#), January 2016, Ref: C15-SDE-49-03.
- [Status Review of Renewables and Energy Efficiency Support Schemes in Europe 2012 and 2013](#), January 2015, Ref. C14-SDE-44-03.
- [Status Review of Renewable and Energy Efficiency Support Schemes in Europe, December 2012](#), Ref: C12-SDE-33-03.
- [Status Review on Renewable Energy Support](#), May 2011, Ref: C10-SDE-19-04a.

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## 1 Introduction

An increasing number of Renewable Energy Sources (RES) installations will reach the end of their support time (EOS) in the upcoming years while in some European Union Member States (MS) formerly-supported RES installations are today already running without any financial support. For the time being, no major changes or planned changes to the legal framework can yet be observed in CEER Member countries. Coming from a Feed-in-Premium (FiP) system which was not in place around the beginning of the 2000s, one would expect that those RES plant operators that began operating in that time are already acquainted with a market environment since they have been selling their electricity on a marketplace from the start. What also can be seen though, is that installations coming straight out of a Feed-in-Tariff (FiT) system do not necessarily get decommissioned after the end of their support time and therefore, are able to somehow market or use their electricity successfully. With increasing shares of formerly-supported installations, some challenges might intensify, e.g. taking on balancing responsibility<sup>1</sup>. For MS relying only on a FiT scheme for RES support, the question arises whether there will be enough knowhow and new players available to effectively handle the formerly-supported electricity in a market environment.

This paper is a summary of a comprehensive internal CEER analysis which followed three main objectives: (1) Assessing the magnitude of RES installations, which will be running without support, notably after their support time has ended, in the coming years; (2) identifying the upcoming regulatory challenges and, if needed, the changes to the legal framework; and (3) showing the alternative business strategies for RES installations running without support. This short paper will cover these objectives without detailed data for the MS.

## 2 Support duration for RES electricity: state of play

CEER publishes on a biennial basis the main features – including costs – of national renewable support schemes. According to the 2011 CEER RES Status Review<sup>2</sup> depicting support systems in place in 2009, one would observe that 10 years ago, the main support instrument in place was a FiT. As such, it is very likely that most RES installations having already reached, or being about to reach the end of their support time in the coming years, have been supported via a FiT scheme. In the latest CEER RES Status Review<sup>3</sup>, providing an overview of the support schemes by technology in 2017, a steady move toward market-oriented support schemes (FiP or green certificates) for newly installed RES capacities can be observed.

In the current situation of RES installations about to reach their EOS, the vast majority of these were not operated under market conditions and will be confronted with a completely new environment as compared to that of being under a FiT scheme.

To assess the magnitude of unsupported RES installations, the RES WS has asked its members to provide further information about the year in which RES installations in their country were supported for the first time and the time span of financial support granted. Based on the responses provided by the members, it can be seen that RES installations have already been financially supported in some Member countries as early as the late 1980s or early 1990s, years

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<sup>1</sup> Although this paper looks at RES installations that were contracted under previous legislation, the reader should note that there are different rules on balancing responsibility for future new installations in the Clean Energy for All Europeans Package, e.g. in article 5 of the recast Electricity Regulation (2019/943).

<sup>2</sup> <https://www.ceer.eu/1278>

<sup>3</sup> <https://www.ceer.eu/1519>

before the first European Directive 2001/77/EU on the promotion of Renewable Energy was adopted in 2001.

Out of 18 countries that provided data and information, 12 changed their support times for at least one technology since introducing national support schemes. In most cases, changes made to the support time duration mainly applied to new plants and did not affect the support time of RES installations already in operation.

Since most RES support schemes were introduced in the early 2000s and support times often last for 20 years, an increasing number of supported RES installations will reach the end of their support time from 2020 onwards (see Figure 1). From 2020 onwards, we will observe the largest share of RES capacities running without support being onshore wind.

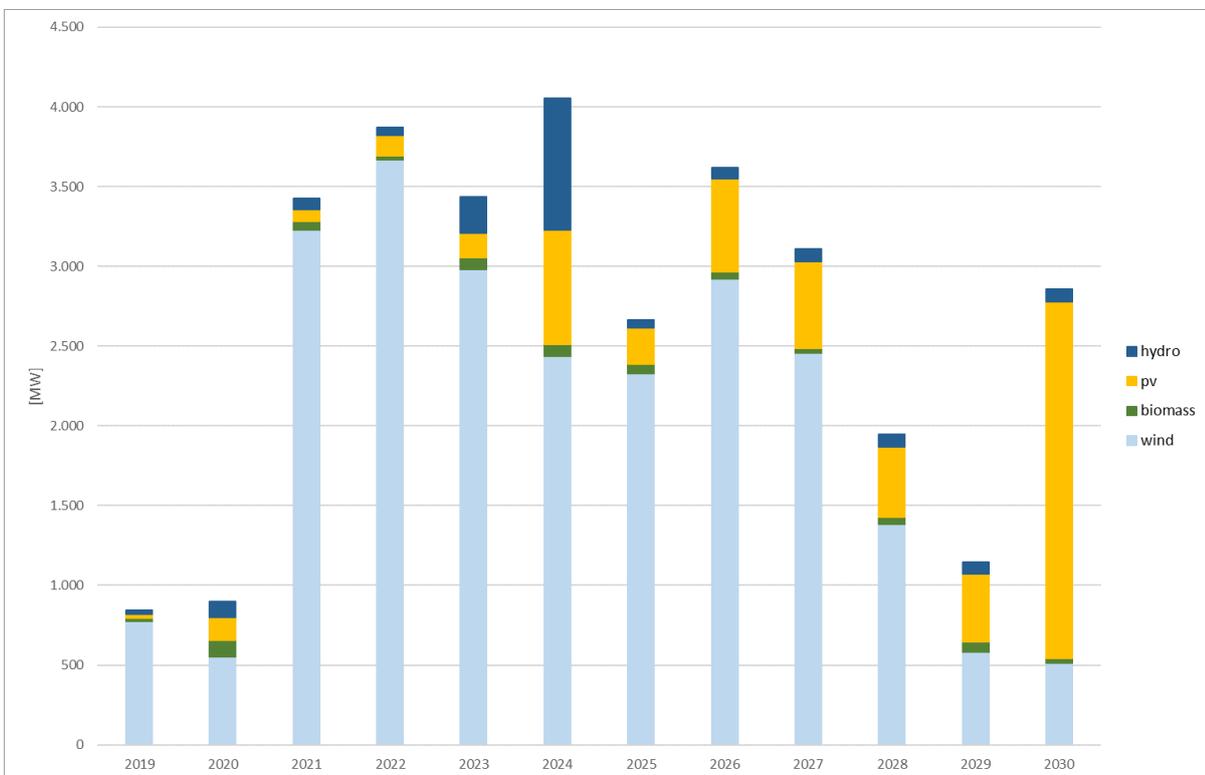


Figure 1: Installed capacity reaching end of support (n=18 MS)

In general, it seems that there are no special legal frameworks in place for RES installations once their support time has ended compared to RES installations which have never been supported. There might be differences compared to conventional plants regarding priority access and dispatch, but no special rules regarding balancing responsibility, for example, were highlighted.

Preferential treatment of RES such as priority access and dispatch seem to be granted independently of the existence of a financial support. Other than that, RES installations running without financial support are most likely treated like any other installations. For smaller installations there might be some “fall back” solutions in place or under discussion, notably in case they would not find a supplier to collect and sell their surplus electricity on a market.

### 3 Challenges for RES installations once support time has ended

Challenges for unsupported RES producers arise from leaving the secure conditions of support schemes, which in the case of FiT support often meant priority access to the grid and priority dispatch (independent or dependent of the FiT), but also direct off-take by the TSO or a central identity, only partial (or no) balancing responsibility and, in some MS, also simplified permitting procedures. RES plants operating in premium schemes may find the transition towards full market conditions easier, as they have already been acting in a market environment, while being shielded from mid to long-term price risks. The following five main challenges have been brought forward by the respondents in CEER:

- **Balancing responsibility:** Regarded as the major challenge by most respondents for unsupported RES. Production schedules of variable solar and wind are difficult to match with real production, thus balancing costs can rise substantially. Constant development of forecasting techniques and services, as well as market models that allow for modifying production schedules close to delivery, may reduce balancing costs. Aggregating different sources and locations of RES projects can also help keep deviations from production schedules low. However, all above mentioned options have higher costs for project owners, if anteriorly used to a FiT scheme.
- **Operating under market conditions:** Selling electricity solely in market conditions means that revenues become lower and more unpredictable, compared to production in a support scheme. Revenue streams are not visible or market prices might not provide profit, especially if balancing costs are high. While project owners are interested in long-term conditions, retailers favour short-term contracts. Selling directly on the power exchanges incurs very high costs, so it remains a realistic option for large-sized projects only (another option for larger projects is to have Power Purchasing Agreement (PPA) contracts).
- **Permitting** procedures for repowering are perceived as complicated and lengthy, which makes it in practice faster and more lucrative to decommission existing turbines and develop a completely new project.
- Another challenge is to match electricity demand with electricity generation to maximise **self-consumption** of households.
- **High input material costs** is a final challenge: Especially for biomass, the input material costs may exceed the market prices.

In that context, the following options have been mentioned as strategies to cope with the addressed challenges above:

Challenges	Possible strategies/approaches
<b>Unpredictable revenue stream</b>	<ul style="list-style-type: none"> <li>• PPA/direct customer</li> <li>• Aggregator</li> <li>• Virtual Power Plant</li> <li>• Repowering/new project (incl. new support)</li> </ul>
<b>Low market income</b>	<ul style="list-style-type: none"> <li>• Maximising self-consumption</li> <li>• Repowering (including new support)</li> <li>• Support for biomass power plant after depreciation</li> </ul>

	<ul style="list-style-type: none"> <li>• Creation of energy communities<sup>4</sup></li> </ul>
<b>Balancing costs</b>	<ul style="list-style-type: none"> <li>• Aggregator</li> <li>• Virtual Power Plant</li> <li>• Storage</li> <li>• Repowering (only for small installations. Large ones will have to bear balancing responsibility)</li> <li>• Self-consumption</li> </ul>
<b>Permitting for repowering</b>	<ul style="list-style-type: none"> <li>• Streamlined permitting procedures</li> </ul>
<b>High biomass fuel costs</b>	<ul style="list-style-type: none"> <li>• Support for biomass</li> <li>• PP after depreciation</li> <li>• Virtual PP</li> <li>• PPA/direct customer</li> <li>• Maximising income from selling heat</li> <li>• Energy community</li> </ul>

## 4 Main findings and conclusions

Starting from 2020, the support time for more and more RES installations will end throughout Europe. In countries with shorter support, the end of support time has already been reached. Nevertheless, no major changes were made or are expected to be made to the electricity market models for those installations. Either MS did not look at this development in detail or they are confident that RES installations either can make use of the produced electricity themselves (self-consumption, market via aggregators, selling to energy utilities, etc.) or that those installations will be replaced with new installations.

There are some open questions regarding balancing and the use of electricity, but there seem to be no serious obstacles that will make it technically impossible to operate RES installations after the end of the support time.

Based on the responses provided by CEER NRAs, the following preliminary messages can be brought forward:

- For the time being only a small share of RES installations are not being supported.
- The largest share of RES installations running without support are those which have never been supported in the past, notably large hydropower plants.
- An increasing amount of capacity will be confronted with the end of their support time in the coming years.
- For the RES technologies of onshore wind and solar new (larger) capacities are already being planned and installed to run without any direct financial support.
- The legal framework governing RES installations has so far not been adapted: Either because the framework does not make a difference between supported and unsupported RES or because the support time is still running and adaptation will be needed only in the future.
- The strategies followed by unsupported RES installations are manifold. The most likely approach is – at least in case of larger installations – to rely on the market as a source of income. Smaller ones, mainly PV, will most likely focus on self-consumption.

<sup>4</sup> See the CEER [Report on Regulatory Aspects of Self-Consumption and Energy Communities](#), 25 June 2019.

## **Annex 1 – About CEER**

The Council of European Energy Regulators (CEER) is the voice of Europe's national energy regulators. CEER's members and observers comprise 39 national energy regulatory authorities (NRAs) from across Europe.

CEER is legally established as a not-for-profit association under Belgian law, with a small Secretariat based in Brussels to assist the organisation.

CEER supports its NRA members/observers in their responsibilities, sharing experience and developing regulatory capacity and best practices. It does so by facilitating expert working group meetings, hosting workshops and events, supporting the development and publication of regulatory papers, and through an in-house Training Academy. Through CEER, European NRAs cooperate and develop common position papers, advice and forward-thinking recommendations to improve the electricity and gas markets for the benefit of consumers and businesses.

In terms of policy, CEER actively promotes an investment friendly, harmonised regulatory environment and the consistent application of existing EU legislation. A key objective of CEER is to facilitate the creation of a single, competitive, efficient and sustainable Internal Energy Market in Europe that works in the consumer interest.

Specifically, CEER deals with a range of energy regulatory issues including wholesale and retail markets; consumer issues; distribution networks; smart grids; flexibility; sustainability; and international cooperation.

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More information is available at [www.ceer.eu](http://www.ceer.eu).