Council of European Energy Regulators

Fostering energy markets, empowering **consumers**.

SD WS

Status Review of Renewable Support Schemes in Europe for 2016 and 2017

Public report

Ref: C18-SD-63-03
14 December 2018

Council of European Energy Regulators asbl
Cours Saint-Michel 30a, Box F – 1040 Brussels, Belgium
Arrondissement judiciaire de Bruxelles – RPM 0861.035.445

INFORMATION PAGE

Abstract

This document C18-SD-63-03 forms the latest update to the regular CEER Status Review of Renewable Energy Support Schemes in Europe and builds on the previous CEER reports C16-SDE-56-03, C14-SDE-44-03, C12-SDE-33-03 and C10-SDE-19-04a.

The purpose of CEER Status Review publications is to collect comparable data on RES support in Europe in order to provide policy-makers, regulators and industry participants with information on support schemes for electricity from renewable energy sources, by technology and type of instrument (e.g. Feed-in tariffs, Feed-in premium and Green Certificates). To collect this data, a survey was conducted among CEER members in September 2018, to explore the renewable electricity support schemes currently in place across Europe.

Target Audience

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

Keywords

Electricity; prices; contracts; tariffs; affordability; renewables, support systems.

If you have any queries relating to this paper, please contact:
CEER Secretariat
Tel. +32 (0)2 788 73 30
Email: brussels@ceer.eu

Related Documents

CEER documents

- ACER-CEER Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2017, October 2018.
- Status Review of Renewables Support Schemes in Europe 2014 and 2015, April 2017, Ref. C16-SDE-56-03.
- Position Paper on Renewable Energy self-generation, September 2016, Ref: C16-SDE-55-03.
- 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.

External documents

- European Parliament and the Council legislative resolution of 21 November 2018 on the proposal for a directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources (recast) (COM(2016)0767 - C8-0500/2016 - 2016/0382(COD)) (Ordinary legislative procedure - recast), http://data.consilium.europa.eu/doc/document/PE-48-2018-INIT/en/pdf
- European Commission, EU energy in figures – Statistical Pocketbook 2018, https://publications.europa.eu/en/publication-detail/-/publication/99fc30eb-c06d-11e8-9893-01aa75ed71a1/language-en/format-PDF/source-77059768
- European Commission, Clean Energy for All Europeans. November 2016, https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans
- Guidelines on State aid for environmental protection and energy 2014-2020, European Commission (EEAG), 28.06.2014, 2014/C 200/01, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0628%2801%29&from=EN
- Directive on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, European Parliament and the Council, 23.04.2009, 2009/28/EC, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0028&from=en

Table of Contents

List of Figures

List of Tables

EXECUTIVE SUMMARY

Background

National support schemes for renewable energy sources (RES) have been subject to important changes since the adoption of the EU's Renewable Energy Directive in 2009[1]. From 2014 onwards, CEER Member countries have been progressively adapting their schemes to comply with the general conditions for support to energy from renewables as set by the European Commission in its "Guidelines on State Aid for Environmental Protection and Energy" (EEAG)[2]. With the adoption of a revised Renewable Energy Directive in November 2018 and the upcoming adoption of a revised Electricity Market Regulation, both part of the "Clean Energy for all European" legislative package (Clean Energy Package)[3], the key principles of competitiveness, non-discrimination and cost-effectiveness set out in the EEAG will become the standard criteria for RES support schemes across Europe from 2021 onwards.

This report is considered timely given the imminent adoption of the Clean Energy Package. All relevant issues for the further promotion of RES across Europe, such as RES targets, the type of support and the procedures to set levels of support, access to the network, compensation levels in case of curtailments, level of balancing responsibilities, and consumer empowerment notably through self-consumption, are in the focus of this legislative package and therefore subject of this Status Review.

Objectives and Contents of the Document

The purpose of CEER Status Reviews is to collect comparable data on RES support in Europe in order to provide policy-makers, regulators and industry participants with information on support schemes for RES electricity, by technology and type of instrument (e.g. Feed-in tariffs (FITs), Feed-in premiums (FIPs) and Green Certificates (GCs)). This document forms the latest update to the regular CEER Status Review of Renewable Support Schemes in Europe and builds on the previous CEER reports[4].

CEER Members were asked to provide details on the type of support, the amount of supported RES and the related expenditure by technology. Information and analysis provided are based on the questionnaire responses received from 27 CEER Member countries, which enabled analysis of data on MWh (Megawatt hour) receiving support and the expenditure to promote the schemes. Members were also asked for separate details on new installations receiving support (those installed in either 2016 or 2017), although not all countries were able to provide this data.

In addition to direct financial support given to RES, CEER Members countries were also asked to provide data on the indirect support, such as the level of priority granted for RES-sourced electricity plants when connecting and using the grid, as well as the charges these plants face when connecting and using the grid. Further, the questionnaire explored aspects of RES market integration, self-consumption, as well as the occurrence of RES curtailment. Since most European countries are still in the process of adapting their support schemes to the new

[1] 28/2009/EC: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32009L0028
[2] 2014/C 200/01: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0628%2801%29
[3] https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans
[4] C10-SDE-19-04a, C12-SDE-33-03, C14-SDE-44-03 and C16-SDE-56-03; Previous reports also presented data on support schemes for energy efficiency measures. Since energy efficiency falls in the scope of responsibility of only a few National Regulatory Authorities, it has been convened to concentrate in this status review on the support for RES.

rules set out by the state aid guidelines, the questionnaire also enquired recent and planned changes to the schemes.

Brief Summary of the Conclusions

A wide range of instruments is used to promote RES, such as investment grants, FITs, FIPs, and GCs. This report shows that throughout Europe, the transition towards support schemes allowing for more market integration of RES and more competitive elements in the way support levels are being determined is still ongoing. As such, the major changes observed remain related to the introduction of FIP schemes, where RES producers receive support (a fixed or variable premium) in addition to their market income, and the introduction of tendering procedures, as a means to determine levels of support.

This report shows the unit support levels (direct cost per MWh of supported electricity) by the main renewable technologies in 2016 and 2017 for the whole support system in place. Thereby it reflects a mixture of old and new installations and support systems. There are wide differences across technologies and across countries which are also driven by more than a decade of RES support systems. The weighted average support for RES, on top of the wholesale price, decreased from €110,22/MWh[5] in 2015 to an average of €96,29/MWh across 25 countries[6] for 2017.This is a decrease of 12,6%. In 2017, the weighted average support ranged from a minimum of €12,87/MWh (in Norway) to a maximum of €198,29/MWh (in the Czech Republic).

A decrease in support costs is important for energy customers, as the latest ACER-CEER Market Monitoring Report shows that RES charges in 2016 and 2017 composed of 13% to 14% respectively of the average household electricity price in Europe.

The proportion of gross electricity produced receiving RES support differs widely from one country to another, ranging from 3% in Norway to 63% in Denmark, with an average of approximately 17% across CEER Member countries in 2016. This is a slight increase from an average proportion of around 16% in 2014.

The report also brings forward that almost no changes have been made to central features such as the nature of funding which is still mostly non-tax levies, or the fact that RES plants are mostly given priority in terms of network connection and dispatching.

In terms of market integration, RES plants increasingly have the same financial responsibility as conventional plants for electricity balancing, at least above a certain threshold of capacity installed. The report shows that for a total of 18 CEER Member countries, balancing responsibility for RES producers is a feature in their support schemes. In 10 of those 18 countries, the balancing responsibility counts for all RES producers, whereas in the other 8 countries, only selected RES producers face such responsibilities. Although a growing importance of the issue of self-consumption and net-metering can be observed in most CEER Member countries, the data availability is still limited to allow for a comprehensive assessment of the framework in place.

Curtailments and compensation measures in case of congestions in the network are also becoming increasingly important in many CEER Member countries.

[5] The weighted average support for 2015 was based on 26 CEER Member countries.
[6] Only 25 out of the 27 participating CEER Member countries submitted a full set of cost data allowing for the calculation of average values. Not included in this value are therefore the support costs from Belgium which only had data for wind on a national basis and Bulgaria which handed in no data.

1 Introduction

National support schemes for renewable energy sources (RES) have been subject to important changes since the adoption of the EU's Renewable Energy Directive[7] in 2009. From 2014 onwards, CEER Member countries have been progressively adapting their schemes to comply with the general conditions for support to energy from renewables as set by the European Commission in its "Guidelines on State Aid for Environmental Protection and Energy" (EEAG)[8]. As a result, features such as RES producers' balancing responsibility and support level tendering procedures, have since been introduced in national support schemes. With the adoption of a revised Renewable Energy Directive in November 2018 and the upcoming adoption of a revised Electricity Market Regulation, both part of the "Clean Energy for all European" legislative package (Clean Energy Package)[9], the key principles of competitiveness, non-discrimination and cost-effectiveness set out in the EEAG principles will become the standard criteria for RES support schemes across Europe from 2021 onwards.

This report is considered timely given the imminent adoption of the Clean Energy Package, setting new rules for an improved internal market for electricity. All relevant issues for further promotion of RES across Europe, such as RES targets, the type of support and the procedures to set levels of support, access to the network, compensation levels in case of curtailments, level of balancing responsibilities, and consumer empowerment notably through self-consumption, are in the focus of this legislative package and therefore subject of this status review.

RES policies, including support for renewables, can affect consumers in a number of ways, notably through overall impacts on the electrical system (grid development, market integration, etc.). In most cases, the costs for achieving the agreed objectives will ultimately be borne by end-users, for example if the RES support is directly added to electricity bills. It is therefore also in the interest of consumers to achieve RES deployment in the most cost-effective manner. RES charges in 2016 and 2017 composed of 13% to 14% respectively of the electricity household bills, compared to 11% in 2014[10].

This report forms the latest update to the regular CEER Status Review of Renewable Energy Support Schemes in Europe and builds on the previous CEER reports.[11] The purpose of CEER Status Reviews is to collect comparable data on RES support in Europe in order to provide policy-makers, regulators and industry participants with information on support schemes for RES electricity, by technology and type of instrument (e.g. Feed-in tariffs (FITs), Feed-in premiums (FIPs) and Green Certificates (GCs)).

In September 2018, CEER Members, the national regulatory authorities for energy (NRAs), were asked to complete a questionnaire on national RES support schemes. The questionnaire consisted of a short description of their support scheme (type of support granted, type of financing scheme, level of market integration of RES producers and treatment of self-consumption) and of any recent or upcoming changes since the last review. Members were

[7] 28/2009/EC: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32009L0028
[8] 2014/C 200/01: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0628%2801%29
[9] https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans
[10] ACER-CEER Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2017.
[11] C10-SDE-19-04a, C12-SDE-33-03, C14-SDE-44-03 and C16-SDE-56-03; Previous reports also presented data on support schemes for energy efficiency measures. Since energy efficiency falls in the scope of responsibility of only a few National Regulatory Authorities, it has been convened to concentrate in this status review on the support for RES.

further asked to provide quantitative details on the amount of supported RES and the related expenditure by technology and support type. Members were also asked for separate details on new installations receiving support (those installed in either 2016 or 2017), although not all countries were able to provide this data. In addition to questions about direct financial support given to RES, members were asked about the indirect support, such as the level of priority granted for RES-sourced electricity plants when connecting and using the grid, as well as the charges these plants face when connecting and using the grid.

A total of 27 CEER Member countries[12], being either EU Member States (MS) or members of the wider European Economic Area (EEA), responded to the questionnaire (providing complete and partial responses)**.**

[12] The Slovenian NRA only provided data far beyond the final deadline therefore this couldn't be incorporated into the report. The provided data can however be found in Annex 29.

2 National RES Targets and Key Elements of National Support Schemes

With the year 2020 approaching, EU MS are reaching the end of the term of their national renewable energy action plans (NREAP), prepared in line with the Renewable Directive 28/2009/EC. According to Eurostat figures, 11 out of 28 MS have already reached their legally binding national targets for 2020 concerning the share of renewable energy within final energy consumption[13]. Regarding the EU-10% target for renewables within energy consumption in the transport sector, 26 MS are lagging behind their nationally set targets. The focus of most MS has been on the development of strategies for 2030 and beyond in order to set clear signals for investors. The revision of the Renewable Energy Directive and the new Governance Regulation[14] ask MS to contribute to a common European target of 32% renewable energy in final energy consumption by 2030. National energy and climate plans (NECPs) shall lay down the goals and measures of MS to contribute to the creation of the Energy Union. Draft NECPs have to be submitted to the European Commission by the end of 2018.

2.1 National Renewable Energy Targets

Despite the upcoming deadline for submitting the drafts of the NECPs, several European countries miss approved targets for beyond 2020. Out of the 27 responses to our questionnaire, most countries (18) have defined 2030 targets for renewable energy, either as an overall target, as a share of final energy consumption or as share in the electricity sector. Only 2 countries reported to have approved renewable energy targets for the heating and cooling sector, and 3 countries for the transport sector. Where countries have decided on a RES share for 2030, their commitment reached an average share of 34% within final energy consumption and an average share of 55% within electricity production for 2030. Countries that have decided on targets for 2030 have increased their commitment for RES for the overall energy share by on average 11 percentage points. In 10 countries the decision for targets beyond 2020 has not been made yet.

For further details regarding the RES targets by CEER Member countries, see Annex 3 of this report.

2.2 Support Instruments for Promoting RES Deployment

For the review period of 2016-2017, four types of support schemes[15] were mainly in place in Europe, namely:

- Feed-in tariffs (FITs);
- Feed-in premiums (FIPs);
- Green Certificates (GCs); and
- Investment grants.

For each support scheme, the level of support (or the quota obligation in the case of green certificates schemes) may be either set through administrative procedures or through tendering procedures.

[13] European Commission, EU energy in figures – statistical pocketbook 2018, p. 27
[14] Formal adoption by the Parliament on 13 November 2018. Formal approval by Council of Ministers and publication in the Official Journal of the Union outstanding. The new legislation will enter into force 3 days after publication.
[15] The characteristics of the main support schemes implemented in Europe have been described in more details in CEER report C15-SDE-49-03.

Table 1 provides an overview of the support schemes by technology which are in place in CEER Member countries. Only the instruments which were detailed by CEER members are included here. For further details regarding the respective national schemes, see Annexes 12 and 29 of this report.

CEER member	Type of support	Process determining the level of support or the quota	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro-power	Duration of support (years)
Austria	Feed-in Tariff	Administrative procedures	✓	✓		✓	✓	13 to 15
	Investment grant	Administrative procedures	✓				✓	N/A
Belgium	Green certificates	Administrative procedures	✓	✓		✓	✓	10 to 20
	Feed-in Premium	Administrative procedures	✓	✓	✓	✓	✓	
Bulgaria	Feed-in Premium	Administrative procedures	✓	✓		✓	✓	12 to 20
Croatia	Feed-in Tariff	Tendering procedures	✓	✓		✓	✓	14
	Feed-in Premium	Tendering procedures	✓	✓		✓	✓	
Cyprus	Investment grant	Administrative procedures	✓					N/A
Czech Republic	Feed-in Tariff	Administrative procedures	✓	✓		✓	✓	20 to 30
	Feed-in Premium	Administrative procedures	✓	✓		✓	✓	
Denmark	Feed-in Premium	Tendering procedures	✓	✓	✓			-
	Feed-in Tariff	Administrative procedures					✓	
	Feed-in Premium	Administrative				✓		

CEER member	Type of support	Process determining the level of support or the quota	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro-power	Duration of support (years)
		procedures						
Estonia	Feed-in Tariff	Administrative procedures	✓	✓		✓	✓	12
Finland	Feed-in Tariff	Administrative procedures		✓	✓	✓		12
	Feed-in Premium	Administrative procedures				✓		
	Investment grant	Administrative procedures	✓				✓	
France	Feed-in Tariff	Tendering procedures	✓					10 to 20
	Feed-in Premium	Tendering procedures	✓	✓	✓	✓	✓	
	Feed-in Tariff	Administrative procedures	✓			✓	✓	
	Feed-in Premium	Administrative procedures		✓		✓	✓	
Germany	Feed-in Premium	Tendering procedures	✓	✓	✓	✓		20
	Feed-in Tariff	Administrative procedures	✓	✓		✓	✓	
	Feed-in Premium	Administrative procedures	✓	✓		✓	✓	
Greece	Feed-in Tariff	Tendering procedures	✓	✓				20 to 25
	Feed-in Premium	Tendering procedures	✓	✓				
	Feed-in Tariff	Administrative procedures	✓	✓	✓	✓	✓	

CEER member	Type of support	Process determining the level of support or the quota	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro-power	Duration of support (years)
	Feed-in Premium	Administrative procedures	✓	✓	✓	✓	✓	
Hungary	Feed-in Premium	Tendering procedures	✓	✓		✓	✓	5 to 25
	Feed-in Tariff	Administrative procedures	✓	✓		✓	✓	
	Feed-in Premium	Administrative procedures	✓			✓	✓	
Ireland	Green certificates	Administrative procedures		✓	✓	✓	✓	15
Italy	Feed-in Premium	Tendering procedures		✓	✓	✓	✓	15 to 25
	Feed-in Tariff	Administrative procedures	✓	✓	✓	✓	✓	
	Feed-in Premium	Administrative procedures	✓	✓	✓	✓	✓	
Latvia	Feed-in Tariff	Administrative procedures	✓	✓	✓	✓	✓	20
Lithuania	Feed-in Tariff	Tendering procedures	✓	✓		✓	✓	12
Luxembourg	Feed-in Premium	Tendering procedures	✓					15
	Feed-in Tariff	Administrative procedures	✓	✓		✓	✓	
	Feed-in Premium	Administrative procedures		✓		✓	✓	
Malta	Feed-in Premium	Tendering procedures	✓	✓				6 to 20
	Feed-in Tariff	Administrative	✓					

CEER member	Type of support	Process determining the level of support or the quota procedures	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro-power	Duration of support (years)
Netherlands	Feed-in Premium	Tendering procedures	✓	✓	✓	✓	✓	8 to 15
Norway	Green certificates	Administrative procedures	✓	✓	✓	✓	✓	15
Poland	Feed-in Premium	Tendering procedures	✓	✓	✓	✓	✓	15
Portugal	Feed-in Tariff	Administrative procedures	✓	✓	✓	✓	✓	15 to 25
Romania	Green certificates	Administrative procedures	✓	✓		✓	✓	15
Spain	Investment grant	Tendering procedures	✓	✓		✓	✓	20 to 30
Sweden	Green certificates	Administrative procedures	✓	✓	✓	✓	✓	15
	Investment grant	Administrative procedures	✓					
UK	Feed-in Tariff	Administrative procedures	✓	✓		✓	✓	10 to 20
	Feed-in Premium (contract for differences)	Tendering procedures	✓	✓	✓	✓	✓	
	Green certificates	Administrative procedures	✓	✓	✓	✓	✓	

Table 1: Overview of national support schemes in place by RES technologies in 2016 and 2017

In the review period 2016-2017 FIP schemes (16 out of 27 Member countries) have increasingly complemented FIT schemes as support throughout RES technologies in Europe, compared to six Member countries that introduced FIPs for the 2014-2015 review period of the previous Status Review. This trend is consistent with the progressive implementation of EEAG rules. For 2016-2017, FIT schemes (17 out of 27 Member countries) remain widely used across CEER members, especially for smaller sized installations. GC schemes are implemented in six countries (Belgium, Ireland, Norway, Romania, Sweden and UK) although they are being phased out in the UK. Investment grants are used in Austria (for PV and hydropower), Cyprus (for PV), Finland (for PV and hydropower), Spain (for all supported RES) and Sweden (for PV). It can further be observed that in 15 out of 27 Member countries, two or more support systems co-exist, often combining FIT and FIP schemes.

In addition, FIT schemes and investment grants set through administrative procedures often remain in place for smaller installations (e.g. RES plants < 30 kW in Croatia, < 100 kW in Germany or < 500 kW in France), while FIP schemes set through competitive procedures are becoming mandatory for new larger installations (see recent changes in Annex 5 and more information on the schemes in Annex 11).

In terms of technology supported, it appears that PV, onshore wind, bioenergy[16] and hydropower are the most widely supported RES. The support of other renewable energies such as offshore wind is limited to countries with a coastline.

As for the duration of support, almost half of the respondents grant operational support for 8 to 15 years (12 out of 27), while Belgium, Bulgaria, France, Germany, Malta and the UK have support ranging from 6 to 20-years. Only few respondents grant support for more than 20 years (Czech Republic, Greece, Hungary, Italy, Portugal, Spain). The shortest support period is 5 years (Hungary). The support duration can vary between schemes and technologies.

Member countries modify their renewable energy support schemes in order to achieve renewable energy deployment in a cost-effective way. In recent years alterations in support schemes were very much motivated by the provisions of the EEAG guidelines. Since the last RES Status Review on 2015 data, 14 responding countries reported changes in their support schemes. The other 13 countries reported no changes.

Countries that reported changes in their support schemes mostly modified the way how support levels are being determined (13 responses), which shows a move from administratively determined tariffs to support levels being determined in competitive procedures. 10 countries reported changes also in the market integration of renewables, which mainly refers to additionally introducing FIPs, which require supported renewable electricity to be sold directly based on marketed based principles and extending balancing responsibilities to certain renewable energy producers. Compared to the last RES Status Review, 3 countries changed the way of financing of their RES support schemes.

[16] Bioenergy is encompassing biogases and solid biomass.

Modifications of the support schemes will follow, mainly as a consequence of the EEAG guidelines. 9 countries reported to plan significant changes for the period after 2017, for which in some countries the legislative framework has already been approved. For example, in Denmark tendering procedures became the main form of determining support levels as of 2018. In Finland, the deadline for accepting biogas and small-scale wood-burning power plants to the FIT system is the 31st of December 2018. Technology neutral tenders for Finnish RES electricity are planned by the end of 2018. Hungary and Ireland plan to introduce the first auction to determine the support levels in 2019 (see Annex 6 for more information).

Other planned modifications – due to reasons other than the provisions of the EEAG – include for example changing the FIT prices and eligibility criteria for support in Luxembourg or preparing a framework for communities' participation in renewable energy projects in Ireland.

3 Renewable Electricity Volumes Receiving Financial Support

3.1 Financial Support by Type of RES Technology

The supported renewable electricity production for 2016 and 2017 is shown in Table 2 and Table 3. As in previous RES Status Reviews, various sources of biomass and biogas are subsumed under the category bioenergy to ensure comparability across countries. Although more and more supported installations reach the end of their support-time and some new installations are built without receiving any support, total supported renewable electricity rose from 538 TWh in 2016 to 603 TWh in 2017.

In addition to Table 2 and 3, Belgium provide federal data for offshore wind, which is compared to the last review around 20% to 30% of total installed capacity. For 2017 offshore wind with 878 MW was supported via a quota system based on GCs whereas 2,9 TWh of offshore wind was supported with € 295 million. In 2016 713 MW produced 2,4 TWh electricity which were supported with € 250 million.

Country	Bioenergy	Geothermal energy	Hydropower	Solar	Wind energy - Onshore	Wind energy - Offshore	Others	Total [MWh]
Austria	2.565.542	209	1.772.219	500.538	4.931.805	-	-	**9.770.312**
Belgium	-	-	-	-	-	-	-	**-**
Bulgaria	-	-	-	-	-	-	-	**-**
Croatia	388.155	-	16.768	61.448	1.018.783	-	-	**1.485.155**
Cyprus	36.606	-	-	93.330	226.271	-	-	**356.207**
Czech Republic	4.132.566	-	1.005.004	2.099.518	488.038	-	-	**7.725.126**
Denmark	3.836.315	-	-	239.799	7.389.216	4.361.913	3.498.548	**19.325.791**
Estonia	661.711	-	21.758	2.665	517.909	-	-	**1.204.043**
Finland	2.033.104	-	-	-	2.316.007	-	-	**4.349.111**
France	4.312.778	3.854	5.635.516	7.900.232	20.875.679	-	-	**38.728.059**
Germany	42.437.189	174.679	5.917.403	34.483.528	66.309.901	12.092.421	-	**161.415.121**
Greece	253.000	-	722.000	3.930.000	5.146.000	-	-	**10.051.000**
Hungary	1.418.836	-	245.045	42.148	649.666	-	-	**2.355.695**
Ireland	661.192	-	12.016	-	612.284	6.348.988	-	**7.634.480**
Italy	16.036.610	1.829.710	10.032.896	20.708.552	16.348.377	-	-	**64.956.145**
Latvia	679.316	-	77.824	-	115.848	-	-	**872.988**
Lithuania	359.167	-	85.174	66.046	1.005.479	-	-	**1.515.865**
Luxembourg	89.508	-	7.806	99.100	81.742	-	-	**278.156**
Malta	-	-	-	114.946	-	-	-	**114.946**
Netherlands	5.905.000	790.000	-	287.000	3.575.000	2.200.000	-	**12.757.000**
Norway	-	-	4.600.000	-	360.000	-	-	**4.960.000**
Poland	5.624.769	-	779.467	82.624	12.492.134	-	1.194.468	**20.173.462**
Portugal	1.438.121	-	1.330.672	503.809	12.129.840	159	1.842.372	**17.244.974**
Romania	500.554	-	1.025.114	1.600.780	5.608.725	-	-	**8.735.173**
Slovakia	-	-	-	-	-	-	-	**-**
Slovenia	-	-	-	-	-	-	-	**-**
Spain	4.516.000	-	2.421.000	12.973.000	34.979.000	-	-	**54.889.000**
Sweden	4.569.315	-	1.463.556	45.639	14.339.759	600.000	-	**21.018.269**
United Kingdom	22.274.931	-	2.365.557	5.656.606	18.889.697	16.424.390	9	**65.611.190**
Total	**124.730.287**	**2.798.452**	**39.536.796**	**91.491.307**	**230.407.160**	**42.027.871**	**6.535.397**	**537.527.270**

Table 2: Total renewable electricity produced that received support in 2016, by MS and technology, in [MWh]

Country	Bioenergy	Geothermal energy	Hydropower	Solar	Wind energy - Onshore	Wind energy - Offshore	Others	Total [MWh]
Austria	2.582.736	76	1.624.634	574.295	5.745.938	-	-	**10.527.679**
Belgium	-	-	-	-	-	-	-	**-**
Bulgaria	-	-	-	-	-	-	-	**-**
Croatia	464.750	-	15.867	73.996	1.178.211	-	-	**1.732.824**
Cyprus	36.496	-	-	109.990	211.019	-	-	**357.505**
Czech Republic	4.287.323	-	1.200.253	2.156.069	580.943	-	-	**8.224.588**
Denmark	5.004.648	-	-	348.557	8.798.048	4.808.052	3.511.470	**22.470.775**
Estonia	809.927	-	16.196	6.088	562.731	-	-	**1.394.942**
Finland	1.573.717	-	-	-	3.963.650	-	-	**5.537.367**
France	4.544.822	7.740	4.723.766	8.766.843	23.961.174	-	-	**42.004.345**
Germany	42.365.117	162.549	5.751.338	35.416.014	86.279.253	17.414.021	-	**187.388.291**
Greece	280.300	-	586.000	3.991.500	5.515.400	-	-	**10.373.200**
Hungary	1.419.615	-	207.459	70.788	700.866	-	-	**2.398.728**
Ireland	2.223.480	-	14.460	-	765.144	8.600.024	-	**11.603.108**
Italy	15.527.401	1.835.033	8.538.382	22.085.841	16.089.459	-	-	**64.076.116**
Latvia	782.058	-	96.324	-	135.206	-	-	**1.013.588**
Lithuania	388.607	-	106.815	65.299	1.330.797	-	-	**1.891.518**
Luxembourg	118.821	-	4.452	107.011	226.860	-	-	**457.144**
Malta	-	-	-	129.700	-	-	-	**129.700**
Netherlands	5.633.000	196.000	-	487.000	3.805.000	3.386.000	-	**13.507.000**
Norway	-	-	6.360.000	-	690.000	-	-	**7.050.000**
Poland	4.381.621	-	781.393	82.281	14.921.469	-	1.000.566	**21.167.330**
Portugal	1.036.439	-	611.568	540.368	11.943.204	-	1.913.898	**16.045.476**
Romania	453.411	-	854.861	1.702.270	6.357.586	-	-	**9.368.128**
Slovakia	-	-	-	-	-	-	-	**-**
Slovenia	-	-	-	-	-	-	-	**-**
Spain	4.864.000	-	1.521.000	13.627.000	47.593.000	-	-	**67.605.000**
Sweden	5.313.388	-	1.636.463	74.295	16.438.771	600.000	-	**24.062.917**
United Kingdom	18.942.148	-	2.431.215	6.556.381	26.258.061	18.883.386	4.204	**73.075.395**
Total	**123.033.825**	**2.201.397**	**37.082.445**	**96.971.585**	**284.051.790**	**53.691.482**	**6.430.138**	**603.462.662**

Table 3: Total renewable electricity produced that received support in 2017, by MS and technology, in [MWh]

In Figure 1 and Figure 2, the development of the supported total renewable electricity is shown in TWh and the percentage change from 2016 in 2017. Because of the broad range of total renewable electricity receiving support, Figure 1 covers countries with supported total renewable electricity above 10 TWh in 2017 and Figure 2 depicts countries below 10 TWh of supported total renewable electricity.

Germany had the biggest overall increase by 26 TWh from 2016 to 2017 (+16%). The second biggest increase was reported by Spain with an additional 13 TWh. Two countries (Portugal and Italy) reported declining numbers regarding supported renewable electricity. In both countries this number declined by around 1 TWh in 2017 and for both a decline in mainly supported hydropower and bioenergy can be observed. At this point it should be highlighted that this report is based on a snapshot. For fluctuating renewables like wind, PV and hydropower, the output depends on varying meteorological and hydrological conditions. In general, a normalised production profile would provide a deeper insight, but this kind of analysis is beyond the scope of this report. Installed capacity is part of the questionnaire and reported data can be found in Annex 29.

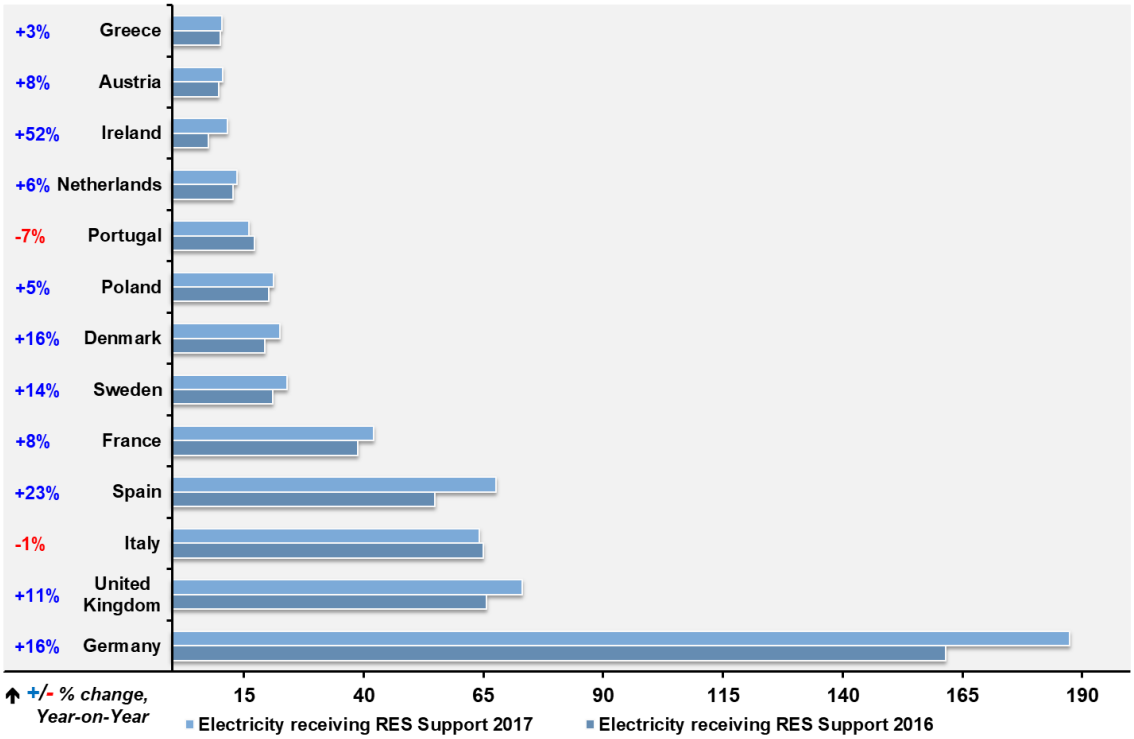

Figure 1: Total RES-originated electricity receiving support by MS, 2016 & 2017 (in [TWh] and variation YoY [%], MS and above 10 TWh)

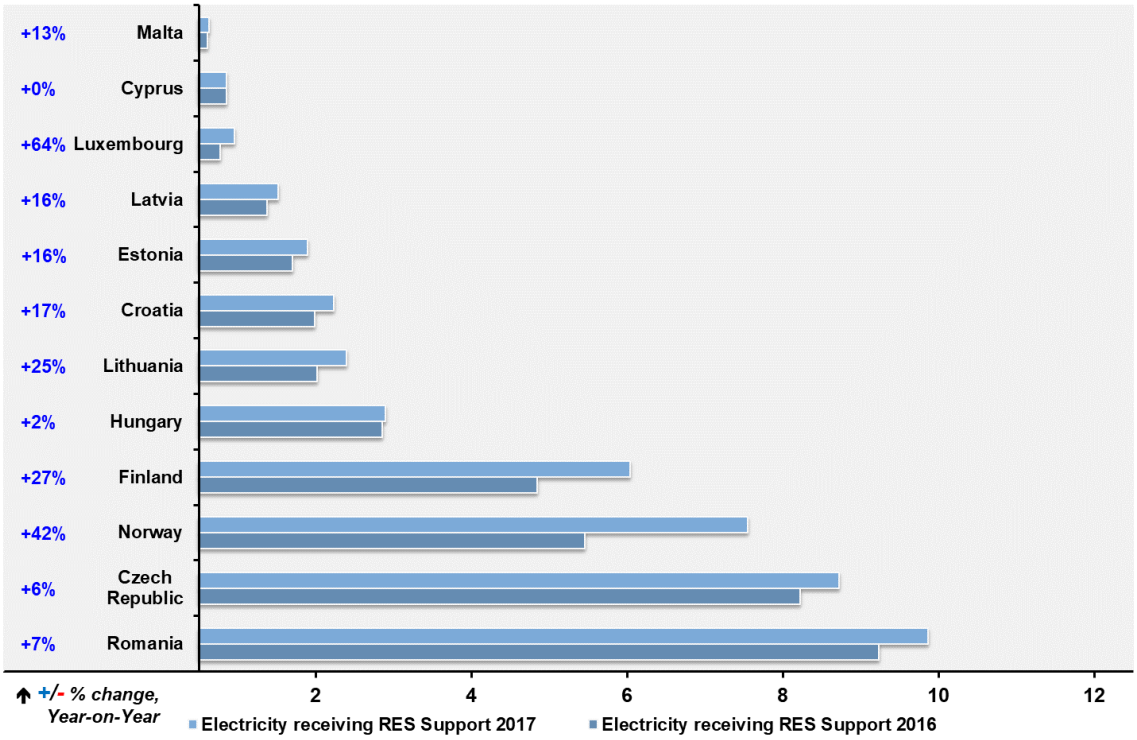

Figure 2: Total RES-originated electricity receiving support by MS, 2016 & 2017 (in [TWh] and variation YoY [%], MS and below 10 TWh)

3.2 Share of Supported Renewable Electricity in 2016

Table 4 shows the proportion of total gross electricity produced that received renewables support in 2016. The reference year is 2016 since it reflects the lasted available data for gross electricity produced. Overall the share of RES electricity receiving support increased from 15,5% in 2014 to 16,7% in 2016, although the gross electricity produced also increased.

Country	Electricity receiving RES Support 2016	Gross elec. produced 2016	Elec. receiving support over gross 2016
Austria	9,770	68,351	+14,3%
Belgium	-	85,52	-
Bulgaria	-	45,277	-
Croatia	1,485	12,82	+11,6%
Cyprus	0,356	4,887	+7,3%
Czech Republic	7,725	83,309	+9,3%
Denmark	19,326	30,522	+63,3%
Estonia	1,204	12,176	+9,9%
Finland	4,349	68,752	+6,3%
France	38,728	556,184	+7,0%
Germany	161,415	649,119	+24,9%
Greece	10,051	51,405	+19,6%
Hungary	2,356	31,859	+7,4%
Ireland	7,634	26,087	+29,3%
Italy	64,956	289,768	+22,4%
Latvia	0,873	6,425	+13,6%
Lithuania	1,516	4,266	+35,5%
Luxembourg	0,278	2,196	+12,7%
Malta	0,115	0,856	+13,4%
Netherlands	12,757	115,17	+11,1%
Norway	4,960	149,633	+3,3%
Poland	20,173	166,635	+12,1%
Portugal	17,245	60,28	+28,6%
Romania	8,735	65,103	+13,4%
Slovakia	-	27,064	-
Slovenia	-	16,5	-
Spain	54,889	274,779	+20,0%
Sweden	21,018	156,01	+13,5%
United Kingdom	65,611	339,399	+19,3%
Total	**537,527**	**3.400,352**	**+16,7%**

Table 4: Share of total electricity produced receiving RES support in 2016 (TWh)

Figure 3 is based on data from Table 4 and as in the last review, Denmark still has by far the biggest share of total gross electricity produced that receives support with 63%. Denmark is followed by Lithuania, which experienced an increase of RES-originated electricity receiving support, whilst the gross electricity production declined. On the other end, Norway still has the smallest share of RES-originated electricity receiving support compared to gross electricity produced with only 3%.

It is important to note once more that the share of supported RES electricity is not an indicator for the overall share of RES electricity in a country. Especially countries such as Austria or Norway, who have a high number of installed hydropower capacity. Because of the long lifetime of this type of RES installations, they might have received support in the past for which support times have already expired. This type of installation doesn't show up in this review because the produced electricity isn't supported anymore. However, they still contribute to the overall RES electricity produced. Further, new RES capacity may be installed without any support, which also isn't covered by this report.

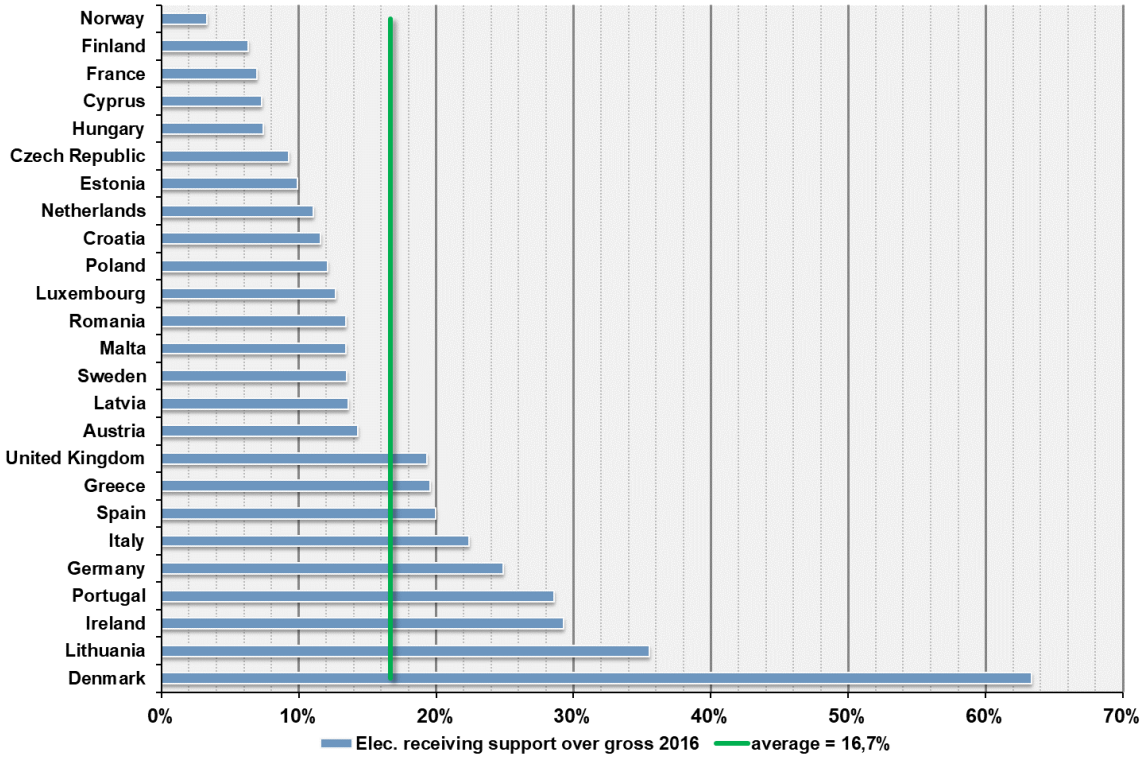

Figure 3: Share of total electricity receiving RES support in 2016

4 Expenditure on RES Support Schemes

4.1 Financing of RES Support Schemes 2016-2017

In principle there are two main approaches to the funding of RES support schemes, either through general taxation or through non-tax levies paid via the electricity bill by some or all electricity consumers. According to our survey and as displayed in Table 5 below, most countries fund their RES support schemes through non-tax levies (21 out of 27 responses). In those countries with a non-tax levy, there are a number of different mechanisms for determining the levy. In 5 cases the government determines the levy and in another 7 cases the regulator determines the value of the levy. In Denmark, Germany, and Hungary levies are set by the TSOs, whereas in Sweden levies are set by the electricity supplier.

Funds for the support costs can be collected by general taxation paid by all citizens (4 responding countries), as is the case in Denmark, Finland, Luxembourg, and Malta. It is also possible to finance the RES support directly through the state budget, like in Finland. In France, the latter has also been imposed in 2016 through the taxation of fossil fuels, where the financing is decided on each year by the Parliament through a Finance Law.

25 countries reported that no changes in the way of financing RES support occurred in 2016 and 2017. Modifications have been made notably in France (see above) and Denmark (general taxation has been added to the non-tax levy).

CEER member	No changes*	General taxation paid by all citizens	Non-tax levies paid by some or all customers via the electricity bill	Other - specify
Austria	x			
Belgium	x		x	For Flemish and Walloon region: No changes after 2015 For offshore: C. Non-tax levies paid by some or all customers via the electricity bill.
Bulgaria	x		x	
Croatia	x			
Cyprus	x		x	
Czech Republic	x		x	State budget funds for providing subsidies to cover the operating support costs for electricity
Denmark		x	x	
Estonia	x		x	
Finland	x			State budget
France				Since January 2016, renewables support falls under the general State budget, through a dedicated purpose fund – the financing of which being decided each year by the Parliament through a Finance Law (currently, internal taxes on fossil fuels).
Germany	x		x	

CEER member	No changes*	General taxation paid by all citizens	Non-tax levies paid by some or all customers via the electricity bill	Other - specify
Greece	x		x	
Hungary	x		x	Electricity consumers who are not entitled to universal services (mainly business enterprises) bear the burden of renewable energy support.
Ireland	x		x	
Italy	x		x	
Latvia	x		x	
Lithuania	x			
Luxembourg	x	x	x	The scheme is mainly funded by a levy, but the government adds a certain amount from the general budget.
Malta	x	x		
Netherlands	x		x	
Norway	x		x	
Poland	x		x	
Portugal	x		x	
Romania	x		x	
Spain	x		x	
Sweden	x		x	
UK	x		x	

** The last Status Review covered all changes up to 2015. In this review, participants were asked to identify any changes since then. See also Annex 7 for more information.*

Table 5: Overview of ways of financing RES electricity support schemes

Often there are exemptions (partial or full) to the financing contributions, which may increase the financial burden for non-exempted consumers. Most countries do apply one or more types of exemptions, e.g. for energy intensive industries as a means of preserving their international competitiveness (12 countries out of 27) or for self-generated electricity from RES or conventional power plants consumed on site (9 out of 27). In three countries network losses are exempted. Other possibilities include the partial or full exemption of low-income households (Austria), households and small enterprises (Hungary), captive users (Latvia) or electricity consumers that have agreed to certain energy efficiency improvements (Netherlands). Exemptions are further described in Annex 9 and Annex 10.

The number of countries applying exemptions increased since the last report.

In some cases where the costs for RES support are socialised through the state budget (e.g. Malta), no explicit exemptions scheme for different categories of electricity consumers are in place. Ireland, Spain and Cyprus apply non-tax levy schemes without exempting any consumers from bearing the burden of financing RES support.

4.2 Costs for RES Support by Type of Technologies

In Table 6 and Figure 4 the cost of RES support across countries are compared. The methodology is the same as in the last review – the overall expenditure for supported renewable electricity was divided by gross electricity produced[17]. The intention is to show the scale of supported renewables compared to the overall size of the electricity market. Table 6 does not show support levels for renewables; these are shown in Annex 29.

Generally, those countries with higher penetration of supported renewables (as shown in Table 4) have higher RES electricity support per unit of gross electricity produced. RES electricity support expenditure per unit of gross electricity produced ranged from 0,55 for Norway to 37,67 €/MWh for Germany, with a weighted average support of 17,60 €/MWh in 2016.

Country	RES elec. support expenditure 2016 [M€]	Gross elec. produced 2016 [TWh]	RES support per unit of gross elec. 2016 [€/MWh]
Austria	730	68,351	10,68
Belgium	-	85,520	-
Bulgaria	-	45,277	-
Croatia	122	12,820	9,48
Cyprus	62	4,887	12,59
Czech Republic	1.524	83,309	18,30
Denmark	948	30,522	31,06
Estonia	25	12,176	2,04
Finland	172	68,752	2,50
France	4.085	556,184	7,34
Germany	24.450	649,119	37,67
Greece	1.298	51,405	25,25
Hungary	163	31,859	5,13
Ireland	496	26,087	19,02
Italy	10.555	289,768	36,43
Latvia	92	6,425	14,25
Lithuania	89	4,266	20,87
Luxembourg	49	2,196	22,22
Malta	14	0,856	16,76
Netherlands	472	115,170	4,09
Norway	82	149,633	0,55
Poland	586	166,635	3,52
Portugal	1.101	60,280	18,26
Romania	358	65,103	5,49
Slovakia	-	27,064	-
Slovenia	-	16,500	-
Spain	5.356	274,779	19,49
Sweden	363	156,010	2,33
United Kingdom	3.576	339,399	10,54
Total	**56.767**	**3.400,352**	**17,60**

Table 6: RES electricity support per unit of gross electricity produced in 2016, in [€/MWh]

[17] Source Eurostat:
https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=ten00087

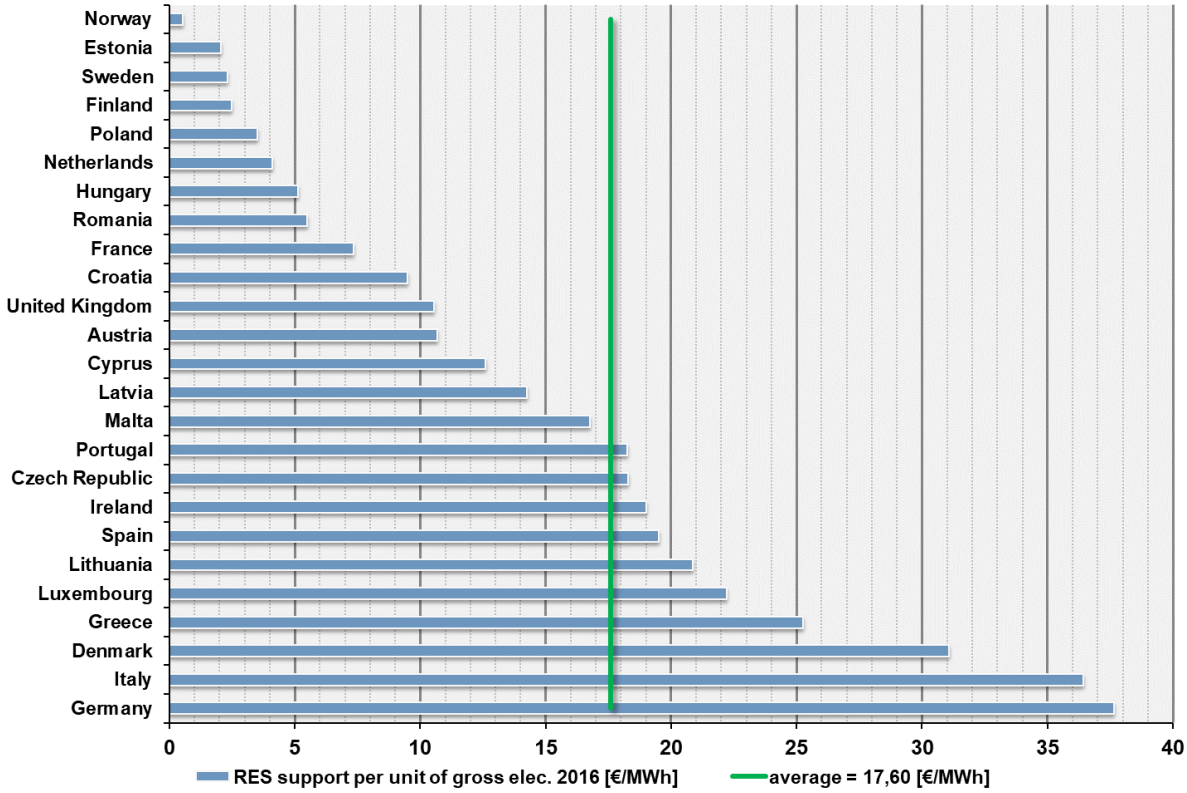

Figure 4: RES electricity support per unit of gross electricity produced in 2016, in [€/MWh]

Table 7 and Table 8 present the latest available data regarding the overall support system of each country. One has to take into account that they present not only the current (2016 and 2017) support system itself but also reflect all the changes up to 2016 and 2017. The tables show an average support level per country and unit support levels. For support systems with feed in tariffs the level of subsidy was calculated by subtracting the average wholesale electricity price from the paid-out tariff. In Figure 5 the used average wholesale electricity price is shown. There are various options to calculate a market price and there are various options to evaluate the market value of supported renewables. The values displayed are for transparency purpose only and on national levels different definitions and calculations for average wholesale electricity prices can exist.

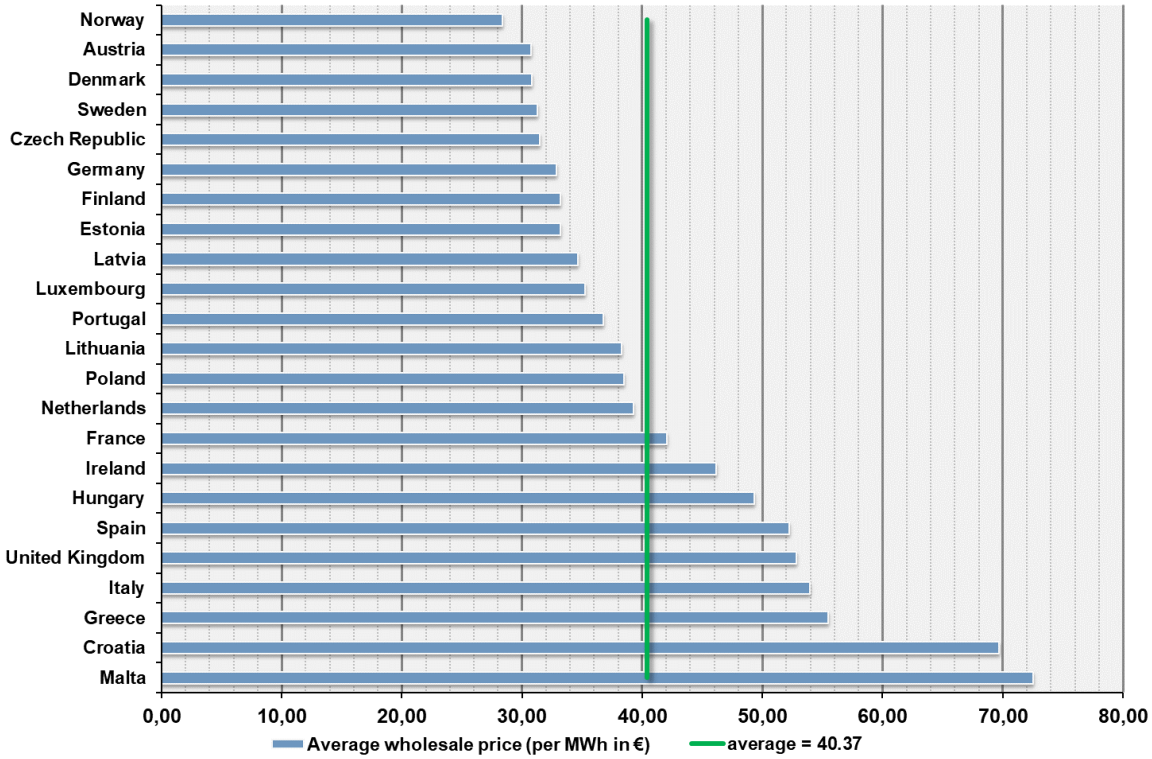

Figure 5: Average wholesale price used for calculations in 2017, in [€/MWh]

In the case of investment grants for Austria, Malta or Sweden, the effect of the grant – if possible - was calculated over the volume of electricity that would be generated by the installation over the lifetime of the grant. As seen in the case of solar for Sweden, this can lead to very high average support levels depending on which parameters regarding lifetime are used. For other countries that use investment grants to support renewables (e.g. Finland) it was not possible to spread the costs across the relevant MWh in this way and therefore the effect of investment grants in these countries is not shown within the following tables.

Where different support schemes are in place for the same technology in one country and separate cost data was available, a weighted average incentive was calculated using the energy supported for each instrument as the weighting. A breakdown by both technology and scheme type can be found in Annex 29.

It should be noted that there are also administrative costs associated with RES support schemes, but these costs are not reflected in the data provided in this report. Therefore, total expenditures for RES support schemes are in general slightly higher.

As can be seen in the below tables, support levels varied widely across countries and across different technologies in 2017, with values ranging from e.g. approximately 3 €/MWh for geothermal in Austria to somewhere between 200 and 300 €/MWh for the strongest supported technologies which typically still is solar. Although the prices for new installations declined significantly, the average support levels are still high because of carry-over of old installations which were supported with levels above 600 €/MWh and more.

The weighted average support level slightly declined from 110,43 €/MWh in 2014 to 110,22 €/MWh in 2015. Comparing those numbers to 2017 it further declined to 96,29 €/MWh. The support levels didn't decline in all countries and all technologies, but in most countries financial support levels for new renewable capacity has been lower than already supported or old plants that were substituted by new ones. Especially the support levels for solar and wind energy onshore contributed to the further decline.

Country	Bioenergy	Geothermal energy	Hydropower	Solar	Wind energy - Onshore	Wind energy - Offshore	Others	Total [€/MWh]
Austria	112,73	6,16	19,88	238,32	58,09	-	-	**74,74**
Croatia	123,43	-	80,93	223,88	57,48	-	-	**81,86**
Cyprus	125,00	-	-	208,00	166,00	-	-	**172,79**
Czech Republic	103,79	-	76,85	465,20	84,87	-	-	**197,31**
Denmark	36,04	-	-	147,57	27,44	67,67	79,05	**49,06**
Estonia	20,64	-	20,64	20,64	20,64	-	-	**20,64**
Finland	17,70	-	-	-	58,63	-	-	**39,49**
France	98,10	190,45	37,42	309,75	48,05	-	-	**105,48**
Germany	157,54	220,73	66,19	313,62	68,95	161,05	-	**151,48**
Greece	70,08	-	40,68	260,01	44,48	-	-	**129,12**
Hungary	72,86	-	33,99	67,18	75,29	-	-	**69,39**
Ireland	52,59	-	54,95	-	36,66	69,05	-	**65,01**
Italy	151,09	74,73	98,95	286,90	96,60	-	-	**162,49**
Latvia	106,31	-	143,32	-	70,47	-	-	**104,85**
Lithuania	51,40	-	33,51	322,95	46,14	-	-	**58,74**
Luxembourg	132,32	-	267,14	287,12	78,48	-	-	**175,43**
Malta	-	-	-	124,80	-	-	-	**124,80**
Netherlands	22,29	-10,93	-	68,51	26,09	107,10	-	**36,96**
Norway	-	-	16,63	-	16,63	-	-	**16,63**
Poland	29,03	-	29,03	29,03	29,03	-	29,03	**29,03**
Portugal	69,63	-	58,48	259,74	56,48	132,83	58,06	**63,84**
Romania	40,93	-	40,93	40,93	40,93	-	-	**40,93**
Spain	69,09	-	32,22	286,06	35,88	-	-	**97,58**
Sweden	16,40	-	16,40	421,38	16,40	16,40	-	**17,28**
United Kingdom	54,50	-	54,50	54,50	54,50	54,50	54,50	**54,50**
Max. support	**157,54**	**220,73**	**267,14**	**465,20**	**166,00**	**161,05**	**79,05**	**197,31**
Min. support	**16,40**	**6,16**	**16,40**	**20,64**	**16,40**	**16,40**	**29,03**	**16,63**
Weighted average across 25 Member States								**105,61**
Arithmetic average across 25 Member States								**85,58**

Table 7: Weighted average support level in 2016, in [€/MWh]

Country	Bioenergy	Geothermal energy	Hydropower	Solar	Wind energy - Onshore	Wind energy - Offshore	Others	Total [€/MWh]
Austria	108,05	2,87	21,08	218,95	60,60	-	-	**74,78**
Croatia	100,73	-	59,49	189,05	29,74	-	-	**55,86**
Cyprus	125,00	-	-	208,00	166,00	-	-	**174,74**
Czech Republic	104,95	-	80,68	479,37	86,95	-	-	**198,29**
Denmark	35,74	-	-	94,97	26,06	65,33	70,89	**44,69**
Estonia	20,50	-	20,50	20,50	20,50	-	-	**20,50**
Finland	19,36	-	-	-	49,23	-	-	**40,74**
France	100,90	173,90	32,88	288,03	46,05	-	-	**101,03**
Germany	154,27	215,90	30,54	264,41	64,71	159,07	-	**131,53**
Greece	76,81	-	32,51	252,06	36,81	-	-	**120,48**
Hungary	62,03	-	18,86	52,78	62,05	-	-	**58,03**
Ireland	53,67	-	51,82	-	36,45	33,70	-	**37,73**
Italy	152,90	77,40	96,39	285,27	100,54	-	-	**167,14**
Latvia	122,72	-	137,41	-	72,71	-	-	**117,44**
Lithuania	55,48	-	36,99	326,48	45,00	-	-	**56,42**
Luxembourg	97,95	-	68,83	259,49	58,18	-	-	**115,75**
Malta	-	-	-	168,34	-	-	-	**168,34**
Netherlands	18,64	-11,18	-	63,92	15,16	66,15	-	**30,77**
Norway	-	-	12,87	-	12,87	-	-	**12,87**
Poland	17,30	-	17,30	17,30	17,30	-	17,30	**17,30**
Portugal	52,40	-	43,03	247,92	42,73	-	45,36	**50,59**
Romania	45,08	-	45,08	45,08	45,08	-	-	**45,08**
Spain	71,96	-	47,99	279,89	30,95	-	-	**84,46**
Sweden	12,87	-	12,87	529,53	12,87	12,87	-	**14,46**
United Kingdom	51,76	-	51,76	51,76	51,76	51,76	51,76	**51,76**
Max. support	**154,27**	**215,90**	**137,41**	**529,53**	**166,00**	**159,07**	**70,89**	**198,29**
Min. support	**12,87**	**2,87**	**12,87**	**17,30**	**12,87**	**12,87**	**17,30**	**12,87**
Weighted average across 25 Member States								**96,29**
Arithmetic average across 25 Member States								**79,63**

Table 8: Weighted average support level in 2017, by technology, in [€/MWh]

Figure 6 shows the development of the weighted average support per country. As stated before, the weighted average support is declining. On country-level different developments can be observed, due to various effects that come into play. A higher average wholesale price will result in lower support levels in systems with feed in tariffs or variable premiums. Fluctuating full load hours can also result in lower or higher overall support payments as can a fluctuating pace of development. One also has to keep in mind that different support-times also influence the average support levels. The longer the support-times, the lower the annual average support levels are. However, this doesn't necessarily imply a lower total support volume over the full support period.

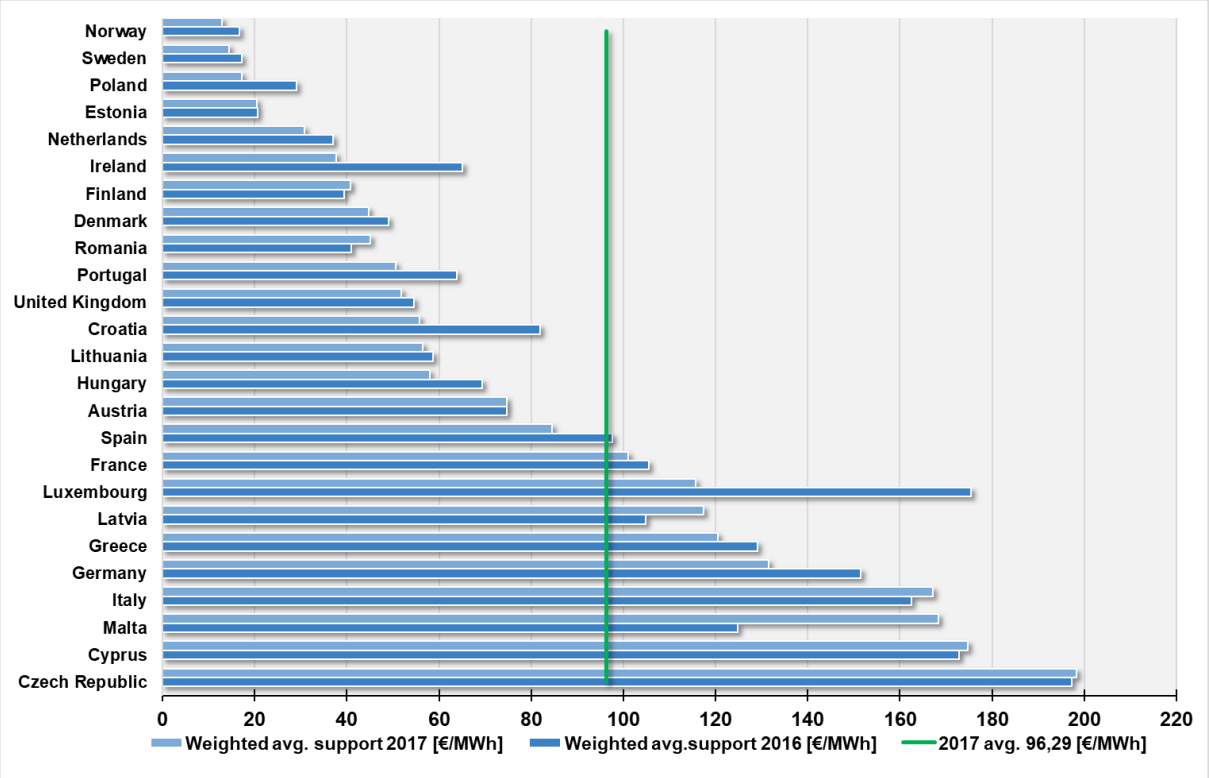

Figure 6: Weighted average support level in 2016 and 2017, by country, in [€/MWh]

4.3 Support Costs for New Installations

Member countries were asked to provide data on new installations for 2016 and 2017. As in previous years, only a few could provide this kind of data. There are various reasons for that, from some NRAs which aren't involved in RES support systems to other NRAs which only have partial information. Nevertheless, Annex 28 is an analysis based on the information received and the provided data is also displayed in this Annex.

5 Market Integration of Renewables

CEER Member countries have continuously adapted their support schemes to comply with the requirements set out in the EEAG published in July 2014, notably those related to enhancing market integration of RES. The transition towards market integration enhancing features such as Feed-in Premium or Contract for Differences as well as balancing responsibilities for RES producer could already be observed in the last review period and is still ongoing for the period 2016-2017 covered by this status review. As shown in Annex 4, 9 CEER Member countries (Croatia, Cyprus, Denmark, France, Greece, Hungary, Italy, Luxembourg and the UK) have indicated having introduced major changes to their support schemes with respect to the market integration of RES.

As shown in Figure 7 below, balancing responsibility for RES producers is by mid-2018 a feature of support schemes in 18 CEER Member countries participating in the survey. In 10 of the above Member Countries (e.g. Belgium, Bulgaria, Estonia, Finland, Netherlands, Norway, Romania, Spain, Sweden and the UK), RES producers independently of their size or technology face the same balancing responsibilities as conventional producers. In the remaining 8 Member countries (e.g. Denmark, Hungary, France, Germany, Italy, Latvia, Luxemburg, and Portugal[18]), only selected RES producers, notably those falling under a FIP scheme and usually with an installed capacity above a certain threshold, bear full balancing responsibilities. In parallel, all RES producers falling under a FIT scheme are exempted from balancing responsibilities in the abovementioned countries. In 9 Member Countries, no balancing responsibilities have been introduced for RES producers at all (e.g. Austria, Croatia, Cyprus, Czech Republic, Greece, Ireland, Lithuania, Malta, and Poland).

Figure 7: Balancing responsibilities for RES producers (n=27; multiple answers possible)

[18] In Portugal, only RES producers which do not benefit from a support scheme have balancing responsibilities.

In all cases where there is no balancing responsibility borne by RES producers, it is usually another institution who is then balancing responsible. This institution can be a network operator, a TSO or a DSO (e.g. in Germany, Hungary Ireland, Lithuania, Malta, Poland), a supplier (e.g. in Luxembourg and in Portugal), a trader (e.g. Czech Republic, Latvia) or a specific company in charge for the operational handling of RES electricity (e.g. Austria). Among those countries, some have introduced arrangements to ensure that the third party in charge of balancing has specific incentives to perform balancing as cost-efficient as possible (e.g. France, Germany).

In terms of further developments, Cyprus and Greece have indicated that their electricity markets are undergoing changes and that balancing responsibility will be introduced for all or selected RES producers after a transitional phase (see Annex 15).

6 Framework Governing Grid Connection and Grid Access for RES Plants

6.1 Charges for Connection and Usage/Access to the Grid for RES Plants

In order to inject renewable sourced electricity into the public grid, RES plants first need to be physically connected to the grid in order to have access, i.e. for the electricity being transported through the distribution and/ or transmission grid. The framework governing the connection and access to the grid might differ for RES plants, i.e. they may benefit from specific connection and access arrangements. This is however not the case in most CEER Member countries participating in this year's review. Indeed 23 out of 27 participants do apply the same connection charge regime for conventional and RES installations. In these countries the most common type of connection charge regime is where generators (14 out of 23) pay for the connection costs or where generators and system operators share the costs (5 out of 23). Only in the Flemish Region of Belgium do system operators bear all the connection costs. In Denmark it is up to the individual DSO to define the connection charges.

When it comes to the charges linked to the access to the grids, the majority of the CEER Member countries (17) do apply the same charging regime to all connected generation plants and only 2 (Denmark and Portugal) have a different access charge regime to RES plants. In Portugal plants connected at low voltage are exempted from access charges, while in Denmark all plants receive a grant to cover the access tariff. In 7 CEER Member countries, there is no access charge regime in place.

In comparison to the last review, no changes have been observed in the connection and grid access charges regimes of CEER Member countries

The answers provided by the participating countries can be consulted in more details in Annexes 16 and 17.

6.2 Priority for Connection and for the Dispatch of RES

In order to enhance the deployment of RES and the achievement of the 2020 target, special arrangements regarding the order of connection of RES installations and the dispatch of RES electricity have been put in place in some MS. Since the last review, no changes can be observed in this respect.

Out of 27 respondents, 13 Member countries have concrete arrangements in place providing for priority connection for RES installations, i.e. the connection of RES installations needs to be handled prior to those of conventional installations and connection in general is ensured. While another 13 countries indicated that they provide for a non-discriminatory connection, i.e. RES installations are treated the same way as any other plant and connections are realised in the order of entry of the connection requests.

In addition to the preferential treatment for RES plants in terms of grid connection, MS had the possibility to introduce a similar logic regarding the access of RES electricity to the grid, i.e. apply a priority dispatch or a priority access. In this case, network operators have to ensure that RES producers will be able to transmit their electricity at all times, whenever they are producing. This ensures that a maximum amount of RES electricity is used in the system. In practical terms priority dispatch would mean, that whenever the grid operator has to decide on the order of dispatch, e.g. in case of bottlenecks, he will first dispatch RES electricity before conventional electricity. In other terms, RES electricity will be curtailed as a last option.

The issue of priority dispatch in the grid is currently under discussion in the context of the European Commission's legislative proposals for an improved internal electricity market. The European Council, the European Parliament and the European Commission are currently seeking an agreement on a revised Electricity Market Regulation by the end of 2018, in which the conditions for compulsory priority dispatch for RES will be defined.[19]

For the reviewed period 2016-2017, the majority of Member countries had grid related priority dispatch arrangements in place (17 out 27). The full answers are displayed in Annex 18.

6.3 Congestion Management and RES Compensation

As for the last Status Review, CEER Member countries were asked to provide some further information about the responsibilities of grid operators in case of congestions and whether RES producers would be compensated when their production had to be curtailed in case of a congestion in the grid.

The full answers are displayed in Annexes 19 and 20. Based on the answers provided, it can be observed in Table 9 that some CEER Member countries established specific rules defining the preference of RES in case of congestions and reimbursement of RES operators in case of curtailments. 13 Member countries have indicated having rules in place ensuring that RES plants are curtailed subordinately to conventional plants (priority dispatch see 6.2 above) and another 13 indicated that they regulate the reimbursement of RES operators in the case of curtailment (as last resort or not).

CEER Member	Curtailment of RES as last resort	Compensation in case of curtailment
Austria	Yes	Yes
Belgium	No	No
Bulgaria	Yes	No
Croatia	Yes	No
Cyprus	No	No
Czech Republic	Yes	Yes
Denmark	No	Yes
Estonia	No	No
Finland	No	No
France	No	Yes
Germany	Yes	Yes
Greece	No	No
Hungary	Yes	Yes
Ireland	Yes	Yes
Italy	Yes	Yes
Latvia	No	n.a.
Lithuania	Yes	No

[19] The issue of priority dispatch is addressed in Art. 12 of European Commission's proposal for a regulation of the European Parliament and of the Council on the internal market for electricity recast.

CEER Member	Curtailment of RES as last resort	Compensation in case of curtailment
Luxembourg	No	No
Malta	Yes	n.a.
Netherlands	No	No
Norway	No	Yes
Poland	No	No
Portugal	Yes	Yes
Romania	Yes	Yes
Spain	Yes	Yes
Sweden	No	No
UK	No	Yes

Table 9: Curtailment and compensation regime for RES

Further, the responses provided show that network congestions are not an issue for at least 6 CEER Member countries (e.g. Cyprus, Estonia, Finland, Greece, Luxemburg, and Poland), which can explain why specific compensation arrangements have not been established. A number of Member countries (9) have indicated not to discriminate (i.e. no priority) between RES and conventional power plants in case of congestions.

Besides the curtailment order in case of redispatch (i.e. priority dispatch for RES), the right to an adequate compensation in case of curtailment is explicitly covered by the European Commission's proposal for a regulation of the internal market for electricity. If agreed in the trilogue negotiations, many CEER Member countries will need to review their compensation scheme to reflect the new European legislative framework.

Among the Member countries facing challenges linked to congestions, 10 provided data on the amount of RES electricity curtailed and the level of compensation paid to RES producers as displayed in Table 10 below.

CEER Member	Volume of curtailed RES electricity (in GWH)		Costs derived from RES curtailment (compensation payments) (in EUR)	
	2016	**2017**	**2016**	**2017**
Belgium	N/A	3,8	0	0
Bulgaria	0	0,01873	0	0
Germany	3.743	5.518	372.735.588	609.975.214
Ireland	227	386	N/A	N/A
Italy	361	463	7.000.000	17.000.000
Lithuania	2.020,5	2.432,8	94.740.000	113.132.000
Norway	1.138	762	140.000.000	110.000.000
Portugal	0	1,60	0	0
Romania	N/A	2,5	N/A	N/A
Spain	113	76	675.000	74.000

Table 10: Overview of curtailed RES electricity [GWh] and compensation payments [€] in 2016 & 2017

7 Other Forms of RES Support

7.1 Overview of Other Forms of RES Support

In the survey, CEER Members were asked about any other forms of support for RES electricity that had not been covered elsewhere in the report. This aspect is of relevance to illustrate that RES are not only supported through explicit support schemes (chapter 2), including preferential treatments in terms of grid connection and priority dispatch (chapter 6), but also indirectly. For example, through full or partial exemptions from specific financial contributions like taxes or levies, or through dedicated financing programs. Most respondents (13 out of 27), indicated that there are no additional forms of support in place in their countries. Compared to the last report this is a constant quota.

Where other forms of support were in place, these were mostly linked to self-consumption of RES electricity (see chapter 7.2), to preferential tax treatments or to dedicated credit lines for investments in RES installations. The following information has been provided by the participating Member countries (see also Annex 22):

CEER Member	Other forms of RES support
Croatia	End consumers with production capacity ("prosumers") from RES can get compensation from their electricity supplier for "excess energy".
Czech Republic	Investment subsidy for the construction of RES, e.g. small PVP. Electricity tax is not paid for electricity produced and consumed by electricity producers themselves.
Denmark	Net settlement in certain cases relieve end-user from PSO tax and electricity tax tariff.
France	RES electricity plants can benefit from local, state or European direct investment subsidies. In rare case, for given technologies, support may also include specific tax or levy exemption (e.g. land tax for small agricultural methane units).
Germany	1) Indirect support of RES installations used for self-consumption purposes: RES producers, which are self-consuming all or parts of their production are exempted fully from network charges, electricity taxation and other electricity price components. They are also partly exempted from the RES surcharge (40% instead of 100%) for the self- consumed electricity, which is not fed into the grid. 2) RES installations, which are not supported through the RES support scheme, are in principle entitled to a compensation from the grid operator, a so called "avoided network charge", when connected to a lower grid level. From 2018 onwards, new volatile RES installations will not be entitled to this avoided network charge anymore. For all remaining RES installations, this will be the case from 2023 onwards. 3) Joint PV self-consumption within a residential building (at least 40% residential): Owner of a PV installation up to 100 kW (located on the rooftop, attached to or within a residential building) delivering self-produced electricity to the residents (owners or tenants) within the same building is entitled to a bonus for each kWh delivered. The residents are however paying the full RES surcharge on this electricity.
Italy	Only for PV plants, Italian Government defined a fiscal subtraction (equal to 50% of the investment costs, up to a maximum cost of € 96,000). This support is provided only if PV plants are installed on buildings during their renovation works.
Malta	Tax credits for RES installed by categories of undertakings
Poland	In addition to renewable energy support schemes provided for in the RES Act, which are granted by the President of the Energy Regulatory Office, future renewable energy producers may benefit from support in the form of,

CEER Member	Other forms of RES support
	among others, operational programs and co-financing assigned by the National Fund for Environmental Protection and Water Management. In addition, selected banks may provide preferential loans for investments related to the development of renewable energy. It should also be mentioned that on the basis of tax law, electricity generated in RES is exempt from excise duty.
Sweden	There is a tax release for self-production, up to 30 MWh per year.

Table 11: Overview other forms of RES Support

7.2 Indirect Support for Self-consumption of RES Electricity

Self-consumption is defined as the use of power generated on-site by an energy consumer in order to reduce, at least in part, the purchase of electricity from the grid. Self-consumption is highly relevant in the context of the drive towards greater consumer empowerment and engagement, and the realisation of Europe's renewable energy targets – as long as the impacts of self-consumption on network financing and contribution to energy taxation are properly considered in the overall framework. With increasing amounts of small-scale electricity generation connected at distribution level, particularly rooftop solar and wind, self-consumption has the potential to have a significant impact on Europe's future energy system, creating an opportunity for more consumer empowerment.[20]

For this edition of the Status Review CEER Member countries were asked to provide more details about the way self-consumption of self-generated RES and conventional electricity is addressed at the national level (for further details see Annexes 23 and 24).

The following aspects can be derived from the answers provided:

- Self-consumption is in principal allowed in all participating CEER Member countries and is mostly possible in combination with a support payment for the surplus electricity fed into the grid.
- A majority of CEER Member countries have introduced special rules for self-consumption. However, self-consumed electricity is mostly, at least to some extent, exempted from network charges, taxes or other levies.
- Self-consumed electricity is in most cases not measured, as generally only one meter is in place. Only a few CEER Member countries have indicated measuring the share of self-consumed electricity, notably where two separate meters are in place (see Annex 27 for the details). Whenever self-consumption is not measured, net-metering can be in place (see Annexes 24 and 25).
- The lack of separate measurement explains the few reliable values provided for identifying the shares of self-consumption by RES and conventional installations (see Annex 26).

The data quantity and quality on self-consumption needs to be gradually improved to gain a better understanding of the full picture in terms of impacts, notably on the grid, the supply as well as on the financing of the network and other relevant funding schemes base on the electricity volume. With the new framework defined for self-consumption in the revised Renewable Energy Directive and the proposed revised Electricity Market Directive, this new trend will be at the centre of NRA's attention.

[20] For more information, notably on the impact of self-consumption on individuals (consumers and prosumers), society, on system operation and costs, and the market, please see CEER position paper on Renewable Energy self-generation (Ref: C16-SDE-55-03).

8 Conclusions and Way Forward

This review is one of a kind regarding the number of countries covered and the level of information provided about support costs by RES technologies and other relevant issues related to the promotion of RES in Europe. It has to be highlighted that the gathering of this information remains challenging as NRAs are not equally responsible for or involved in the administration of the RES support process itself and have limited access to the relevant data. Especially support cost data on newly installed RES plants is hard to come by, which makes it difficult to analyse the cost development for newly installed RES capacities falling under the new support schemes (with in general lower support costs). Further, the analysis of the overall system is more demanding since the support frameworks are getting more complex, notably in respect to the coexistence of various support frameworks. Indeed, many CEER Member countries support RES plants under different support systems and it is likely that the next report will see most of the countries presenting data for two support systems. With old plants still falling under a Feed-in-tariff system and new plants supported via more market-based systems like premiums. The support for RES self-consumption is also one aspect of RES support schemes, which needs more reliable data for proper analyses.

This report shows that the unit support levels (direct cost per MWh of supported electricity on top of the wholesale price) by the main renewable technologies in 2016 and 2017 for all the overall support in place declined since the last review period 2014-2015. However, it is not possible to determine precisely whether and to what extent the observed decline is driven by a potential decrease in costs of newly constructed RES, evolutions in market value of the electricity produced (considering the variability of energy prices) or other multiple factors affecting the economic conditions of such installations (grid connection or access regimes, taxes, etc.). Furthermore, the report does not reflect the overall electricity market system in which RES support is embedded and all the costs RES installations have to bear. Different grid connection or access charge regimes lead to different cost structures for renewables. The report reflects a mixture of old and new, small and large RES plants, and different support systems (FIT, FIP, Green Certificates, investment grants) with varying support times. Hence, a comparison between the Member countries is always based on simplifications and should be carried out with caution. With this in mind, the following observations can be retrieved from the review:

- A wide range of instruments is used to promote RES, such as investment grants, FIT, FIP, and GCs. Throughout Europe, the transition towards support schemes allowing for more market integration of RES and more competitive elements in the way support levels are being determined is still ongoing. As such, the major changes observed remains related to the introduction of FIP schemes, where RES producers receive support (a fixed or variable premium) in addition to their market income and the introduction of tendering procedures, as a means to determine levels of support.

- In terms of market integration, RES plants increasingly have the same financial responsibility as conventional plants for electricity balancing, at least above a certain threshold of capacity installed. Although a growing importance of the issue of self-consumption and net-metering can be observed in most CEER Member countries, the data availability is still limited to allow for a comprehensive assessment of the framework in place.

- Curtailments and compensation measures in case of congestions in the network are slowly moving into the focus of an increasing number of CEER Member countries. This will gain in importance with the new European provisions regarding compulsory priority

dispatch for RES electricity and the introduction of adequate compensation measures in case of curtailments.

- No changes can be observed to other central features such as the nature of funding (mostly non-tax levies) or aspects of connection and access to the grid (RES plants are mostly given priority in terms of network connection and dispatching).

- The proportion of gross electricity produced receiving RES support differs widely from one country to another ranging from 3% in Norway to 63% in Denmark, with an average across countries of approximately 17% in 2016. This is a slight increase from an average proportion of around 16% in 2014.

- In terms of support costs, there are wide differences across technologies and across countries. The weighted average support for RES, on top of the wholesale price, decreased from €110,22/MWh in 2015 to an average of €96,29/MWh across 25 countries for 2017.This is a decrease of 12,6%. In 2017, it ranged from a minimum of €12,87/MWh (in Norway) to a maximum of €198,29/MWh (in the Czech Republic).

- More and more RES installations (the more expensive ones) are reaching the end of their support time. This trend will start to have a noticeable impact on the cost development in the coming years.

Annex 1 – List of Abbreviations

Term	Definition
ACER	The Agency for the Cooperation of Energy Regulators
EEAG	Guidelines on State aid for environmental protection and energy 2014-2020, European Commission
AER	Alternative Energy Requirement Scheme
CEER	Council of European Energy Regulators
CSP	Concentrated Solar Power
DNO	Distribution Network Operator
DSO	Distribution System Operator
EC	European Commission
EE	Energy efficiency
EEA	European Economic Area
EU	European Union
FIP	Feed-In-Premium
FIT	Feed-In Tariff
GGP	Guidelines of Good Practice
GCs	Green Certificates
GWh	Gigawatt hour is a unit of energy equal to 1.000 MWh or 1.000.000 kWh
kWp	Watts-peak and kilowatts-peak is a measure of the nominal power of photovoltaic device under laboratory conditions. Kilowatts-peak (kWp) is the most common unit in the domestic context.
kWh	The kilowatt is a unit of energy equal to 1.000 Watt hours or 3.6 megajoules. The kilowatt hour is the most common billing unit for energy delivered to consumers.
MS	Member State
MWh	MegaWatt hour is a unit of energy equal to 1.000 kWh or 1.000.000 Watthours
NRA	National Regulatory Authority (for energy)
PSO	Public Service Obligation
PV	Photovoltaic
REFIT	Renewable Energy Feed-In-Tariff
RES	Renewable Energy Sources (also used in this report to mean renewable generation)
RED / RES Directive	The Renewable Energy Directive (2009/28/EC)
RES-E	Electricity from Renewable Energy Sources
SDE+	The ‘SDE+’ (‘Stimuleringsregeling duurzame energieproductie’) is the Dutch support mechanism for renewable energy, introduced in 2007.
TSO	Transmission System Operator
TWh	The terawatt hour is a measure of energy large enough to express annual electricity generation for whole countries

Annex 2 – Definitions

Term	Definition
Support for RES generation	The annual cost of incentives paid to RES generation as the result of national support schemes.
Technologies	
Energy from renewable sources	Energy from renewable non-fossil sources, namely aerothermal, bioenergy (including biogas and solid biomass), geothermal, hydropower, hydrothermal, ocean, solar and wind energy
Aerothermal energy	Energy stored in the form of heat in the ambient air
Biogas	A gas composed principally of methane and carbon dioxide produced by anaerobic digestion of biomass. The total biomass figures comprise: - landfill gas, formed by the digestion of landfilled wastes - sewage sludge gas, produced from the anaerobic fermentation of sewage sludge - other biogas such as biogas produced from the anaerobic fermentation of animal slurries and of wastes in abattoirs, breweries and other agro-food industries
Bioenergy	This is a summary definition used to aggregate data for solid biomass and biogas
Geothermal energy	Energy stored in the form of heat beneath the surface of solid earth
Hydropower	Electricity generated from the potential and kinetic energy of water in hydroelectric plants
Hydrothermal energy	Energy stored in the form of heat in the surface water
Ocean energy	Forms of renewable energy derived from the sea including wave energy, tidal energy, river current, ocean current energy, salinity gradient energy and ocean thermal gradient energy. For the purposes of this survey, this excludes offshore wind
Other	As specified
Solar electricity	Solar radiation exploited for electricity production. Where possible, the following sub-categories are used: PV (photovoltaic) and CSP (concentrated solar power)
Solid biomass	The biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste. Where possible, data for solid biomass is presented using the following sub-categories: biodegradable waste and other solid biomass
Wind energy	The kinetic energy of wind converted into electricity in wind turbines. This is comprised of off-shore and on-shore wind energy
Categories of support	
Call for tenders	A type of quantity based policy instrument whereby a tender is announced by the Government for the supply of electricity from renewable energy sources, which is then supplied on a contractual basis at the price resulting from the tender. Where tenders are coupled with other forms of support e.g. feed-in-tariff, feed-in-premium or green certificates, these other forms of support will be considered the primary supporting policy
Excise tax return	A taxation policy where renewable energy generators pay lower excise tax rates than conventional energy generators.

Term	Definition
Feed-in-premium and contracts for differences	A type of price-based policy instrument whereby eligible renewable energy generators are paid a premium price which is a payment in addition to the wholesale price. This premium can be fixed of floating; a floating premium would be calculated as the difference between an average wholesale price and a previously defined guaranteed price. In addition, under contracts for difference, if the wholesale price rises above the guaranteed price, generators are required to pay back the difference between the guaranteed price and the wholesale price.
Feed-in-tariff	A type of price-based policy instrument whereby eligible renewable energy generators are paid a fixed price at a guaranteed level (irrespective of the wholesale price) for the RES electricity produced and fed into the grid.
Green certificates	A tradable commodity proving that certain electricity is generated using renewable energy sources. May have guaranteed minimum prices. The certificates can be traded separately from the energy produced
Investment grants	Public money paid to provide direct support to investment that increases the generation of renewable energy
Other	Other policy support mechanisms as specified by individual countries
Other definitions	
Accrual basis accounting	Under the accrual basis accounting, costs are recognised with respect to the period when revenues are earned in contrast to the cash basis accounting, where costs are recognised when cash is actually paid.
Auto-consumption	Consumption of self-generated electricity
Balancing responsibility	Producers of electricity are bearing the financial responsibility for imbalances between their forecasts and the actual electricity feed-in (financial settlement)
Guaranteed access	There is the guarantee that all electricity sold and supported obtains access to the grid, allowing the use of a maximum amount of electricity from renewable energy sources from installations connected to the grid.
Lifetime of the grant	The expected lifetime of the capital that the investment grant has been used for. This could be estimated either by the expected lifetime over which the capital is being depreciated or the payment period for any related FIT support.
Priority access	The assurance given to connected generators of electricity from renewable energy sources that they will be able to transmit electricity in accordance with connection rules at all times, whenever the source becomes available.
Priority connection	That the physical connection (link) to the transmission and/or distribution networks of generators of electricity from renewable energy sources is considered a priority over connection to generators of electricity from other sources.
Priority dispatching	When transmission system operators give the priority to generating installations using renewable energy sources in so far as the secure operation of the national electricity system permits and based on transparent and non-discriminatory criteria. Member States shall ensure that appropriate grid and market-related operational measures are taken into account in order to minimise the curtailment of electricity produced from renewable energy sources.
Public Service Obligation	In this context, a Public Service Obligation (PSO) is a levy imposed by the Government on some or all final electricity customers to recover the additional costs associated with electricity from specified sources of generation- including sustainable, renewable and indigenous sources.
Semi-shallow connection charge regime	RES generators pay less for connection than other conventional generators
Shallow connection charge regime	The system operator pays for connection

Annex 3 – Overview of RES Objectives for 2030

Member	National RES expansion objectives for 2030			Explanation
	Overall RES objective	Objective of RES electricity share	no objective defined yet	
Austria		100%		The new target in the Austrian climate and energy strategy (#mission2030) is 100% electricity from RES. This percentage will be calculated on a yearly basis and it isn't fixed yet which consumption figure will be used to calculate it.
Belgium	regional level: 20% (without offshore wind)	federal level (offshore wind): 17%		In line with the Energy Plan 2012-2030, regions target 20% of the final energy consumption covered by RES (excluding offshore wind). **Flemish Region**: 1) Target RES electricity Flanders according to Energy Plan 2021-2030: 11.956 GWh in 2030 = 20% of current electricity consumption (not including off-shore wind) 2) target RES heat: 9.687 GWh, biofuels 6270 GWh **Walloon Region**: 20% of the final energy consumption from RES (not including offshore wind) **Federal level (Offshore wind):** Under discussion. Last figures indicate 4GW of installed offshore wind capacity, equivalent to an annual production of 15,2 TWh or 17% of the Belgian total electricity demand (around 86TWh).
Bulgaria			x	Responsible authority for the national RES expansion objectives, and in particular those relating to RES electricity is the Ministry of energy.
Croatia			x	The strategy is still being developed.
Cyprus	16,4%-23%	16%		Indicative 16.4 - 23% RES in the total energy consumption in 2030 and indicative 16% RES in electricity production (based on estimated oil and gas prices).
Czech Republic	13%			
Denmark	50%			Denmark is committed to reaching a national binding target of 30 pct. energy consumption from renewable energy by 2020. Furthermore, the Danish Parliament has agreed on the energy policy post 2020 in the policy agreement of June 2018. With the agreement, the Parliament expects to reach an overall renewables share of 55 pct. in 2030. By 2050, Denmark aims to be independent from fossil fuels. Investments in energy produced from wind turbines and solar PV are an important contribution to increasing the share of renewable energy in the Danish energy system provided that the cost is reduced. To incentivise investments in wind turbines and solar PV generation, Denmark has submitted a pre-notification of a measure for the design and construction of a multi-technology tender for onshore wind turbines, open door offshore wind turbines and solar PV in Denmark. This will be the first tender in Denmark in which different technologies will compete for aid against each other. The beneficiaries eligible for aid under the notified measure are the winners of contracts to design and construct a specified project with a specified wind turbine and/or solar PV capacity. The contracts will

Member	National RES expansion objectives for 2030			Explanation
	Overall RES objective	Objective of RES electricity share	no objective defined yet	
				be awarded on the basis of a tendering procedure. The aid will be paid as a premium on top of the electricity price for the electricity production for the first 20 years from the time the wind turbines and/or solar PV installation is connected to the electricity grid.
Estonia	27%			27% of final energy consumption from RES
Finland	50%			According to the national climate strategy 2030 the target is to increase the share of renewable energy to 50%. Renewable energy in the transportation sector is targeted to increase to 40% by, 2030, including electric vehicles.
France	32%	40%		The French Energy Transition for Green Growth Law (or Energy Transition Law), adopted in August 2015, sets out the following objectives: increase the share of renewables to 23% of final energy consumption by 2020; increase the share of renewables to 32% of final energy consumption and 40% of electricity production by 2030. These objectives were translated into installed capacity targets per technology for 2018 and 2023 by a ministerial decree (French multiannual energy program (PPE)) in April 2016. The multiannual energy program is currently under review for the periods 2018-2023 and 2023-2028 (publication anticipated by the end of 2018).
Germany		40-45 % by 2025, 55-60 % by 2035		The objective is to increase the proportion of electricity generated from renewable energy sources as a percentage of gross electricity consumption to 1. 40 to 45 percent by 2025, 2. 55 to 60 percent by 2035 and 3. at least 80 percent by 2050. The new government elected in late 2017 defined a new RES objective for 2030: 65%
Greece	32% (not yet approved)	50% (not yet approved)		The public debate on the Greek national targets for 2030 is dynamic and continuous and currently in full swing. Indicatively, and according to the initial Public Consultation outcomes, RES contribution to gross final energy consumption would be set at 32%, while the share of RES in electricity production is expected to be set at 50%.
Hungary			x	The Hungarian National Renewable Energy Action Plan set targets and pathways for the development of renewable energy sources till 2020. The Integrated National Energy and Climate Plan for the period 2021-2030 is currently being developed by the ministry responsible for energy issues. The National Energy Strategy has an outlook till 2030 however but it contains only strategic goals and is also currently being updated. According to communication by the ministry the solar PV capacity is expected to increase to 3000 MW till 2025.
Ireland	55%			The new RES support scheme will provide for a renewable electricity (RES-E) ambition of up to a maximum of 55% by 2030, subject to determining the cost effective level which will be set out in the draft National Energy and Climate Plan (NECP).

Member	National RES expansion objectives for 2030			Explanation
	Overall RES objective	Objective of RES electricity share	no objective defined yet	
Italy	28%	55%		According to Italian Energy Strategy defined in 2017, Italy should reach an objective of 28% share of RES with respect to total final consumption and an objective of 55% RES electricity (defined as the ratio between RES gross electricity production and total gross electricity production) by 2030.
Latvia	50%			According to Ministry of Economics sustainable energy is one of the goals in "Energy Long Term Strategy 2030 - Competitive Energy for Society". Sustainability is enabled by improving energy efficiency and promoting the use of efficient RES technologies. The binding target is to achieve 40% RES share in gross energy consumption by 2020. Furthermore, there is non-binding target included in the strategy - 50% RES share in gross energy consumption by 2030.
Lithuania	45%	45% in elec. consumption 70% in electricity generation		RES share in the final energy consumption - 45 % RES share in central heating sector - 90 % RES share in transport sector - 15 % RES share in the final electricity consumption - 45 % RES share in electricity generation - 70 %
Luxembourg			x	No specific objectives defined for 2030 yet. For 2020: 11% Renewable Energy, 11.8% RE electricity
Malta			x	No information available still under study
Netherlands	110 TWh			The goal for 2030 is an emission reduction of 49% CO2 compared to the emission in the year 1990. This means that the total CO2 emission in 2030 has to be reduced by 20,2 Mton. There are two scenarios taken into account: a base scenario and a base scenario extended with extra electrification. In the first scenario 12 TWh additional demand is taken into account and in the second a demand of an extra 38 TWh. To realise these objectives there is an expansion of offshore wind volume of 49 TWh and RES onshore an expansion of 35 in the first scenario for seen. By a growth of the demand by 38 TWh the total expansion will be 110 TWh. The starting point for this calculation is the full load hours and not the installed capacity.
Norway			x	Norway and Sweden has a joint RES expansion goal for 2020 of a total 28,4 TWh. Norway is financing 50% of this expansion. (Sweden has expanded their target wth additional 18 TWh. There are no RES expansion policies after this other than marked based Investments.
Poland			x	At present, the national RES target of Poland is in line with the EU goal and is equal 32% of final energy consumption from RES.
Portugal	40%			Contribution of renewable energy production to gross final energy consumption: 31% in 2020; 40% in 2030. Gross final electricity consumption from renewable energy sources: 59,6% in 2020. Resolution of the Council of Ministers no. 28/2015, 30th of April, which approves the “Compromise for Green Growth”.

Member	National RES expansion objectives for 2030			Explanation
	Overall RES objective	Objective of RES electricity share	no objective defined yet	
				Resolution of the Council of Ministers no. 20/2013, 10th of April, which approves the National Action Plan for Energy Efficiency 2013-2016 and the National Action Plan for Renewable Energy 2013-2020.
Romania			x	The national RES expansion objectives for 2030 are still under discussion. For the moment, there are no RES targets after the year 2020 for RO.
Spain			x	For the time being, final objectives for 2030 are not established yet.
Sweden	23%			The expansion objective of the elcertificate system has been to construct 33,2 TWh RES between 2012- 2030. This corresponds to 23% of the total expected energy use in Sweden 2030.
UK			x	The UK does not have any 2030 RES expansion objectives. Its 2020 goal is 15% renewables. 30% of electricity, 12% of heat and 10% of transport.

Annex 4 – Overview of Support Scheme and Changes

		Type of changes		
Member	No changes after 2015	financing the RES support scheme	Way support levels are being determined	Market integration of RES
Austria	x			
Belgium			x	
Bulgaria	x			
Croatia			x	x
Cyprus				x
Czech Republic	x			
Denmark		x	x	x
Estonia	x			
Finland	x			
France		x	x	x
Germany			x	
Greece			x	x
Hungary			x	x
Ireland	x			
Italy			x	x
Latvia				
Lithuania	x			
Luxembourg			x	x
Malta	x		x	
Netherlands	x			
Norway	x			
Poland		x	x	
Portugal	x			
Romania			x	
Spain	x			
Sweden	x			
UK			x	x

Annex 5 – Description of Changes Since the Last Status Review

Member	Description
Austria	The green electricity act (Ökostromgesetz) was adapted in 2017 but those were only minor changes in order to not needing an approval by the commission.
Belgium	1) No changes in Flemish region on type of support scheme * No changes in Walloon region on type of support scheme. The kECO support scheme, or the CV envelope system with reservation, with a number of CV/MWh for each kind of renewable technologies, came into force on July 1, 2014 for all renewable power plants except for the photovoltaic sector equal to 10 kW. The photovoltaic sector >10 kW is applied the reservation system from January 1, 2015. However, since july 2018, the new photovoltaic power plants under 10 kVA don't receive grant. 2) The support mechanism for **offshore wind has been reformed. The fixed feed in premium (on average 102€/MWh) has been replaced by a floating premium.** This floating premium is approximately equal to the sum of an electrical infrastructure top-up and the difference between a determined LCOE and the sum of the contracted electricity sales price and the value of the guarantees of origin. In the period 2016-2017 two offshore windfarms (Rentel and Norther) have realized their financial close with individual determined support levels. The value of the LCOE is the result of a decision of the government and has been determined at a value of 129.8 euro/MWh for Rentel and 124 euro/MWh for Norther. The electrical infrastructure top-up (mainly offshore substation and export cable) has been determined by the NRA on a case by case basis: 12euro/MWh for Rentel and 8.2euro/MWh for Norther. The support for these wind farms will be granted for 19 years.
Bulgaria	According par. 68 from Energy sector act by 31 October 2018 producers of electricity from RES with total installed capacity of 4 MW and over 4 MW of energy projects shall conclude with the Electricity System Security Fund a contract for compensation with a premium for the quantities of electricity generated thereby up to the amount of their net specific generation of electricity, on the basis of which their preferential price was determined. Contracts for compensation with a premium shall enter into force not later than 1 January 2019.
Croatia	1) Tendering procedures have been introduced in the legislation since 2016. However, that is only the framework and practical implementation is still needed (no tendering procedures have been performed yet). 2) New legislation has introduced an FIP scheme (still need to perform the first tendering procedure) and balancing responsibilities for RES above 30 kW (RES Balancing group, expected to be implemented on January 1st 2019).
Cyprus	1) Support scheme for the production of electricity from renewable energy sources for own use. This scheme covers the following installations: a) Net-metering photovoltaic systems with capacity up to 10KW for all consumers (residential and non-residential). A grand of €900 per installed kW (with maximum grand amount €2700) is given only for the installation of small PV systems in houses of vulnerable consumers (families with low income, disability persons etc). b) Net-billing RES Systems (PV, biomass/biogas systems etc) with capacity up to 10MW for commercial and industrial consumers. The net-billing category was introduced in June 2018 as an additional category to the existing self-generation scheme. The installations of biomass/biogas station for the production of RES electricity in the self-generation category, were added in the scheme in 2017. In June 2018 in the net-metering category the maximum capacity per PV system was increased from 5kW up to 10kW. 2) Support scheme for the installation of RES systems that will operate in the competitive electricity market. The Scheme covers the installation of commercial plants producing electricity from Renewable Energy Sources (RES) that will participate in the competitive electricity market (expected to be operational in 2019). Until the operation of the competitive electricity market, investors could obtain the respective purchase price of electricity from RES (electricity authority's avoidance cost). The methodology for the calculation of the price is approved by the Cyprus Energy Regulatory Authority, and the price is calculated, monthly, by the Electricity Authority of Cyprus and it is announced on the website of the Electricity Authority of Cyprus. The scheme opened for calls in 2016 and 2017 (until the end of April 2018). The scheme allows the installation of commercial PV systems, wind parks, solar concentrated station, and biomass/biogas stations. From 2017 wave energy systems were introduced to the scheme. The produced electricity from RES will be sold to the Electricity Authority of Cyprus at the respective purchase price of electricity from RES (avoidance cost), up to the operation of the new competitive market rules or at least one year after that period.
Czech Republic	Gradual approval of support schemes has been done through notification procedures. Support in the form of FIT and FIP have already been introduced in 2006.

Member	Description
Denmark	1) RES electricity support is changing from PSO (public service obligations) to state budget 2) In line with the EEAG, tendering procedures are being introduced as the main type of support scheme for onshore wind and solar PV in Denmark in 2018. Earlier, the support level in most support schemes for onshore wind and solar PV has been determined in an administrative procedure. Since before 2015, most support to offshore wind has been determined by tendering procedures. 3) No premium will be paid for production during hours when the spot price is not positive, and the contractor will not be eligible for other aid. The spot price for electricity means the price per hour per kWh on the spot market in the relevant electricity grid price area in question (DK 1 or DK 2). In this context, the spot price is the day a head auction price on Nordpool.
Estonia	There are no changes in 2016, 2017 and 2018. Changed the principles of the Electricity Subsidy Scheme of Renewable Energy and the Efficiency of a Cogeneration. The amount of support paid to new renewable electricity producers for each unit of energy produced was abolished and replaced by an auction-based support system. An exception was granted to small producers - subsidies paid to producers with an electrical capacity of more than 50 kW and less than 1 MW were awarded. The new scheme will start on January 1, 2019.
France	1) Since January 2016, renewables support falls under the general State budget, through a dedicated purpose fund – the financing of which being decided each year by the the Parliament through a Finance Law (currently, internal taxes on fossil fuels). 2) Since the adoption of the Energy Transition Law in 2015, and in line with European Commission guidelines on State aid for environmental protection and energy, renewables support in France combines feed-in-tariffs (FIT) for small & medium scale installations (below 500 kW) and feed-in-premiums (FIP) – along with balancing responsibility – for medium & large sale installations (over 500 kW). The level of support is set either through administrative procedures (government orders defining the amount of remuneration) or, for medium & large scale installation through bidding procedures (call for tenders, competitive dialogue procedure).
Germany	With the EEG 2017, technology specific tendering procedures have been introduced for PV, Wind onshore and offshore, and biomass, as standard competitive instrument for determining the level of support since 2017. In addition a technology neutral tendering procedure for wind onshore and PV has been introduced in 2018. A tendering procedure for innovative RES technologies is foreseen and currently in the conception phase. In 2016 a first cross border tender has been implemented for ground-mounted PV with Denmark.
Greece	1) The Greek State with the Law 4414/2016 (Official Government Gazette no 149/09.08.2016) adopted a new support scheme of electricity production from RES and HECHP in order to achieve the gradual integration and participation of new RES and HECHP plants in the electricity market and to promote the improvement of their economic efficiency. The Commission's approval for the new scheme was given with the decision C(2016) 7272 final (State Aid SA.44666 – Greece: New operating aid scheme for the production of electricity from RES and HECHP). The new support scheme of the RES/he-CHP electricity generation is based on the development of a new support mechanism for the operation of these units (operating aid) which foresees, as regards the larger units, a premium in addition to the price at which producers sell the produced electricity directly in the wholesale electricity market. This premium will be guaranteed for the whole period foreseen for operating aid support per RES power plant and will be in the form of a differential value (sliding Feed in Premium-FiP), taking into account the revenues from the participation in the electricity market (the previous are analytically described in Question A2.D).RES operators receive monthly payments for their RES electricity production from the Operator of RES and Guarantees of Origin (DAPEEP S.A.). These payments originate from the RES & CHP Special Account established by the provisions included in Article 40 of Law 2773/1999 and amended by the provisions of Article 143 of Law 4001/2011. The Special Account is managed by DAPEEP S.A. The difference between the electricity price arising in the wholesale market and the RES tariff is covered among others and mainly through a special levy, the so called Special Fee for the Reduction of Greenhouse Gases Emissions – ETMEAR, charged to the final electrical energy consumers and collected through the electricity bills. As already has been mentioned, since the beginning of 2016 a new RES support scheme has been established. Taking into account that, the purpose of the new support scheme is the promotion of the actual participation of RES & HECHP producers in the market, changes were also introduced in the structure of the Special Account. In particular, according to the provisions of Law 4414/2016, the RES & CHP Special Account of Article 40 of Law 2773/1999 is split into: a) The RES & CHP Special Account of Interconnected System and Network (Special Account I) and b) The RES & CHP Special Account of Non-Interconnected Islands (Special Acoount II).

Member	Description
	Moreover, the Special Account I is further divided into two sub-accounts: a) the Electricity Market sub-account and b) the Operation Aid sub-account. The Special Account's I inflows are defined as Electricity Market Revenues and Operation Aid Revenues, respectively. Furthermore, a new inflow component is applicable since October 2016 for the aforementioned Special Account under the provisions of Law 4414/2016. Namely, Electricity Suppliers Charge refers to the inflows from the electricity Suppliers, which are calculated based on the nominal difference (€/MWh) between the value of the SMP, that would have resulted if no RES had participated in the DAS (virtual SMP), and the SMP that resulted from the actual DAS clearing (actual SMP). In particular, the monthly revenues of this component are equal to the product of the Suppliers electricity sales at the Interconnected System and Network by the afore-mentioned difference with a regulated cap of 15 €/MWh. 2) Notification of the tender design **f**or the allocation of operating aid to RES and HECHP power installations was examined by the European Commission and accepted through the State aid SA. 48143 (2017). The responsibility for setting the parameters and organizing the auctions has been split between Ministry of Environment and Energy (MEE) and RAE. The execution of the competitive bidding processes is under the responsibility of RAE. RAE delivered the 2/2018 Opinion (07.02.2018) to the MEE on the:• installed capacity per RES power plants' technology to be auctioned through the competitive bidding processes this year or/and the following from the publication of this Decision,.• minimum amount of competitive bidding processes per year, • maximum allowable bidding price for each competitive bidding process, and • participation fee, in favour of RAE (a condition for participation in the competitive bidding process). During the time period 2018 – 2020 the bidding processes that will be performed are described briefly in the following Table. Competitive bidding procedures for RES power plants in Greece (2018 – 2020) (See TABLES). The main characteristics of the bidding procedures are (the last auction was implemented in July 2018): • a 75% rule of a minimum level of competition decided by the Greek regulator to ensure competition; • all the applications are submitted electronically and the projects which pass successfully through the phase A (administrative check) can participate in the bidding procedure (phase B) using the electronic platform, where the auctions take place online; • the auction performed is a variation of the Yankee auction type. The basic "RULE" of this auction is the following: all accepted bids are registered in ascending order with criterion the submitted price. • Letter of Guarantee of Participation, Letter of Guarantee of proper performance: A rule, for the letter of guarantee at the level of 1% of the total investment cost per project (using typical project cost per technology) was enforced to all the participants in order to participate in the auction procedure. In addition, after the success in each category, each participant had the obligation to cover a rule of "4% guarantee of proper performance". This means that each participant must submit to the Greek Regulator an additional letter of guarantee, completing the sum of all letters of guarantee submitted equal to the amount defined by the 4% rule of the total investment cost for each project. 3) The Greek State with the Law 4414/2016 (Official Government Gazette no 149/09.08.2016) adopted a new support scheme of electricity production from RES and HECHP in order to achieve the gradual integration and participation of new RES and HECHP plants in the electricity market and to promote the improvement of their economic efficiency. The Commission's approval for the new scheme was given with the decision C(2016) 7272 final (State Aid SA.44666 – Greece: New operating aid scheme for the production of electricity from RES and HECHP). The new support scheme of the RES/he-CHP electricity generation is based on the development of a new support mechanism for the operation of these units (operating aid) which foresees, as regards the larger units, a premium in addition to the price at which producers sell the produced electricity directly in the wholesale electricity market. This premium will be guaranteed for the whole period foreseen for operating aid support per RES power plant and will be in the form of a differential value (sliding Feed in Premium-FiP), taking into account the revenues from the participation in the electricity market. More specifically, RES and HECHP projects up to a certain threshold of installed capacity (i.e.3MW for wind parks and 500kW for the rest RES installations) are given the possibility to, if they wish so, be supported by operating aid on the basis of a feed-in-tariff (FIT). The total of the new RES and HECHP units, that are subject to the new aid scheme under the premium component additionally to the revenues received from their participation in the wholesale electricity market, even if put in operation before the transition to the new electricity market model (Target Model), will have the obligation to undertake all the services and obligations foreseen for these types of plants upon the completion and operation of this market model (Target Model). The participation of these RES and HECHP plants in the electricity market will take place during the transition period only through the day-ahead market, where they will participate with zero priced offers and will be settled in accordance with the actually injected energy. Moreover, from the 1st of January 2017 the Greek State has adopted competitive bidding processes for granting the relevant RES operating aid for the technologies of PV and wind. Transitional accurate forecasting mechanism. RES and HECHP projects to be integrated in the new operating aid

Member	Description
	support scheme is subject to specific obligations when participating in the market, which upon completion of the new electricity market model (Target Model) and the operation of a liquid Intraday Market will relate to standard balancing obligations. During the transition phase, it is foreseen to implement a mechanism in order to optimize the hourly day-ahead generation forecasts of these RES and HECHP plants. This is considered taking into account the absence of an intra-day market, but also the need to gradually prepare these units for their future balancing obligations and to overall reduce the balancing services and costs provided by the other electricity market participants. Transitional management premium mechanism. RES and high efficiency HECHP producers, which sign a Contract for Difference (i.e. installation under s-FiP scheme) and are exempted from the Competitive Bidding Procedure, are eligible for receiving an additional management premium during the transitory period until the establishment of the new electricity market model (Target Model) and the existence of a liquid intraday electricity market. The management premium is set at 3 €/MWh for wind installations up to 10 MW and at 2 €/MWh for all other RES and HECHP installations. The management premium is considered necessary in order to incorporate the additional variable management costs of the participation of RES and HECHP projects in the electricity market, especially in the initial period where mainly higher administration costs are to be expected. This management premium is closely linked to the new transitional mechanism of accurate forecasting. The two transitional mechanisms are envisaged as complimentary to each other and to act simultaneously as an incentive and as disincentive for the RES producers even during this rather premature market phase in terms of production forecasting. Both mechanisms will be abolished with the establishment of the new electricity market model (Target Model) and the uptake of balancing responsibilities by the RES producers. RES Operators scheme – Last Resort RES Operator. In order to facilitate the participation of all liable RES and HECHP producers in the market, a special framework for the licencing of operating agents (i.e. RES Operators-Aggregators) is introduced. These bodies will undertake on behalf of RES producers, obligations with respect to their participation in the market, as these will be determined in the respective bilateral contract between RES operators and- RES / HECHP Producer. For cases of the above Operators' temporary inability to provide such services or for the case of an inability of a RES producer to contract the required services, a representative body (last resort RES Operator-Aggregator) will be established with specific obligations and mode of operation. This body for the initial stage of the new support scheme can operate representing a significant number of producers, in the framework of specific and escalating charges, but is gradually and until the implementation of the new market model planned to undertake specific services only for emergency purposes and with time-limited duration per producer. For the above reasons, specific disincentives will be gradually implemented, so that it is not used by RES and HECHP producers as a typical provider of these services. In particular, the provision of services by the last resort operator are going to be associated with a charge on the the corresponding reference market price and therefore the plant owner is going to receive reduced revenues from the transaction of his production within the electricity market. The details of this operation are going to be set by a Ministerial Decision. RAE has already submitted its opinion over the abovementioned matters.
Hungary	1) The support system for electricity from renewable sources has been modified from mid-2016 and has been partially replaced by the new Renewable Energy Support Scheme (METÁR) which came into force on 1 January 2017. METÁR comprises three categories for support determined by the plant's capacity, namely a feed-in tariff (so called METÁR-KÁT) for installations between 50 kW-500 kW and demonstration projects, a green premium without tendering (where the support level is determined administratively) for renewable electricity producing plants between 0.5 MW-0,99 MW and a green premium granted through a tendering procedure for plants with a capacity of 1 MW and higher and also for all wind power plants and repowering projects. Furthermore, a so-called 'brown premium' has been introduced addressing solid biomass and biogas plants after the feed-in tariff. The former feed-in tariff scheme KÁT stayed in place for plants that have received their support decision of FIT before December 31 2016. 2) In case of the FIT schemes (KÁT and METÁR-KÁT) from April 2016, all electricity generated from RES and taken over by the TSO is sold on the organised electricity market HUPX. RES producers do not have balancing responsibility, however they have to submit 15 minutes production schedules. Penalties apply if no schedule is submitted or for deviation, bonus applies if an intraday schedule is submitted. In the "old" KÁT scheme (FIT support decision received before 31 Dec 2016) for RES plants below 500 kW only a bonus scheme is in place (no penalty for deviation). For RES producers in the FiP categories (green premium without tender, green premium with tender, brown premium) standard market rules apply, producers bear the costs for balancing.

Member	Description
Italy	1) The Ministerial Decree June 23rd 2016 updates the mechanisms for supporting electricity generation by RES-E plants (other than photovoltaic ones), reviewing the unitary value of the incentive, different for each source and size. The value of feed in premium is defined through auctions in the case of largest power plants (more than 5 MW). 2) The Ministerial Decree June 23rd 2016 reviews the support scheme, re-defining the plant capacity threshold: a) Feed in tariff (different for each source) for plants with a capacity of up to 500 kW (instead of 1 MW); b) Feed in premium for plants with a capacity over 500 kW (instead of 1 MW). The premium is calculated, on hourly basis, as the difference between a total tariff, different for each source and size, and the hourly zonal energy price.
Latvia	RES support scheme is being suspended for new installations, because it led to over subsidies.
Lithuania	The government is considering a new support scheme for RES producers at the moment, but no decision has yet been taken.
Luxembourg	1) The possibility of introducing tenders for solar power plants was specified in the legal framework in April 2017, both for national and for cross-border tenders. A first tender was launched on national level in March 2018 (deadline for applications is 31 August 2018) for a total of 20 MW of solar power. The tender is open to plants of 500kW and above. 2) The concept of Feed-in-premiums was introduced into the legal framework for RE support in July 2016 and refined in April 2017. All production subsidy paid to plants above 500 kW (above 3MW or 3 production units for wind energy) that were connected to the grid after 1 January 2016 is paid as a feed-in-premium.
Malta	1) Feed in Tariffs and Investment Grants for Photovoltaics 2) For photovoltaics installation greater than 1 MW, a tendering procedure was introduced in 2017.
Poland	1) Introduction of the Renewable Energy Fee as a source of financing for renewable energy support systems. 2) Chapter 4 of the Act on Renewable Energy Sources, which entered into force on 1 July 2016, has introduced auction mechanisms as the main element of the renewable energy support system in Poland. As a result of winning an auction, a RES installation obtains the right to cover the negative balance in the sales of electricity generated and entered into the grid. The Renewable Energy Fee (non-tax levy paid by customers via the electricity bill) has been introduced as a main source of financing for renewable energy support systems. Moreover, in June 2018, as a result of the amendment to the Renewable Energy Act, some new minor FIT/FiP elements have also appeared, as standalone RES support systems for some eligible energy companies.
Portugal	The Portuguese RES electricity support scheme is based upon feed-in tariffs that are differentiated by technology
Romania	By Government Emergency Ordinance no. 24/2017 there were introduced the following modifications: a) A green certificate may be the subject of a single transaction between the generator as the seller and the supplier as the buyer; b) Prohibition of the extension of bilateral contracts negotiated directly after the entry into force of the Ordinance; c) From 1 April 2017 until December 31, 2024, the trading of two green certificates for solar power plants shall be temporarily postponed for every 1 MWh produced and delivered by the producers of electricity from renewable sources accredited by ANRE until the date of December 31, 2013; d) Trading, even after the expiry of the validity of the accreditation decision, by March 31, 2032, of the green certificates issued for its own production during the validity period of the accreditation decision; e) Starting with the 2018, by 1 March of each year, ANRE shall establish the mandatory green certificate quota for the previous year on the basis of the static quantity of green certificates and the final consumption of electricity of the previous year, but without exceeding the average consumer impact of 11.1 euro / MWh, given the weighted average transaction price on the spot anonymous spot market of green certificates in the previous year. The annual static quantity of green certificates, communicated by ANRE, is approved by Government decision, at the proposal of the Ministry of Energy, within 60 days from the date of its communication by ANRE; f) Bilateral contracts for the sale and purchase of green certificates concluded before the entry into force of this Emergency Ordinance produce legal effects until their expiry date, without the possibility of extension; g) Introduction of anonymous markets for trading green certificates; h) Introduction of an electricity market where electricity trading is associated with green electricity certificates. The electricity produced from RES and green certificates were traded on different markets or based on bilateral contracts. These mechanisms are still valid and the new market will be complementary to existing mechanisms.
Spain	No changes since 2014. In the period 2016/2017 3 tenders for RES plants have been carried out.

Member	Description
Sweden	The elcertificate system was prolonged to 2030, and the ambition was increased by 18 TWh in 2016
UK	1) Feed in Tariffs (FIT), Contracts for difference (CFD), renewables obligations (RO) No changes to the FIT scheme 2) ROs closed to new generating capacity in the last two years although financing still continues as certificates are still being traded. FIT is also proposed to be closed by the end of this March to instead bring in new small scale support schemes. 3) The Renewables Obligation (RO) is the largest RES electricity support scheme in the UK. Each year, every electricity supplier in the UK has to present a certain number of Renewables Obligation Certificates (ROCs), based upon the amount of electricity supplied, or pay money into a fund if they don't have enough ROCs. Generators apply to receive these ROCs for each MWh of electricity they supply, and can sell them either with the electricity, or separately. The RO was closed to new generators from 31 March 2017, subject to some 'grace periods' for certain types of generators. Generators already accredited as part of the RO still receive ROCs until the end of their 20-year validity and suppliers are still obligated to present a certain number of ROCs - there are just no new accreditations and the obligation no longer rises each year. Installations already accredited under the scheme can install additional 'unsupported capacity' which they do not gain ROCs on. The RO was 'replaced' by the Contracts for Difference (CfD) scheme. Under this scheme, RES electricity and other low carbon technologies (e.g. nuclear, CCS) sell their electricity at the market price. The government agrees contracts for long-term "strike prices" with the generators via a government-owned company (Low Carbon Contracts Company - LCCC) and any RES electricity sold for less than this price means the generator receives the difference as a FIP payment. For any sales above the strike price, the generator pays LCCC the difference. These contracts are agreed based on rounds of competitive auctions, with distinct pots of money allocated to them, funded by levies on electricity suppliers (£155m for 2016/17, £105m for 2017/18). This scheme is underwritten by an Ofgem scheme called Offtaker of Last Resort (OLR), which means if a generator cannot negotiate a PPA, a competitive auction process for a backstop PPA is ran. The OLR has never been used.

Annex 6 – Description of Future Changes Beyond 2017

(Major changes of the support scheme are planned in the near future, notably as a consequence of the European Commission Guidelines for Environmental Protection and Energy (2014-2020), please specify key elements of the upcoming reform)

Member	No major changes	Major changes planned	Description
Austria	x		
Belgium		x	• Flemish region: No support during negative electricity market prices • Walloon region: No upcoming reforms foreseen • For future offshore windfarms, having yet a domanial concession and with a financial close after 1 July 2018, the LCOE is fixed at 79 euro/MWh for maximum 63000 full load hours over a period of 17 years. The electrical infrastructure top-up will be determined by the NRA on a case by case basis. Future domanial concessions for offshore electricity generation will probably be granted by a tendering process.
Bulgaria	N/A	N/A	Responsible authority for the national RES expansion objectives, and in particular those relating to RES electricity is the Ministry of energy.
Croatia	x		
Cyprus	x		No final decisions have been taken yet, regarding future (after 2020) support schemes based on European Commission Guidelines for Environmental Protection and Energy.
Czech Republic		x	By the end of 2020, the current form of support will remain. From 2021, the support scheme will be modified.
Denmark		x	In line with the EEAG, tendering procedures are being introduced as the main type of support scheme for onshore wind and solar PV in Denmark in 2018. An annual tender in 2018 and 2019 have been approved by the Commission. There is a political agreement to continue with annual technology neutral tenders from 2020-2024.
Estonia	x		
Finland		x	The quota for wind power has been exhausted and the deadline for accepting biogas and small scale wood-burning power plants to the feed-in tariff system is on the 31st of December 2018. A technology neutral tender for RES-E has been scheduled for the November-December 2018. Support will be provided as a market premium, which consists of a fixed and a sliding component. Support will be provided for a maximum of 12 years. Eligible generation are wind power, solar power, wood combustion, biogas and wave power.
France	x		All major legislative adaptations required by the EEAG have been introduced (see answer to question 2a above), therefore no further major changes are expected in the near future.
Germany	x		No major changes to the overall principles of RES support. However, in order to accelerate RES deployment, additional volumes for PV and wind onshore will be tendered for support entitlements (FIP). In addition, the curtailment management for RES electricity will be reformed and should be integrated in the overall redispatch framework, where all power plants are covered.
Greece	x		No major changes are planned in the near future, besides, as already has been described, the former support scheme has been changed recently (see previous answers).
Hungary	x		No major changes planned (except for what is set by regulation) First tender in 2019

Member	No major changes	Major changes planned	Description
Ireland		x	The proposed new Renewable Electricity Support Scheme (RESS) will provide support to renewable electricity projects in Ireland. With a primary focus on cost effectiveness, the RESS will deliver a broader range of policy objectives, including: • Enabling Framework for Community Participation through the provision of pathways and supports for communities to participate in renewable energy projects • Increasing Technology Diversity by broadening the renewable electricity technology mix (the diversity of technologies • Delivering an ambitious renewable electricity policy to 2030 • Increasing energy security, energy sustainability and ensuring the cost effectiveness of energy policy RESS auctions will be held at frequent intervals throughout the lifetime of the scheme. This will allow Ireland to take advantage of falling technology costs and by not auctioning all the required capacity at once; we will not be 'locking in' higher costs for consumers for the entirety of the scheme. The first RESS auction in 2019.
Italy		x	The Italian Economic Development Ministry is completing a review of RES support scheme, aiming at reducing the plant capacity threshold (now 500 kW) between feed in tariff and feed in premium and at valuating tendering procedure for the definition of the feed in premium value also in case of power plants with a capacity lower than 5 MW.
Latvia	x		The design of support scheme falls in the responsibility of Ministry of Economics. PUC has no information about major changes in the near future.
Lithuania	x		
Luxembourg		x	A draft Grand-Ducal regulation proposes to introduce a new tariff category for solar PV <10kW: This tariff would be higher than the current support such plants are eligible for, which is valid for all solar PV plants < 30 kW. A new FIT would also be introduced for PV plants between 200 and 500 kW, which are currently not eligible for any support. Like the existing FIT for PV plants between 30 and 200 kW, only cooperatives would be eligible for this subsidy. The proposed regulation would also simplify the legal framework for extension of current plants, as any plant connected more than 2 years after the initial connection of a plant at a certain connection point would be considered as a new plant. New FITs are also going to be introduced for large scale hydro (>6 MW) and large scale biomass CHP plants (max 40 MW rather than currently 20MW).
Malta	x		For photovoltaics installation greater than 1MW, a tendering procedure was introduced in 2017.
Netherlands	x		
Norway	x		No foreseeable upcoming support scheme for RES electricity.
Poland	x		At present, no plans have been published regarding subsequent changes to renewable energy support schemes.
Portugal	x		
Romania	x		
Spain	x		No changes expected in the near future.
Sweden		x	There is currently an investigation ongoing on how to phase out the elcertificate system before 2030.
UK		x	Feed-in Tariff – The scheme will close to new applicants from 31 March 2019. The nature of support for small scale renewables in the UK is currently being worked on. Renewables Obligation - No major changes planned in the near future.

Annex 7 – Overview of Financing of RES Electricity Support Scheme

CEER Member	No changes	General taxation paid by all citizens	Non-tax levies paid by some or all customers via the electricity bill	Other
Austria	x			
Belgium	x		x	For Flemish and Walloon region: No changes after 2015 For offshore: C. Non-tax levies paid by some or all customers via the electricity bill
Bulgaria	x		x	
Croatia	x			
Cyprus	x		x	
Czech Republic	x		x	State budget funds for providing subsidies to cover operating support for electricity
Denmark		x	x	
Estonia	x		x	The consumer pays a renewable energy fee through a network service. The network operator shall send the consumer an invoice for network services, setting out as a separate item the expense of funding the support for electricity generated from renewable energy sources and electricity generated in an efficient cogeneration process.
Finland	x			
France				Since January 2016, renewables support falls under the general State budget, through a dedicated purpose fund – the financing of which being decided each year by the Parliament through a Finance Law (currently, internal taxes on fossil fuels).
Germany	x		x	
Greece	x		x	According to the provisions of Law 4414/2016, the RES & CHP Special Account of Article 40 of Law 2773/1999 is split into: a) The RES & CHP Special Account of Interconnected System and Network (Special Account I) and b) The RES & CHP Special Account of Non-Interconnected Islands (Special Account II). Moreover, the Special Account I is further divided into two sub-accounts: a) the Electricity Market sub-account and b) the Operation Aid sub-account. The Special Account's I inflows are defined as Electricity Market Revenues and Operation Aid Revenues, respectively. Electricity Market Revenues. • DAS (Day Ahead Scheduling): Refers to the inflow from the participation of units in the RES & CHP Registry in the day ahead electrical energy market with quantity (MW) per distribution period (1 hour) as estimated (forecast) by Independent Power Transmission Operator (IPTO) S.A. The amounts are calculated upon clearing of the DAS by DAPEEP S.A., by multiplying the aforementioned amount each hour by the corresponding system marginal price (SMP).

CEER Member	No changes	General taxation paid by all citizens	Non-tax levies paid by some or all customers via the electricity bill	Other
				• Variation (Imbalances): Refers to the inflow or outflow (this component may be a credit or debit), ultimately arising from the clearing of variations (imbalances) of the RES & CHP Registry units conducted by IPTO S.A. Essentially, the amounts are calculated by multiplying the hourly quantity variation (MWh) between the corresponding amount of RES & CHP plants that participated in the DAS and the sum of the RES & CHP actual measurements, with the corresponding System Imbalance Marginal Price (SIMP). • Variable Weighted Average Cost of Conventional Thermal Units (VWACCTU): Refers to the additional RES electricity compensation at the variable weighted cost of conventional thermal power plants if this compensation is higher than the sum of revenues from DAS and Variation clearing. • Electricity Suppliers Charge: This is a new inflow component, applicable since October 2016, under the provisions of Law 4414/2016. It refers to the inflows from the electricity Suppliers, which are calculated based on the nominal difference (€/MWh) between the value of the SMP, that would have resulted if no RES had participated in the DAS (virtual SMP), and the SMP that resulted from the actual DAS clearing (actual SMP). In particular, the monthly revenues of this component are equal to the product of the Suppliers electricity sales at the Interconnected System and Network by the afore-mentioned difference. Operation Aid Revenues. • ETMEAR (Special levy for greenhouse gas emission reduction): Refers to the inflow collected by IPTO SA from the suppliers, based on the consumptions of their corresponding clients. In particular, according to the provisions of amended Art. 143 of Law 4001/2011, the level of ETMEAR is calculated and announced every 6 months by the Greek Regulatory Authority for Energy (RAE) on the basis of the remaining difference between the expenses and the revenues of the RES Special Account. ETMEAR levels are further differentiated between different categories of final consumers. ETMEAR is imposed on each MWh of electricity consumed. • Special levy for lignite: Refers to the inflow as calculated and collected by IPTO SA from the producers, owners of lignite units, based on their production. • CO2 (Greenhouse gas emission allowances): Refers to the revenues from the auctioning of greenhouse gas emission allowances. The following Table depicts the values regarding the above-mentioned components of the RES & HECHP Special Account for the year 2017. (SEE TABLE)
Hungary	x		x	
Ireland	x		x	
Italy	x		x	
Latvia	x		x	
Lithuania	x			

CEER Member	No changes	General taxation paid by all citizens	Non-tax levies paid by some or all customers via the electricity bill	Other
Luxembourg	x	x	x	Comment: The scheme is mainly funded by a levy, but the government adds a certain amount from the general budget.
Malta	x	x		
Netherlands	x		x	
Norway	x		x	
Poland	x		x	
Portugal	x		x	
Romania	x		x	
Spain	x		x	
Sweden	x		x	
UK	x		x	

Annex 8 – Institution in Charge of Determining the Non-tax Levy as Financing Instrument for the National RES Support Scheme

Member	No changes	Government	NRA	Other	Explanation
Belgium		x		x	For offshore: The NRA proposes the offshore levy, the Minister of Energy decides by Ministerial Decree.
Cyprus		x			
Denmark				x	The national TSO Energinet
Estonia					
Finland					
Germany	x			x	The RES surcharge (EEG Umlage) is determined by the 4 TSOs under the supervision of the NRA
Greece	x		x		
Hungary				x	TSO. The TSO buys the electricity from renewable sources from the plant operators through the obligated balance group and pays them the feed-in tariff. All renewable electricity is sold on the organised electricity market (HUPX). The TSO determines – according to a methodology defined in legislation – the amount which electricity consumers not eligible for universal service have to pay through their electricity bills.
Ireland			x		
Italy	x		x		
Latvia	x		x		
Luxembourg			x		
Netherlands	x	x			
Norway			x		
Poland	x		x		The Renewable Energy Fee is determined annually by the President of the Energy Regulatory Office.
Portugal	x	x			
Spain		x			
Sweden	x			x	The price for elcertificates is market-based. The electricity supplier companies are free to set the price for elcertificates for their customers.
UK				x	There is no national scheme, would have to go into detail on each of them. FIT – Tariff rates are set by the Department for Business Energy and Industrial Strategy (BEIS). CFDs – is primarily market based although the government sets a maximum price they are willing to offer RO – set by BEIS

Annex 9 – Electricity Being Partly or Fully Exempted from Contributing to the Financing of RES Support [Part I]

Member	No changes	No exemptions from contributions		Yes, exemptions for energy intensive industries	
Austria	x				
Belgium	x			x	Flemish region: distribution tariff: energy-intensive industries are partially exempted: consumption between 1-20 GWh 47% exempted, 20-250 GWh 80% exempted, > 250 GWh 98% exempted
Bulgaria				x	
Croatia	x				
Cyprus		x			
Czech Republic	x				
Denmark	x				
Estonia	x	x			
Finland	x				
France		x	Electricity consumers are no longer directly contribute to the financing of renewables support		
Germany	x			x	The exemption applies only to electricity-intensive companies in sectors that compete internationally. In concrete terms, the Special Equalization Scheme works as follows: beneficiaries pay the full EEG surcharge for the first gigawatt hour and in principal 15% of the EEG surcharge for every kilowatt hour of electricity they consume above and beyond this. This burden is limited to a maximum of 0.5% (cost intensity >= 20%) or 4% (cost intensity < 20%) of the respective enterprise's gross value added. For more Information: http://www.bmwi.de/English/Redaktion/Pdf/special-equalisation-scheme-key-information,property=pdf,bereich=bmwi2012,sprache=en,rwb=true.pdf

Member	No changes	No exemptions from contributions		Yes, exemptions for energy intensive industries	
Greece				x	According to the provisions of paragraph 3 of article 143 of Law 4001/2011, as applicable, the maximum annual customer charge (Industries connected in High Voltage and Industries with annual electricity consumption> 13GWh) from the RES Levy (ETMEAR) shall not exceed the amount of EUR 1,000,000. RAE, taking into account that the "Commission Guidelines on State Aid for environmental protection and energy 2014-2020", and in particular the transitional rules in section 3.7.3, lay down strict criteria regarding the eligibility and proportionality of the maximum amount of the relevant discount, decided that ETMEAR's unit charge for the abovementioned categories should be equal to 15% of the ETMEAR's weighted average rate. Moreover, the competent national authority, i.e. the Ministry of the Environment and Energy, has drawn up an "Adaptation Scheme" for the payment of reduced tariffs of ETMEAR, which is under the approval of the European Commission's Directorate-General for Competition.
Hungary	x				
Ireland		x			
Italy				x	The Ministerial Decree December 21st 2017 updates the system of concessions for energy-intensive industries. In particular, the Asos tariff component (used to collect money for the incentive of renewables), for consumers with a yearly consumption of at least 1 GWh and an electro-intensity of at least 20%, is progressively reduced on the basis of electro-intensity (electro-intensity is an index computed with respect to the company's annual turnover).
Latvia	x			x	
Lithuania					
Luxembourg	X			x	Energy intensive industries can, under certain conditions, benefit from a lower rate for the Renewable Energy levy (taux de la catégorie C). To be eligible, companies have to either be connected to the 65kV grid or higher, or have a consumption of over 20 GWh per year. Companies consuming more than 2,5 GWh, whose electricity consumption accounts for a large share of the value of their activities can also be eligible, if they fulfil certain criteria. To be eligible for the Category C levy, companies have to engage in an agreement with the government through which they commit to substantial improvement of their overall energy efficiency.
Malta		x	RES support is funded through general taxation paid by all citizens		
Netherlands	x				
Norway				x	
Poland		x		x	The President of the Energy Regulatory Office publishes each year, by 31 December, a list of energy-intensive industries, which will be partly exempted from contributing to the financing of RES support during next year. The amount of discount depends on the amount of the intensity of electricity consumption.

Member	No changes	No exemptions from contributions		Yes, exemptions for energy intensive industries	
Portugal	x			x	The spreading of RES costs is based upon number of consumers per voltage level. Therefore the brunt of the costs falls upon low voltage consumers
Romania				x	No changes after 2015
Spain	x	x			
Sweden	x				
UK			x	x	Yes although only starting next year energy intensive industries don't have to pay as much. IEI industry exemption from FIT and RO.

Annex 10 – Electricity Being Partly or Fully Exempted from Contributing to the Financing of RES Support [Part II]

Member	Exemption for self-consumed electricity		Exemption for network losses	Other categories of exemptions	
Austria				x	Low-income households can be partially exempted from contributing to the financing of RES support.
Czech Republic	x	Electricity generators of RES that are consuming electricity are exempt from electricity charges from RES, independently of how much and when those generators consume the generated electricity?			
Denmark	x				
Germany	x	1) In principal a reduced RES surcharge (40%) applies for self-consumed electricity, which is not fed into the public network. However, no RES surcharge is applied to electricity generated by self-consumer with an installed capacity < 10 KW; 2) No RES surcharge for electricity consumed by the power station itself 3) No RES surcharge if the self-supplier is not directly or indirectly connected to a grid system, 4) No RES surcharge if the self-supplier fully supplies itself with electricity from renewable energy sources and does not claim any financial support for electricity from his installation which it does not consume itself 5) No RES surcharge is also applicable under certain conditions to existing installation used for self-consumption;	x		
Greece	x	According to the decision of the Hellenic State Council No. 3367/2015, "electricity produced by RES and he-CHP plants is clean energy and therefore either injected into the electricity distribution system or self-consumed by the producer, contributes effectively to the fulfilment of the national target of penetration of clean energy in the energy balance of Greece. Under these circumstances, the self-producers of energy from RES and he-CHP are not included among those subject to the RES Levy (ETMEAR), especially and exclusively for the part of self-generated energy.			
Hungary	x			x	Yes, consumers eligible for universal service (mainly households, institutions, SMEs) are exempted.

Member	Exemption for self-consumed electricity		Exemption for network losses	Other categories of exemptions	
Italy	x	In Italy, the variable part of Asos tariff component (i.e. the part in c€/kWh) is applied to the electricity withdrawn from the grid. It is not applied to self-consumed electricity.			
Latvia	x		x	x	Captive users according to regulation of the Cabinet of Ministers
Lithuania	x	Prosumers do not pay public service obligation price for the amount of electricity, which is produced to the grid and consumed later.			
Luxembourg	x	Contribution to RES support is only due on final consumption of electricity that was delivered through the grid. Self-consumer electricity is hence not subject to RES support obligations. Electricity used for storage purposes, under any form, in view of further retransformation and use at a later stage is also exempt from the levy.	x		
Netherlands				x	You can get an exemption when your consumption is above the threshold of 10 mio kWh and when you have long-term arrangement with the government regarding to improve the energy efficiency.
Norway				x	Customers exempt from this requirement are end users that do not pay electricity taxes/levies (In the county Finmark and Northern Troms)
Poland				x	The Renewable Energy Fee is not charged on electricity that has been consumed in the processes of generation, transmission or distribution of electricity.

Annex 11 – Nature of the Support Granted for Each Technology

Member	Nature of the support	PV	Onshore wind	Offshore wind	Bio-energy	Hydro-power	Explanation
Austria	Operational aid per KWh produced	✓	✓		✓	✓	PY gets an operational aid combined with an investment grant. Two support options exist for hydro. One purely based on an operational aid (<2MW) and one based on an investment grant.
	One time capacity based payment	✓				✓	
Belgium	Operational aid per KWh produced	✓	✓	✓	✓	✓	
Bulgaria	Operational aid per KWh produced	✓	✓		✓	✓	
Croatia	Operational aid per KWh produced	✓	✓		✓	✓	Feed-in system (for producers that signed the contract before 2016, it is not available anymore for new producers), feed-in system with tendering procedure (only for power plants up to and including 30 kW capacity) and premium scheme with tendering procedure (for power plants above 30 kW). Last 2 schemes are new and still not fully implemented, as explained in question 2a.
Cyprus	One time capacity based payment	✓					No financial support for RES systems is applied. Only vulnerable consumers can benefit from the one-time capacity-based payment financial support. The amount is defined in the grant scheme published by the Ministry of Energy, Commerce, Industry and Tourism in April 2017. According to the Law which promotes and encourages the use of RES, the grant scheme is published only with the prior agreement of the Cyprus Energy Regulatory Authority. A FIT scheme in place since 2013, covering PV, on-shore wind and biomass technologies, has been closed but the contracts were set for 15(+5) years, so they are still in force.
Czech Republic	Operational aid per KWh produced	✓	✓		✓	✓	It is possible to provide one-off subsidies for the construction of RES plants.
Denmark	Operational aid per KWh produced	✓	✓	✓	✓	✓	Our RES-schemes are based on operational aid per kWh produced
Estonia	Operational aid per KWh produced	✓	✓		✓	✓	
Finland	Operational aid per KWh produced		✓	✓	✓		The support for wind and bioenergy is granted based on a feed-in tariff system. The support can be granted for electricity derived from wind, biogas, and small-scale wood burning power plants. The amount of support equals to the difference between the target price and the market price. Feed-in Premium for wood chips and timber chip burning power plants. The amount of support is based on the price of emission allowances and peat tax. In addition, support is granted for small-scale renewable energy production. This applies to PV and hydro power, but also to other small scale energy production. The

Member	Nature of the support	PV	Onshore wind	Offshore wind	Bio-energy	Hydro-power	Explanation
							support is granted based on the investment expenses. In the planned tender support can be granted for electricity derived from wind, PV, biomass, biogas and waves. Support will be payed based on the electricity produced.
France	Operational aid per KWh produced	✓	✓	✓	✓	✓	Operational aid per kWh produced for all technologies (except for small scale solar plants, which are also granted an investment premium when part of the energy is self-consumed). Experimentation projects (such as tidal turbine) may also benefit from local, state or European direct investment subsidies.
	One time capacity based payment	✓					
Germany	Operational aid per KWh produced	✓	✓	✓	✓	✓	
Greece	Operational aid per KWh produced	✓	✓	✓	✓	✓	Project category Reference Values (€/MWh) Onshore Wind installations < 3MW 98 Onshore Wind installations > 3MW Bidding process PV Bidding process SHP ≤ 3 MW 100 3 MW < SHP ≤ 15 MW 97 Biomass ≤1MW 184 Biomass through gasification ≤1 MW 193 1MW < Biomass ≤5 MW 162 Biomass >5 MW 140 Gas from landfills and biological sewage treatment plants and biogas from anaerobic digestion of biodegradable material of wastewater and sewage sludge ≤ 2 MW 129 Gas from landfills and biological sewage treatment plants and biogas from anaerobic digestion of biodegradable material of wastewater and sewage sludge > 2 MW 106 Biogas from anaerobic digestion of biomass (energy crops, silage green fodder agricultural crops, livestock and agro-food organic residues and organic farming and agro-industrial residues and waste, waste edible oils and expired food)≤ 3 MW 225 Biogas from anaerobic digestion of biomass (energy crops, silage green fodder agricultural crops, livestock and agro-food organic residues and organic farming and agro-industrial residues and waste, waste edible oils and expired food)> 3 MW 204
Hungary	Operational aid per KWh produced	✓	✓		✓	✓	The METÁR scheme for operational support to RES electricity generators comprises three categories for support, determined by the plant's capacity: 1) an administratively set feed-in tariff (so called METÁR-KÁT) for installations between 50 kW-500 kW and demonstration projects, 2) a green premium without tendering (where the support level is determined administratively) for renewable electricity producing plants between 0.5 MW-0,99 MW 3) a green premium granted through a technology neutral tendering procedure for plants with a capacity of 1 MW and higher and also for all wind power plants and repowering projects. Furthermore, a so-called 'brown premium' has been introduced addressing solid biomass and biogas plants after the feed-in tariff.

Member	Nature of the support	PV	Onshore wind	Offshore wind	Bio-energy	Hydro-power	Explanation
							The former feed-in tariff scheme KÁT stayed in place for plants that have received their support decision of FIT before December 31 2016.
Ireland	Operational aid per KWh produced		✓	✓	✓	✓	The current primary support mechanisms for renewable electricity are the REFIT (Renewable Energy Feed-in Tariff) schemes. The schemes were designed to provide certainty to renewable electricity generators by providing them with a minimum price for each unit of electricity exported to the grid over a 15 year period. The Renewable Energy Feed in Tariff (REFIT) schemes/supports are funded by the Public Service Obligation (PSO) which is paid for by all electricity consumers. The REFIT schemes have been designed to incentivise the development of renewable electricity generation in order to ensure Ireland meets its goal of 40% of electricity coming from renewable sources by 2020. REFIT 1 :The technologies covered in REFIT 1 are small wind (< 5MW), large wind (>5MW), Hydroelectricity and Biomass/Landfill gas REFIT 2: The technologies covered are small wind (< 5MW), large wind (>5MW), Hydroelectricity and Biomass/Landfill gas REFIT 3: Anaerobic Digestion (including AD CHP) Biomass CHP / Biomass Combustion
Italy	Operational aid per KWh produced	✓	✓	✓	✓	✓	• CIP 6/92. It defined different values of feed in tariffs for the energy injected to the grid by renewables, or equivalent, energy sources granted for 8 to 20 years, depending on the sources. It is no longer in force for new projects. • Feed in premium which replaced Green Certificates since 2016: it is applied to energy produced by power plants that have been enabled to Green Certificates mechanism and it is no longer in force for new projects. The premium, different for each source, is granted for 12 years for power plants that started operation between April 1999 and December 2007, for 15 years for power plants started operation after January 1st 2008. • Feed in tariff referred to Law 244/2007: it is applied to energy injected into the grid by RES plants, except for PV plants, with capacity lower than 1 MW (0.2 MW for wind plants) and in operation before December 31st 2012. Tariffs, different for each source, are granted for 15 years. It is no longer in force for new projects. • Feed in premium for PV plants: it is applied to energy produced by PV in operation before August 27th 2012. Different values, depending on the power plant size, are granted for 20 years. • Premium tariffs for PV plants: they are applied for PV plants in operation between August 27th 2012 and July 6th 2013, as described below, and are granted for 20 years. In details: in case of PV plants with capacity up to 1 MW: feed in tariff for electric energy injected to the grid, plus a feed in premium for self-consumption

Member	Nature of the support	PV	Onshore wind	Offshore wind	Bio-energy	Hydro-power	Explanation
							energy; in case of PV plants with capacity higher than 1 MW: feed in premium, computed on hourly basis as the difference between a total tariff and the zonal energy price, for electric energy injected to the grid, plus a feed in premium for self-consumption energy. • Premium tariffs, defined by the Ministerial Decree July 6th 2012, for RES-E plants except for PV plants: they are applied as described below, and are granted for different time periods, depending on the source (from 15 up to 25 years). In details: in case of plants with capacity up to 1 MW: feed in tariff (different for each source) for injected energy; in case of plants with capacity over 1 MW: feed in premium (different for each source) for injected energy. The premium is calculated, on hourly basis, as the difference between a total tariff, different for each source, and the hourly zonal energy price. Furthermore, the premium value is determined through auctions for largest plant (capacity over 5 MW, augmented to 10 MW for hydro plants and to 20 MW for geothermal plants). It is no longer in force for new projects. • Premium tariffs, defined by the Ministerial Decree June 23rd 2016, for RES-E plants except for PV plants: they are applied as described below, and are granted for different time periods, depending on the source (from 15 up to 25 years). In details: in case of plants with capacity up to 500 kW: feed in tariff (different for each source) for injected energy; in case of plants with capacity over 500 kW: feed in premium (different for each source) for injected energy. The premium is calculated, on hourly basis, as the difference between a total tariff, different for each source, and the hourly zonal energy price. Furthermore, the premium value is determined through auctions for largest plant (capacity over 5 MW).
Latvia	Operational aid per KWh produced	✓	✓	✓	✓	✓	
Lithuania	Operational aid per KWh produced	✓	✓		✓	✓	It is no support scheme for offshore wind yet. The existing electricity producers from RES is getting feed-in tariff.
Luxembourg	Operational aid per KWh produced	✓	✓		✓	✓	PV, onshore wind, bioenergy and hydro are also eligible for different kinds of investment support. The NRA does not have details on the details of these support schemes.
Malta	Operational aid per KWh produced	✓	✓				Grant Scheme where public money paid to provide direct support to investment that increases the generation of renewable energy For FIT: a type of price-based policy instrument whereby eligible renewable energy generators are paid a fixed price at a guaranteed level (irrespective of the wholesale price)
Netherlands	Operational aid per KWh produced	✓	✓	✓	✓	✓	

Member	Nature of the support	PV	Onshore wind	Offshore wind	Bio-energy	Hydro-power	Explanation
Norway	Operational aid per KWh produced	✓	✓	✓	✓	✓	The support scheme is market-based and technology neutral.
Poland	Operational aid per KWh produced	✓	✓	✓	✓	✓	Support is provided to electricity generated in a renewable energy source and introduced into the distribution or transmission network. The amount of support provided results directly from the amount of electricity entered into the network.
Portugal	Operational aid per KWh produced	✓	✓	✓	✓	✓	All receive a variable (on technology) FIT
Romania	Operational aid per KWh produced	✓	✓		✓	✓	
Spain	Operational aid per KWh produced	✓			✓		There is a capacity payment in €/MW for all technologies, not once but in a monthly basis. Additionally, for all technologies except hydro and wind there is an operational aid in €/kWh.
	One time capacity based payment	✓	✓	✓	✓	✓	
Sweden	Operational aid per KWh produced	✓	✓	✓	✓	✓	The elcertificate system provides an operational aid by issuing a certificate per MWh produced by RES. There is a one time payment to solar energy investors which corresponds to 30% of the initial investment.
	One time capacity based payment	✓					
UK	Operational aid per KWh produced	✓	✓	✓	✓	✓	For each renewables support type different types of generation receive different levels of support, some which receive more than others. FIT – PV, wind, Hydro and bio-energy can only receive up to a total installed capacity (TIC) of up to 5MW, Contracts for Difference for large-scale renewable generation. RO – Scheme has now closed for new applicants

Annex 12 – Entity and Process Determining the Level of Support for Each Technology

Member	Entity and process determining the level of support	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro - power	One approach for all RES technologies	Explanation
Austria	Administrative procedures for determining level of FIT	✓	✓		✓	✓	✓	The investment grants are fixed in the green electricity act and the FIT are reviewed every 1 - 2 years.
Belgium	Administrative procedures for determining the quota (certificate schemes)	✓	✓		✓	✓		Both regional and federal processes combine E and F for all RES technologies. In the four support areas of Belgium (Wallonia, Flanders, Brussels and offshore) a quota system is the nominal support system in place. However, because financial indicators are used to determine the banding factor for support and because, especially in the case of Wallonia, the price of the green certificate has been flat for a long time, the support systems are tantamount to FIP. And indeed it is through an administrative procedure that the banding factor/level of FIP is determined. For Offshore in Belgium, the level of support (FIP-principle) is set through an administrative procedure (no quota). Since the start of the offshore support in 2009, different levels of FIP have been applied (in a first stage a fixed FIP, followed by different variable FIP's (fixed LCOE-cost minus commodity price).
	Administrative procedures for determining level of FIP	✓	✓	✓	✓	✓		
Bulgaria	Administrative procedures for determining level of FIP	✓	✓		✓	✓	✓	
Croatia	Tendering procedures as basis for FIT	✓	✓		✓	✓		There is actually tendering procedures both for FIT and FIP (couldn't select both options), but it doesn't depend on the technology - it depends on capacity. As we mentioned in the question above, currently 30 kW is the limit between FIT and FIP scheme.
	Tendering procedures as basis for FIP	✓	✓		✓	✓		
Cyprus	Administrative procedures for determining the capacity based payments	✓					✓	N/A - No financial support for RES systems is applied. Only vulnerable consumers can benefit from the one-time capacity-based payment financial support. The amount is defined in the grant scheme published by the Ministry of Energy, Commerce, Industry and Tourism in April 2017. According to the Law which promotes and encourages the use of RES, the grant scheme is published only with the prior agreement of the Cyprus Energy Regulatory Authority.

Member	Entity and process determining the level of support	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro - power	One approach for all RES technologies	Explanation
Czech Republic	Administrative procedures for determining level of FIT	✓	✓		✓	✓		Both FIT and FIP prices for RES are administered administratively.
	Administrative procedures for determining level of FIP	✓	✓		✓	✓		
Denmark	Tendering procedures as basis for FIP	✓	✓	✓				
	Administrative procedures for determining level of FIT					✓		
	Administrative procedures for determining level of FIP				✓			
Estonia	Administrative procedures for determining level of FIT	✓	✓		✓	✓	✓	
Finland	Administrative procedures for determining level of FIT		✓	✓	✓			The support for wind and bioenergy is granted based on a feed-in tariff system. The support can be granted for electricity derived from wind, biogas, and small-scale wood burning power plants. The amount of support equals to the difference between the target price and the market price. Feed-in Premium for wood chips and timber chip burning power plants. The amount of support is based on the price of emission allowances and peat tax. In addition, support is granted for small-scale renewable energy production. This applies to PV and hydro power, but also to other small scale energy production. The support is granted based on the investment expenses.
	Administrative procedures for determining level of FIP				✓			
France	Tendering procedures as basis for FIT	✓						
	Tendering procedures as basis for FIP	✓	✓	✓	✓	✓		
	Administrative procedures for determining level of FIT	✓			✓	✓		

Member	Entity and process determining the level of support	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro - power	One approach for all RES technologies	Explanation
	Administrative procedures for determining level of FIP		✓		✓	✓		
Germany	Tendering procedures as basis for FIP	✓	✓	✓	✓			For all new PV and wind onshore installations larger than 750 kW, new biomass installations > 100 kW, and wind offshore installations, financial support can only be granted after a successful participation in a tendering procedure. Smaller installations can still claim a support, which has been determined administratively (in the legal Framework EEG 201. Hence the administrative procedure is still relevant for FIT and FIP for all new smaller installations. FIP is only mandatory for new installations > 100 KW.
	Administrative procedures for determining level of FIT	✓	✓		✓	✓		
	Administrative procedures for determining level of FIP	✓	✓		✓	✓		
Greece	Tendering procedures as basis for FIT	✓	✓					RES and HECHP projects up to a certain threshold of installed capacity (i.e. 500kW and 3MW for wind parks) are supported by operating aid on the basis of a feed-in-tariff (FIT). The RES and HECHP units with an installed capacity over the aforementioned thresholds are supported on the basis of a sliding Feed in Premium. Tendering procedures as basis either for FiP or FIT are organized only for PV and wind stations, with the exception of wind stations of installed capacity less than 3 MW. For these stations the level of FIT is being determined administratively. Finally, for the rest RES technologies (other than PV and wind) the level of FiP is being determined administratively.
	Tendering procedures as basis for FIP	✓	✓					
	Administrative procedures for determining level of FIT	✓	✓	✓	✓	✓		
	Administrative procedures for determining level of FIP	✓	✓	✓	✓	✓		
Hungary	Tendering procedures as basis for FIP	✓	✓		✓	✓		A. Tendering procedures as basis for FIP: all kinds of RES-E generators with 1 MW and higher, wind independent of capacity D. Administrative procedures for determining level of FIT: all kinds of RES-E generators below 0.5 MW (except wind), demonstration projects independent of size and RE technology E. Administrative procedures for determining level of FIP: all kinds of RES-E generators with capacities between 0.5 – 0.99 MW (except wind)
	Administrative procedures for determining level of FIT	✓	✓		✓	✓		
	Administrative procedures for determining level of FIP	✓			✓	✓		
Ireland	Administrative procedures for determining the quota (certificate schemes)		✓	✓	✓	✓	✓	The support scheme is on offer for electricity exported to the grid in each technology category subject to the quantitative limits. Once available capacity in a specified category has been assigned to a specific applicant, the specific project is deemed to remain in that category for the duration of the scheme and the capacity assigned to that project may not be assigned to any other applicants, unless the

Member	Entity and process determining the level of support	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro - power	One approach for all RES technologies	Explanation
								project to whom the capacity has been assigned withdraws from the scheme or the capacity is otherwise withdrawn.
Italy	Tendering procedures as basis for FIP		✓	✓	✓	✓		Tendering procedures as basis for FIP: all sources except PV Administrative procedures for determining level of FIT and FIP: all sources In Italy, in fact, different incentive schemes coexist. In order to have more details, see Annex 11
	Administrative procedures for determining level of FIT	✓	✓	✓	✓	✓		
	Administrative procedures for determining level of FIP	✓	✓	✓	✓	✓		
Latvia	Administrative procedures for determining level of FIT	✓	✓	✓	✓	✓	✓	
Lithuania	Tendering procedures as basis for FIT	✓	✓		✓	✓	✓	It is no support scheme for offshore wind yet. The government is considering a new support scheme for RES producers at the moment. This new support scheme is about tendering procedures as basis for FIP.
Luxembourg	Tendering procedures as basis for FIP	✓						Depending on the capacity of the plant, different answers apply: • Tendering- PV (>500 kW) • Administratively set FiT- PV (<30 kW and 30-200 kW (cooperatives only), onshore wind (3 units or 3MW), bioenergy (<500 kW), hydro (<500 kW) • Administratively set FiP - Onshore wind (>3 MW or 3 units), bioenergy (>500 kW), hydro (>500 kW)
	Administrative procedures for determining level of FIT	✓	✓		✓	✓		
	Administrative procedures for determining level of FIP		✓		✓	✓		
Malta	Tendering procedures as basis for FIP	✓	✓					Support is determined as follows: • Administrative procedure for PV Systems <1MWp • Competitive (tendering procedure) for PV Systems =>1MWp or possibly onshore Wind. • No support for other RES • We have a FIT for PV systems smaller than 1MWp and a FiP for PV systems of 1MWp or larger. However, since we have no liquid wholesale market in Malta, the FiP is in practice equivalent to an FIT.
	Administrative procedures for determining level of FIT	✓						
Netherlands	Tendering procedures as basis for FIP	✓	✓	✓	✓	✓	✓	

Member	Entity and process determining the level of support	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro - power	One approach for all RES technologies	Explanation
Norway	Administrative procedures for determining the quota (certificate schemes)	✓	✓	✓	✓	✓	✓	Power producers investing in new renewable power production receive a certificate per MWh produced. Retailers have an obligation to buy certificates for their customers.
Poland	Tendering procedures as basis for FIP	✓	✓	✓	✓	✓	✓	The term "Tendering procedures as basis for FIP" should be understood as RES auctions in which RES installations are allowed to take part (all types listed in the RES Act), as the main element of the renewable energy support system in Poland. As a result of winning an auction, a RES installation obtains the right to cover the negative balance in the sales of electricity generated and entered into the grid. However, in 2018, as a result of the amendment to the Renewable Energy Act, some new FIT/FiP elements have also appeared, as a standalone RES support system. Moreover, renewable energy certificates (so called "green certificates") are still valid for old renewable energy as a closed and expiring system.
Portugal	Administrative procedures for determining level of FIT	✓	✓	✓	✓	✓	✓	FIT is determined by technology and applicable legal framework.
Romania	Administrative procedures for determining the quota (certificate schemes)	✓	✓		✓	✓	✓	
Spain	Tendering procedures for determining the capacity based payments	✓	✓		✓	✓	✓	Since 2014, all support schemes for new projects are set by a tendering process. For generation plants installed before 2014, support scheme is determined by administrative procedures.
Sweden	Administrative procedures for determining the quota (certificate schemes)	✓	✓	✓	✓	✓		The elcertificate system is "technology neutral" and does not discriminate between RES technologies. But the investment support of 30% return of the initial investment is only eligible for PV.
	Administrative procedures for determining the capacity based payments	✓						
UK	Administrative procedures for	✓	✓	✓	✓	✓		

Member	Entity and process determining the level of support	PV	On-shore wind	Off-shore wind	Bio-energy	Hydro - power	One approach for all RES technologies	Explanation
	determining the quota (certificate schemes)							

Annex 13 – Costs Covered by the Support Level

Member	The support level granted covers the full LCOE as basis for calculating a FIT, a FIP or a fixed capacity payment	The support level granted covers only selected costs	Explanation
Austria	✓		
Belgium	✓		The full LCOE serves as a basis for calculating the FIP for all RES technologies and in all regions + offshore. For offshore: full LCOE-recovery
Bulgaria	✓		
Croatia	N/A	N/A	The investor determines the price he wants to achieve to cover his expenses and competes in a tendering procedure.
Cyprus	N/A	N/A	N/A - No financial support for RES systems is applied.
Czech Republic	✓		
Denmark	✓		
Estonia	✓		
Finland	✓	✓	The target price for FIT originally took into consideration the investment cost whereas the goal of FIP is to increase the share of wood chips and timber chips as fuel in electricity production. The small scale energy support covers investment costs.
France	✓		
Germany	✓		
Greece	✓		N/A
Hungary	✓		The support level is determined by a full LCOE calculation. The supported price by is set by legislation (in case of FIT and administrative FiP). The regulator HEA calculates the support period and supported amounts based on a transparent calculation methodology.
Ireland		✓	The REFIT support to the generator is granted in the form of a floor price tariff. For every kWh purchased under the Power Purchase Arrangement (PPA), the supplier will then receive a REFIT payment, which is funded through the PSO levy. The proceeds of the PSO levy are used to compensate the: (i) “additional costs” incurred by market participants in purchasing/generating PSO-supported electricity generation (which are not recovered in the electricity market); and (ii) the “administrative expenses” incurred by suppliers, the distribution system operator and the transmission system operator in the period concerned in collecting payment of the PSO levy. REFIT 1 scheme, there are three forms of compensation streams (which are ring-fenced i.e. calculated separately) Balancing Payment, Technology Difference Payment (excluding Large Wind projects >5MW),Opportunity Cost Payment

			Under REFIT 2 and 3 suppliers do not receive a direct technology difference payment. Additionally, suppliers are not entitled to an automatic 15% balancing payment. In accordance with Section 5.5 – 5.7 of the relevant REFIT Terms & Conditions, a supplier may receive a balancing payment of up to a maximum of €9.90 MWh
Italy	✓		
Latvia	✓		There is specific calculation for each type of RES plant, payment depends on resource type and might be different according to installed capacity (divided in two levels - large and small scale generation). Furthermore, to set ceiling for RES support internal rate of return (IRR) is being considered. If IRR exceeds the ceiling, support provided is being reduced.
Lithuania	✓		
Luxembourg	✓		
Malta	✓		
Netherlands	✓		
Norway		✓	Cost covered are determined by the outcome of the certificate market
Poland	✓		
Portugal	✓		
Romania	✓		Full LCOE through green certificates support scheme
Spain	✓		
Sweden	✓		There is a support scheme for PV in Sweden is a 30% return on the initial investment. Return from the electricity system is not based on LCOE, and revenue is dependent on the market value of electricity.
UK		✓	BEIS do not specify what support under the RO or FIT scheme is intended to cover. For example, BEIS only state that the FIT scheme is intended to replace public grants in encouraging the growth of small-scale renewable generation. Tariffs are set to deliver an approximate rate of return of 5-8% for well sited installations. Installations are prohibited from receiving FIT accreditation if they have received grants from public funds for any costs with purchasing or installing an installation. This doesn't include grid reinforcement costs.

Annex 14 – Duration of Support

Member	For which time period or number of full load hours is the operational support granted?	Does the support period start from the exact date of operation?	Explanation
Austria	13 to 15 years	Yes	FIT are granted for 15 years for solid and liquid biomass and biogas (plants can apply for additional five years) and for 13 years for all other technologies.
Belgium	10 to 20 years	Yes	**Flemish region**: 10 years for PV, 15 years for biomass/biogas, 20 years wind **Walloon region**: 0 year for the photovoltaic powerplants under 10 kVA, 10 years for the photovoltaic powerplants over 10 kVA, 15 years for all other renewable powerplants. **For offshore wind** : the first 4 domanial concessions, which benefited from a fixed feed in premium, the support mechanism is effective during 20 years from the start of operation. For the 2 domanial concessions (Rentel and Norther), which realized their financial close in 2016 and are now being constructed, the support mechanism is effective during 19 years from the start of operation. For windfarms, which have obtained a domanial concession and have their financial close in after 1 July 2018, the support is granted for maximum 63 000 full load hours and maximum 17 years.
Bulgaria	12 to 20 years	Yes	According art. 31, par. 2 Energy from Renewable Sources Act: Electricity from renewable energy sources under Paragraph 1 shall be purchased based on long-term purchase contracts signed for a term of: 1. twenty years - for electricity produced from geothermal and solar energy, as well as for electricity, produced from biomass; 2. twelve years - for electricity, produced from wind energy; 3. fifteen years - for electricity produced by hydroelectric power plants with installed capacity up to 10 MW, as well as for electricity produced from other types of renewable sources.
Croatia	14 years	Yes	Currently it is granted for 14 years from the start of operation.
Cyprus	N/A	N/A	N/A - No financial support for RES systems is applied.
Czech Republic	20 to 30 years	Yes	Operating support is set as standard for the lifetime of RES plants, ie 20 years. For hydro plant, operating support is set for 30 years.
Denmark		Yes	Previously based on the number of full load hours and period of years, but now switches to support schemes based on a given period of years
Estonia	12 years	Yes	
Finland	12 years	No	12 full years starting from the quarter following accepting into the FIT/FIP system
France	10 to 20 years	Yes	FIT and FIP contracts are granted for 10 to 20 years depending on the lifetime of the technology. For specific technologies, contracts include annual production thresholds over which support decreases or terminates. Within the framework of tendering procedures, the support period can be reduced as a penalty if the operation date exceeds a given period of time set by the requirements of the procedure.

Member	For which time period or number of full load hours is the operational support granted?	Does the support period start from the exact date of operation?	Explanation
Germany	20 years	Yes	Market premiums or feed-in tariffs shall be paid for a period of 20 years. Installations for which the support level has been determined administratively, this period is extended until 31 December of the 20th year of payment. The 20 year period begins with the commissioning of the installation.
Greece	20 to 25 years	Yes	The duration of the operating aid is 20 years for all RES and HECHP technologies, apart from small rooftop PV installations up to 10 kW and CSP installations for which the duration is set at 25 years
Hungary	4.5-25 years	Yes	Eligibility to support ends either after the end of the support period or after reaching the determined supported volume (in kWh). In case of sources of other support (e.g. investment grant) the support period and the supported amounts are reduced proportionally. **2016 (previous FIT system KÁT)** • Solid biomass (up to 20 MW): maximum 20 years, maximum 6600 h/year • Biogas (up to 5 MW): max 15 years, max 7250 h/year • Landfill gas: max 5 years, max 7500 h/ year • Solar PV (up to 2 MW): max 25 years, max 1100 h/year • Solar PV (with solar tracker, up to 2 MW): max 25 years, max 1500 h / year **2017 FIT in the new scheme (METÁR-KÁT)*:** • Biogas: 25 years, max 6750 h / year • Landfill gas: max 5 years 3 months, max 7500 h / year • Solar PV: max 20 years, max 1100 h / year • Solar PV (with solar tracker): max 20 years, max 1500 h / year • Solid biomass: max 25 years, max 6900 h / year **2017 Administrative FiP*:** • Biogas: max 25 years, max 6750 h / year • Landfill gas: max 4 years 6 months, max 7500 h / year • Solar PV: max 12 years 7 months, max 1100 h / year • Solar PV (with solar tracker): max 12 years 7 months, max 1500 h / year • Solid biomass? max 25 year, max 6900 h / year * Data are yearly updated by the regulator (in case PV twice a year).
Ireland	15 years	No	With the year of operation plus the support period (e.g. start of operation 1.10.2017: rest of the year 2017 + support duration 20 years = 20,2 years)
Italy	15 to 25 years	Yes	See annex 11
Latvia	20 years	Yes	
Lithuania	12 years	Yes	12 years from permission to produce electricity.
Luxembourg	15 years	Yes	
Malta	6 to 20 years	Yes	It depends on the Scheme when the consumer decides to invest. There are two schemes for PV's a) Administratively determined support for solar photovoltaic installations that includes a grant of up to 50% of

Member	For which time period or number of full load hours is the operational support granted?	Does the support period start from the exact date of operation?	Explanation
			the eligible initial capital cost capped at 2300€ coupled with a feed-in tariff for payable for 6 years households b) Administratively determined feed-in tariff for any PV system not benefitting from any investment support and with a capacity of less than 1MWp payable for 20 years c) Operational support determined through a tendering process, payable for 20 years All feed-in tariff payments are capped to an amount of units/annum sold to the DSO calculated as kWp x 1600hrs
Netherlands	8 to 15 years	Yes	Depends on the kind of RES, per year it has been maximized according to the specific full load hours per production unit: - co-firing of biomass in coal-fired plants and boiler for industrial steam from wood pellets - 8 years; - for other biomass categories - 12 years; - categories of wind energy, hydropower, osmosis, solar PV, geothermal and solar thermal the subsidy period - 15 years
Norway	15 years	Yes	The support is given 15 years from start of operation. Deadline for support is 31.12.2021
Poland	15 years	Yes	The maximum period of the support system is 15 years from the first introduction of electricity to the grid by a given power plant.
Portugal	15 to 25 years	Yes	It depends on technology and legal framework. A given producer gets a time period or a number of full load hours whichever comes first. Typical values would be 15 years for wind on-shore, PV and biogas and 25 years for small hydro, biomass and CHP.
Romania	15 years	Yes	
Spain	20 to 30 years	Yes	For 25 years, except for solar PV (30 years) and wind (20 years)
Sweden	15 years	Yes	A RES power plant is granted electricity for its renewable energy production 15 years from its approval date. No changes since 2015.
UK	10 to 20 years	Yes	RO is 20 years FIT 20 years or 10 years for CHP plants.

Annex 15 – Market Integration: Balancing Responsibilities

Member	Responsibility for RES producers		No responsibility for RES producers			
	Level playing field	Limited playing field	Other institution (e.g. TSO) without incentive scheme to minimise incurred balancing costs	Other institution (e.g. TSO) with incentive scheme to minimise incurred balancing costs	Other	Explanation
Austria			X			OeMAG (Abwicklungsstelle für Ökostrom - Private company in charge of selling the RES electricity on the market) should minimise the incurred balancing costs for supported RES by law but there is not incentive scheme in place.
Belgium	X					
Bulgaria	X					
Croatia			X			Currently there is no balancing responsibility, but ECO Balance group should start on January 1st 2019. Our market operator will be balance group leader and will be incentivised to reduce costs, in a way (since balancing costs will be taken partially from the same fond from which FIT and FIP incentives are payed).
Cyprus					X	During the transitional period, the Electricity Authority of Cyprus is responsible for the imbalances caused by RES electricity. With the introduction of the competitive electricity market (expected to be operational in 2019), all RES plants without exception will be responsible in exactly the same manner as any other conventional plant.
Czech Republic			X			In most cases, the electricity trader is responsible for the balancing from the producer. In some cases, the responsibility for the balancing may be transferred to another producer
Denmark		X			X	Some RES is 100% as other production tech. Certain conditions apply in some circumstances, where the balancing cost are paid via the PSO tax, however a public tender is conducted.
Estonia	X					
Finland	X					

Member	Responsibility for RES producers		No responsibility for RES producers			
	Level playing field	Limited playing field	Other institution (e.g. TSO) without incentive scheme to minimise incurred balancing costs	Other institution (e.g. TSO) with incentive scheme to minimise incurred balancing costs	Other	Explanation
France		X (FIP)		X (FIT)		Under the FIT scheme, public operators in charge of purchasing the electricity generated from renewable sources (Electricité de France (EDF), local distribution companies or other approved bodies) have the balancing responsability – of which they are incentivised to minimise the costs – for all RES plants. Under the FIP scheme, RES plants are responsible in exactly the same manner as any other conventional plant. The level of support includes a fixed premium for all costs linked to the management of the electricity produced, thus incentivising the generators to minimise the cost of their imbalances.
Germany		X (FIP)		X (FIT)		Level playing field for all RES plants falling under the FIP scheme, i.e. in principle all new installations above 100 KW installed capacity. The balancing responsibility can be delegated to a third party. For all RES installations falling under the FIT scheme (older or smaller installations < 100 kW), RES electricity is sold on the market place by the TSOs, which are have the balancing responsibility. There is a specific incentive scheme in place (specific regulation) for TSOs to minimise the balancing costs.

Greece					X	The Day-ahead Scheduling (DAS) is the model for the organization and operation of the Greek wholesale electricity market, through which all electricity that is generated, delivered and consumed the following day in the interconnected Greek system is being traded. The DAS model comprises the submission of mandatory bids of producers for all their power and, correspondingly, submission of requests for the electricity demand from suppliers, without allowing bilateral physical delivery contracts between producers and suppliers. Namely, all energy transactions are made mandatory through the DAS (mandatory pool model). DAS incorporates the following sub-markets that are simultaneously optimized so as to maximize social welfare: (a) the Daily Wholesale Electricity Market and (b) the Daily Market of Auxiliary Services. Complementary to DAS, there is also a dedicated mechanism for imbalance settlements. In the framework of the operation of the Mechanism for Imbalance Settlements, any additional transactions that were carried out to ensure the balance of the System on the Dispatch Day because of stochastic fluctuations in demand or generation are settled. The System Marginal Price (SMP) is the price at which the electricity market is cleared. The System Imbalance Marginal Price (SIMP) is the single price at which the variations of generation - demand are settled. In the current market structure and regarding the balancing mechanism, it should be noted that market participants do not submit bids and offers for the provision of balancing energy, so as to formulate the imbalance prices (System Imbalance Price, SIP), as is the case with the balancing mechanisms of other countries. Instead, the imbalance price is derived by re-solving the same cost-minimisation algorithm as in the day-ahead market and by inserting the actual values of the various inputs (demand, renewables output, plant availability), instead of day-ahead predictions. Therefore, during the transitional period up to the implementation of the new market model and taking into consideration both the absence of Intraday Market (IDM) as well as the technical characteristics of RES & HECHP installations, currently there are no balancing obligations for RES & HECHP producers. However, considering the need for an optimum participation of RES; HECHP producers in the market as well as the forthcoming obligations that they will undertake under the new Balancing Market (BM), has been developed a new transitional mechanism, that will be related to the forecasts of RES &; HECHP production (see answer A2D).
Hungary		X (FIP)	X (FIT)			For RES electricity taken over via an extra balancing circle by the TSO (KÁT and METÁR-KÁT) the balancing responsibility is taken over from RES producers by the TSO. The TSO sells the RES electricity on different markets of the stock exchange HUPX. RES electricity plants with an installed capacity of 0,5 MW and higher (FIP scheme) have balancing responsibility and bear the cost of balancing.

Member	Responsibility for RES producers		No responsibility for RES producers			
	Level playing field	Limited playing field	Other institution (e.g. TSO) without incentive scheme to minimise incurred balancing costs	Other institution (e.g. TSO) with incentive scheme to minimise incurred balancing costs	Other	Explanation
Ireland			X			The TSO is in charge of managing system imbalances through a number of balancing action instructions to generators. Although there is no incentive for minimising costs, the methodology of price-setting is approved by the regulator and balancing performance would be accounted for in overall performance review every five years.
Italy		X	X (FIT)			Each RES-E dispatching user is responsible for imbalances, with the only exception of RES-E plants supported by CIP 6/92 or feed in tariff referred to Law 244/2007: in relation to these plants, imbalances costs are socialized.
Latvia		X			X	Wind plants and large scale cogeneration plants are responsible for balancing in exactly the same manner as any conventional plants. Small RES installations are not balancing responsible and the responsibility is borne by the Public Energy Trader.
Lithuania			X			The TSO and DSO have balancing responsibilities of all RES electricity plants, which gets the support.
Luxembourg		X(FIP)	X			While RES receiving FIT support are not explicitly exempt of balancing responsibility, the electricity is allocated into the balancing group of the supplier that purchases the RES electricity for a fixed price. This supplier becomes responsible for any imbalances coming from the RE generation and cannot pass on penalties to the RES producer. RES generators who are not benefiting from support are not, in principle, exempt from balancing responsibilities. They need to ensure they have a contractual relationship with a BRP, who takes their production into his balancing group.
Malta			X			It is the DSO responsible for the imbalances for RES
Netherlands	X					
Norway	X					
Poland			X			PSE S.A. (Polskie Sieci Elektroenergetyczne S.A.), the state owned transmission system operator in Poland, is the entity responsible for balancing the network. In performing its duties, it is based on the Transmission Network Code.

Member	Responsibility for RES producers		No responsibility for RES producers			
	Level playing field	Limited playing field	Other institution (e.g. TSO) without incentive scheme to minimise incurred balancing costs	Other institution (e.g. TSO) with incentive scheme to minimise incurred balancing costs	Other	Explanation
Portugal		X			X	All FIT RES energy is purchased by the last resort supplier. The last resort supplier offers that energy on the wholesale market and is responsible for aggregate imbalances. Non subsidized RES energy makes its offers directly on the market and is responsible for imbalances. These producers can use an aggregator to maximize efficiency.
Romania	X					
Spain	X					All RES plants are responsible for imbalances since 2007.
Sweden	X					
UK	X					

Level playing field: Same responsibilities as for conventional plants
Limited level playing field: Only some RES plants are responsible in exactly the same manner as any other conventional plant, please specify

Annex 16 – Connection Charge Regime for RES Installations

Member	Connection charge regime for all installations (RES as conventional) identical and type of charge system		Different connection charge regimes between RES and conventional producers and type of connection charge system for RES installations		
Austria	X	B. Generators and System Operators Share Costs			Generator pays for connection to the nearest technical grid point. There are general costs for connecting to the grid - grid provision charges (Netzbereitstellungsentgelt) which has to be paid by the generator.
Belgium	X	Besides offshore windfarms, all RES generators are required to pay the regular connection charges when building the connection: • For DSO-connected in the Flemish region, the DSO pays all the costs (D); • For DSO-connected in the Walloon region, the Generator pays all the costs (A)	X	Generators and System Operators share the costs (B)	Only for offshore wind farms: They are mostly exempt from connection charges.
Bulgaria	X	A. Generator pays			
Croatia	X	A. Generator pays			
Cyprus	X	A. Generator pays RES systems have priority access (as long as the security and stability of the network are not affected), but there is no special treatment concerning their access charges when connecting and using the network. The access charge regime for RES-E plants is the same as the one for conventional plants.			
Czech Republic	X	B. Generators and System Operators Share Costs			
Denmark	X	Other			Not regulated by DUR. Up to the individual DSO. Also voltage levels to be defined.
Estonia	X	A. Generator pays			
Finland	X	A. Generator pays			

Member	Connection charge regime for all installations (RES as conventional) identical and type of charge system		Different connection charge regimes between RES and conventional producers and type of connection charge system for RES installations		
France			X	Other	In general, RES plants pay the same amount as conventional plants. For specific areas covered by S3REnR schemes. Reinforcement costs of the electricity network are shared between all RES generators and the system operator. Since November 2017, part of the connection costs of small scale installations (< 5 MW) to the grid benefit from an exemption (up to 40% for plants with a capacity of less than 500 kW) financed by the Public Electricity Transmission System Used Tariff (TURPE). Since 2017, the law also provides for a full exemption on connection costs for renewable marine energies (e.g. offshore wind turbines).
Germany	X	D. System Operator pays all the costs			
Greece	X	A. Generator pays			In general Generator pays, unless the connection projects are part of the TSO's Ten-year Development plan.
Hungary	X	C. RES generators pay less than conventional generators for comparable connected capacities			
Ireland	X	A. Generator pays			
Italy			X	D. System Operator pays all the costs	In case of RES-E plants connected to low and medium voltage grid, charges for connecting to the grid (paid by producers) are conventional (they are defined as a function of power and distance from the existing grid), whereas in case of other plants connected to low and medium voltage grid, charges for connecting to the grid are related to the standard cost of the real technical solution. In case of plants connected to high and very high voltage grid, charges for connecting to the grid (paid by producers) are related to the standard cost of the real technical solution. Some discounts are defined only for RES plants. System operators pay the costs "beyond this point" (i.e. beyond the nearest grid point): they are costs related to the strengthening of the existing grid, paid by system operators and finally socialized in network tariffs (paid only by final customers). Of course, system operators pay also the difference between the real connection costs and the conventional charges applied to RES-E producers.
Latvia	X	A. Generator pays			

Member	Connection charge regime for all installations (RES as conventional) identical and type of charge system		Different connection charge regimes between RES and conventional producers and type of connection charge system for RES installations		
Lithuania			X	A. Generator pays	Power plant (produced electricity from no RES) pays 100 % of the connection fee.
Luxembourg	X	A. Generator pays			
Malta	X	A. Generator pays			Generator pays the connection up to the most suitable connection point on the grid
Netherlands	X	A. Generator pays			
Norway	X	B. Generators and System Operators Share Costs			In the current connection charge regime, generators at the distribution level pay a proportionate share of the costs they inflict. From 1st January 2019, also generators at the transmission level will pay such a share. The connection charge will however be multiplied with a reduction factor of 0.5 to account for other externalities at this level.
Poland			X		A fee is charged for connecting renewable sources of electricity to the network: 1) actual outlays incurred for the connection - for a renewable energy source with an installed electrical power of more than 5 MW; 2) half of the actual expenditure incurred for the connection - for a renewable energy source with an installed electrical power of no more than 5 MW; 3) Fees are not charged - for micro-installations.
Portugal	X	B. Generators and System Operators Share Costs			Producers pay the connection to the nearest grid point. Grid reinforcements and other costs are shared by producers according to prices set by the NRA.

Member	Connection charge regime for all installations (RES as conventional) identical and type of charge system		Different connection charge regimes between RES and conventional producers and type of connection charge system for RES installations		
Romania	X	B. Generators and System Operators Share Costs			
Spain	X	A. Generator pays			
Sweden	X	A. Generator pays			
UK	X				For transmission connections, the costs of assets required to provide connection that are not shareable are recovered in full from the generator. The majority of assets are potentially shareable and the costs of these are recovered via access charges, so most generators do not pay a connection charge. For the distribution connection regime, the connecting customer is only charged for works up to one voltage level above the voltage they are connecting to e.g. if they are connecting at low voltage and work is required at low voltage, high voltage and extra high voltage, the customer will only be charged for the work at low voltage and high voltage. The work at extra high voltage will be socialised (i.e. spread across all users).

Annex 17 – Access Charge Regime for RES Installations

Member	Access charge regime for all installations (RES as conventional) identical	Different access charge regimes between RES and conventional producers	Explanation
Austria	X		
Belgium	No access charges regime in place		
Bulgaria		X	PV and wind RES pay access charges related to dynamic changing generation.
Croatia	No access charges regime in place		
Cyprus	X		There is no special treatment concerning their access charges when connecting and using the network. The access charge regime for RES-E plants is the same as the one for conventional plants.
Czech Republic	X		
Denmark	X		But costs could be covered by support regime.
Estonia	X		
Finland	X		
France	X		There is no special treatment for RES electricity plants regarding access charges when using the network.
Germany	No access charges regime in place		
Greece	No access charges regime in place		
Hungary	No access charges regime in place		
Ireland	X		
Italy	No access charges regime in place		In Italy, access charges are paid only by final consumers.
Latvia	X		
Lithuania	No access charges regime in place		
Luxembourg	X		
Malta	No access charges regime in place		The situation in the electricity retail market remains unchanged. The activity of supply of electricity must be performed under a licence issued by the REWS which in terms of the Electricity Market Regulations. In terms of the aforementioned regulations, in view of the derogations from the application of Articles 32 and 33 of Directive 2009/72/EC granted to Malta pursuant to Article 44 of Directive 2009/72/EC and until such time as the aforesaid derogations remain in force, the licence for the supply of electricity shall be issued only to the distribution system operator, designated under same regulations. Generators may either generate for their consumption on site or sell to the DSO.
Netherlands	X		
Norway	X		

Member	Access charge regime for all installations (RES as conventional) identical	Different access charge regimes between RES and conventional producers	Explanation
Poland	X		
Portugal		X	RES-E plants connected at LV level do not pay access tariffs.
Romania	X		
Spain	X		
Sweden	X		
UK	X		The access charge contains a locational signal reflecting the incremental cost of transmission incurred by the generator. For assets local to a generator (typically a radial circuit and substation) this locational signal is particularly sharp and therefore has some similarities with connection charges whilst still being based on generic information

Annex 18 – Level of Priority Granted to RES for Connection, Access and Dispatch

Member	Connection of RES installations to the grid	Access of RES electricity to the grid	Dispatch of RES electricity in the grid (in case of congestion)	Description
Austria	Non-discriminatory	Priority	Priority	There are no special rules regarding grid connection. RES is prioritized regarding access and dispatch but it happened last year that wind-farms were shut down on DSO level because of an TSO order.
Belgium	Priority	Priority	Priority	1) Connection: No changes since last review. Technical regulations impose that the TSO, within the limits of what is possible and taking into account security of supply, will give priority to connections for RES and CHP plants with a capacity equal to or below 25 MW. 2) Access: No changes since last review. Taking into account security of supply, TSO will give priority of access to RES and CHP plant. 3) Dispatching: No changes since last review. Taking into account security of supply, TSO will give priority of access to RES and CHP plant.
Bulgaria	Non-discriminatory	Non-discriminatory	Non-discriminatory	
Croatia	Non-discriminatory	Non-discriminatory	Priority	In case of needed curtailment, RES producers have priority dispatch, but only if it doesn't disrupt continuity or operational security of the electricity system.
Cyprus	Priority	Priority	Priority	Priority access, as long as the security and stability of the network are not affected.
Czech Republic	Priority	Non-discriminatory	Non-discriminatory	In the last 2 years there has been no change, so the producer of renewable energy is still preferred to the distribution network.
Denmark	Non-discriminatory	Non-discriminatory	Priority	Dispatch for prioritised production
Estonia	Non-discriminatory	Non-discriminatory	Non-discriminatory	
Finland	Non-discriminatory	Non-discriminatory	Non-discriminatory	
France	Priority	Priority	Non-discriminatory	**Connection**: The law provides for the establishment of Regional Development Plans for RES Connection (S3REnR) by transmission and distribution network operators, for anticipating and accelerating RES plants connection to the grid. Connection capacity to network facilities developed under S3REnR schemes is reserved to RES plants for ten years. **Access**: No explicit administrative priority to the grid for RES plants is provided by the law in France, with the exception of non-interconnected territories where it was introduced by the Energy Transition Law of 2015. However, most RES plants have a de facto competitive access to the day-ahead market as the support they receive under FIT and FIP schemes incentivise to produce regardless of the market price (except, for the latter, in the case of negative market prices). As for installations that do not benefit from public support, access to the grid is based and transparent and non-discriminatory market-based mechanisms. **Dispatching**: Dispatching is based on non-discriminatory market-based mechanisms – except in non-interconnected territories where intermittent RES electricity may be curtailed by the grid

Member	Connection of RES installations to the grid	Access of RES electricity to the grid	Dispatch of RES electricity in the grid (in case of congestion)	Description
				operator when reaching a given threshold (set by a ministerial decree) in order to prevent deficiencies in the electricity system.
Germany	Priority	Priority	Priority	No changes in the last 2 years. **Connection**: Grid system operators must connect installations to generate electricity from renewable energy sources and from mine gas without delay and as a priority to the place in their grid system which is appropriate in terms of the voltage level and which is the shortest linear distance to the site of the installation if this or a different grid system does not have a technically and economically more suitable connection Point. **Access & dispatch**: Grid system operators must purchase, transmit and distribute physically, without delay and as a priority, all electricity from renewable energy sources or from mine gas which is sold in a form of sale (FIT, FIP, no support)
Greece	Priority	Priority	Priority	In Greece the physical connection (link) to the transmission and/or distribution networks of generators of electricity from renewable energy sources is considered a priority over connection to generators of electricity from other sources. In Greece, the connected generators of electricity from renewable energy sources are able to transmit electricity, in accordance with connection rules, at all times, with the exemption of the cases when the operation of RES may cause problems to the safe and reliable operation of the electrical system. In Greece are applied appropriate grid and market-related operational measures in order to be given priority to generating installations using renewable energy sources and to minimize the curtailment of electricity produced from renewable energy sources.
Hungary	Priority	Priority	Priority	No major changes since the last review. According to §35 (2) of the Electricity Act (86/2007) TSO/DSOs grant a priority connection and access to electricity producers of CO2 neutral, renewable energy, waste and high efficiency CHP technologies. According to §36 (1) of Electricity Act the transmission or distribution of electricity can be restricted if otherwise it caused disadvantage for the generation or use of RES.
Ireland	Priority	Non-discriminatory	Priority	For connection to the grid of RES electricity plants, the connection policy prioritises the connection of new and flexible technology directly for the purpose of trying to reach RES objectives. Due to a saturation of connection applications, projects which are ready-to-go (have planning permission), will also gain priority over similar but less advanced projects. Wind energy has priority dispatch on the grid ahead of other sources. Exceptions to this priority arise in the instance that an increase in wind energy would cause technical issues or safety risks with the grid.
Italy	Priority	Non-discriminatory	Priority	Grid operators are obliged to give priority connection to RES plants. Priority of dispatching is guaranteed to RES power plants for the same offer price.
Latvia	Non-discriminatory	Non-discriminatory	Non-discriminatory	No priority.

Member	Connection of RES installations to the grid	Access of RES electricity to the grid	Dispatch of RES electricity in the grid (in case of congestion)	Description
Lithuania	Priority		Priority	There has been no major change over the last 2 years.
Luxembourg	Other	Priority	Priority	Connection: Same financial regime as conventional plants, but network operators are obliged to foresee simplified connection procedures for high efficiency CHP and renewable generators. Access & Dispatching: guaranteed by law
Malta	Non-discriminatory	Priority	Priority	Priority dispatch provided operational security permits.
Netherlands	Non-discriminatory	Non-discriminatory	Non-discriminatory	
Norway	Non-discriminatory	Non-discriminatory	Non-discriminatory	
Poland	Priority	Priority	Priority	The tasks of the President of ERO include monitoring the performance by energy companies of the obligation to ensure priority in the transmission or distribution of electricity generated in renewable energy installations.
Portugal	Non-discriminatory	Non-discriminatory	Priority	All FIT RES producers have all their production purchased by the last resort supplier. The last resort supplier offers it at the wholesale market at a zero €/MWh price. However Portuguese law foresees some situations in which curtailment is possible.
Romania	Priority	Priority	Priority	No changes from 2015
Spain	Priority	Priority	Priority	Priority in RES at the same economic conditions and in absence of security problems. No changes in the last 2 years.
Sweden	Non-discriminatory	Non-discriminatory	Non-discriminatory	
UK	Non-discriminatory	Non-discriminatory	Non-discriminatory	

Annex 19 – RES Curtailment Schemes in Case of Grid Congestions

Member	RES curtailment as last option	RES curtailment regime in case of grid congestion
Austria	Yes	RES installations are curtailed as a last option. There is an order regarding tariffs for congestions. This order states that if necessary the TSO can also demand RES plants can to increase or lower their output.
Belgium	No	Walloon region: "Last in, first out". Article 4 of AGW 10/11/16 Flemish region & offshore: no data
Bulgaria	Yes	In case of grid congestion, RES installations are curtailed as a last option. All affected RES technologies are curtailed proportionally, according their installed capacities.
Croatia	Yes	As mentioned in the previous question, they are curtailed as a last option and in case of major curtailment, grid operator needs to notify the regulatory agency with reasons for curtailment and suggest measures for improvement.
Cyprus	No	No congestion issues
Czech Republic	Yes	An output of photovoltaic and wind power plants can be curtailed, if there is a state of emergency or a need for particular curtailment steps which are necessary for pre-emption or a solving state of emergency. The state of emergency is specified in the public notice No. 80/2010 issued by Ministry of industry and trade. A start of a curtailment plan for RES has to be approved by TSO's central control. TSO's central control will trigger the curtailment plan after an evaluation of other operational measures such as ancillary services, use of balancing market and an export of electricity. In the curtailment plan are included power plants with a reserved power above 100 kW and with a possibility of remote control management.
Denmark	No	No, it is market based in general.
Estonia	No	If there is congestion, then the TSO will limit. It has not been happened
Finland	No	Usually the grid is built for RES maximum production. It depends about the contract between producer and TSO/DSO. In normal conditions there is no network congestion in Finland. The size of the grid connection is on discretion of the power generator. If this might mean congestion in the grid, then usually TSO/DSO makes investments in the grid.
France	No	There are no specific curtailment rules for RES electricity in case of grid congestion. When anticipated before the day ahead, the congestion will be managed by the grid operator via specific contracts and generators compensated for the loss of income and any other costs that could be associated the automatic curtailment (such a case is however rare). If the congestion is known after the day ahead, non-discriminatory market-based balancing mechanism rules apply to all generators (RES but also conventional generators).
Germany	Yes	Feed-in management: Based on the RES legislation (§14 EEG 2017) grid operators may exceptionally curtail installations and CHP installations which are directly or indirectly connected to the grid system and which are equipped with a device for remotely controlled output reduction in the event of grid system overload to the extent that (1)otherwise there would be a grid system bottleneck in the respective grid system area including the upstream grid System (2)priority for electricity from renewable energy sources, mine gas and CHP is maintained to the extent that other power generators do not have to remain on the grid system in order to ensure the security and reliability of the electricity supply system, and (3) they have called up the available data on the current level of feed-in in the respective grid system region. When RES electricity production is curtailed, it must be curtailed subordinately to the other installations. Apart from this, the grid system operators must ensure that overall the largest possible quantity of electricity from renewable energy sources and CHP is purchased. Further, grid system operators must inform operators of installations at the latest on the day before, otherwise without delay, of the expected point in time, scope and duration of the curtailment to the extent that the execution of the measure is predictable.

Member	RES curtailment as last option	RES curtailment regime in case of grid congestion
Greece	No	In the Interconnected System there are no curtailments. Curtailments occur only in the electrical system of non-Interconnected Islands. There is an equal treatment of RES units of the same technology due to stability/ operational reasons.
Hungary	Yes	No major changes since the last review. RES installations are curtailed as a last option by the network operator when all other alternatives at his disposal have been unsuccessful in eliminating the bottleneck.
Ireland	Yes	Under the EU Renewable Energy Directive, the TSOs are required to prioritise renewable energy over conventional sources. Sometimes renewable energy must be curtailed down ahead of other generators - mainly for security of supply reasons. In these events, the regulator must be notified and the TSO must provide a plan for actions to avoid this happening again in the future. Almost all renewable energy in Ireland is from the wind which is intermittent in nature. The large scale DS3 programme is focusing on reinforcing the grid and allowing higher SNSP level to reduce the curtailment of wind energy.
Italy	Yes	RES curtailment is carried out as last option in order to maintain the electric system in security condition. There is no order for the different RES Technologies.
Latvia	No	TSO and DSO are free in their decisions on congestion management, no specific treatment for RES generation in place.
Lithuania	Yes	RES installations are curtailed as a last option. There is no specific order defined for the different RES technologies.
Luxembourg	No	Grid congestion has not been experienced in Luxembourg so far. RES (and high efficiency cogeneration) are guaranteed by law, but no clear procedures have been defined so far.
Malta	Yes	No distinction between RES and curtailment is only an option of last resort.
Netherlands	No	There is no specific regime in place
Norway	No	Norway is divided into 5 bidding zones and congestions are mainly handled by price differences. A congestion within a price zone is managed in the regulation power market
Poland	No	No congestion issues
Portugal	Yes	RES installations are curtailed as a last option by the network operator when all other alternatives at his disposal have been unsuccessful in eliminating the bottleneck.
Romania	Yes	RES installations curtailed as a last option taking into consideration the merit order.
Spain	Yes	Non-dispatchable RES plants are curtailed as a last option.
Sweden	No	No special treatment
UK	No	Generators are turned down according to economics and costs rather than it being pre-determined

Annex 20 – RES Compensation Schemes in Case of Curtailments

The following table shows only CEER Member countries having provided an answer to the question (yes or no).

Member	Compensation in place	Description of compensation scheme
Austria	Yes	All producers are compensated. Supported RES plants get for the time they are curtailed the FIT of the curtailed capacity.
Belgium	Yes	Yes, they are compensated for the lost green certificates; In the Walloon region, producers are compensated for the volumes calculated based on the permanent injection capacity.
Bulgaria	No	
Croatia	No	
Czech Republic	Yes	
Denmark	Yes	Wind yes, solar no.
France	Yes	Generators (either RES or conventional plants) are always compensated when curtailed, either via ex ante contracting or a real time market-based mechanism.
Germany	Yes	If the feed-in of electricity from an installation to generate electricity from renewable energy sources, mine gas or CHP is reduced due to a grid system bottleneck, the grid system operator to whose grid system the installation is connected must compensate the operators affected by the measure for 95 percent of the lost revenues plus the additional expenses and minus the saved expenses. If the lost revenues in a year exceed 1 percent of the revenues of that year, the operators affected by the assumption of technical control are to be given 100 percent compensation from that point in time.
Greece	No	
Hungary	Yes	Yes, RES operators are compensated for their losses, i.e. for the supported price.
Ireland	Yes	Currently generators are paid for service provision when their service is curtailed. However after I-SEM go-live (1st October) generators will no longer be compensated in the event of curtailment.
Italy	Yes	Wind producers are compensated for the amount of electricity curtailed when it is higher than the equivalent energy that should be produced in 80 hrs. No compensation are defined, at the moment, for other renewable plants because the amount of electricity curtailed has never been higher than the equivalent energy that should be produced in 60 hrs for PV plants and 240 hrs for other plants.
Lithuania	No	
Norway	Yes	
Portugal	Yes	As a general rule, there is no right to monetary compensation. However there is a subset of RES installations that is compensated if curtailed. This compensation is applied to the non-produced energy estimated value. This compensation is paid by the non-curtailed installations of the mentioned subset.
Romania	Yes	
Spain	Yes	Owners are compensated by the 15% of the wholesale market price.
Sweden	No	
UK	Yes	Generators will submit bids to be turned down (price they'll need) then the SO can take those accordingly.

Annex 21 – Volume of RES Curtailments and Compensation Costs 2016 -2017

Member	Volume of curtailed RES electricity (in GWH)		Costs derived from RES curtailment (compensation payments) (in EUR)	
	2016	2017	2016	2017
Austria	N/A	N/A	N/A	N/A
Belgium	0	3,8	0	0
Bulgaria	0	0,01873	0	0
Croatia	0	0	0	0
Cyprus	0	0	0	0
Czech Republic	0	0	0	0
Estonia	0	0	0	0
Finland	0	0	0	0
France	N/A	N/A	N/A	N/A
Germany	3.743	5.518	372.735.588	609.975.214
Greece	N/A	N/A	N/A	N/A
Hungary*	28 597 kWh	14 461 kWh	HUF 842039	0
Ireland	227	386		
Italy	361	463	7.000.000	17.000.000
Latvia	0	0	0	0
Lithuania	2.020,5	2.432,8	94.740.000	113.132.000
Luxembourg	0	0	0	0
Malta	0	0	0	0
Netherlands	0	0	0	0
Norway	1.138	762	140.000.000	110.000.000
Poland	N/A	N/A	N/A	N/A
Portugal	0	1,60	0	0
Romania	304	2,5	N/A	N/A
Spain	113	76	675.000	74.000
Sweden	N/A	N/A	N/A	N/A
UK	N/A	N/A	N/A	N/A

* Curtailment of RES: only in case of those RES plants that provide balancing services

Annex 22 - Indirect Forms of RES Support

Member	Other forms of indirect RES support?	
Austria	No	
Belgium	No	
Bulgaria	No	
Croatia	Yes	End consumers with production capacity ("prosumers") from RES can get compensation from their electricity supplier for "excess energy".
Cyprus	N/A	
Czech Republic	Yes	Investment subsidy for construction of RES (e.g. small PVP). No electricity tax on electricity produced & consumed by producers themselves.
Denmark	Yes	Net settlement in certain cases relieves end user from PSO tax and electricity tax tariff.
Estonia	No	
Finland	No	
France	Yes	RES electricity plants can benefit from local, state or European direct investment subsidies. In rare case, for given technologies, support may also include specific tax or levy exemption (e.g. land tax for small agricultural methane units).
Germany	Yes	1) Indirect support of RES installations used for self-consumption purposes: RES producers, which are self-consuming all or parts of their production are exempted fully from network charges, electricity taxation and other electricity price components. They are also partly exempted from the RES surcharge (40% instead of 100%) for the self- consumed electricity, which is not fed into the grid. 2) RES installations, which are not supported through the RES support scheme, are in principle entitled to a compensation from the grid operator, a so called "avoided network charge", when connected to a lower grid level. From 2018 onwards, new volatile RES installations will not be entitled to this avoided network charge anymore. For all remaining RES installations, this will be the case from 2023 onwards. 3) Joint PV self-consumption within a residential building (at least 40% residential): Owner of a PV installation up to 100 kW (located on the rooftop, attached to or within a residential building) delivering self-produced electricity to the residents (owners or tenants) within the same building is entitled to a bonus for each kWh delivered. The residents are however paying the full RES surcharge on this electricity.
Greece	No	
Hungary	Yes	1) Investment grants mainly from EU structural funds for RE and energy efficiency investments of companies and institutions, available according to actual calls. 2) Preferential loan for RE and energy efficiency investments, available according to actual calls
Ireland	No	
Italy	Yes	Only for PV plants, Italian Government defined a fiscal subtraction (equal to 50% of the investment costs, up to a maximum cost of € 96,000). This support is provided only if PV plants are installed on buildings during their renovation works.

Member	Other forms of indirect RES support?	
Latvia	No	
Lithuania	No	
Luxembourg	No	
Malta	Yes	Tax credits for RES installed by categories of undertakings
Netherlands	N/A	
Norway	N/A	
Poland	Yes	An example of additional elements of RES support is the exemption of electricity from RES from excise tax.
Portugal	No	
Romania	No	
Spain	No	
Sweden	Yes	There is a tax release for self-production, up to 30 MWh per year.
UK	N/A	

Annex 23 – Right to Self-consumption of Electricity

Member	Is self - consumption in principle allowed?	Is self-consumption of self-generated RES electricity allowed in combination with a support payment?	If 'yes', please specify in the comment box below.
Estonia	Yes	Yes	If there is a direct line between the producer and the consumer (may be one person)
Austria	Yes	Yes	There are no restrictions to self-consumption for supported RES plants. For PV-installations you even have to indicate an estimated sef-consumption share when you apply for a FIT and the plants are ranked according to this share (the more you will consume on-site the better you'll be ranked). FIT is granted on a FCFS basis.
Belgium	Yes	Yes	Green certificates for RES production, except for PV installed after january 2015 in the Flemish and Walloon region with a capacity less than 10 kVA. In the Brussels region, PV installations smaller than 10kW still receive
Bulgaria	N/A	N/A	
Croatia	Yes	No	
Cyprus	Yes	No	
Czech Republic	Yes	N/A	
Denmark	Yes	Yes	Consumers-installed RES plants
Finland	Yes	Yes	In the feed-in tariff system self-consumption of self-generated RES electricity is allowed in combination with a support payment. However, it is not allowed when the electricity is used to support the production (e.g. transformers).
France	Yes	Yes	
Germany	Yes	Yes	Self-consumer are entitled to a support payment for the electricity fed into the grid and not self-consumed.
Greece	Yes	No	
Hungary	Yes	Yes	Self-consumption is allowed in combination with support, but support is only granted for electricity produced minus self-consumption, i.e. only for the part fed into the grid.
Ireland	Yes	No	

Italy	Yes	Yes	Self-consumed electricity is exempted from the variable part (in c€/kWh) of network charges and of general system charges. Furthermore, incentives are applied also to self-consumed electricity in case of electricity produced by PV plants and in case of incentives which have substituted green certificates.
Latvia	Yes	Yes	Self-consumption is allowed, but it is netted out of the amount of electricity for which generator receives RES support.
Lithuania	Yes	No	
Luxembourg	Yes	Yes	Self-consumption is allowed, but self-consumed electricity is not remunerated through the FIT or FiP schemes. Any excess energy fed into the grid by a self-consumer that fulfils the eligibility criteria for the support schemes can, however be remunerated
Malta	Yes	Yes	Yes consumers can opt to self -consume the generation from their renewable and sell their excess to the grid.
Netherlands	Yes	Yes	The support depends on the nominal production capacity and the volume that had been feed in.
Norway	Yes	Yes	The regulation allows for self-consumption in combination with either obtaining green certificates or receiving Enova funding.
Poland	Yes	No*	*Self-consumption of self-generated RES electricity in combination with a support payment has been allowed in the old renewable energy support system, i.e. in the system of certificates of origin (so-called green certificates). At present, it is a system that expires, but is still functioning in relation to a limited and closed list of entities, which have not yet passed into the new support system.
Portugal	Yes	Yes	The self-consumption regime allows the sale of excess production
Romania	Yes	Yes	But starting with 2019 according to the amendments to the Law 220/2008 approved in 2018.
Spain	Yes	Yes	Both system are compatible. Unusual for RES plants, but common for conventional electricity, in CHP (Combined Heat and Power) plants.
Sweden	Yes	Yes	Small scale producers are entitled to certificates for electricity produced for self-consumption. This may also be combined with the investment grant of 30% of initial investment.
UK	Yes	Yes	For FITs, payments are received separately on generation and export. However, installations <30kW can 'deem' their export, meaning it is assumed they export 50% of their generation, in the absence of an export meter. This currently means that if they introduce storage and use all of their generation themselves, they still receive payments for export. This can be the case even if an export meter is installed. For RO, self-consumption is allowed for the operation of the generating station itself but not for other uses.

Annex 24 – Overview of Self-consumption Schemes in Place

Member	Specific schemes (e.g. exemption from network charges, taxes or subsidies) for self-consumption i.e. consumption of self-generated RES and/or conventional electricity? Please indicate since when they are in place.
Austria	No there are no exemptions. Network charges in general are based on electricity taken from the grid.
Belgium	For DSO-connected prosumers (<10 kVA), there is a net metering which means prosumers only pay grid tariffs and taxes on the net annual energy consumption.
Bulgaria	No information available
Croatia	End consumers with production capacity ("prosumers") from RES can get compensation from their electricity supplier for "excess energy". This is in place since January 1st 2016.
Cyprus	No
Czech Republic	There is no specific scheme for self-consumption, with exception for supported customers. These market players have to be in Green Bonuses regime. However, an amount of electricity consumed without use of transmission or distribution network is not charged with payment for system services, payment for support of electricity from promoted energy sources and payment for the market operator's activities.Electricity producers do not pay network charges for electricity which they produced and consumed at the same time. Electricity tax is not paid for electricity produced and consumed by electricity producers themselves.
Denmark	They have been in place since before 2015
Estonia	yes, since 2013
Finland	No
France	A regulatory framework for the deployment of self-consumption has been gradually introduced since 2017. On the side of direct support schemes: i) feed-in-tariff contracts for small scale solar (< 100 kWc) now include an investment premium when part of the energy is self-consumed (the operational aid being granted on each kWh injected to the grid) ; ii) self-consumption of RES electricity production is also encouraged through tendering procedures (the selected plants benefit from a fixed premium on each kWh produced, with a markup on self-consumed electricity). On the side of indirect support : i) since 2017, all self-consumed electricity (whether subsidised or not) is exempted from taxes on electricity consumption ; ii) since August 2018, consumers engaged in collective self-consumption operations are free to opt for a dedicated network tarification including a rebate on self-consumed electricity (and a markup on electricity purchased from the network).
Germany	Self-consumption of electricity produced with RES technologies and highly efficient CHP plants can be exempted from taxation, levies and network charges. The exemption from the RES-surcharge is only granted to self-consumption in all installations taken into operation before August 2014, i.e. SC in new installations is now subject to reduced RES surcharge payments. Under certain conditions (i.e. installations smaller than 10 KW), no RES surcharge payment apply.
Greece	See Annex 25
Hungary	Self-consumption is exempted from volume based network charges, taxes and fees of subsidies.

Member	Specific schemes (e.g. exemption from network charges, taxes or subsidies) for self-consumption i.e. consumption of self-generated RES and/or conventional electricity? Please indicate since when they are in place.
Ireland	Under the classification of Demand Side Unit (DSU), sites which can lower their demand during peak times can be remunerated or see reduced bills due to smarter energy use. On-site generation also helps to ease demand during the busiest periods and sites which produce during these times can see capacity payments as a result.
Italy	Self-consumed electricity is exempted from the variable part (in c€/kWh) of network charges and of general system charges, regardless of sources.
Latvia	Yes, the amount of electricity fed in grid by prosumer is being netted out from its total consumption, therefore decreasing consumption costs. Nevertheless network tariffs are applied to total consumption, not to the netted one.
Lithuania	It is no public service obligation price for consumption of self-generated RES.
Luxembourg	RES support levy not applied to self-consumption (since its inception)
Malta	No
Netherlands	There is a specific scheme for self-consumption of self- generated by PV installations in case of guarantees of origin are issued. This is done to prevent advantage that occurs in the field of avoided energy taks. This restriction is in place since 2018.
Norway	Exemption from feed-in tariff for all production that at no point feed in more than 100 kW to the grid.
Poland	Generation of energy from RES for own needs is in principle not supported on the basis of the RES Act (new systems provide support only for energy introduced into the grid). The only exception is for those old RES installations, who still receive green certificates of origin, also for energy generated for their own needs. Additionally, irrespective of the RES Act, possible support can be obtained from EU funds, investment support, various projects, etc.
Portugal	LV producers don't pay grid use tariffs. Some banks have credit lines available for micro and mini-generation systems acquisition.
Romania	Applicable starting with 2019 according to the amendments to the Law 220/2008 approved in 2018 (exemption from the payment of fiscal obligations, fiscal regulation between injections and extractions from the network).
Spain	Yes, there is an exemption for consumers in self generation mode with less than 10kW of power contract.
Sweden	No information available
UK	Not currently

Annex 25 – Net-metering Framework

Member	Is net-metering framework in place?	Net-metering framework	NM scheme planned in future?
Austria	No		No net-metering won't be introduced.
Belgium	Yes	The electricity injected on the grid is bought by a supplier (<10 kVA)	
Bulgaria	No		N/A
Croatia	No		Currently there are several proposals for implementation of net-metering, but nothing definite.
Cyprus	Yes	The Net-metering category is applied for photovoltaic systems with capacity up to 10KW for all consumers (residential and non-residential). Vulnerable consumers can receive a grant of €900 per installed kW (with maximum grand amount €2700). The generated RES electricity is subtracted from building's electricity consumption. Consumers pay only for the difference between the energy consumed and energy produced (net electricity used) plus a cost that reflects the cost of the electricity grid to support continuous supply and taxes (VAT, RES levy). At the end of a 1- or 2-month's period: • If the energy consumed in the premises of the owner of the PV system is more than the energy produced by the PV system the consumers-producer, pays the difference to the utility at retail price. • If the energy produced is more than the energy consumed the surplus energy is transferred to be used on the next monthly or bi-monthly period. Every 12 months (from Feb or Mar) starts a new period and any surplus not used is lost without any compensation. In that respect, consumers have to choose the appropriate PV capacity so as electricity generation does not exceed their annual needs. A contract of 15 years period for households and 10 years for enterprises is signed between the owner of the PV system and the Electricity Authority.	Currently, there is no net-metering scheme planned in the future. The development of net metering depends on the provisions of the new electricity directive on such schemes.
Czech Republic	No		National Action Plan on Smart Grids (NAP SG) identified a net-metering scheme as one of possibilities which can improve existing electricity market model. No particular details about the net-metering scheme are mentioned in NAP SG. One exemption is an impact of the net-metering scheme on billing of electricity. A customer who will use the net-metering won't pay for electricity

Member	Is net-metering framework in place?	Net-metering framework	NM scheme planned in future?
			itself, but will pay for surcharges related to distribution of that electricity. However, there is no final decision for introducing the net-metering scheme.
Denmark	Yes	There are two types of consumption meters: phase meters and summon meters regulated in the executive order on individual measurement of electricity, gas, water, heating and cooling.	
Estonia	Yes	If there is a direct line and you want renewable energy support, then all the RES energy is measured. If you just want to consume your own RES energy, it will not be measured	
Finland	No		No
France	No		There is no plan for the introduction of a net-metering framework in the near future.
Germany	No		No
Greece	Yes	According to Greek Law 4414/2016 (article 13, par. 7) PV, small wind power plants up to 60 kW, biomass, biogas, small hydro and CHP for self-production, are eligible. Yet, the institutional framework for net metering has been specified, only for PV stations. The Greek net-metering scheme (active as of the beginning of year 2015) is applicable to all solar PV systems that aim for self-consumption, thus expands to both rooftop and ground-mounted systems. There are special limits regarding the installed capacity. In any case, the installed capacity of net-metering systems can reach up to 1.000 kWp, in the Interconnected System. Furthermore, the Ministerial Decision ΑΠΕΗ/Α/Φ1/οικ.175067 (FEK B' 1547/5.5.2017) introduced the virtual net metering applications for specific investors. Thus, legal entities governed by public or private law pursuing public or other public interest purposes of general or local scope and farmers or farming associations are allowed to develop solar PV projects up to 1.000 kWp in the same prefecture within a considerable distance away from the place of the actual power consumption. By virtual net metering it is possible to offset the energy produced (from a PV station) to the energy consumed by one or more auto-producer's consumption facilities and the production facility does not have to be in the same (or adjacent) space with the electrical installation and connected to it (network connection through the same supply), as is it had to with the simple net metering.	

Member	Is net-metering framework in place?	Net-metering framework	NM scheme planned in future?
		The energy nettings happens on a three-year basis and the time of generation has not necessarily to coincide with the time of consumption. Each time the electricity retailer issues an electricity bill, the electricity fed into grid and the electricity consumed has to be measured. If the difference is positive, this surplus is credited to the next electricity bill and the consumer does not pay for the competitive charges. However, any surpluses after the end of the three year period will not be disbursed by the electricity retailer to the self-producing electricity consumer and will be annulled. If the difference is negative, i.e. more electricity was consumed than produced, and then the plant/ installation operator is obliged to pay the difference. As far as the regulated charges is concerned (i.e. grid access charges, RES Levy and public services charges), the latter are calculated as follows: • The charges for RES Levy and grid access are calculated based on the energy absorbed • The charge for Public Services Obligations (PSOs) is based on the energy consumed	
Hungary	Yes	So-called “household-sized power installations” (HMKE) with a capacity of maximum 50 kVA are eligible for net metering in case that the power plant connects to the low-voltage grid. In general, all technologies are eligible, not only RES technologies. The electricity produced by the household-sized plant is offset with the generator’s consumed electricity on a monthly or yearly basis. The electricity surplus injected to the grid is remunerated by the electricity supplier with the retail electricity price. Connection to the public grid is only possible with an operational approval.	
Ireland	N/A		
Italy	Yes	Net-metering can be applied to final customers with RES plant up to 500 kW or high efficiency CHP plants up to 200 kW. It is not a physical compensation between electricity withdrawn from the grid and electricity injected into the grid, but an economic compensation between their market values. Moreover, the Gestore dei Servizi Energetici S.p.A. (GSE) recognizes a financial contribution, equal to the variable part (in c€/kWh) of network charges and of general system charges for the minimum between electricity withdrawn from the grid and electricity injected into the grid, just as if that energy hadn’t used the grid. This economic “net-metering” mechanism is called “Scambio sul posto”.	

Member	Is net-metering framework in place?	Net-metering framework	NM scheme planned in future?
Latvia	Yes	There is additional metering for self-consumption and for electricity feed in transmission/distribution system.	
Lithuania	Yes	Electricity accumulation period for prosumers – 1 year (from April 1 until March 31); Monthly payments for using electricity grid; Prosumer: Pays 100 % for connection to the grid; Does not pay for public services obligation; All RES technology (except hydro) Households (IC up to 10 kW) Other consumers (IC up to 100 kW) Quota for prosumers are 100 MW (70 MW for households; 30 MW for others)	
Luxembourg	No		No
Malta	No		Net metering is no longer an option for RES installed after 10/09/2010.
Netherlands	yes	Hourly net metering, where the meter calculates the net flow from/to the grid.	The Net metering is under discussion at the moment.
Norway	Yes	Hourly net metering, where the meter calculates the net flow from/to the grid.	
Poland	Yes	Net metering framework has been introduced in the RES Act for prosumers, ie for end consumers purchasing electricity on the basis of a comprehensive contract, producing electricity only from renewable energy sources in micro-installations (in principle RES installations up to 50 kW installed electrical capacity) in order to consumption for own needs, not related to the business activity.	
Portugal	Yes	Self -consumption units larger than 1,5 kW connected to the grid must have metering for both the produced and grid injected energy.	
Romania	Yes	It will be applicable starting with 2019 according to the amendments to the Law 220/2008 approved in 2018.	
Spain	No		No plans for near future
Sweden	No		There is no plan at the moment to introduce a national net-metering framework.
UK	No		Unknown

Annex 26 – Share of Self-consumption

Only countries displayed, which have provided information.

Member	Share of self-consumption by RES installations	Share of self-consumption by conventional installations
Belgium	80%	
Cyprus	1.19%	Not available
Czech Republic	17	11
Estonia	NA	NA
France	In 2017, there were approximatively 20,000 installations (RES or conventional) in self-consumption, over 350,000+ power plants.	
Germany	Approx. 4 TWh (2016) – 2,4% Approx. 47 TWh (2016) – 11%	Approx. 47 TWh (2016) – 11%
Greece	15%	85%
Ireland	24.6%	75.4%
Italy	37,2% in terms of electricity produced (self-consumed electricity: 5,4 TWh, produced electricity: 14,5 TWh)	58,2% in terms of electricity produced (self-consumed electricity: 16,6 TWh, produced electricity: 28,5 TWh)
Latvia	Estimated below 1% of gross generation	Estimated about 1,5% of gross generation
Luxembourg	0.12% (installed capacity) 0.03% (total production) (please note this covers both RES and conventional installations, as we do not have separate figures for both categories)	
Malta	23.08% of installed capacity is mainly for self-consumption	not applicable
Netherlands	24%	76%
Norway	0,00941	N/A
Poland	We do not have any numerical or estimated data in this respect.	We do not have any numerical or estimated data in this respect.
Portugal	1,25% Energy, 1,57% Capacity (2017, RES includes large hydro which don't have any special financial support)	0,84% Energy, 3.3% Capacity (2017)
Romania	2017 - 7.88% (self -consumption by RES/electricity produced from RES); 2016 - 7.25%	
Spain	0%. There are only some RES installations in self-consumption mode.	Around 6% of total Capacity installed is CH (combined Heat and Power), mostly in self-consumption mode.
Sweden	50-80% for PV.	

Annex 27 – Measurement of Self-consumption

Member	How is self-consumption measured?	Major changes to the treatment of self-consumption of RES electricity and/or conventional electricity planned in the near future?
Austria	No measurement	
Belgium	Other metering scheme: net metering up to 10 kVA, two meters above	No
Bulgaria	No measurement	N/A
Croatia	Other metering scheme: One (two-way) meter that measures electricity injected into the grid and taken from the grid. If the consumer immediately consumes the energy they produced (behind the meter) that is not measured.	It is possible that net-metering will be implemented, but nothing concrete yet.
Cyprus	Other metering scheme: For net-metering one import-export meter is installed to measure the electricity imported from the grid and the electricity feed into the grid (the self-consumed electricity is not measured). In self-generation/net-billing category three measurements are taken, one meter is used to measure the produced electricity and an import-export meter is used to measure the electricity exported to the grid and the electricity imported from the grid.	In June 2018 the category of net-billing was introduced for RES installations for commercial entities.
Czech Republic	Other metering scheme: Possibility of option A and B can occur, let us explain differences on example of a household with photovoltaic power plant on a roof. **Option B (2 meters**): If a power plant was granted with a subsidy in form of green bonus, a production has to be measured with an electricity meter installed in the output of the power plant. This meter measures electricity witch flows from power plant to a household. Second electricity meter is installed on borderline between household installation and distribution network. This meter measures an amount of electricity which flows out of the house and inside the house from distribution network. A self-consumption of electricity can be determinate if we deduct figures on first meter from second one. **Option A (no measurement):** In the case there is no green bonus, only one electricity meter is installed on borderline between household installation and distribution network. Electricity which flows from power plant to household doesn't have to be measured with a meter. As result an amount of electricity consumption in household cannot be detected from the electricity meter installed on borderline between household installation and distribution network.	Not in the near future.
Denmark	Other metering scheme: 1 meter that can measure both consumption and production	There may be some changes due to the RES Directive
Estonia	By two meters: Different options 1) Self-consumed electricity is not measured (e.g. just one meter) 2) Two meters (e.g. one measuring electricity produced and one measuring electricity fed into the grid) Both are allowed. A - in this case if you consume your generated electricity. B - if your electricity production is more than you can consume and then you give it to the network.	No

Member	How is self-consumption measured?	Major changes to the treatment of self-consumption of RES electricity and/or conventional electricity planned in the near future?
Finland	No measurement or measurement by two meters (e.g. one measuring electricity produced and one measuring electricity fed into the grid)	-
France	**Two meters:** Currently required to measure separately the electricity fed into the grid and the electricity consumed from the grid. With the deployment of smart meters (Linky), only one meter will be necessary to measure both electricity flows (self-consumers are given priority for this roll-out).	No major changes to the treatment of self-consumption are planned in the near future.
Germany	**Two meters**: In principle, with the introduction of a RES surcharge payment obligation for the share of self-consumed electricity in the EEG 2014, each producer must technically ensure a separate measurement of the volumes of 1) electricity generated, 2) (surplus) electricity injected into the grid and 3) electricity retrieved from the grid. The measurement period should be real-time (i.e. 15 minutes interval). In industry with own installations for self-consumption purposes usually a specific meter is installed to ensure time equivalence within 15 minutes. In households with small rooftop PV systems without storage facilities, consumption and production are usually happening at the same time. A simple meter to measure electricity generated and a second one to measure electricity injected or retrieved respectively into the grid is installed to calculate the self-consumed electricity. Some more concrete specifications for ensuring a separate measurement of electricity produced, self-consumed and fed into the grid for PV rooftop systems have been set into force in 2016, however, the rollout of smart meter have not yet started.	
Greece	Two meters	• Specification of the institutional framework for net metering, also for other RES technologies. • Promotion of virtual net metering applications for energy communities.
Hungary	Case 1: No measurement for so-called “household sized generators” (up to 50 kVa) as only one meter measures the electricity injected to/taken from the grid. Case 2: Two meters for bigger producers, where electricity generation is measured separately.	No major change planned in near future.
Ireland	N/A	N/A
Italy	In principle no measurement but in some cases (above all when a support scheme is applied) two meters are installed (one for the electricity produced and one measuring electricity fed into the grid) and, consequently, self-consumption could be computed (nowadays it is not computed, so data reported in answer 26 are only estimated).	No changes are planned at the moment.
Latvia	Two meters	N/A
Lithuania	Two meters	no.

Member	How is self-consumption measured?	Major changes to the treatment of self-consumption of RES electricity and/or conventional electricity planned in the near future?
Luxembourg	Two meters	Based on the change in the tariff regulation, DSOs will introduce a specific purely capacity based tariff for LV-connected self-consumers with an ability to manage their electricity consumption (e.g. using a battery) in the very near future. A proposed law was introduced to parliament, which would introduce the notions of “local energy community” and “virtual energy community”. Members of a “local energy community”, who would have to be behind the same BT/MT transformer could apply to be considered as on customer for grid tariff, taxation and levy purposes, allowing them to “share” electricity. Members of a “virtual energy community” would remain individual grid customers, paying normal grid tariffs for their entire grid consumption, including the part, which is “shared” within the community, but could be reimbursed the taxes and levies for electricity “shared” within the community.
Malta	Two meters: One meter is used to measure the RES generation and the other meter is used for Import/Export measurement, self-consumption is the difference between generator meter and export readings.	No plans for changes in the near future
Netherlands	Other metering scheme: It depends on the meter. Old analogue meters are not able to measure the feed-in volume, the new smart meters do measure the volumes.	There is major change foreseen in 2021. The netting regime will be replaced but is still under debate.
Norway	Other metering scheme: For measuring self-consumption in solar power, one meter is used. In pump-Storage consumption, 2 meters are used	No
Poland	Two meters: In principle, there is no legal obligation to measure the amount of electricity consumed for own needs, although most power plants have a minimum of two metering and billing systems.	At present, no plans have been published regarding subsequent changes to renewable energy support schemes, including major changes to the treatment of self-consumption of RES electricity and/or conventional electricity.
Portugal	Other metering scheme: Self-consumption above 1,5 kW must meter energy produced and energy fed into the grid.	

Member	How is self-consumption measured?	Major changes to the treatment of self-consumption of RES electricity and/or conventional electricity planned in the near future?
Romania	All three options (no measurement, two meters, other measurement scheme) are applicable in practice	The amendments of Law 220/2008 applicable starting with 2019 foresees that prosumers will be exempted from payment of fiscal obligations and fiscal regulation between injections and extractions from the network will be applicable (a prosumer is defined as the final customer who owns electricity generating installations, including cogeneration, whose specific activity is not the production of electricity, which consumes and can store and sell electricity from renewable sources produced in its building, including a block of flats, residential area, a shared, commercial or industrial facility or the same closed distribution system, provided that in the case of autonomous non-household renewable energy sources, such activities do not constitute their primary commercial or professional activity)
Spain	Two meters: In some options, even 3 meters are considered. (Grid, generation and consumption)	We have no news about this topic.
Sweden	Self-consumed electricity is not measured	
UK	Two meters	There are plans to alter how storage interacts with RES generation in the future. These will especially deal with the problem of deemed FIT export being paid to generators who don't actually export any electricity.

Annex 28 – Unit Support Costs for New Installations in 2017

Table 12 shows the total expenditure for new installations from the year 2016 in 2017 divided by the total supported RES electricity for those new installations in 2017. Installations that were installed during 2016 should be running in 2017 for the first time on a regular basis (the whole year and not only a couple of months after being built). There is no differentiation between support systems themselves which means a mix of FIT, FIP and so on.

Country	Bioenergy	Geothermal energy	Hydropower	Solar	Wind energy - Onshore	Wind energy - Offshore	Others
Austria	148,19	-	61,34	104,96	92,75	-	-
Belgium	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-
Croatia	-	-	-	-	-	-	-
Cyprus	-	-	-	208,00	-	-	-
Czech Republic	54,26	-	89,40	-	-	-	-
Denmark	-	-	-	-	-	-	-
Estonia	-	-	-	-	-	-	-
Finland	85,92	-	-	-	50,37	-	-
France	149,62	-	96,76	136,12	85,26	-	-
Germany	-	-	-	-	-	-	-
Greece	69,60	-	-	262,30	44,47	-	-
Hungary	103,68	-	105,11	102,14	-	-	-
Ireland	-	-	-	-	-	-	-
Italy	130,56	-	122,42	-	66,33	-	-
Latvia	139,92	-	-	-	109,90	-	-
Lithuania	-	-	-	-	37,26	-	-
Luxembourg	-	-	-	-	-	-	-
Malta	-	-	-	266,75	-	-	-
Netherlands	-	-	-	-	-	-	-
Norway	-	-	164,00	-	164,00	-	-
Poland	-	-	-	-	-	-	-
Portugal	112,34	-	78,62	169,79	65,18	-	-
Romania	45,87	-	45,87	45,87	45,87	-	-
Slovakia	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-
Spain	-	-	-	-	-	-	-
Sweden	12,87	-	12,87	758,29	12,87	-	-
United Kingdom	59,17	-	59,17	59,17	59,17	-	59,17

Table 12: Support levels for installations that were new in 2016, by technology, in [€/MWh]

In Table 13 countries were picked that used only FIT for new installations in 2016 and the average wholesale price was subtracted[21]. There are still significant differences in support for new installations but for example in Greece and Lithuania the feed in tariffs for new installations were lower than the average wholesale price.

Country	Bioenergy	Geothermal energy	Hydropower	Solar	Wind energy - Onshore
Austria	117,47	-	30,63	74,24	62,03
Czech Republic	22,78	-	57,92	-	-
Finland	52,73	-	-	-	17,18
France	107,73	-	51,71	95,49	43,48
Greece	14,11	-	-	206,81	-11,02
Hungary	54,32	-	55,75	52,78	-
Latvia	105,24	-	-	-	75,22
Portugal	75,59	-	41,87	133,04	28,43

Table 13: FIT - Support levels for installations that were new in 2016, by technology, in [€/MWh]

[21] This was done under the assumption that total expenditure - the sum of paid out feed in tariffs were reported. Reviewing the report and the data collection process this might not be the case for all NRAs. This has to be clarified in the next review.

In Figure 8 and Figure 9 specific countries – those with feed in tariffs for new installations in 2016 were picked again. This is to highlight the difference between the numbers for the whole support systems and only new installations. The most significant differences can be seen for solar installations. New installations are cheaper than the sum of all supported installations. Whereas for other technologies the outcome varies. for at least two countries the support levels are higher for new installations than for existing ones although those differences are minor. There can be various reasons for these developments. Changes in the support system for example switching to only smaller installations being supported or changes in grid connection costs wherein RES plants possibly didn't have to bear lower costs in the beginning. Looking at overall numbers in the main part of the review it is though clear that overall specific support costs are declining.

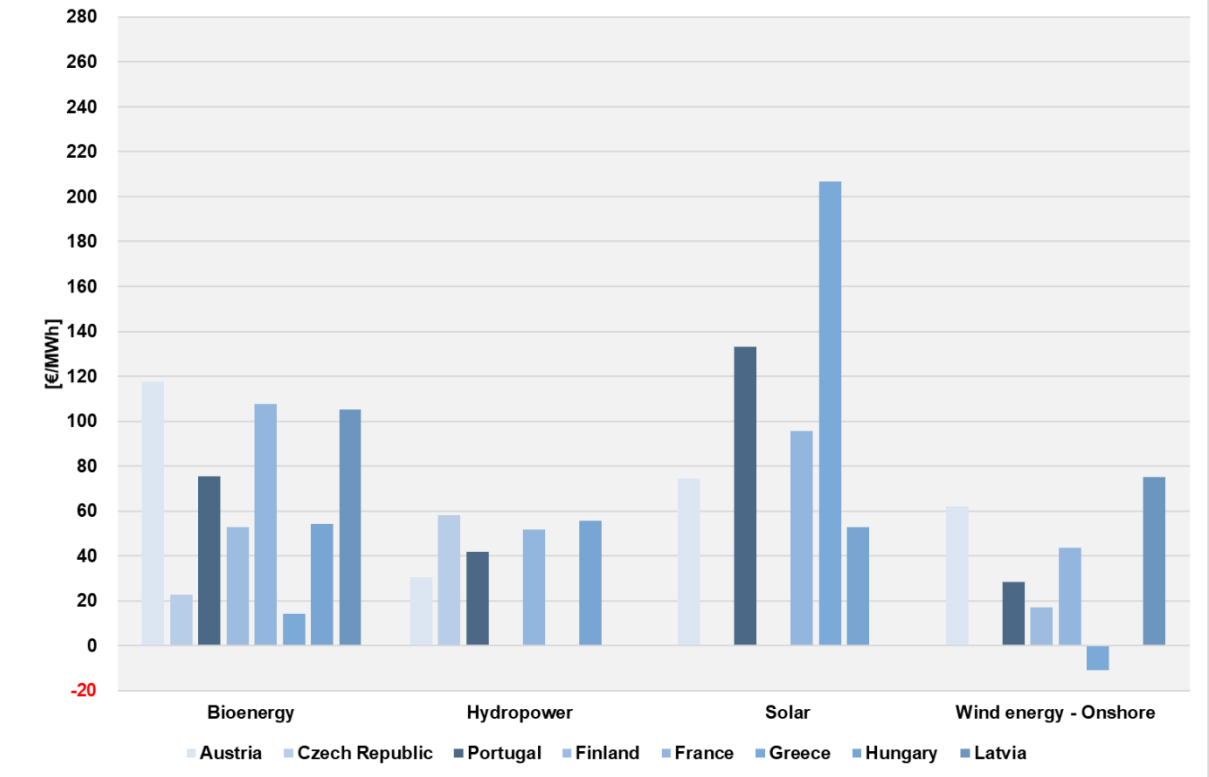

Figure 8: Average support levels for new installations in 2016, by technology, in [€/MWh]

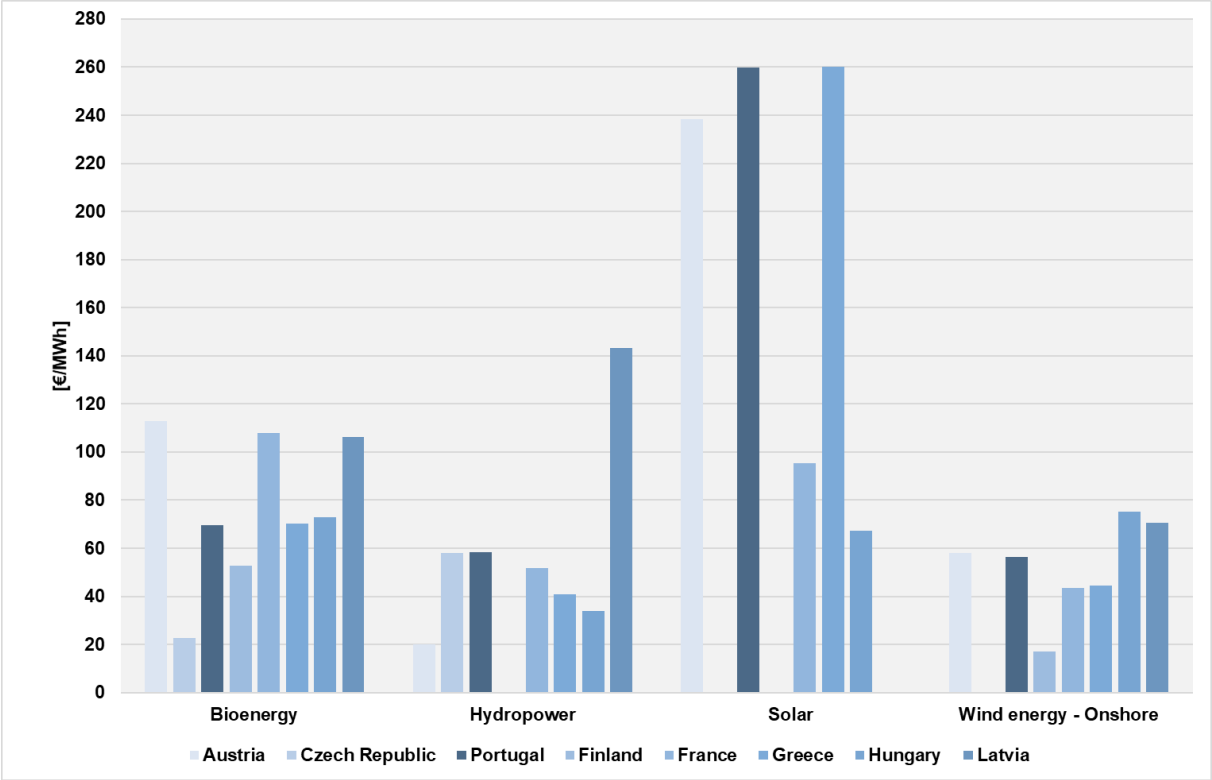

Figure 9: Average support levels in 2016, by technology, in [€/MWh]

Annex 29 – Full Breakdown by Technology in 2016 and 2017

On the following pages a full breakdown of the provided data per member state is displayed.

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
AT	FIT	2016	Biogas - Landfill gas	15	45,78	-	-	17,18	17,18	19.207	0	0	-	-	-	-	-	-
AT	FIT	2016	Biogas - Other biogas	83	175,30	-	-	146,71	146,71	564.519	83	83	-	-	5	34.270	5	5
AT	FIT	2016	Solid biomass - Other solid biomass	313	132,57	-	-	103,98	103,98	1.981.816	206	206	-	-	1	5.838	1	1
AT	FIT	2016	Geothermal energy	1	34,75	-	-	6,16	6,16	209	0	0	-	-	-	-	-	-
AT	FIT	2016	Hydropower	428	47,78	-	-	19,19	19,19	1.772.219	34	34	-	-	14	56.069	3	3
AT	FIT	2016	Solar energy - PV	568	265,57	-	-	236,98	236,98	500.538	119	119	-	-	76	58.421	6	6
AT	FIT	2016	Wind energy - Onshore	2.347	86,68	-	-	58,09	58,09	4.931.805	286	286	-	-	240	651.969	60	60
AT	Investment grant	2016	Hydropower	-	-	16	16	-	-	-	1	1	-	-	-	-	-	-
AT	Investment grant	2016	Solar energy - PV	34	-	9	9	-	-	-	1	1	-	-	-	-	-	-
AT	FIT	2017	Biogas - Landfill gas	14	41,06	-	-	10,34	10,34	18.001	0	0	-	-	0	0	0	0
AT	FIT	2017	Biogas - Other biogas	84	167,10	-	-	136,38	136,38	565.193	77	77	-	-	1	5.715	1	1
AT	FIT	2017	Solid biomass - Other solid biomass	313	131,64	-	-	100,92	100,92	1.999.542	202	202	-	-	27	120.074	16	16
AT	FIT	2017	Geothermal energy	1	33,59	-	-	2,87	2,87	76	0	0	-	-	-	-	-	-
AT	FIT	2017	Hydropower	429	51,04	-	-	20,32	20,32	1.624.634	33	33	-	-	13	18.443	1	1
AT	FIT	2017	Solar energy - PV	666	248,62	-	-	217,90	217,90	574.295	125	125	-	-	95	34.762	32	32
AT	FIT	2017	Wind energy - Onshore	2.291	91,32	-	-	60,60	60,60	5.745.938	348	348	-	-	111	89.029	7	7
AT	Investment grant	2017	Hydropower	-	-	16	16	-	-	-	1	1	-	-	-	-	-	-
AT	Investment grant	2017	Solar energy - PV	30	-	8	8	-	-	-	1	1	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
CY	FIT	2016	Biogas - Other biogas	10	125,00	-	-	125,00	125,00	36.606	5	5	-	-	-	-	-	-
CY	FIT	2016	Solar energy - PV	54	208,00	-	-	208,00	208,00	93.330	19	19	-	-	3	-	-	-
CY	FIT	2016	Wind energy - Onshore	158	166,00	-	-	166,00	166,00	226.271	38	38	-	-	-	-	-	-
CY	Other	2016	Solar energy - PV	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CY	FIT	2017	Biogas - Other biogas	10	125,00	-	-	125,00	125,00	36.496	5	5	-	-	-	-	-	-
CY	FIT	2017	Solar energy - PV	74	208,00	-	-	208,00	208,00	109.990	23	23	-	-	21	-	-	-
CY	FIT	2017	Wind energy - Onshore	158	166,00	-	-	166,00	166,00	211.019	35	35	-	-	-	-	-	-
CY	Other	2017	Solar energy - PV	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
CZ	FIT	2016	Biogas - Landfill gas	-	3.113,00	-	-	2.083,37	79,14	1.760	4	0	-	-	-	-	-	-
CZ	FIT	2016	Biogas - Other biogas	-	3.998,00	-	-	2.968,37	112,75	56.588	168	6	-	-	-	-	-	-
CZ	FIT	2016	Solid biomass - Other solid biomass	-	3.531,00	-	-	2.501,37	95,02	2.628	7	0	-	-	-	-	-	-
CZ	FIT	2016	Hydropower	-	2.810,00	-	-	1.780,37	67,63	80.410	143	5	-	-	0	156	0	0
CZ	FIT	2016	Solar energy - PV	-	13.446,00	-	-	12.416,37	471,64	1.240.360	15.401	585	-	-	-	-	-	-
CZ	FIT	2016	Wind energy - Onshore	-	3.162,00	-	-	2.132,37	81,00	33.462	71	3	-	-	-	-	-	-
CZ	FIP (incl. CfD)	2016	Biogas - Landfill gas	-	-	739	28	-	-	331.315	739	28	2.230,51	84,73	-	-	-	-
CZ	FIP (incl. CfD)	2016	Biogas - Other biogas	-	-	6.972	265	-	-	2.128.783	6.972	265	3.275,11	124,41	-	-	-	-
CZ	FIP (incl. CfD)	2016	Solid biomass - Other solid biomass	-	-	3.402	129	-	-	1.611.492	3.402	129	2.111,09	80,19	0	1	0	0
CZ	FIP (incl. CfD)	2016	Hydropower	-	-	1.890	72	-	-	924.594	1.890	72	2.044,14	77,65	1	3.124	7	0
CZ	FIP (incl. CfD)	2016	Solar energy - PV	-	-	10.312	392	-	-	859.158	10.312	392	12.002,45	455,92	-	-	-	-
CZ	FIP (incl. CfD)	2016	Wind energy - Onshore	-	-	1.019	39	-	-	454.576	1.019	39	2.241,65	85,15	-	-	-	-
CZ	FIT	2017	Biogas - Landfill gas	-	3.220,00	-	-	2.391,13	90,83	1.788	4	0	-	-	-	-	-	-
CZ	FIT	2017	Biogas - Other biogas	-	3.934,00	-	-	3.105,13	117,95	37.554	117	4	-	-	-	-	-	-
CZ	FIT	2017	Solid biomass - Other solid biomass	-	3.097,00	-	-	2.268,13	86,16	45	0	0	-	-	-	-	-	-
CZ	FIT	2017	Hydropower	-	2.893,00	-	-	2.064,13	78,41	77.594	160	6	-	-	0	126	0	0
CZ	FIT	2017	Solar energy - PV	-	13.677,00	-	-	12.848,13	488,04	1.256.182	16.140	613	-	-	-	-	-	-
CZ	FIT	2017	Wind energy - Onshore	-	3.284,00	-	-	2.455,13	93,26	22.333	55	2	-	-	-	-	-	-
CZ	FIP (incl. CfD)	2017	Biogas - Landfill gas	-	-	737	28	-	-	314.263	737	28	2.345,17	89,08	-	-	-	-
CZ	FIP (incl. CfD)	2017	Biogas - Other biogas	-	-	7.311	278	-	-	2.203.742	7.311	278	3.317,54	126,02	-	-	-	-
CZ	FIP (incl. CfD)	2017	Solid biomass - Other solid biomass	-	-	3.677	140	-	-	1.729.931	3.677	140	2.125,52	80,74	-	-	-	-
CZ	FIP (incl. CfD)	2017	Hydropower	-	-	2.389	91	-	-	1.122.659	2.389	91	2.127,98	80,83	0	7	0	0
CZ	FIP (incl. CfD)	2017	Solar energy - PV	-	-	11.070	420	-	-	899.887	11.070	420	12.301,54	467,28	-	-	-	-
CZ	FIP (incl. CfD)	2017	Wind energy - Onshore	-	-	1.275	48	-	-	558.610	1.275	48	2.282,45	86,70	26	9.845	13	0

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
DE	FIT	2016	Biogas - Total biogas	231	72,15	-	-	43,95	43,95	395.815	17	17	-	-	-	-	-	-
DE	FIT	2016	Solid biomass - Total solid biomass	1.657	205,38	-	-	177,18	177,18	9.818.907	1.740	1.740	-	-	-	-	-	-
DE	FIT	2016	Bioenergy	1.887	200,22	-	-	172,02	172,02	10.214.722	1.757	1.757	-	-	-	-	-	-
DE	FIT	2016	Geothermal energy	7	238,62	-	-	210,42	210,42	17.534	4	4	-	-	-	-	-	-
DE	FIT	2016	Hydropower	738	104,96	-	-	76,76	76,76	2.668.937	205	205	-	-	-	-	-	-
DE	FIT	2016	Solar energy - PV	31.248	332,75	-	-	304,55	304,55	26.698.905	8.131	8.131	-	-	-	-	-	-
DE	FIT	2016	Wind energy - Onshore	2.995	88,10	-	-	59,90	59,90	4.279.338	256	256	-	-	-	-	-	-
DE	FIP (incl. CfD)	2016	Biogas - Total biogas	259	-	43	43	-	-	1.025.819	43	43	42,03	42,03	-	-	-	-
DE	FIP (incl. CfD)	2016	Solid biomass - Total solid biomass	5.601	-	4.885	4.885	-	-	31.196.648	4.885	4.885	156,60	156,60	-	-	-	-
DE	FIP (incl. CfD)	2016	Bioenergy	5.860	-	4.929	4.929	-	-	32.222.467	4.929	4.929	152,96	152,96	-	-	-	-
DE	FIP (incl. CfD)	2016	Geothermal energy	30	-	35	35	-	-	157.145	35	35	221,88	221,88	-	-	-	-
DE	FIP (incl. CfD)	2016	Hydropower	710	-	187	187	-	-	3.248.466	187	187	57,51	57,51	-	-	-	-
DE	FIP (incl. CfD)	2016	Solar energy - PV	9.412	-	1.342	1.342	-	-	7.784.623	1.342	1.342	172,35	172,35	-	-	-	-
DE	FIP (incl. CfD)	2016	Wind energy - Offshore	4.152	-	1.948	1.948	-	-	12.092.421	1.948	1.948	161,05	161,05	-	-	-	-
DE	FIP (incl. CfD)	2016	Wind energy - Onshore	42.280	-	4.316	4.316	-	-	62.030.563	4.316	4.316	69,58	69,58	-	-	-	-
DE	FIT	2017	Biogas - Total biogas	234	73,22	-	-	40,33	40,33	309.170	12	12	-	-	3	-	-	-
DE	FIT	2017	Solid biomass - Total solid biomass	1.730	205,85	-	-	172,96	172,96	8.673.448	1.500	1.500	-	-	73	-	-	-
DE	FIT	2017	Bioenergy	1.964	-	-	-	-	-	8.982.617	-	-	-	-	76	-	-	-
DE	FIT	2017	Geothermal energy	7	201,63	-	-	168,74	168,74	4.063	1	1	-	-	0	-	-	-
DE	FIT	2017	Hydropower	739	106,66	-	-	73,77	73,77	2.478.912	183	-	-	-	1	-	-	-
DE	FIT	2017	Solar energy - PV	32.158	332,44	-	-	299,55	299,55	26.507.046	7.940	7.940	-	-	910	-	-	-
DE	FIT	2017	Wind energy - Onshore	3.197	87,27	-	-	54,38	54,38	4.156.575	226	226	-	-	202	-	-	-
DE	FIP (incl. CfD)	2017	Biogas - Total biogas	264	-	37	37	-	-	1.000.485	37	37	37,09	37,09	4	-	-	-
DE	FIP (incl. CfD)	2017	Solid biomass - Total solid biomass	5.838	-	4.986	4.986	-	-	32.382.014	4.986	4.986	153,98	153,98	237	-	-	-
DE	FIP (incl. CfD)	2017	Bioenergy	6.102	-	5.023	4.986	-	-	33.382.499	4.986	4.986	149,36	149,36	241	-	-	-
DE	FIP (incl. CfD)	2017	Geothermal energy	30	-	34	34	-	-	158.486	34	34	217,11	217,11	0	-	-	-
DE	FIP (incl. CfD)	2017	Hydropower	716	-	176	176	-	-	3.272.426	176	176	53,67	53,67	6	-	-	-
DE	FIP (incl. CfD)	2017	Solar energy - PV	10.161	-	1.424	1.424	-	-	8.908.968	1.424	1.424	159,87	159,87	749	-	-	-
DE	FIP (incl. CfD)	2017	Wind energy - Offshore	5.427	-	2.770	2.770	-	-	17.414.021	2.770	2.770	159,07	159,07	1.275	-	-	-
DE	FIP (incl. CfD)	2017	Wind energy - Onshore	47.086	-	5.357	5.357	-	-	82.122.678	5.357	5.357	65,23	65,23	4.806	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
DK	FIT	2016	Biogas - Total biogas	-	1.212,30	-	-	1.005,80	135,21	540.796	544	73	-	-	-	-	-	-
DK	FIT	2016	Solid biomass - Total solid biomass	-	353,50	-	-	147,00	19,76	3.295.519	484	65	-	-	-	-	-	-
DK	FIT	2016	Bioenergy	-	218,00	-	-	11,50	1,55	87.128	1	0	-	-	-	-	-	-
DK	FIT	2016	Solar energy - PV	-	1.304,20	-	-	1.097,70	147,57	239.799	263	35	-	-	-	-	-	-
DK	FIT	2016	Wind energy - Offshore	-	709,90	-	-	503,40	67,67	4.361.913	2.196	295	-	-	-	-	-	-
DK	FIT	2016	Wind energy - Onshore	-	410,60	-	-	204,10	27,44	7.389.216	1.508	203	-	-	-	-	-	-
DK	FIT	2016	Other	-	794,50	-	-	588,00	79,05	3.498.548	2.057	277	-	-	-	-	-	-
DK	FIT	2017	Biogas - Total biogas	-	1.337,20	-	-	1.107,76	148,92	646.421	716	96	-	-	-	-	-	-
DK	FIT	2017	Solid biomass - Total solid biomass	-	370,40	-	-	140,96	18,95	4.358.227	614	83	-	-	-	-	-	-
DK	FIT	2017	Bioenergy	-	619,00	-	-	389,56	52,37	66.129	26	3	-	-	-	-	-	-
DK	FIT	2017	Solar energy - PV	-	935,90	-	-	706,46	94,97	348.557	246	33	-	-	-	-	-	-
DK	FIT	2017	Wind energy - Offshore	-	715,40	-	-	485,96	65,33	4.808.052	2.337	314	-	-	-	-	-	-
DK	FIT	2017	Wind energy - Onshore	-	423,30	-	-	193,86	26,06	8.798.048	1.706	229	-	-	-	-	-	-
DK	FIT	2017	Other	-	756,80	-	-	527,36	70,89	3.511.470	1.852	249	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
EE	FIT	2016	Biogas - Total biogas	11	53,70	-	-	20,64	20,64	44.376	1	1	-	-	-	-	-	-
EE	FIT	2016	Solid biomass - Total solid biomass	114	53,70	-	-	20,64	20,64	617.335	13	13	-	-	10	-	-	-
EE	FIT	2016	Hydropower	8	53,70	-	-	20,64	20,64	21.758	0	0	-	-	-	-	-	-
EE	FIT	2016	Solar energy - PV	8	53,70	-	-	20,64	20,64	2.665	0	0	-	-	4	-	-	-
EE	FIT	2016	Wind energy - Onshore	311	53,70	-	-	20,64	20,64	517.909	11	11	-	-	4	-	-	-
EE	FIT	2017	Biogas - Total biogas	11	53,70	-	-	20,50	20,50	41.341	1	1	-	-	-	-	-	-
EE	FIT	2017	Solid biomass - Total solid biomass	150	53,70	-	-	20,50	20,50	768.586	16	16	-	-	36	-	-	-
EE	FIT	2017	Hydropower	8	53,70	-	-	20,50	20,50	16.196	0	0	-	-	-	-	-	-
EE	FIT	2017	Solar energy - PV	14	53,70	-	-	20,50	20,50	6.088	0	0	-	-	4	-	-	-
EE	FIT	2017	Wind energy - Onshore	311	53,70	-	-	20,50	20,50	562.731	12	12	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
EL	FIT	2016	Biogas - Total biogas	58	116,30	-	-	70,08	70,08	253.000	18	18	-	-	7	30.172	2	2
EL	FIT	2016	Hydropower	223	86,90	-	-	40,68	40,68	722.000	29	29	-	-	-	-	-	-
EL	FIT	2016	Solar energy - PV	2.605	306,23	-	-	260,01	260,01	3.930.000	1.022	1.022	-	-	1	763	0	0
EL	FIT	2016	Wind energy - Onshore	2.370	90,70	-	-	44,48	44,48	5.146.000	229	229	-	-	279	600.380	27	27
EL	FIT	2017	Biogas - Total biogas	62	132,30	-	-	76,81	76,81	280.300	22	22	-	-	4	8.537	1	1
EL	FIT	2017	Hydropower	231	88,00	-	-	32,51	32,51	586.000	19	19	-	-	7	9.091	0	0
EL	FIT	2017	Solar energy - PV	2.605	307,55	-	-	252,06	252,06	3.991.500	1.006	1.006	-	-	1	392	0	0
EL	FIT	2017	Wind energy - Onshore	2.625	92,30	-	-	36,81	36,81	5.515.400	203	203	-	-	255	267.143	10	10

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
ES	Other	2016	Bioenergy	992	-	-	-	-	-	4.516.000	312	312	69,09	69,09	-	-	-	-
ES	Other	2016	Hydropower	2.103	-	-	-	-	-	2.421.000	78	78	32,22	32,22	-	-	-	-
ES	Other	2016	Solar energy - PV	4.671	-	-	-	-	-	7.902.000	2.435	2.435	308,15	308,15	-	-	-	-
ES	Other	2016	Solar energy - CSP	2.300	-	-	-	-	-	5.071.000	1.276	1.276	251,63	251,63	-	-	-	-
ES	Other	2016	Wind energy - Onshore	23.064	-	-	-	-	-	34.979.000	1.255	1.255	35,88	35,88	-	-	-	-
ES	Other	2017	Bioenergy	992	-	-	-	-	-	4.864.000	350	350	71,96	71,96	-	-	-	-
ES	Other	2017	Hydropower	2.079	-	-	-	-	-	1.521.000	73	73	47,99	47,99	-	-	-	-
ES	Other	2017	Solar energy - PV	4.676	-	-	-	-	-	8.282.000	2.494	2.494	301,13	301,13	-	-	-	-
ES	Other	2017	Solar energy - CSP	2.300	-	-	-	-	-	5.345.000	1.320	1.320	246,96	246,96	-	-	-	-
ES	Other	2017	Wind energy - Onshore	23.074	-	-	-	-	-	47.593.000	1.473	1.473	30,95	30,95	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
FI	FIP (incl. CfD)	2016	Biogas - Other biogas	6	-	2	2	-	-	23.635	2	2	79,86	79,86	5	9.093	1	1
FI	FIP (incl. CfD)	2016	Biogas - Total biogas	6	-	2	2	-	-	23.635	2	2	79,86	79,86	-	-	-	-
FI	FIP (incl. CfD)	2016	Solid biomass - Other solid biomass	3.468	-	34	34	-	-	2.009.469	34	34	16,97	16,97	-	-	-	-
FI	FIP (incl. CfD)	2016	Solid biomass - Total solid biomass	3.468	-	34	34	-	-	2.009.469	34	34	16,97	16,97	-	-	-	-
FI	FIP (incl. CfD)	2016	Bioenergy	3.474	-	36	36	-	-	2.033.104	36	36	17,70	17,70	-	-	-	-
FI	FIP (incl. CfD)	2016	Wind energy - Onshore	1.329	-	136	136	-	-	2.316.007	136	136	58,63	58,63	701	1.700.219	86	86
FI	Investment grant	2016	Biogas - Landfill gas	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2016	Biogas - Total biogas	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2016	Bioenergy	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2016	Hydropower	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2016	Solar energy - PV	-	-	5	5	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2016	Wind energy - Onshore	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-
FI	FIP (incl. CfD)	2017	Biogas - Other biogas	10	-	3	3	-	-	31.590	3	3	90,40	90,40	-	-	-	-
FI	FIP (incl. CfD)	2017	Biogas - Total biogas	10	-	3	3	-	-	31.590	3	3	90,40	90,40	-	-	-	-
FI	FIP (incl. CfD)	2017	Solid biomass - Other solid biomass	3.478	-	28	28	-	-	1.542.127	28	28	17,91	17,91	179	44.127	1	1
FI	FIP (incl. CfD)	2017	Solid biomass - Total solid biomass	3.478	-	28	28	-	-	1.542.127	28	28	17,91	17,91	179	44.127	1	1
FI	FIP (incl. CfD)	2017	Bioenergy	3.488	-	30	30	-	-	1.573.717	30	30	19,36	19,36	179	44.127	1	1
FI	FIP (incl. CfD)	2017	Wind energy - Onshore	1.842	-	195	195	-	-	3.963.650	195	195	49,23	49,23	491	178.982	9	9
FI	Investment grant	2017	Biogas - Landfill gas	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2017	Biogas - Other biogas	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2017	Biogas - Total biogas	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2017	Bioenergy	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2017	Hydropower	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
FI	Investment grant	2017	Solar energy - PV	-	-	11	11	-	-	-	-	-	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
FR	FIT	2016	Biogas - Total biogas	373	139,28	-	-	98,04	98,04	1.873.622	184	184	-	-	32	203.610	25	25
FR	FIT	2016	Solid biomass - Total solid biomass	441	138,72	-	-	98,13	98,13	2.439.156	239	239	-	-	32	218.154	20	20
FR	FIT	2016	Geothermal energy	2	222,03	-	-	190,31	190,31	3.854	1	1	-	-	-	-	-	-
FR	FIT	2016	Hydropower	1.851	74,29	-	-	37,42	37,42	5.635.516	211	211	-	-	71	205.095	11	11
FR	FIT	2016	Solar energy - PV	7.060	343,80	-	-	309,75	309,75	7.900.232	2.447	2.447	-	-	619	776.411	74	74
FR	FIT	2016	Wind energy - Onshore	11.575	88,34	-	-	48,05	48,05	20.875.679	1.003	1.003	-	-	1.346	2.810.238	122	122
FR	FIT	2017	Biogas - Total biogas	395	147,71	-	-	105,12	105,12	2.023.539	213	213	-	-	20	76.011	10	10
FR	FIT	2017	Solid biomass - Total solid biomass	446	139,45	-	-	97,52	97,52	2.521.283	246	246	-	-	5	1.509	0	0
FR	FIT	2017	Geothermal energy	2	222,60	-	-	173,84	173,84	7.740	1	1	-	-	-	-	-	-
FR	FIT	2017	Hydropower	1.909	77,99	-	-	32,87	32,87	4.720.102	155	155	-	-	61	102.716	4	4
FR	FIT	2017	Solar energy - PV	7.457	328,84	-	-	288,03	288,03	8.766.843	2.525	2.525	-	-	259	189.141	15	15
FR	FIT	2017	Wind energy - Onshore	12.986	88,13	-	-	46,05	46,05	23.960.869	1.103	1.103	-	-	1.359	1.495.932	64	64
FR	FIP (incl. CfD)	2017	Hydropower	1	-	0	0	-	-	3.664	0	0	43,51	43,51	1	3.664	0	0
FR	FIP (incl. CfD)	2017	Wind energy - Onshore	2	-	0	0	-	-	305	0	0	59,53	59,53	2	305	0	0

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
HR	FIT	2016	Biogas - Landfill gas	6	441,00	-	-	97,00	13,00	82	0	0	-	-	-	-	-	-
HR	FIT	2016	Biogas - Other biogas	30	1.284,00	-	-	940,00	125,94	210.162	198	26	-	-	9	-	-	-
HR	FIT	2016	Biogas - Total biogas	36	1.284,00	-	-	940,00	125,94	210.244	198	26	-	-	9	-	-	-
HR	FIT	2016	Solid biomass - Total solid biomass	26	1.243,00	-	-	899,00	120,45	177.911	160	21	-	-	1	-	-	-
HR	FIT	2016	Hydropower	4	948,00	-	-	604,00	80,93	16.768	10	1	-	-	1	-	-	-
HR	FIT	2016	Solar energy - PV	49	2.015,00	-	-	1.671,00	223,88	61.448	103	14	-	-	5	-	-	-
HR	FIT	2016	Wind energy - Onshore	412	773,00	-	-	429,00	57,48	1.018.783	437	59	-	-	34	-	-	-
HR	FIT	2017	Biogas - Landfill gas	6	385,00	-	-	-	-	78	-	-	-	-	-	-	-	-
HR	FIT	2017	Biogas - Other biogas	37	1.279,00	-	-	759,00	101,69	278.661	212	28	-	-	6	-	-	-
HR	FIT	2017	Biogas - Total biogas	42	1.279,00	-	-	759,00	101,69	278.739	212	28	-	-	6	-	-	-
HR	FIT	2017	Solid biomass - Total solid biomass	36	1.261,00	-	-	741,00	99,28	186.011	138	18	-	-	10	-	-	-
HR	FIT	2017	Hydropower	4	964,00	-	-	444,00	59,49	15.867	7	1	-	-	1	-	-	-
HR	FIT	2017	Solar energy - PV	51	1.931,00	-	-	1.411,00	189,05	73.996	104	14	-	-	2	-	-	-
HR	FIT	2017	Wind energy - Onshore	519	742,00	-	-	222,00	29,74	1.178.211	262	35	-	-	107	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
HU	FIT	2016	Biogas - Landfill gas	17	30.996,56	-	-	19.996,56	64,67	69.057	1.381	4	-	-	0	1.596	49	0
HU	FIT	2016	Biogas - Sewage sludge	0	33.679,99	-	-	22.679,99	73,35	1.128	26	0	-	-	-	-	-	-
HU	FIT	2016	Biogas - Other biogas	39	32.616,64	-	-	21.616,64	69,91	143.951	3.112	10	-	-	3	7.695	249	1
HU	FIT	2016	Biogas - Total biogas	56	-	-	-	-	-	214.137	-	-	-	-	-	-	-	-
HU	FIT	2016	Solid biomass - co-firing	148	33.706,45	-	-	22.706,45	73,44	422.766	9.600	31	-	-	-	-	-	-
HU	FIT	2016	Solid biomass - Other solid biomass	138	33.822,49	-	-	22.822,49	73,81	781.934	17.846	58	-	-	-	-	-	-
HU	FIT	2016	Solid biomass - Total solid biomass	286	-	-	-	-	-	1.204.699	-	-	-	-	-	-	-	-
HU	FIT	2016	Bioenergy	342	-	-	-	-	-	1.418.836	-	-	-	-	-	-	-	-
HU	FIT	2016	Hydropower	56	21.508,99	-	-	10.508,99	33,99	245.045	2.575	8	-	-	0	343	11	0
HU	FIT	2016	Solar energy - PV	41	31.770,00	-	-	20.770,00	67,18	42.148	875	3	-	-	13	17.533	554	2
HU	FIT	2016	Wind energy - Onshore	314	34.278,61	-	-	23.278,61	75,29	649.666	15.123	49	-	-	-	-	-	-
HU	FIT	2017	Biogas - Landfill gas	20	30.871,09	-	-	15.611,09	50,49	51.497	804	3	-	-	0	1.132	35	0
HU	FIT	2017	Biogas - Sewage sludge	3	33.582,16	-	-	18.322,16	59,26	7.319	134	0	-	-	-	-	-	-
HU	FIT	2017	Biogas - Other biogas	39	32.302,37	-	-	17.042,37	55,12	145.442	2.479	8	-	-	7	2.230	72	0
HU	FIT	2017	Biogas - Total biogas	61	-	-	-	-	-	204.259	-	-	-	-	-	-	-	-
HU	FIT	2017	Solid biomass - co-firing	137	33.581,73	-	-	18.321,73	59,26	315.896	5.788	19	-	-	-	-	-	-
HU	FIT	2017	Solid biomass - Other solid biomass	169	33.828,65	-	-	18.568,65	60,06	861.854	16.003	52	-	-	129	49.134	1.662	5
HU	FIT	2017	Solid biomass - Total solid biomass	305	-	-	-	-	-	1.177.749	-	-	-	-	-	-	-	-
HU	FIT	2017	Bioenergy	367	-	-	-	-	-	1.382.008	-	-	-	-	-	-	-	-
HU	FIT	2017	Hydropower	54	21.089,88	-	-	5.829,88	18,86	207.459	1.209	4	-	-	-	-	-	-
HU	FIT	2017	Solar energy - PV	66	31.580,00	-	-	16.320,00	52,78	70.788	1.155	4	-	-	41	16.643	526	2
HU	FIT	2017	Wind energy - Onshore	309	34.445,09	-	-	19.185,09	62,05	700.866	13.446	43	-	-	-	-	-	-
HU	FIP (incl. CfD)	2017	Solid biomass - Other solid biomass	-	-	2.017	7	-	-	37.607	2.017	7	53.636,74	173,48	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
IE	FIT	2016	Biogas - Landfill gas	31	79,86	-	-	36,60	36,60	216.444	8	8	-	-	-	-	-	-
IE	FIT	2016	Biogas - Other biogas	4	167,51	-	-	124,25	124,25	34.616	4	4	-	-	-	-	-	-
IE	FIT	2016	Solid biomass - Other solid biomass	222	98,25	-	-	54,99	54,99	410.132	23	23	-	-	-	-	-	-
IE	FIT	2016	Solid biomass - Total solid biomass	42	135,99	-	-	92,73	92,73	4.400	0	0	-	-	-	-	-	-
IE	FIT	2016	Hydropower	2	98,21	-	-	54,95	54,95	12.016	1	1	-	-	-	-	-	-
IE	FIT	2016	Wind energy - Offshore	2.394	112,31	-	-	69,05	69,05	6.348.988	438	438	-	-	-	-	-	-
IE	FIT	2016	Wind energy - Onshore	204	79,92	-	-	36,66	36,66	612.284	22	22	-	-	-	-	-	-
IE	FIT	2017	Biogas - Landfill gas	29	95,52	-	-	49,34	49,34	201.816	10	10	-	-	-	-	-	-
IE	FIT	2017	Biogas - Other biogas	8	162,69	-	-	116,51	116,51	55.344	6	6	-	-	-	-	-	-
IE	FIT	2017	Solid biomass - Other solid biomass	108	98,53	-	-	52,35	52,35	1.966.320	103	103	-	-	-	-	-	-
IE	FIT	2017	Solid biomass - Total solid biomass	1	109,72	-	-	63,54	63,54	12.012	1	1	-	-	-	-	-	-
IE	FIT	2017	Hydropower	3	98,00	-	-	51,82	51,82	14.460	1	1	-	-	-	-	-	-
IE	FIT	2017	Wind energy - Offshore	2.883	79,88	-	-	33,70	33,70	8.600.024	290	290	-	-	-	-	-	-
IE	FIT	2017	Wind energy - Onshore	253	82,63	-	-	36,45	36,45	765.144	28	28	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
IT	FIT	2016	Biogas - Total biogas	942	228,58	-	-	185,82	185,82	6.489.519	1.206	1.206	-	-	-	-	-	-
IT	FIT	2016	Solid biomass - Total solid biomass	456	175,61	-	-	132,85	132,85	1.653.518	220	220	-	-	-	-	-	-
IT	FIT	2016	Bioenergy	1.604	216,70	-	-	173,94	173,94	8.987.287	1.563	1.563	-	-	26	127.906	21	21
IT	FIT	2016	Hydropower	546	168,40	-	-	125,64	125,64	1.787.375	225	225	-	-	23	98.960	14	14
IT	FIT	2016	Solar energy - PV	1.381	146,01	-	-	103,25	103,25	926.987	96	96	-	-	-	-	-	-
IT	FIT	2016	Wind energy - Onshore	278	123,18	-	-	80,42	80,42	369.724	30	30	-	-	44	67.479	11	11
IT	FIT	2016	Other	206	205,85	-	-	163,09	163,09	844.251	138	138	-	-	-	-	-	-
IT	FIP (incl. CfD)	2016	Biogas - Total biogas	281	-	78	78	-	-	740.480	78	78	105,63	105,63	-	-	-	-
IT	FIP (incl. CfD)	2016	Solid biomass - Total solid biomass	2.146	-	401	401	-	-	3.063.877	401	401	130,92	130,92	-	-	-	-
IT	FIP (incl. CfD)	2016	Bioenergy	3.229	-	860	860	-	-	7.049.323	860	860	121,95	121,95	15	69.401	5	5
IT	FIP (incl. CfD)	2016	Geothermal energy	612	-	137	137	-	-	1.829.710	137	137	74,73	74,73	-	-	-	-
IT	FIP (incl. CfD)	2016	Hydropower	5.061	-	768	768	-	-	8.245.521	768	768	93,17	93,17	9	45.175	4	4
IT	FIP (incl. CfD)	2016	Solar energy - PV	16.215	-	5.846	5.846	-	-	19.781.566	5.846	5.846	295,50	295,50	-	-	-	-
IT	FIP (incl. CfD)	2016	Wind energy - Onshore	8.482	-	1.550	1.550	-	-	15.978.653	1.550	1.550	96,98	96,98	324	631.076	35	35
IT	FIP (incl. CfD)	2016	Other	802	-	380	380	-	-	3.244.967	380	380	117,21	117,21	-	-	-	-
IT	FIT	2017	Biogas - Total biogas	958	217,42	-	-	163,47	163,47	6.541.110	1.069	1.069	-	-	-	-	-	-
IT	FIT	2017	Solid biomass - Total solid biomass	467	171,34	-	-	117,39	117,39	1.590.240	187	187	-	-	-	-	-	-
IT	FIT	2017	Bioenergy	1.627	206,86	-	-	152,91	152,91	9.005.599	1.377	1.377	-	-	24	66.062	11	11
IT	FIT	2017	Hydropower	597	153,49	-	-	99,54	99,54	1.650.525	164	164	-	-	24	42.172	9	9
IT	FIT	2017	Solar energy - PV	1.414	134,84	-	-	80,89	80,89	987.481	80	80	-	-	-	-	-	-
IT	FIT	2017	Wind energy - Onshore	376	157,75	-	-	103,80	103,80	413.045	43	43	-	-	91	73.223	16	16
IT	FIT	2017	Other	203	192,43	-	-	138,48	138,48	874.248	121	121	-	-	-	-	-	-
IT	FIP (incl. CfD)	2017	Biogas - Total biogas	235	-	79	79	-	-	696.167	79	79	113,67	113,67	-	-	-	-
IT	FIP (incl. CfD)	2017	Solid biomass - Total solid biomass	2.510	-	492	492	-	-	2.927.317	492	492	167,94	167,94	-	-	-	-
IT	FIP (incl. CfD)	2017	Bioenergy	3.501	-	997	997	-	-	6.521.802	997	997	152,89	152,89	38	182.418	17	17
IT	FIP (incl. CfD)	2017	Geothermal energy	538	-	142	142	-	-	1.835.033	142	142	77,40	77,40	-	-	-	-
IT	FIP (incl. CfD)	2017	Hydropower	4.866	-	659	659	-	-	6.887.857	659	659	95,63	95,63	17	58.035	4	4
IT	FIP (incl. CfD)	2017	Solar energy - PV	16.282	-	6.220	6.220	-	-	21.098.360	6.220	6.220	294,83	294,83	-	-	-	-
IT	FIP (incl. CfD)	2017	Wind energy - Onshore	8.347	-	1.575	1.575	-	-	15.676.414	1.575	1.575	100,45	100,45	172	252.788	10	10
IT	FIP (incl. CfD)	2017	Other	757	-	426	426	-	-	2.898.319	426	426	147,12	147,12	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
LT	FIT	2016	Bioenergy	105	92,45	-	-	51,40	51,40	359.167	18	18	-	-	-	-	-	-
LT	FIT	2016	Hydropower	26	74,56	-	-	33,51	33,51	85.174	3	3	-	-	-	-	-	-
LT	FIT	2016	Solar energy - PV	70	364,00	-	-	322,95	322,95	66.046	21	21	-	-	-	-	-	-
LT	FIT	2016	Wind energy - Onshore	500	87,19	-	-	46,14	46,14	1.005.479	46	46	-	-	105	369.354	14	14
LT	FIT	2017	Bioenergy	105	93,78	-	-	55,48	55,48	388.607	22	22	-	-	-	-	-	-
LT	FIT	2017	Hydropower	26	75,29	-	-	36,99	36,99	106.815	4	4	-	-	-	-	-	-
LT	FIT	2017	Solar energy - PV	70	364,78	-	-	326,48	326,48	65.299	21	21	-	-	-	-	-	-
LT	FIT	2017	Wind energy - Onshore	500	83,30	-	-	45,00	45,00	1.330.797	60	60	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
LU	FIT	2016	Biogas - Sewage sludge	1	64,92	-	-	64,92	64,92	1.622	0	0	-	-	-	-	-	-
LU	FIT	2016	Biogas - Other biogas	10	142,41	-	-	142,41	142,41	62.776	9	9	-	-	-	-	-	-
LU	FIT	2016	Biogas - Total biogas	11	140,46	-	-	140,46	140,46	64.398	9	9	-	-	-	-	-	-
LU	FIT	2016	Solid biomass - Other solid biomass	4	111,45	-	-	111,45	111,45	25.110	3	3	-	-	-	-	-	-
LU	FIT	2016	Solid biomass - Total solid biomass	4	111,45	-	-	111,45	111,45	25.110	3	3	-	-	-	-	-	-
LU	FIT	2016	Hydropower	2	267,14	-	-	267,14	267,14	7.806	2	2	-	-	-	-	-	-
LU	FIT	2016	Solar energy - PV	120	287,12	-	-	287,12	287,12	99.100	28	28	-	-	-	-	-	-
LU	FIT	2016	Wind energy - Onshore	51	78,82	-	-	78,82	78,82	80.035	6	6	-	-	-	-	-	-
LU	FIP (incl. CfD)	2016	Wind energy - Onshore	63	-	0	0	-	-	1.707	0	0	62,73	62,73	-	-	-	-
LU	FIT	2017	Biogas - Sewage sludge	1	64,93	-	-	29,66	29,66	1.947	0	0	-	-	-	-	-	-
LU	FIT	2017	Biogas - Other biogas	10	146,21	-	-	110,94	110,94	64.859	7	7	-	-	-	-	-	-
LU	FIT	2017	Biogas - Total biogas	11	143,84	-	-	108,57	108,57	66.806	7	7	-	-	-	-	-	-
LU	FIT	2017	Solid biomass - Other solid biomass	4	111,75	-	-	76,48	76,48	22.217	2	2	-	-	-	-	-	-
LU	FIT	2017	Solid biomass - Total solid biomass	4	111,75	-	-	76,48	76,48	22.217	2	2	-	-	-	-	-	-
LU	FIT	2017	Hydropower	6	104,10	-	-	68,83	68,83	4.452	0	0	-	-	-	-	-	-
LU	FIT	2017	Solar energy - PV	127	294,76	-	-	259,49	259,49	107.011	28	28	-	-	-	-	-	-
LU	FIT	2017	Wind energy - Onshore	51	78,10	-	-	42,83	42,83	79.796	3	3	-	-	-	-	-	-
LU	FIP (incl. CfD)	2017	Solid biomass - Other solid biomass	11	-	3	3	-	-	29.797	3	3	90,15	90,15	-	-	-	-
LU	FIP (incl. CfD)	2017	Solid biomass - Total solid biomass	11	-	3	3	-	-	29.797	3	3	90,15	90,15	-	-	-	-
LU	FIP (incl. CfD)	2017	Wind energy - Onshore	63	-	10	10	-	-	147.064	10	10	66,51	66,51	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
LV	FIT	2016	Biogas - Total biogas	63	162,68	-	-	126,59	126,59	377.992	48	48	-	-	-	-	-	-
LV	FIT	2016	Solid biomass - Total solid biomass	57	116,95	-	-	80,86	80,86	301.324	24	24	-	-	6	39.736	6	6
LV	FIT	2016	Hydropower	28	179,41	-	-	143,32	143,32	77.824	11	11	-	-	-	-	-	-
LV	FIT	2016	Wind energy - Onshore	64	106,56	-	-	70,47	70,47	115.848	8	8	-	-	7	16.197	2	2
LV	FIT	2017	Biogas - Total biogas	63	172,85	-	-	138,17	138,17	385.340	53	53	-	-	-	-	-	-
LV	FIT	2017	Solid biomass - Total solid biomass	73	142,39	-	-	107,71	107,71	396.718	43	43	-	-	-	-	-	-
LV	FIT	2017	Hydropower	28	172,09	-	-	137,41	137,41	96.324	13	13	-	-	-	-	-	-
LV	FIT	2017	Wind energy - Onshore	64	107,39	-	-	72,71	72,71	135.206	10	10	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
MT	FIT	2016	Solar energy - PV	91	171,08	-	-	66,08	66,08	114.946	8	8	-	-	17	16.530	4	4
MT	Investment grant	2016	Solar energy - PV	41	-	41	41	-	-	-	7	7	-	-	1	1.952	1	1
MT	FIT	2017	Solar energy - PV	108	181,21	-	-	108,71	108,71	129.700	14	14	-	-	18	28.624	5	5
MT	Investment grant	2017	Solar energy - PV	50	-	46	46	-	-	-	8	8	-	-	9	14.005	6	6

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
NL	FIT	2016	Biogas - Total biogas	750	36,55	-	-	4,46	4,46	149.000	1	1	-	-	19	-	74	74
NL	FIT	2016	Solid biomass - Total solid biomass	2.366	54,84	-	-	22,75	22,75	5.756.000	131	131	-	-	239	-	702	702
NL	FIT	2016	Geothermal energy	161	21,16	-	-	-	-	790.000	-	-	-	-	22	-	56	56
NL	FIT	2016	Hydropower	1	969,63	-	-	937,54	937,54	-	-	-	-	-	-	-	-	-
NL	FIT	2016	Solar energy - PV	398	100,60	-	-	68,51	68,51	287.000	20	20	-	-	143	-	205	205
NL	FIT	2016	Solar energy - CSP	3	55,39	-	-	23,30	23,30	-	-	-	-	-	1	-	1	1
NL	FIT	2016	Wind energy - Offshore	849	139,19	-	-	107,10	107,10	2.200.000	236	236	-	-	600	-	4.395	4.395
NL	FIT	2016	Wind energy - Onshore	2.214	58,18	-	-	26,09	26,09	3.575.000	93	93	-	-	449	-	988	988
NL	FIT	2017	Biogas - Total biogas	701	58,66	-	-	19,40	19,40	168.000	3	3	-	-	34	-	174	174
NL	FIT	2017	Solid biomass - Total solid biomass	2.334	57,88	-	-	18,62	18,62	5.465.000	102	102	-	-	135	-	386	386
NL	FIT	2017	Geothermal energy	846	28,08	-	-	-	-	196.000	-	-	-	-	56	-	179	179
NL	FIT	2017	Hydropower	1	49,96	-	-	10,70	10,70	-	-	-	-	-	-	-	-	-
NL	FIT	2017	Solar energy - PV	664	103,18	-	-	63,92	63,92	487.000	31	31	-	-	235	-	315	315
NL	FIT	2017	Solar energy - CSP	2	55,52	-	-	16,26	16,26	-	-	-	-	-	1	-	1	1
NL	FIT	2017	Wind energy - Offshore	849	105,41	-	-	66,15	66,15	3.386.000	224	224	-	-	-	-	-	-
NL	FIT	2017	Wind energy - Onshore	1.581	54,42	-	-	15,16	15,16	3.805.000	58	58	-	-	47	-	99	99

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
NO	Green Certificates	2016	Hydropower	-	-	-	-	155,09	16,63	2.428.500	377	40	-	-	433	1.013.000	122	13
NO	Green Certificates	2016	Wind energy - Onshore	-	-	-	-	155,09	16,63	412.500	64	7	-	-	-	-	-	-
NO	Green Certificates	2017	Hydropower	-	-	-	-	120,03	12,87	3.344.000	401	43	-	-	158	242.500	29	3
NO	Green Certificates	2017	Wind energy - Onshore	-	-	-	-	120,03	12,87	987.000	118	13	-	-	324	553.000	66	7

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
PL	Green Certificates	2016	Biogas - Total biogas	234	-	-	-	123,60	29,03	1.005.559	124	29	-	-	-	-	-	-
PL	Green Certificates	2016	Solid biomass - Total solid biomass	1.281	-	-	-	123,60	29,03	4.619.210	571	134	-	-	-	-	-	-
PL	Green Certificates	2016	Hydropower	994	-	-	-	123,60	29,03	779.467	96	23	-	-	-	-	-	-
PL	Green Certificates	2016	Solar energy - PV	99	-	-	-	123,60	29,03	82.624	10	2	-	-	-	-	-	-
PL	Green Certificates	2016	Wind energy - Onshore	5.807	-	-	-	123,60	29,03	12.492.134	1.544	363	-	-	-	-	-	-
PL	Green Certificates	2017	Biogas - Total biogas	235	-	-	-	73,63	17,30	1.031.221	76	18	-	-	-	-	-	-
PL	Green Certificates	2017	Solid biomass - Total solid biomass	1.362	-	-	-	73,63	17,30	3.350.401	247	58	-	-	-	-	-	-
PL	Green Certificates	2017	Hydropower	988	-	-	-	73,63	17,30	781.393	58	14	-	-	-	-	-	-
PL	Green Certificates	2017	Solar energy - PV	104	-	-	-	73,63	17,30	82.281	6	1	-	-	-	-	-	-
PL	Green Certificates	2017	Wind energy - Onshore	5.849	-	-	-	73,63	17,30	14.921.469	1.099	258	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
PT	FIT	2016	Biogas - Total biogas	77	111,97	-	-	75,22	75,22	272.224	20	20	-	-	4	7.562	1	1
PT	FIT	2016	Solid biomass - Biodegradable waste	95	87,45	-	-	50,70	50,70	488.320	25	25	-	-	-	-	-	-
PT	FIT	2016	Solid biomass - Other solid biomass	136	117,78	-	-	81,03	81,03	677.578	55	55	-	-	-	-	-	-
PT	FIT	2016	Hydropower	478	95,23	-	-	58,48	58,48	1.330.672	78	78	-	-	6	6.072	0	0
PT	FIT	2016	Solar energy - PV	281	296,49	-	-	259,74	259,74	503.809	131	131	-	-	10	17.022	3	3
PT	FIT	2016	Wind energy - Offshore	2	169,58	-	-	132,83	132,83	159	0	0	-	-	-	-	-	-
PT	FIT	2016	Wind energy - Onshore	5.550	93,23	-	-	56,48	56,48	12.129.840	685	685	-	-	189	419.843	27	27
PT	FIT	2016	Other	464	94,81	-	-	58,06	58,06	1.842.372	107	107	-	-	-	-	-	-
PT	FIT	2017	Biogas - Total biogas	84	114,32	-	-	62,88	62,88	272.628	17	17	-	-	-	-	-	-
PT	FIT	2017	Solid biomass - Biodegradable waste	95	89,15	-	-	37,71	37,71	491.183	19	19	-	-	-	-	-	-
PT	FIT	2017	Solid biomass - Other solid biomass	150	119,84	-	-	68,40	68,40	272.628	19	19	-	-	15	-	-	-
PT	FIT	2017	Hydropower	454	94,47	-	-	43,03	43,03	611.568	26	26	-	-	-	-	-	-
PT	FIT	2017	Solar energy - PV	293	299,36	-	-	247,92	247,92	540.368	134	134	-	-	10	5.260	1	1
PT	FIT	2017	Wind energy - Onshore	5.578	94,17	-	-	42,73	42,73	11.943.204	510	510	-	-	-	-	-	-
PT	FIT	2017	Other	464	96,80	-	-	45,36	45,36	1.913.898	87	87	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
RO	Green Certificates	2016	Biogas - Landfill gas	5	-	-	-	183,80	40,93	18.162	3	1	-	-	-	-	-	-
RO	Green Certificates	2016	Biogas - Sewage sludge	1	-	-	-	183,80	40,93	2.549	0	0	-	-	-	-	-	-
RO	Green Certificates	2016	Biogas - Other biogas	13	-	-	-	183,80	40,93	50.722	9	2	-	-	3	10.994	2	1
RO	Green Certificates	2016	Biogas - Total biogas	20	-	-	-	183,80	40,93	71.433	13	3	-	-	-	-	-	-
RO	Green Certificates	2016	Solid biomass - Biodegradable waste	105	-	-	-	183,80	40,93	429.121	79	18	-	-	15	54.969	11	3
RO	Green Certificates	2016	Solid biomass - Total solid biomass	105	-	-	-	183,80	40,93	429.121	79	18	-	-	15	54.969	11	3
RO	Green Certificates	2016	Hydropower	348	-	-	-	183,80	40,93	1.025.114	188	42	-	-	19	47.492	10	2
RO	Green Certificates	2016	Solar energy - PV	1.360	-	-	-	183,80	40,93	1.600.780	294	66	-	-	63	78.913	16	4
RO	Green Certificates	2016	Wind energy - Onshore	2.963	-	-	-	183,80	40,93	5.608.725	1.031	230	-	-	33	70.831	15	3
RO	Green Certificates	2017	Biogas - Landfill gas	5	-	-	-	205,96	45,08	17.986	4	1	-	-	-	-	-	-
RO	Green Certificates	2017	Biogas - Sewage sludge	1	-	-	-	205,96	45,08	1.584	0	0	-	-	-	-	-	-
RO	Green Certificates	2017	Biogas - Other biogas	13	-	-	-	205,96	45,08	51.636	11	2	-	-	-	-	-	-
RO	Green Certificates	2017	Biogas - Total biogas	20	-	-	-	205,96	45,08	71.206	15	3	-	-	-	-	-	-
RO	Green Certificates	2017	Solid biomass - Biodegradable waste	105	-	-	-	205,96	45,08	382.205	79	17	-	-	-	-	-	-
RO	Green Certificates	2017	Solid biomass - Total solid biomass	105	-	-	-	205,96	45,08	382.205	79	17	-	-	-	-	-	-
RO	Green Certificates	2017	Hydropower	342	-	-	-	205,96	45,08	854.861	176	39	-	-	-	-	-	-
RO	Green Certificates	2017	Solar energy - PV	1.359	-	-	-	205,96	45,08	1.702.270	351	77	-	-	-	-	-	-
RO	Green Certificates	2017	Wind energy - Onshore	2.962	-	-	-	205,96	45,08	6.357.586	1.309	287	-	-	-	-	-	-

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
SE	Green Certificates	2016	Bioenergy	2.135	-	-	-	158,04	16,40	4.569.315	722	75	-	-	230	825.399	102	11
SE	Green Certificates	2016	Hydropower	411	-	-	-	158,04	16,40	1.463.556	231	24	-	-	34	137.591	17	2
SE	Green Certificates	2016	Solar energy - PV	85	-	-	-	158,04	16,40	45.535	7	1	-	-	36	33.110	4	0
SE	Green Certificates	2016	Wind energy - Offshore	190	-	-	-	158,04	16,40	600.000	95	10	-	-	-	-	-	-
SE	Green Certificates	2016	Wind energy - Onshore	5.920	-	-	-	158,04	16,40	14.339.759	2.266	235	-	-	620	1.769.744	219	23
SE	Investment grant	2016	Solar energy - PV	245	-	712	74	-	-	104	178	18	1.715.799,61	178.078,03	60	54	238	25
SE	Green Certificates	2017	Bioenergy	2.146	-	-	-	124,00	12,87	5.313.388	659	68	-	-	11	45.501	6	1
SE	Green Certificates	2017	Geothermal energy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SE	Green Certificates	2017	Hydropower	421	-	-	-	124,00	12,87	1.636.463	203	21	-	-	10	5.407	1	0
SE	Green Certificates	2017	Hydrothermal energy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SE	Green Certificates	2017	Ocean energy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SE	Green Certificates	2017	Solar energy - PV	134	-	-	-	124,00	12,87	74.101	9	1	-	-	49	11.452	1	0
SE	Green Certificates	2017	Solar energy - CSP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SE	Green Certificates	2017	Wind energy - Offshore	190	-	-	-	124,00	12,87	600.000	74	8	-	-	-	-	-	-
SE	Green Certificates	2017	Wind energy - Onshore	6.110	-	-	-	124,00	12,87	16.438.771	2.038	212	-	-	190	217.538	27	3
SE	Investment grant	2017	Solar energy - PV	364	-	1.110	115	-	-	194	370	38	1.909.482,02	198.179,78	119	90	397	41

Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
SI	FIT	2016	Biogas - Total biogas	34	130,81	-	-	93,92	93,92	138.125	13	13	-	-	-	94	131	94
SI	FIT	2016	Solid biomass - Total solid biomass	24	146,33	-	-	109,44	109,44	139.661	15	15	-	-	-	109	146	109
SI	FIT	2016	Hydropower	25	62,72	-	-	25,83	25,83	139.502	4	4	-	-	-	26	63	26
SI	FIT	2016	Solar energy - PV	255	257,24	-	-	220,35	220,35	259.640	57	57	-	-	-	220	257	220
SI	FIT	2016	Wind energy - Onshore	3	65,87	-	-	28,98	28,98	5.778	0	0	-	-	-	29	66	29
SI	FIT	2017	Biogas - Total biogas	32	136,79	-	-	94,85	94,85	126.920	12	12	-	-	-	95	137	95
SI	FIT	2017	Solid biomass - Total solid biomass	23	146,56	-	-	104,62	104,62	134.734	14	14	-	-	-	105	147	105
SI	FIT	2017	Hydropower	23	58,45	-	-	16,51	16,51	103.019	2	2	-	-	-	17	58	17
SI	FIT	2017	Solar energy - PV	258	254,17	-	-	212,23	212,23	279.055	59	59	-	-	-	212	254	212
SI	FIT	2017	Wind energy - Onshore	3	61,83	-	-	19,89	19,89	5.714	0	0	-	-	-	20	62	20
Country Code	Type of support scheme	Year	Technology detail	Installed capacity [MW]	Average unitary FIT [LCY/MWh]	Value of premiums or inv. grants [MLCY]	Value of premiums or inv. grants [MEUR]	Effective unitary incentive [LCY/MWh]	Effective unitary incentive [EUR/MWh]	Energy receiving support [MWh]	RES incentives costs [MLCY]	RES incentives costs [MEUR]	RES unitary incentives costs [LCY/MWh]	RES unitary incentives costs [EUR/MWh]	Installed capacity [new plants] [MW]	Energy receiving support [new plants] [MWh]	RES incentives costs [new plants] [MLCY]	RES incentives costs [new plants] [MEUR]
UK	FIT	2016	Solid biomass - Biodegradable waste	220	174,00	-	-	131,37	160,31	-	-	-	-	-	73	-	-	-
UK	FIT	2016	Hydropower	141	243,70	-	-	201,07	245,37	-	-	-	-	-	61	-	-	-
UK	FIT	2016	Solar energy - PV	4.037	310,96	-	-	268,33	327,44	-	-	-	-	-	890	-	-	-
UK	FIT	2016	Wind energy - Onshore	630	299,35	-	-	256,72	313,27	-	-	-	-	-	186	-	-	-
UK	FIT	2016	Other	0	163,94	-	-	121,31	148,04	-	-	-	-	-	0	-	-	-
UK	Green Certificates	2016	Aerothermal energy	-	-	-	-	44,66	54,50	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2016	Biogas - Landfill gas	891	-	-	-	44,66	54,50	4.188.201	187	228	-	-	1	5.380	0	0
UK	Green Certificates	2016	Biogas - Sewage sludge	234	-	-	-	44,66	54,50	837.602	37	46	-	-	9	68.632	3	4
UK	Green Certificates	2016	Biogas - Other biogas	151	-	-	-	44,66	54,50	595.778	27	32	-	-	15	95.452	5	6
UK	Green Certificates	2016	Biogas - Total biogas	-	-	-	-	44,66	54,50	5.621.581	251	306	-	-	24	169.464	8	10
UK	Green Certificates	2016	Solid biomass - Biodegradable waste	-	-	-	-	44,66	54,50	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2016	Solid biomass - Other solid biomass	2.972	-	-	-	44,66	54,50	16.653.350	744	908	-	-	84	398.449	19	24
UK	Green Certificates	2016	Solid biomass - Total solid biomass	-	-	-	-	44,66	54,50	16.653.350	744	908	-	-	84	398.449	19	24
UK	Green Certificates	2016	Bioenergy	536	-	-	-	44,66	54,50	93.745	4	5	-	-	12	85.210	4	5
UK	Green Certificates	2016	Geothermal energy	0	-	-	-	44,66	54,50	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2016	Hydropower	726	-	-	-	44,66	54,50	2.365.557	106	129	-	-	1	2.422	0	0
UK	Green Certificates	2016	Hydrothermal energy	-	-	-	-	44,66	54,50	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2016	Ocean energy	13	-	-	-	44,66	54,50	9	0	0	-	-	6	2.962	0	0
UK	Green Certificates	2016	Solar energy - PV	5.452	-	-	-	44,66	54,50	5.656.606	253	308	-	-	1.190	2.260.274	110	134
UK	Green Certificates	2016	Solar energy - CSP	-	-	-	-	44,66	54,50	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2016	Wind energy - Offshore	5.020	-	-	-	44,66	54,50	16.424.390	734	895	-	-	-	-	-	-
UK	Green Certificates	2016	Wind energy - Onshore	10.994	-	-	-	44,66	54,50	18.889.697	844	1.029	-	-	2.345	5.029.212	244	298
UK	Green Certificates	2016	Other	-	-	-	-	44,66	54,50	-	-	-	-	-	-	-	-	-
UK	FIT	2017	Solid biomass - Biodegradable waste	254	170,24	-	-	123,93	141,36	-	-	-	-	-	35	-	-	-
UK	FIT	2017	Hydropower	192	236,32	-	-	190,01	216,74	-	-	-	-	-	51	-	-	-
UK	FIT	2017	Solar energy - PV	4.353	304,71	-	-	258,40	294,75	-	-	-	-	-	316	-	-	-
UK	FIT	2017	Wind energy - Onshore	681	296,76	-	-	250,45	285,68	-	-	-	-	-	50	-	-	-
UK	FIT	2017	Other	1	164,48	-	-	118,17	134,79	-	-	-	-	-	0	-	-	-
UK	Green Certificates	2017	Aerothermal energy	-	-	-	-	45,38	51,76	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2017	Biogas - Landfill gas	892	-	-	-	45,38	51,76	3.799.668	172	197	-	-	1	6.377	0	0
UK	Green Certificates	2017	Biogas - Sewage sludge	243	-	-	-	45,38	51,76	900.645	41	47	-	-	9	42.262	2	2
UK	Green Certificates	2017	Biogas - Other biogas	195	-	-	-	45,38	51,76	742.615	34	38	-	-	44	123.129	6	7
UK	Green Certificates	2017	Biogas - Total biogas	1.331	-	-	-	45,38	51,76	5.442.928	247	282	-	-	54	-	9	10
UK	Green Certificates	2017	Solid biomass - Biodegradable waste	-	-	-	-	45,38	51,76	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2017	Solid biomass - Other solid biomass	3.139	-	-	-	45,38	51,76	13.499.220	613	699	-	-	167	33.261	2	2
UK	Green Certificates	2017	Solid biomass - Total solid biomass	3.139	-	-	-	45,38	51,76	13.499.220	613	699	-	-	167	33.261	2	2
UK	Green Certificates	2017	Bioenergy	553	-	-	-	45,38	51,76	163.191	7	8	-	-	18	11.701	1	1
UK	Green Certificates	2017	Geothermal energy	0	-	-	-	45,38	51,76	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2017	Hydropower	728	-	-	-	45,38	51,76	2.431.215	110	126	-	-	2	2.693	0	0
UK	Green Certificates	2017	Hydrothermal energy	-	-	-	-	45,38	51,76	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2017	Ocean energy	18	-	-	-	45,38	51,76	4.204	0	0	-	-	4	1.251	0	0
UK	Green Certificates	2017	Solar energy - PV	6.023	-	-	-	45,38	51,76	6.556.381	298	339	-	-	570	496.067	25	28
UK	Green Certificates	2017	Solar energy - CSP	-	-	-	-	45,38	51,76	-	-	-	-	-	-	-	-	-
UK	Green Certificates	2017	Wind energy - Offshore	6.402	-	-	-	45,38	51,76	18.883.386	857	977	-	-	1.382	979.074	49	56
UK	Green Certificates	2017	Wind energy - Onshore	12.482	-	-	-	45,38	51,76	26.258.061	1.192	1.359	-	-	1.488	1.912.979	95	109
UK	Green Certificates	2017	Other	-	-	-	-	45,38	51,76	-	-	-	-	-	-	-	-	-

Annex 30 – About CEER

The Council of European Energy Regulators (CEER) is the voice of Europe's national energy regulators. CEER's members and observers comprise 36 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.

CEER wishes to thank in particular the following regulatory experts for their work in preparing this report: Yvonne Finger, Michael Sorger, Malte Luks, Hugo Maurer, Brieuc Petit, Katalin Varga.

More information at www.ceer.eu.