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“CLEAN ENERGY ○
FOR ALL EUROPEANS” PACKAGE:
IMPLICATIONS AND OPPORTUNITIES
FOR THE MEDITERRANEAN



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FOR THE MEDITERRANEAN

BRIEFING PAPER



Karlsruhe, Fraunhofer ISI

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Executive Summary

01



In this briefing on the legislative package 'Clean Energy for all Europeans' - CE4ALL, we explore various options for the Southern and Eastern Mediterranean countries to cooperate with European Union Member States. The focus of cooperation options is in the area of deploying renewable energy sources, interconnections and electricity market integration.

THE POLICY CONTEXT

The European Union launched its Energy Union strategy in February 2015 in order to align its energy and climate policy. The Energy Union strategy aims at making the use of energy more secure, affordable and sustainable. The Energy Union strategy builds on previous legislation, including the 2020-framework, with the objective to reduce greenhouse gas emissions by at least 20% by 2020 (against 1990), increase the share of renewable energy sources in final energy consumption to 20% by 2020 and achieve a reduction of energy demand of 20% (against the baseline). The European energy market liberalization was already initiated in 2009 with the European Union 'third package on market liberalization and the internal energy market'.

The new European Union legislative package 'Clean energy for all Europeans' was proposed by the European Commission and fully adopted in May 2019 in order to implement the European Union climate and energy policy 2021-2030 covering energy performance in buildings, energy efficiency, renewable energy, electricity market design and the governance structure of the Energy Union.

RENEWABLE ENERGY

WHICH COOPERATION OPTIONS EXIST IN THE AREA OF RENEWABLE ENERGY

Binding target for 2030 at European Union-level: The Renewable Energy Directive II sets a target for renewable energy sources in final energy consumption of at least 32% for the European Union as a whole, including the possibility of an upwards revision of the



targets in 2023. In contrast to the 2020-targets, there are no binding targets at national level, in order to reduce the cost of meeting the overall European Union target¹. In addition, the 2020 targets remain in force and represent a baseline for Member States in their effort towards 2030.

Main options for cooperation: Cooperation mechanisms, designed initially in the Renewable Energy Directive from 2009 and continued under the 2030-framework, provide an option for Southern and Eastern Mediterranean countries to cooperate with European Union Member States in particular in the form of joint projects. In theory, new funding opportunities from the European Union, including the European Union Financing Mechanism or the Connecting Europe Facility, may become available. However, it is not yet clear what share of these funds can be allocated to third countries in practice.

The European Union Financing Mechanism: Financial support from the European Union's Financing Mechanism may be used for joint projects with third countries in the context of the enabling framework for reaching the Energy Union objectives. Financial support may take the form of low-interest loans, grants or a mix of both.



The Connecting Europe Facility: In addition to the grid projects included traditionally under the framework of the Connecting Europe Facility, the proposal for the new Connecting Europe Facility includes renewable cross-border projects and third countries. Thus, additional funding might be available for joint projects with European Union Member States under this framework.

Requirements to qualify for European Union-support: In order to qualify for participation e.g. in joint projects, European Union rules to qualify for support need to be respected. These include that support levels will be defined based on an auction and be paid on top of the price received for electricity sold on the market. In addition, projects

¹Production based on renewables can take place wherever cost is lowest.

from third countries need to prove the physical export of electricity to the European Union e.g. by showing capacity reservation on interconnectors for the times when the plant is operating. Thus, in order to receive the support, plants need to be able to reserve interconnector capacities and to sell the electricity they produce on the market.

Potential Member States with shortfall of renewable energy: As Member States must not fall short of the 2020-targets, 2020-targets function as a kind of nationally binding baseline. Member States which will probably fall short of their 2020-targets are Belgium, France, the Netherlands, Poland and the United Kingdom; those countries could be interested in cooperating with Southern and Eastern Mediterranean countries. In addition, the available drafts of the Integrated National Energy And Climate Plans may provide a first indication on the ambition level of



European Union Member States for the time horizon after 2020. Later on, progress reports which are to be published every two years can provide an indication of potential cooperation among partner countries in the European Union. Southern and Eastern Mediterranean countries could approach these potential partners for joint projects to be included in the final National Energy And Climate Plans.

WHAT ACTION IS RECOMMENDED FOR SOUTHERN AND EASTERN MEDITERRANEAN COUNTRIES INTERESTED IN COOPERATION WITH EUROPEAN UNION MEMBER STATES



Advocacy: Both the detailed rules of the European Union Financing Mechanism and the Connecting Europe Facility are still under negotiation or will be defined in secondary legislation. It might be useful for Southern and Eastern Mediterranean countries to approach potential partner Member States for joint projects to ensure their advocacy for favorable third country conditions (e.g. a recommendation for joint projects with third countries and special conditions for third country interconnectors to European Union Member States that do not meet the interconnection targets) in the respective documents.

Implementation of a system of guarantees of origin: A system of guarantees of origin for electricity generated from renewable sources such as the European Union's guarantees of origin system can be useful in several ways: first, it can be used to prove that the electricity sold by the utility on the European Union market is generated from renewable sources. Second, it can be a basis for renewable energy generators based in the Southern and Eastern Mediterranean countries to export and sell electricity directly to European Union-based customers. Third, it can also help to avoid fraud regarding the origin of renewable electricity at a national level and potentially enable new trade channels.

Concrete preparation of joint projects: Southern and Eastern Mediterranean countries could approach potential partner countries for joint projects identified in the National Energy And Climate Plans or the progress reports, which indicate Member States with insufficient progress and with a potential interest to use cooperation mechanisms. The Southern and Eastern Mediterranean countries can approach European Union Member States that do not reach their indicative targets for implementing joint projects. Joint projects located in third countries need to prove the physical import of electricity by the European Union. Thus, interested Southern and Eastern Mediterranean countries need to ensure such physical import is possible by enabling the allocation of the necessary interconnector capacity or planning for new interconnectors to the European Union. The allocation of support payments to renewables in joint projects in principle needs to follow the European Union rules for support payments. This implies that support payments will be auctioned and paid as a premium on top of the market price. As a consequence, Southern and Eastern Mediterranean countries interested in participating in joint projects need to assure that renewable energy plant operators can access an electricity market where they can sell their electricity. This can either be the market operator in the Southern and Eastern Mediterranean countries which then sells the electricity on the electricity market of the European Union Member State, or the plant operator that can directly access the European Union electricity market.

MARKET INTEGRATION AND INTERCONNECTORS

WHAT ARE THE MOST RELEVANT ISSUES FOR SOUTHERN AND EASTERN MEDITERRANEAN COUNTRIES IN THE AREA OF MARKET INTEGRATION

Interconnection targets: The European Union has set interconnection targets for the interconnection capacity between the European Union Member States. Interconnectors with third countries are currently not taken into account for reaching the interconnection target (with the exception of Norway and Switzerland). The European Union expert group on interconnection does however recognize the need to discuss the role of such interconnections. Thus, the option of including third countries in interconnector target achievement might depend on their level of integration in the European Union electricity markets and especially the reliable availability of interconnector capacity, generation capacity and flexibility options.

Projects of Common Interests: Interconnectors to third countries can receive the status of a project of common interest and be eligible for European Union funding and for streamlined planning procedures if the planned interconnector also contributes to alleviating European Union-internal capacity restrictions. Currently, the planned

interconnector between Tunisia and Italy (ELMED) has been awarded the status of a project of common interest.

Market coupling: The highest benefits of cooperating with the European Union could be reached if an Southern and Eastern Mediterranean countries fully participates in European Union market coupling. For most Southern and Eastern Mediterranean countries however, participation would require increased interconnection capacities as well as a deep restructuring of their national electricity markets and is therefore to be seen as a longer-term process. Nevertheless, and also for participation in joint projects for renewables, the Southern and Eastern Mediterranean countries need to make sure that interconnector capacities can be reserved and are available, and renewable plants have a possibility to sell their electricity to a market in the European Union.

WHAT ACTION IS RECOMMENDED FOR SOUTHERN AND EASTERN MEDITERRANEAN COUNTRIES INTERESTED IN COOPERATION WITH EUROPEAN UNION MEMBER STATES



Apply for support in context of a project of common interest: In order to enable this, Southern and Eastern Mediterranean countries need to increase interconnector capacities to the European Union and, at least, partly liberalize their markets to enable electricity trading. Interconnectors can be supported by European Union funds mainly if they are selected as projects of common interest. In that regard, Southern and Eastern Mediterranean countries could apply, together with the relevant European Union Member States, for the status of project of common interest and advocate for including interconnectors to third countries in the European Union interconnection targets.

Prepare market coupling: In the longer term, both the European Union Member States and the Southern and Eastern Mediterranean countries could profit from a full market integration between both regions. Apart from increased interconnector capacities, this requires the liberalization and restructuring of the Southern and Eastern Mediterranean countries's electricity markets. Possibly, markets can also be integrated one after the other, as is happening in the European Union. Allowing for cross-border trading by independent power producers can be a first step towards market integration. The integration of day-ahead markets could follow with the integration of intraday markets, futures and balancing markets as subsequent steps. In addition, Southern and Eastern Mediterranean countries could trade electricity on European Union Member States power markets, as is already done by Morocco on the Iberian day-ahead and intraday market (MIBEL). However, these countries would need to allocate the necessary interconnector capacities for importing or exporting electricity.

Introduction

02



During the last years, the European Union (EU) has developed a new legislative package (Clean Energy for All Europeans - CE4ALL) which implements the EU climate and energy policy for the period between 2021 and 2030. With this package, the EU aims at facilitating the clean energy transition and making the energy system fit for future challenges based on the increasing share of renewables in the system. It includes regulations on electricity market design as well as regulations on renewable energy and energy efficiency.

The first version of the package was proposed by the European Commission in November 2016. In particular, rules are designed to prepare the European internal electricity market for growing shares of renewables and to ensure a secure, affordable and low-carbon supply of electricity. Regional cooperation and coordination play a key role in achieving the CE4ALL objectives.

Whilst the package primarily aims at the European internal energy market, it does have implications for the Southern and Eastern Mediterranean countries (SEMC). The most important ones are related to the deployment of renewable energy sources and integration into the EU - SEMC electricity market.

This briefing aims at exploring options for a larger North-South cooperation between SEMC and EU member states in these two areas. Apart from explaining the relevant contents of the CE4ALL, the briefing also outlines possible actions for SEMC interested in cooperating with the EU in the electricity sector. The briefing was commissioned by the European Commission and the Center for Mediterranean Integration, and prepared by Fraunhofer ISI.

2.1 GENERAL INFORMATION ON THE POLICY CONTEXT AND THE EUROPEAN UNION CLEAN ENERGY FOR ALL EUROPEANS PACKAGE

In order to understand the relevant contents of the CE4ALL Package, this section provides a short overview of the EU's strategy in the field of energy and climate policy.

The CE4ALL builds on the work program of the 2020 energy strategy with the main goals of reducing its greenhouse gas emissions by at least 20%, increasing the share of renewable energy to at least 20% of gross final consumption, and achieving energy savings of 20% or more compared to a baseline. Furthermore, the CE4ALL Package is based on a suite of "Energy Packages" governing the EU energy market legislation, which were enacted since the mid-1990s to improve the functioning of the internal energy market. Among others, key achievements of this policy were the unbundling of energy suppliers from network operators and the strengthening of the independence of regulators, as well as cross-border cooperation between transmission system operators and the creation of European Networks for Transmission System Operators, which are an important basis for the cooperation between SEMC and EU member states.

THE ENERGY UNION STRATEGY

In February 2015, the EU launched its Energy Union strategy. For the first time, this "strategy aligns energy and climate policy with the objective of guiding, in a coordinated



way, the transition of the European energy system to a decarbonized system. The Energy Union strategy aims at making the use of energy more secure, affordable and sustainable. It includes the following five dimensions:

- *Security, solidarity and trust*: diversifying Europe's sources of energy and ensuring energy security through solidarity and cooperation between EU countries
- *Fully integrated internal energy market*: enabling the free flow of energy through the EU thanks to adequate infrastructure and without technical or regulatory barriers
- *Energy efficiency*: improving energy efficiency to reduce import dependency, lower emissions, and drive jobs and growth
- *Decarbonising the economy*: complying with the EU commitment to a quick ratification of the Paris Agreement and to retaining its leadership in the area of renewable energy
- *Research, innovation and competitiveness*: supporting breakthroughs in low-carbon and clean energy technologies by prioritizing research and innovation to drive the energy transition and improve competitiveness.

THE EU CLEAN ENERGY FOR ALL EUROPEANS PACKAGE

With the CE4ALL, the EU updates and complements all regulations facilitating the transition to a low carbon economy. More precisely, the EU aims to make progress in terms of the Energy Union objectives and to comply with the EU's Paris Agreement commitments. The CE4ALL is a package of legislative measures and regulations with a focus on the time horizon until 2030, although longer-term perspectives are also considered. The package aims to achieve the following main goals:

- Putting energy efficiency first
- Achieving global leadership in renewable energies
- Providing a fair deal for consumers.

The CE4ALL includes different types of documents (most importantly, regulations and directives). Whilst a regulation is directly binding and effective for all Member States, a directive must be transposed into national law by Member States (MS) (see Box 1).

The CE4ALL consists of the eight following legislative documents, all adopted as of May 2019:

- Energy Performance in Buildings Directive
- Renewable Energy Directive
- Energy Efficiency Directive
- Governance Regulation
- Electricity Market Design
 - Directive on common rules for the internal market in electricity (recast) amending Directive 2009/72
 - Regulation on the internal market for electricity (recast) amending Regulation 714/2009
 - Risk-Preparedness Regulation
 - Regulation for the Agency for the Cooperation of Energy Regulators (ACER)

The European Commission (EC) launched the CE4ALL in November 2016 with a first proposal on the legislative package. This launch was followed by trilateral negotiations between the European Commission, the "Council" and the European Parliament (see Explanation in Box 1).

Box 1 Decision making and types of legislation in the European Union explained

Legislative acts in the energy policy area are jointly adopted by the European Parliament and the Council on a proposal from the Commission (ordinary legislative procedure). Trilogues are informal meetings where members from all three institutions discuss a draft legislative act with a view to achieving an agreement on a final text. Once a trilogue agreement is achieved, the European Parliament and the Council formally adopt the legislative act, which is subsequently published in the official journal of the European Union.

The EU uses three types of legislation: The treaties between the Member States (such as the founding Treaty of Rome or the Treaty of Lisbon) are primary legislation and form the legal basis for all EU action. Secondary legislation includes regulations and directives but also decisions, recommendations and opinions. Whilst a regulation is a self-executing measure which is directly applicable in all Member States, a directive establishes objectives and requirements that need to be implemented in national laws. Below regulations, directives and decisions, the EU may adopt supplementing measures such as implementing and delegated acts, which are sometimes referred to as tertiary legislation (although the term "tertiary legislation" is not used commonly in practice).

The Renewable Energy Directive, the Governance Regulation and the Energy Efficiency Directive were officially published in December 2018, whilst the Energy Performance in Buildings Directive had already been finalized in June 2018. The remaining Regulations and Directives on electricity markets were officially published in June 2019 (see Table 1).

Once endorsed by both law-making bodies, the regulations enter into force immediately and the directives have to be transposed into national law within 18 months. As a consequence, part of the necessary national legislation will only be implemented after 2020².

Table 1 Adoption and Publication of the Clean Energy for all Europeans Package (1 July 2019).

	European Commission Proposal	European Parliament Adoption	Council Adoption	Official Journal Publication
Energy Performance in Buildings	30/11/2016	17/04/2018	14/05/2018	19/06/2018 - Directive (EU) 2018/844 https://bit.ly/2TVFS2T
Renewable Energy	30/11/2016	13/11/2018	04/12/2008	21/12/2018 - Directive (EU) 2018/2001 https://bit.ly/2CuqQuz
Energy Efficiency	30/11/2016	13/11/2018	04/12/2018	21/12/2018 - Directive (EU) 2018/2002 https://bit.ly/2QI5HpD
Governance	30/11/2016	13/11/2018	04/12/2018	21/12/2018 - Regulation (EU) 2018/1999 https://bit.ly/2EJDuZb
Electricity Regulation	30/11/2016	26/03/2019	22/05/2019	14/06/2019 – Regulation (EU) 2019/943 https://bit.ly/2LHgs83
Electricity Directive	30/11/2016	26/03/2019	22/05/2019	14/06/2019 – Directive (EU) 2019/944 https://bit.ly/2Lmk3sA
Risk Preparedness	30/11/2016	26/03/2019	22/05/2019	14/06/2019 – Regulation (EU) 2019/941 https://bit.ly/2Xof15o
Acer	30/11/2016	26/03/2019	22/05/2019	14/06/2019 – Regulation (EU) 2019/942 https://bit.ly/2Gcx112

Source: EC 2019: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>

² The most important aspects mentioned in this document however do not depend on national transposition: the renewable energy targets and the financing mechanism form part of the Governance Regulation, the cooperation mechanisms have not been changed compared to the last renewable energy directive (and therefore already form part of the relevant national legislations) and the most crucial rules for the electricity market form part of the network codes and guidelines which are binding for all Member States.

A brief overview of the different legislative documents of the Clean Energy for all Europeans Package can be found in Annex 2.

Some of the CE4ALL legislative acts need implementing provisions in secondary legislations. Regarding the SEMC, the most relevant secondary legislation concerns the detailed implementation of the EU Financing Mechanism (see Section 3.1.4) and the new Connecting Europe Facility (see Section 3.1.5) which will be negotiated in the course of 2019³.

While third countries (i.e. those countries that are not members of the EU such as the SEMC) cannot formally influence EU legislation, it might be possible to cooperate with EU countries and, through that cooperation, indirectly influence negotiation outcomes.

2.2 BRIEFING CONTENT

In the following sections, the contents of the CE4ALL that are of relevance for the SEMC will be explained in more detail. The focus of the briefing paper is on support for renewable energies (Section 3) and on interconnection and electricity markets (Section 4). This focus was selected as it is expected that cooperation in the electricity sector between EU Member States and SEMC will take place mostly regarding investments in and operation of renewable energy plants as well as electricity market integration. Both sections also outline the implications and possibilities for action for the SEMC. Section 5 gives a short summary of the practical implications for SEMC and conclusions.

The explanations in the following sections review the contents of the CE4ALL. Moreover, where appropriate, existing regulations as well as additional documents, such as guidelines and network codes, which are of relevance in the specific area, are included. If important rules remain unchanged in comparison to previous legislation but are still of relevance (such as the cooperation mechanisms for renewable energy), they also form part of the respective sections. Issues that still need implementing provisions in secondary legislation are identified and outlined as well. The briefing paper aims at giving the SEMC an overview of relevant EU legislation and gives indications on how these regulations can be used for joint projects or market integration with EU Member States.

³ The EU financing mechanism needs to be in place by January 1, 2021. More information on the progress and timing of the regulation for the CEF for the period between 2021 and 2027 can be found here: <http://www.europarl.europa.eu/legislative-train/theme-new-boost-for-jobs-growth-and-investment/file-mff-cef-2021-2027>





Renewable Energy

03

Renewable Energy

03



This Section contains all topics of the CE4ALL which are of relevance for the SEMC in the area of renewable energies. Apart from the EU renewable energy targets for 2030, this includes opportunities for cooperation with third countries under cooperation mechanisms, the design of support systems for renewable energy in the electricity sector, the EU Financing Mechanism and cross-border renewable energy projects under the Connecting Europe Facility. After providing an overview of the relevant legislation (Section 3.1), implications and opportunities for SEMC are explained and discussed (Section 3.2).

3.1 CONTENT OF RELEVANT LEGISLATION

3.1.1 RENEWABLE ENERGIES TARGET FOR 2030

Renewable energies target of 32% and target commitment

The Renewable Energy Directive II sets a target for renewable energy sources in final energy consumption of at least 32% for the EU as a whole, including the possibility of an upwards revision of the targets in 2023. The target is binding at EU level, meaning that target achievement is mandatory, but there are no binding renewable energy targets at national level for the year 2030. This is one main difference compared to the previous legislation covering the time horizon until 2020, where renewables targets were binding at Member State level. Although no "new" binding targets have been established at national level, Member States are required to establish their national contribution to the overall EU target before the end of 2019. Moreover, during the period 2021-2030, the renewable energies share at Member State level shall not fall below the national targets for 2020. Thus, the 2020 targets represent a baseline for Member States in their efforts towards 2030 (Governance Regulation, Article 32, Paragraph 4).

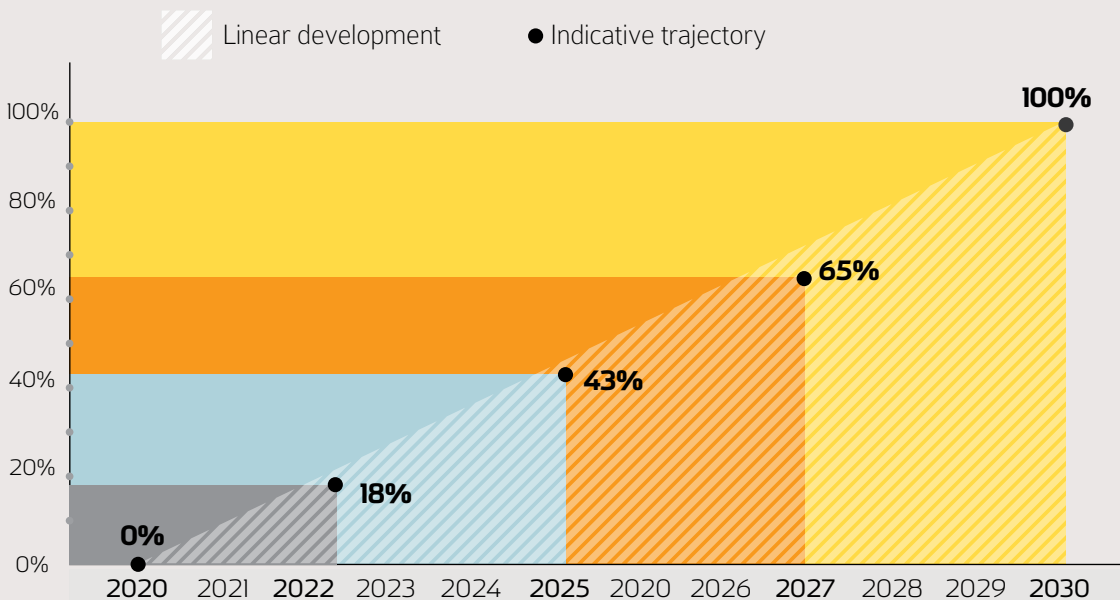
Sub-target in the transport sector

In addition to the overall target, the Renewables Directive II requires a minimum share of renewable energies in final energy consumption in the transport sector of 14% by 2030 (Renewables Directive II, Article 25) with a potential upward revision in 2023. There are minimum shares for advanced biofuels (second generation), which amount to 3.5% in 2030. With regard to the calculation of the renewable energies share in transport there are special rules with multipliers for special feedstock (2) and renewable electricity used in transport (1.5), in order to place more weight on these technologies in the sectoral target calculation.

Renewable energies in the integrated national energy and climate plans

The Governance Regulation requires Member States to prepare Integrated National Energy and Climate Plans (NECPs) in order to show the Member States’ objectives, targets and contributions for the five dimensions of the Energy Union. These NECPs substitute for, and integrate, the sectoral plans (e.g. the National Renewable Action Plans – NREAP, or the National Energy Efficiency Action Plans – NEAPs) that have been required by the renewables and energy efficiency legislations until 2020. With respect to renewable energy sources, NECPs shall include the Member States’ proposed contribution to the EU target of at least 32% (Governance Regulation, Article 3) as well as an indicative trajectory for several reference points, namely 2022, 2025 and 2027. Member States shall not go below a defined percentage of the total increase in the renewable energy share between that Member State’s binding 2020 national target, and its contribution to the 2030 target (Governance Regulation, Article 4). The indicative trajectory is slightly below a linear development between 2020 and 2030, as shown in Figure 1. The European Commission will assess and monitor the collective ambition and progress against the EU target and propose measures if appropriate.

Figure 1 Indicative trajectory defined in the Governance Regulation, Article 4



Other dimensions of the integrated national energy and climate plans - Energy security and interconnectivity targets

The NECPs require member states to describe their national objectives with regard to energy supply from third countries (Governance Regulation, Article 4) as one part of the dimension 'Energy Security'. Furthermore, the NECP requires information on the projected level of electricity interconnection in 2030 in the context of the target of at least 15% interconnection by 2030 as regards the dimension 'Internal Energy Market'. Information about key electricity and gas infrastructure projects will also be given in the NECPs.

Timing of the integrated national energy and climate plans and Progress Reports

Draft NECPs were due in December 2018 (Governance Regulation, Article 9) and the final NECPs are foreseen for December 2019 after a process of evaluation and a consultation process between the European Commission and the Member States. NECPs must be updated by 2023 (draft version) and 2024 (final version) or Member States need to explain why no update is required. National progress is monitored by biennial progress reports, starting in 2021 (Governance Regulation, Article 29).

Ensuring target achievement in the absence of national targets

In the absence of nationally binding targets of the Renewables Directive, there is the risk of not meeting the 32% target. Two potential types of gaps may occur: one, if the sum of Member State ambitions stays below the EU level target (ambition gap) and the other, if collective efforts or the real progress made by Member States lead to a gap (delivery gap) with respect to reaching the EU target.

Identifying a gap

In case the European Commission assesses that the national contributions indicated in the draft NECPs do not add up to the EU target, an ambition gap occurs. In this case, the European Commission shall issue recommendations to Member States with insufficient ambition level (Governance Regulation, Article 31).

Assessing whether the contributions of individual Member States are sufficient or not is challenging, as no national targets have been established. Therefore, the European Commission will base its assessment on a formula indicated in Annex II of the Governance Regulation. The formula includes five main elements (Table 2). First, each Member State's national binding target for 2020 serves as a baseline. Member States cannot go below their 2020 national targets from 2021 onwards. Member States have to cover any gap against the 2020 baseline within two years. For the other four elements, relative weights are defined: 30% of the 2030 benchmark are contributed by a flat-rate contribution which is the same across Member States. Another 30% of the benchmark is contributed based on the Member State's per capita gross domestic product (GDP). The next 30% is calculated based on the existing renewable energy potential in the respective country. The last component contributes 10% based on the interconnection level of each Member State. The national contributions for 2030 are calculated according to the following formula (Governance Regulation, Annex II):

$$\text{Share}_{2030} = \text{Share}_{2020} + 0.3 \times \text{Flat-Rate} + 0.3 \times \text{GDP}_{\text{per_capita}} + 0.3 \times \text{Potential} + 0.1 \times \text{Interconnection}$$

or equivalently $\text{Share}_{2030} = \text{Share}_{2020} + 3.6\% + 0.3 \times \text{GDP}_{\text{per_capita}} + 0.3 \times \text{Potential} + 0.1 \times \text{Interconnection}$

Each term in the equation is described in more detail in Table 2.

Table 2 Objective criteria to determine the national contributions used as reference to determine whether there is an ambition gap

Objective Criteria	Share of the increase in RES-share between 2020 and 2030
<p>a. The Member State's national binding target for 2020: The 2020 targets serve as a baseline, below which the Member State's renewable energy share must not fall. If a Member State's share is below its 2020 target it can be judged not to be sufficient.</p>	-
<p>b. A flat-rate contribution: Each Member State needs to increase its share of renewable energies by the same increase in percentage points. This means that each Member State needs to increase by 3.6%-points (as the weight given to this criterion is 30% and an overall increase of 12%, from 20% to 32%, in the share of renewables is required between 2020 and 2030).</p>	30%
<p>c. A GDP-per-capita based contribution: The economic situation of each Member State is taken into account, by using a GDP/capita index (in purchasing power standards, referring to the average GDP between 2013 and 2017).</p>	30%
<p>d. A potential-based contribution: The national situation in terms of renewable resources shall be taken into account. Therefore, the renewable energy share of each Member State in the PRIMES scenario⁴ shall be taken as allocation key for 30% of the 2030-target.</p>	30%
<p>e. A contribution reflecting the interconnection level of the Member States: In order to consider potential bottlenecks due to restricted interconnector capacities, an interconnection share index compared to European Union average in 2017 shall be used to estimate the national contributions. For each Member State the interconnection share index is capped at 150% of the EU average.</p>	10%

⁴ The PRIMES scenario is the main reference scenario for the EU energy system. It is regularly reviewed and updated. More information on PRIMES can be found here: <https://ec.europa.eu/energy/en/data-analysis/energy-modelling>

There are still open questions regarding the detailed calculation of the 'national contributions'. This includes further details on the calculation method, e.g. which concrete numbers or scenario figures are taken for the calculation of component 'd.' Alternatively, it is not clear whether the size of the country influences the calculation of component 'e' or whether e.g. arithmetic averages are taken to calculate this indicator. However, the establishment of criteria allows the European Commission to identify Member States with a low ambition level in the absence of national targets.

The delivery gap can be identified based on the indicative trajectories, e.g. if Member States fall below their national reference points of the trajectory in 2022, 2025 and 2027.



Measures to avoid a gap

Regarding the ambition gap, if the contributions submitted by Member States in their draft plans do not add up to the EU-level binding target, the Commission shall issue recommendations to less ambitious Member States to increase their contributions. In addition, the European Commission intends to support high ambitions of Member States through an enabling framework (Renewables Directive, Article 3, Paragraph 5). Both the enabling framework and the financing mechanism are explained in more detail in Section 3.1.4.

In case a delivery gap should occur, the Governance Regulation requires the use of additional measures by Member States. These include:

- o using national measures, such as additional financial support programs or mandatory use of renewable energy in some sectors, to increase the share of renewable energy,
- o adjusting the share of renewable energies in heating & cooling,
- o adjusting the share of renewable energies in transport,
- o making a voluntary financial contribution to the Union renewable energy financing mechanism, or
- o using cooperation mechanisms (including with third countries).

Which countries are expected to have a gap by 2020?

According to the latest monitoring process with regard to the status of target achievement, which has been technically assisted by a research project, it is estimated that a RES share of between 18.1% and 20.7% can be reached by 2020 assuming that currently implemented and planned policy measures are continued⁵.

16 of 28 Member States are likely to reach their respective 2020 targets:

- o Bulgaria, Czech Republic, Croatia, Denmark, Italy, Estonia, Finland, Lithuania and Sweden will almost certainly reach their target.



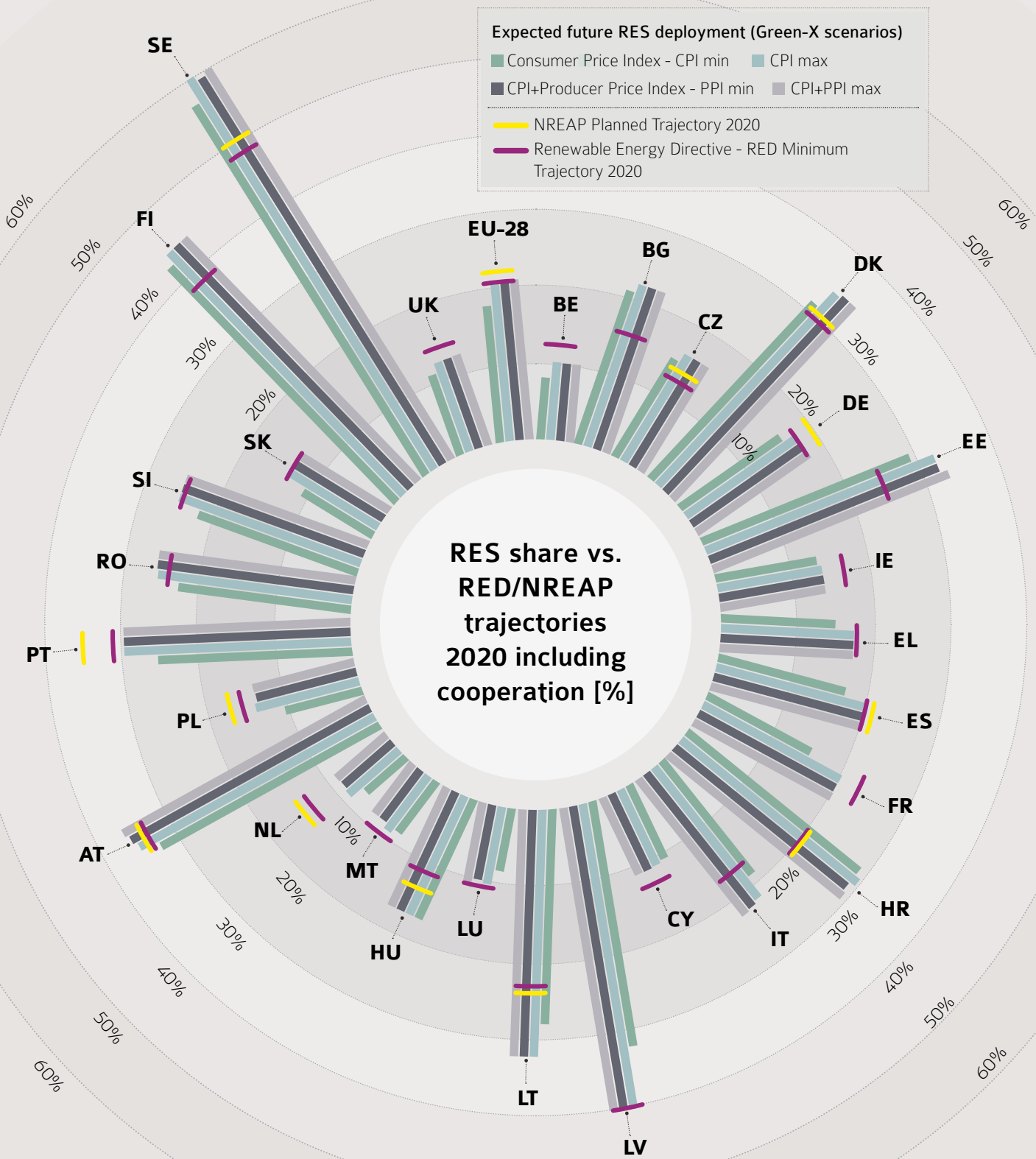
- o Austria, Germany, Spain, Latvia, Romania, Slovenia and Slovakia are likely to reach their targets.
- o Luxemburg will not reach its target domestically but has already entered into cooperation agreements with other EU Member States to ensure target achievement.
- o Ireland, Greece, Cyprus, Malta, and Portugal will likely reach renewable shares slightly below their targets.
- o The highest deficits with comparison to the 2020 targets are expected to occur in Belgium, France, the Netherlands, Poland and the United Kingdom.

The countries mentioned last (potentially with the exception of the United Kingdom due to Brexit) might therefore be interested in joint projects with SEMC especially as the 2020 targets also represent the minimum share of renewable energy for each of the EU Member States in the period between 2021 and 2030. Cooperation with third countries would allow 'deficit countries' to fulfil their targets at lower costs than increasing domestic efforts. One should remember that countries with a deficit also have the possibility

⁵ Koper, M. et al. (2019): Technical assistance in realisation of the 4 th report on progress of renewable energy in the EU - Final report. Available at: https://ec.europa.eu/energy/sites/ener/files/documents/technical_assistance_in_realisation_of_the_4th_report_on_progress_of_renewable_energy_in_the_eu-final_report.pdf

to cooperate with other EU MS and not go for joint projects. Countries with direct interconnector capacities to SEMCs could be more open for cooperation with third countries than countries located farther away.

Figure 2 Surplus quantities and shortages of final energy based on renewable energy sources as estimated by Koper et al. (2019).



3.1.2 COOPERATION MECHANISMS AND OPENING OF SUPPORT SCHEMES

What is the reason for using cooperation mechanisms?

In order to achieve the Union target of 32% renewables in a cost-effective way, the Renewable Energy Directive fosters cooperation between MS and third countries. The “cooperation mechanisms” provide a formal framework for MS to cooperate. The cooperation mechanisms were introduced in the previous Renewable Energy Directive when there were still national targets in place. Cooperation under the 2020-framework allows EU countries with a stronger use of RES than foreseen in their target to sell “excess renewable final energy” to less ambitious member states falling short of their target. In this way costs of target achievement can be reduced, if renewable projects are built where costs are lowest. In the period after 2020, cooperation mechanisms can be used to reach national benchmarks. They are listed in the Governance Regulation as one of the potential additional measures a Member State not reaching its trajectory is required to take.



What type of cooperation mechanisms exist between Member States?

Existing instruments to enhance cooperation have not been changed or adapted under the Renewable Energy Directive. For the cooperation between two or more MS, the following options exist:

- **Statistical transfers** imply that renewable energy produced in one Member State is transferred to the renewables statistics of another Member State, counting towards the national renewables target of that Member State (Renewables Directive II, Article 8).
- Under **joint projects**, two or more EU countries can co-fund a renewable energy project in electricity or heating and cooling, and share the resulting renewable energy for the purpose of meeting their targets. These projects can (but do not have to) involve the physical transfer of energy from one country to another (Renewables Directive II, Article 9).

- o **Joint support schemes** imply merging renewable support schemes and defining an allocation of the electricity generated from renewables to the participating member states (Renewable Energy Directive, Article 13).

What is the current use of cooperation mechanisms in Europe?

The use of cooperation mechanisms under the Renewable Directive of 2009 so far has been limited. While the benefits of cooperation in minimizing total system costs are proven, the uptake of cooperation mechanisms was very slow in the past. An explanation of reasons for the limited use of Cooperation Mechanisms is provided in Box 2.

Box 2 Explaining the limited use of Cooperation Mechanisms

There are various analyses that try to explain the limited use of cooperation mechanisms. General reasons can be different support schemes, no clear allocation of costs and benefits, a high complexity of the specific cooperation design, no obvious benefits or the domestic energy mix. (For example, a MS with a high share of nuclear might be less interested in importing excess renewable energy from another country). It can also be difficult to explain to an electricity consumer with a high renewables levy to pay for renewable power plants constructed abroad. A study carried out in the context of the MUSTEC-project included a survey that identifies the following most relevant barriers to using intra-European cooperation mechanisms⁶:

- o Public reaction in off-taker countries (spent public money abroad)
- o Heterogeneous regulated energy prices and support schemes
- o Difficulties in communicating the benefits of cooperation
- o Loss of control over national energy market
- o Uncertainty about the design options to implement the cooperation mechanisms.

Further explanations on the limited use of cooperation mechanisms can be found in the RES-Cooperation report⁷. For additional information on the opportunities and barriers to renewable energy cooperation with non-EU countries we refer to the analysis realized within the BETTER project⁸.

⁶ Caldés N., Rodríguez I., Lechon Y., del Río P. (2018). Analysis of the barriers to the use of the cooperation mechanisms for renewable energy in the EU. Deliverable 4.1, MUSTEC project, CIEMAT, Madrid. Available at: http://mustec.eu/sites/default/files/reports/MUSTEC%20D4.1_Barriers%20for%20cooperation%20mechanisms.pdf

⁷ Klessmann, C. et al. (2014): Cooperation between EU Member States under the RES Directive Task 1 report. Available at: https://ec.europa.eu/energy/sites/ener/files/documents/2014_design_features_of_support_schemes_task1.pdf

⁸ <http://www.better-project.net/content/results>

Examples of the use of cooperation mechanisms are the following:

- o the joint support scheme between Norway and Sweden, where a common market for green certificates has been in place since January 2012;
- o a statistical transfer between Luxembourg and Estonia; and Luxembourg and Lithuania;
- o two bilateral auctions between Denmark and Germany for photovoltaics (PV) (where the attribution of renewable electricity to the targets is also based on a statistical transfer).

Other member states also planned to use cooperation mechanisms, but have not realized these plans so far. As an example, the United Kingdom and Ireland planned a joint project based on electricity generation from wind power plants in Ireland for export to the United Kingdom that did not materialize.



The project Krieger's Flak/Combined Grid Solution in the Baltic Sea is another example of cross-border cooperation in the field of renewable energy. This offshore wind farm cluster shall become part of a new 400MW interconnector between Denmark and Germany. The connected offshore wind farms themselves (Krieger's Flak in Denmark and Baltic 2 in Germany) are supported by the national support schemes of the respective countries, however. Hence, Krieger's Flak is not a direct application of cooperation mechanisms according to the RES Directive.

Which of the cooperation mechanisms is an option for Southern and Eastern Mediterranean countries?

Whilst statistical transfers and joint support schemes are restricted to EU Member States, joint projects include cooperation with a third country (e.g. an SEMC). As mentioned in Section 3.1.1, joint projects are one of the means a Member State can use to increase its share of renewable energies if it remains below its indicative trajectory.

What is a joint project?

The definition of a joint project is not fully clear. By the time the cooperation mechanisms were developed, EU Member States were using feed-in tariffs or green certificate schemes for supporting electricity from renewable sources. Thus, the cooperation with another country could be realized by either cooperating on one joint project (e.g. one offshore wind park) commonly supported by the countries involved or by cooperating on the whole support scheme (e.g. a joint feed-in tariff for solar photovoltaics). In the meantime, however, many EU countries have introduced auction systems (see Section 3.1.3). Auctions enable the countries to define very precisely which part of their support scheme they want to combine with others or open up to plants from other countries (for example, Germany and Denmark have conducted two open photovoltaics auctions



with an auction volume of 50 MW and 5 MW respectively). Given this new possibility, joint projects could also include auctions for several projects at the same time. *For third countries, this could enable a broader participation in EU countries' support schemes for renewables compared to a cooperation based on individual projects.*

Additional requirements for projects from third countries

In any case, for cooperation with third countries, physical import of the electricity or that the electricity generated is consumed in the European Union is required (Renewables Directive II, Article 11). However, physical import is only required for the borders to the EU but not within the EU. As an example, if a joint project is implemented between Algeria and France, interconnector capacities need to be reserved between Algeria and Morocco and between Morocco and Spain, but not between Spain and France.

The physical import has to be proven in the following way:

- o the electricity accounted for in the cooperation has been firmly nominated to the allocated interconnection capacity (between the third country and the EU)
- o the electricity accounted for in the cooperation has been firmly registered in the balance by the Transmission System Operator (TSO) on the EU side of the interconnector; and
- o the nominated capacity and the electricity generation refer to the same period of time.

In addition, the start of operation or refurbishment of a plant in the third country must have happened after 25 June 2009. No additional support (with the exception of investment aid) in the third country is allowed, if participation in the joint project is envisaged. In case the construction of an interconnector is foreseen, but has a very long lead time, exceptions from the physical import rule are possible. Durations of the joint projects may exceed the time horizon until 2030. The European Commission requires notification of joint project plans with third countries.

Support payments in the context of a joint project can only be received for electricity generated from renewable sources. In order to prove the renewable origin of the electricity, in the EU a system of guarantees of origin (GO) is used. GOs are issued for



each Megawatt hour (MWh) of electricity produced based on renewable energies upon request by the electricity generator. Countries can choose not to issue GOs for plants that receive financial support via the renewables support system. The GO can be sold separately from the electricity. In the EU, the GOs are not used to demonstrate target achievement. (Art. 19, Renewable Energy Directive). However, in the context of joint projects with SEMC, where the utility and not the renewable energy producer might export the electricity and sell it on an EU market, GO might be an option to prove that the exported electricity is produced from renewable energy sources.

3.1.3 SUPPORT SCHEME DESIGN ACCORDING TO THE RENEWABLE ENERGY DIRECTIVE

The Renewables Directive contains requirements for the design of support schemes for renewables in the electricity sector. Previously, the same requirements were set by the Guidelines on State aid for environmental protection and energy 2014-2020⁹. These rules also apply to cooperation mechanisms and joint projects. These are probably also applicable for auctions under the EU Financing Mechanism (see Section 3.1.4).

⁹ Guidelines on State aid for environmental protection and energy 2014-2020 (2014/C 200/01)

According to the Renewables Directive, renewable support schemes need to:

- o set support levels in a competitive way (e.g. by auctions);
- o be technology-neutral;
- o be paid in the form of a premium on top of the market price.

Exemptions exist for all requirements, e.g. for plants below a certain size threshold or if member states can show that e.g. technology-specific support schemes or administratively set support levels perform better (for example in terms of cost efficiency or effectiveness). In particular the bidding process can be limited to specific technologies where a process open to all generators would lead to a suboptimal result, which cannot be addressed in the process design in view of, in particular:

- o the longer-term potential of a given new and innovative technology; or
- o the need to achieve diversification; or



- o network constraints and grid stability; or
- o system (integration) costs; or
- o the need to avoid distortions on the raw material markets from biomass support.

Aid may be granted without a competitive bidding process to installations with an installed power generation capacity of less than 1 MW, or demonstration projects, except for electricity from wind energy, for installations with an installed capacity of up to 6 MW or 6 generation units.

Auction-based support

In most EU Member States, support levels for renewable energy plants are auctioned. Auctions can be designed in many ways. Important characteristics of renewable energy auctions are, among others, whether they are technology-specific or technology-neutral, whether one or many projects are awarded in the auction, the design of penalties and

prequalification requirements, realization periods (i.e. the time between the auction and the start of plant operation), pricing rules, and others. In the EU countries, auctions for renewable energy are typically used to determine a premium, which is then paid on top of the revenues generated from the regular electricity markets as soon as a renewable power plant generates electricity.

Premium-based support

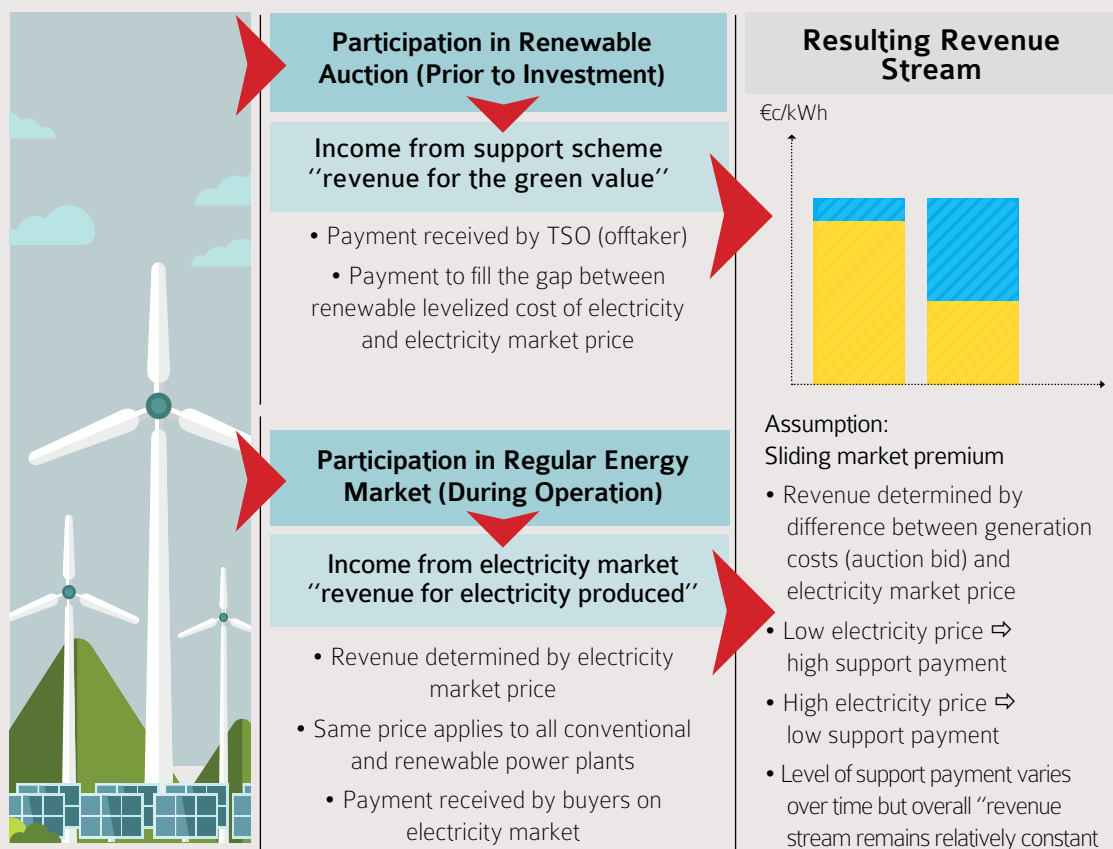
The auction determines the level of the premium to be paid on top of the electricity market price. Different types of premium-based support exist. On the one end of the spectrum, a fixed premium pays a fixed amount for each kWh generated and sold on the electricity market. On the other end of the spectrum, a sliding premium is adapted in order to keep the overall income of the plant per unit of electricity generated relatively stable.



Regardless of the kind of premium used, the plant operator needs to sell the electricity generated on the regular electricity market, either bilaterally to a consumer or using an electricity exchange (see Figure 3 for a depiction of revenue streams).

Under a sliding premium, which is currently the dominating type of payment in the EU, plant operators participate in the regular electricity market. On top of the market price, they receive a premium so that their revenue levels remain at least stable across time. If revenues from the regular market exceed this stable minimum level, plant operators make a profit (unless the design includes a pay-back mechanism as in the United Kingdom for example). While in the past, electricity market prices were mostly below renewable generation costs, in many cases now and increasingly in the future, generation costs of some renewables, in particular wind and photovoltaics, are covered by market prices. As a consequence, the support scheme mainly serves as an instrument to secure cheap financing, given that a substantial share of revenues is stabilized.

Figure 3 Revenue streams of renewable energy sources plants participating in European Union renewable energy sources auctions



Source: Fraunhofer ISI

3.1.4 ENABLING FRAMEWORK AND EUROPEAN UNION FINANCING MECHANISM

The “enabling framework” and the EU financing mechanism both have the objective of reaching the EU renewable energies target in the absence of binding national targets (compare Section 3.1.1). In the following, both the enabling framework and the financing mechanisms are explained.

What can the European Union financing mechanism be used for?

The EU financing mechanism aims to support renewable energy sources at Union level in order to fill a potential gap (Governance Regulation, Article 33). Support shall be tendered and is to be provided as a premium on top of the market prices (as is the case for renewables support schemes in general as described in Section 3.1.3). The details of the financing mechanism will be defined in secondary legislation (an implementing act) by the European Commission assisted by an Energy Union Committee including one appointed representative from each Member State. The implementing acts will be used to determine:

- o the methodology of setting a maximum level for premiums;
- o the detailed tender design to be used;
- o the methodology for benefit and effort sharing of Member States.

It is however clearly stated in the Governance Regulation that the tendered support by financing mechanism only includes projects “in the Union”. Thus, third countries such as the SEMC do not have access to these auctions.

In addition to the tenders, the financing mechanism shall contribute to the “enabling framework” irrespectively of whether a gap occurs or not (Renewables Directive II, Article 3, Paragraph 5). Details on how potential ambition gaps or delivery gaps are identified are described in Section 3.1.1.

What can the “enabling framework” be used for?

According to the Renewables Directive (Article 3, Paragraph 5), the European Commission shall support a high ambition of Member States through an enabling framework.

The enabling framework shall facilitate e.g. the reduction of the cost of capital, the use of flexibility in order to integrate renewable energy sources into the power system, infrastructure development and regional cooperation between countries. Regional cooperation also includes



cooperation with third countries, meaning that SEMC can engage in this type of cooperation. The use of Union funds and additional funds are foreseen to establish this enabling framework.

The financing mechanism in the enabling framework may provide support in a different way, e.g. in the form of low-interest loans, grants, or a mix of both. It is explicitly stated that this mechanism can include support for joint projects with third countries.

3.1.5 CONNECTING EUROPE FACILITY-CROSS-BORDER RENEWABLE ENERGY SOURCES PROJECTS

At EU level, a number of funds exist for financing renewable energy projects. An overview on these funds is given in Table 3. Most of these funds are only available for projects within the EU Member States. The Connecting Europe Facility is an exception where third countries are also eligible.

Table 3 Possible European Union funding mechanisms relevant for renewable energies for the period 2021 to 2030

Fund name	Fund volume	Purpose of the fund
Financing mechanism (Governance)	Not yet known, depends among others on private contributions from MS	Avoiding and filling any gap arising between the Member State RES deployment and the EU level target
Existing (2014-2020) and future (2021-2027) Connecting Europe Facility	€ 8.7 billion proposed for energy, whereof up to 10% can be used for RES cross-border projects. € 30.6 billion proposed for transport by EU COM (2021- 2027); inter-institutional negotiations ongoing	The current CEF covering the time horizon until 2020 does not include support for RES-projects. The new CEF (2021-2017) includes cross-border RES projects (studies and project implementation) as part of the energy backbone. more generally, the CEF is divided in three sectors - energy, transport and digitalization. The energy sector aims at upgrading existing and developing new energy transmission infrastructures of European importance (incl. interconnectors).
EU Regional Development Fund and Cohesion Fund	€ 226.3 billion proposed for regional development fund, € 46.7 billion proposed for cohesion fund of which €11.3 billion is support to CEF transport	Main investment policy of the EU aiming at reducing imbalances between European regions; objectives include a 'greener carbon free Europe' and a 'more connected Europe'; the main part of the budget is however not used for energy investments.
InvestEU	Total proposed budget of € 38 billion for guarantees, including a window of investment of € 11.5 billion for sustainable structures	EU guarantee to mobilize private funding, renewable energies are one of several topics, high synergies with other programs, project development can also be financed
Innovation Fund	Depending on revenues generated from the EU-ETS	Supports low-carbon innovation in energy intensive industry, CCU technologies, innovative renewable energy and energy storage technologies, demonstration projects on environmentally safe CCS
Horizon Europe	Total proposed budget € 97.6 billion ¹⁰	Support to research and innovation, including on energy; exact programme still outstanding

¹⁰ This includes € 3.5 billion allocated under the InvestEU Fund and € 10 billion to support research and innovation in food, agriculture, rural development and the bioeconomy. The specific budget for energy is not clear yet.

Fund name	Fund volume	Purpose of the fund
LIFE Clean Energy Transition Program	€ 2.0 billion proposed for Climate Action	Objectives include contribution to a clean energy transition as part of Climate Action
Instrument for Pre-Accession Assistance	€ 14.5 billion proposed	Preparation of candidate countries for EU accession; possibly relevant for implementing the Acquis communautaire in the energy sector in the non-MS countries in the CESEC High Level Group

How are renewable energy projects supported under the Connecting Europe Facility?

A new addition to the list of cross-border cooperation mechanisms is the possibility to finance renewable energies projects through the Connecting Europe Facility (CEF)^{3F}. The European Commission has proposed to include a new category of projects - Cross-border projects in renewable energies (c-b projects in RES) for support under the CEF for the period between 2021 and 2027. The aim of including these projects in the CEF is mainly to enhance the use of cooperation mechanisms both between EU Member States, and between EU Member States and third countries. In particular, cross-border projects in renewable energies are defined as projects that form part of a cooperation mechanism, and in addition:

- o lead to cost savings in the deployment of RES or additional benefits for system integration, security of supply or innovation compared to a similar project implemented by only one Member State; and
- o have a positive cost-benefit ratio.

Although cross-border RES projects realised or planned in the past mainly took place in the area of electricity generation, CEF funding shall, in principle, be accessible for all kinds of renewable energies covered by the Renewables Directive.

The support from the CEF can be for both studies and implementation of cross-border projects. The budget for energy under the CEF is planned to be increased from 4.2 to 8.65 billion Euros. Whilst no support could be directed to renewable energy projects under the current CEF, the new proposal foresees a budget of up to 865 million Euros for renewable cross-border projects¹¹.

The detailed implementation will depend on the outcome of the currently ongoing negotiation between the European Commission, the European Parliament and the European Council.

¹¹ 90% of the energy budget is allocated to networks and market integration, whilst a maximum of 10% can be allocated to cross-border-renewable energy projects.

Source:

[http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/628247/EPRS_BRI\(2018\)628247_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/628247/EPRS_BRI(2018)628247_EN.pdf)
and https://ec.europa.eu/commission/sites/beta-political/files/budget-may2018-cef-regulation_en.pdf

3.2 IMPLICATIONS FOR SOUTHERN AND EASTERN MEDITERRANEAN COUNTRIES

This Section summarizes the main issues regarding renewable energies that are of relevance for the SEMC and provides concrete recommendations for action.

SUMMARY

The main options for SEMC to be included in EU support systems for renewable energies are joint projects with EU Member States. These projects might be available for receiving funds from the EU Financing Mechanism and the new Connecting Europe Facility, which will include cross-border renewables projects with third countries.

Joint projects can either form part of the regular planning of EU Member States and thus be included in the Integrated National Energy and Climate Plans (NECPs) or be required as one possible measure proposed by the European Commission if a Member State does not reach its indicative trajectory for the deployment of renewable energies.

The definition of a joint project gives some degree of flexibility regarding the type of project. It is therefore possible that an auction for supporting a certain defined installed capacity based on several individual projects can also be interpreted as a joint project.

Financing for joint projects can be made available through the EU Financing Mechanism in the context of its contribution to the enabling framework for renewable energy. Financial support may take the form of low-interest loans, grants or a mix of both. The exact design of the financing mechanism including the funding sources and rules for allocation will be defined in secondary legislation by the European Commission with support from an Energy Union Committee (with one representative from each EU country) in the course of 2019.

In addition to the grid projects included traditionally under the framework of the Connecting Europe Facility, the proposal for the new Connecting Europe Facility includes renewable cross-border projects and third countries. Thus, additional funding might be available for joint projects with EU Member States under this framework.

Joint projects with third countries imply that the electricity generated in third countries must be exported physically (i.e. electricity is consumed in the EU) and needs to be produced from new plants. Furthermore, electricity produced and exported must not have received support from a support scheme of an SEMC other than investment aid granted to the installation.

RECOMMENDATIONS

In order to engage in joint projects and potentially receive additional funds, the following activities might be useful for the SEMC:

Advocacy:

The detailed rules of both the EU Financing Mechanism and the Connecting Europe Facility are still under negotiation or will be defined in secondary legislation. While

third countries cannot officially influence EU internal negotiations, it might be useful for SEMC to approach potential partner member states for joint projects to ensure their advocacy for favorable third country conditions (e.g. a recommendation for joint projects with third countries and special conditions for third country interconnectors to EU Member States that do not meet the interconnection targets) in the respective documents.

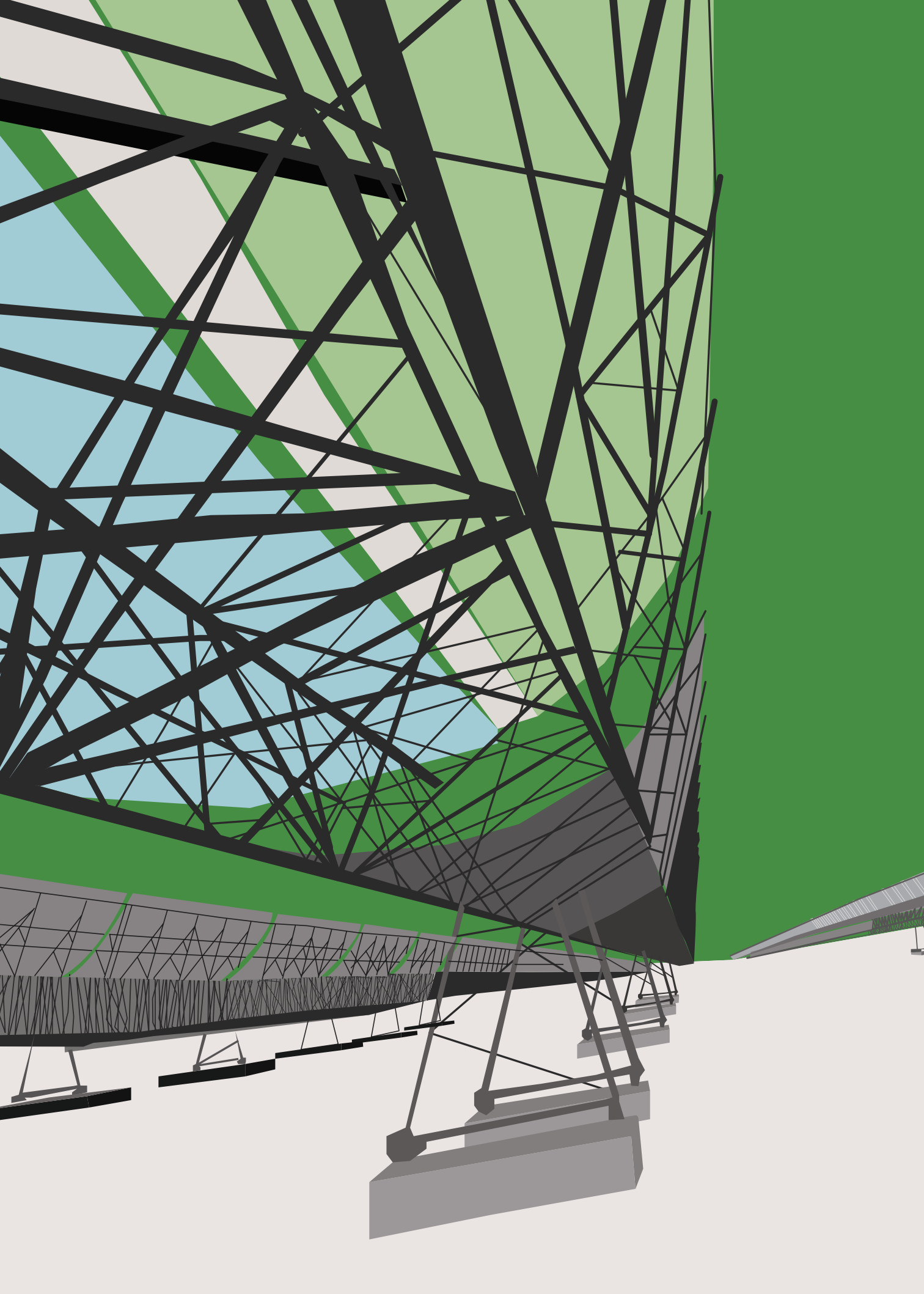
o **Introduction of a system of certificates of origin:**

A system of guarantees of origin for electricity generated from renewable sources such as the EU's GO system can be useful in several ways: first, it can be used to prove that the electricity sold by the utility on the EU market is generated from renewable sources. Second, it can be a basis for renewable energy generators based in the SEMC to export and sell electricity directly to EU based customers. Third, it can also help to avoid fraud regarding the origin of renewable electricity on a national level and potentially enable new trade channels on a national level as well.

o **Concrete preparation of joint projects:**

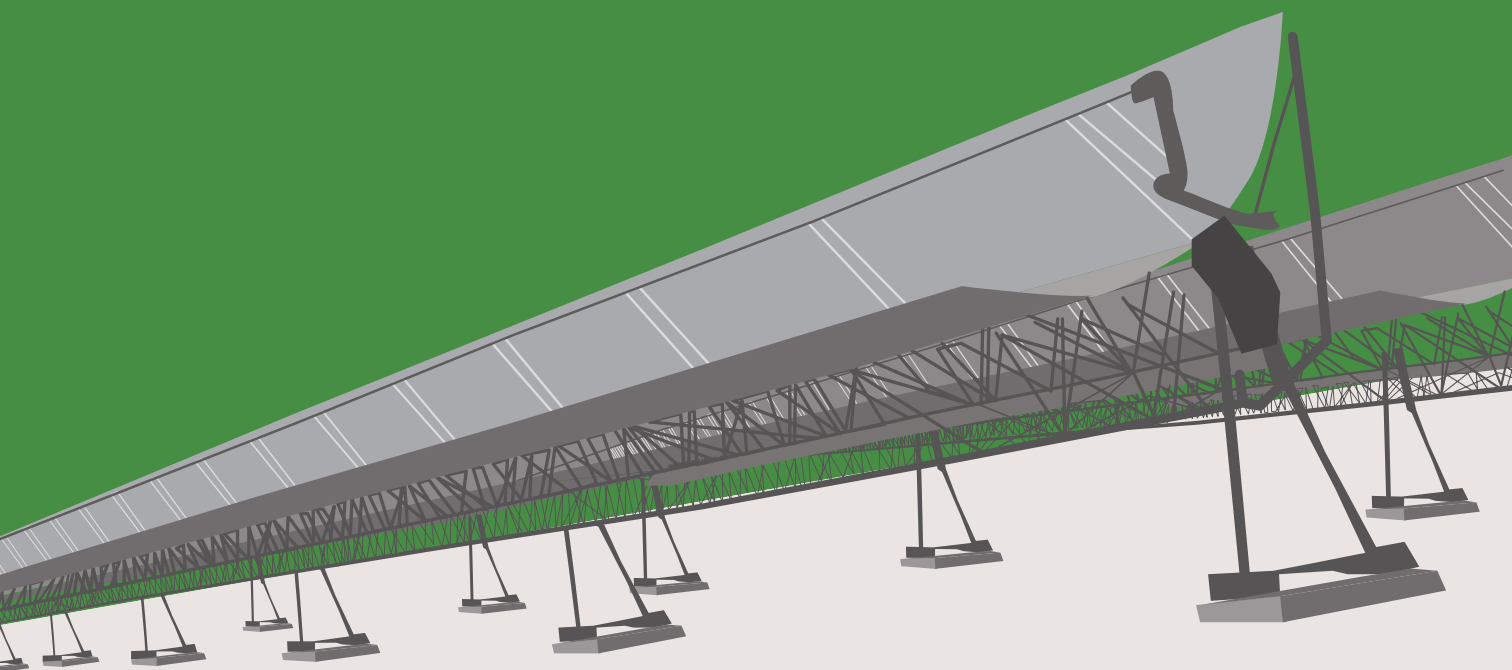
- The draft "Integrated National Energy and Climate Plans" (NECPs) have now been submitted and are to be finalized until December 2019. This gives the SEMC the possibility to analyze the plans and identify potential partner countries for joint projects (e.g. countries with a potential ambition gap). *SEMC could approach these potential partner countries for joint projects to be included in the final NECPs.*
- The use of a cooperation mechanism is one possible corrective action for MS, in case they fall below their national reference points. Biennial progress reports indicate MS with insufficient progress and with a potential interest in using cooperation mechanisms. *The SEMC can approach EU Member States that do not reach their indicative targets for implementing joint projects once they can be identified through the progress reports.*
- Joint projects located in third countries need to prove the physical import of electricity to the EU. Thus, interested SEMC need to ensure such physical import is possible by enabling the allocation of the necessary interconnector capacities or planning for new interconnectors to the EU. *In case an interconnector is planned but will start operation after the implementation of the joint project, the need for proving physical import can be deferred.*
- The allocation of support payments to renewables in joint projects in principle needs to follow the EU rules for support payments. This implies that support payments will be auctioned and paid as a premium on top of the market price. *As a consequence, SEMC interested in participating in joint projects need to assure that renewable energy plant operators can access an electricity market where they will sell their electricity.* This can be the market operator in the SEMC that then sells the electricity on the electricity market of the EU Member State. Alternatively, the plant operator can directly access the EU electricity market.

The following Section provides more details on interconnection and electricity markets.



○ Market Integration
and Interconnectors

04



Market Integration and Interconnectors

04

This Section gives an overview of the issues in market integration and interconnectors which are of relevance for the SEMC. This includes both investments in interconnectors and the management of interconnectors and markets. Other legislation and rules which are referred to in the CE4ALL, but do not form directly part of it, are included in the description in order to give the relevant context. After giving an overview of the relevant legislation (Section 4.1), implications and opportunities for SEMC are explained (Section 4.2).

4.1 CONTENTS OF RELEVANT LEGISLATION

4.1.1 INTERCONNECTION TARGET AND INVESTMENT IN INTERCONNECTORS

Sufficient interconnector capacities are a necessary condition for allowing free trade of electricity between different countries. Increasing interconnector capacities raises security of supply as more generation capacity is available in times of a blackout of a power plant. Additional interconnector capacity gives access to more flexibility (flexible power plants, demand side flexibility or storage), increases the degree of market integration and contributes to the integration of variable renewables into the energy system. The new Electricity Market Directive and Regulation gives priority to additional investments in interconnection capacities.

Interconnector targets in the European Union

For these reasons, in 2014, the European Council required all EU Member States to reach an interconnection capacity of at least 10% of their installed electricity generation capacity by 2020. This target will probably not be reached by all Member States. In November 2017, the EU Commission published a "Communication on strengthening Europe's energy networks"¹². This communication is based on an expert group report

¹² Compare <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1512401992772&uri=CELEX%3A52017DC0718>

on electricity interconnection¹³ and includes a 15% interconnector capacity target for 2030 as well as a set of additional indicators and minimum thresholds that provide a signal for requiring an increasing amount of interconnector capacity:

- o a price differential between two countries or bidding zones higher than 2 €/MWh
- o a ratio of nominal cross-border transmission capacity to peak load of below 30% and
- o a ratio of nominal transmission capacity to installed renewable generation capacity.

If a Member State does not reach one of these minimum thresholds, investment in additional interconnector capacities with this country shall be a priority on EU level. The Clean Energy for All Europeans Package confirms the 2030 interconnection target of 15% including the additional indicators¹⁴.

Realizing investments in interconnector capacities between European Union countries

As the interconnection target is not binding, it is not a strong driver for investing in interconnection capacities by itself. However, the projects of common interests (PCI) that are identified at EU level shall help member states to reach their interconnection targets¹⁵.

What are projects of common interest?

Interconnection projects identified at the European level as PCIs have access to streamlined planning procedures and, under certain circumstances, are eligible for funding under the Connecting Europe Facility (CEF).

How are projects of common interest selected?

The Trans-European Energy Networks (TEN-E) regulation¹⁶ foresees the identification of PCIs. These PCIs need to meet the following criteria according to the regulation:

- o the projects need to be necessary for at least one of the energy infrastructure priority corridors and areas and
- o the project has a positive cost-benefit analysis¹⁷ and
- o the project crosses the border of two or more Member States or
- o the project is located in one Member State and has a significant cross-border impact or
- o the project crosses the border of at least one Member State and a European Economic Area country.

PCI projects are suggested by the potential investors. Regional groups with members from the EU Members States, the European Commission, transmission system operators

¹³ https://ec.europa.eu/energy/sites/ener/files/documents/report_of_the_commission_expert_group_on_electricity_interconnection_targets.pdf

¹⁴ Compare <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>

¹⁵ Compare Trinomics 2018: Evaluation of the TEN-E Regulation, <http://trinomics.eu/wp-content/uploads/2018/08/Evaluation-of-the-TEN-E-Regulation.pdf>

¹⁶ <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:115:0039:0075:en:PDF>

¹⁷ Detailed information regarding ENTSO-E's cost-benefit analysis can be found here: <https://docstore.entsoe.eu/Documents/TYNDP%20documents/Cost%20Benefit%20Analysis/2018-10-11-tyndp-cba-20.pdf>

and their European networks, potential project promoters, regulatory authorities and the Agency for the Cooperation of Energy Regulators (ACER) organize the PCI selection process. ACER's role is to evaluate the project's compliance with the PCI criteria and their added value for the EU. After the assessments in the regional groups the European Commission publishes a delegated act with the list of approved PCIs. After publication, the European Council and the European Parliament have two months to oppose this list or ask for an extension of two months to decide. In case of no rejection the list enters into force¹⁸.

Based on the selection criteria listed above, interconnection projects with third countries that do not form part of the EU or the European Economic Area need to contribute to reducing the cross-border interconnection capacity limitations between two or more EU Member States in order to be granted status of a PCI. *Currently, a planned interconnector between Italy and Tunisia ("ELMED") has been selected as PCI as this interconnection will reduce congestion on the Northern Italian border*¹⁹. The EuroAsia interconnector to link Greece, Cyprus and Israel is expected to bring benefits in two EU Member States²⁰.



Which projects of common interest are eligible for Connecting Europe Facility funding?

PCIs can receive funding for both studies and works under the CEF. Funding can be made available in case of several pre-conditions. A project must prove that there are positive externalities meaning a benefit related to security of supply, solidarity or innovation compared to a purely national project. Thus, projects need to be

¹⁸ Compare <https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest/regional-groups-and-their-role-pci-process>.

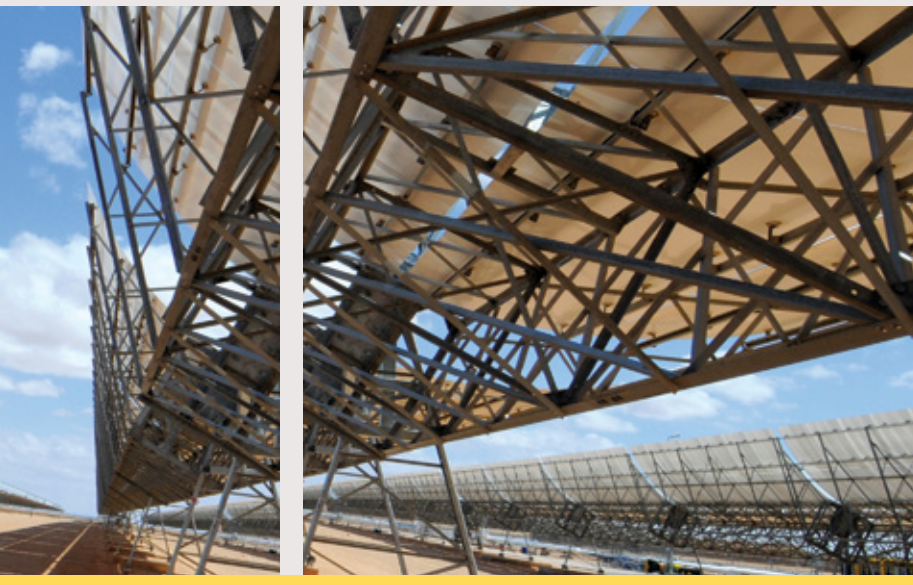
¹⁹ See <https://tyndp.entsoe.eu/tyndp2018/projects/projects/29> for further information on the project.

²⁰ See <https://www.euroasia-interconnector.com/> for more information on the project.

“commercially non-viable,” meaning that the national regulatory framework (tariffs, incentives) are not sufficient to cover the incurring cost of the respective project. Funding is restricted to a maximum of 50% to 75% (for projects providing a high degree of regional or Union-wide security of supply, strengthening the solidarity of the Union or comprising very innovative solutions) of total costs. Entities from third countries can receive funding only if this is indispensable to the achievement of the PCI²¹.

What is the role of merchant interconnectors in the European Union and between the European Union and third countries?

Most interconnectors between EU countries as well as the interconnector between Spain and Morocco are operating and have been built under regulated conditions by the involved grid operators. The Electricity Market Directive (also in its new version) clearly attributes the development of interconnectors to the regulated transmission system operators. However, the EU also provides opportunities for investing in merchant



interconnectors which need to be approved on a case-by-case basis. In the case of these merchant interconnectors, exemptions from regulatory requirements like prescribed discount rates can be granted in order to reduce investment risks. Investments in merchant interconnectors can be recovered by selling financial transmission rights to the users of the interconnector. Merchant interconnectors can also be selected as PCIs and are thus eligible for EU funding, e.g. under the EFSI (European Fund for Strategic Investment)²². In the case of CEF-funding, merchant interconnectors are only eligible for studies.

²¹ See <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013R1316>

²² Compare Poudineh and Rubin 2016: Business model for cross-border interconnections in the Mediterranean basin, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/06/Business-model-for-cross-border-interconnections-in-the-Mediterranean-basin-EL-19.pdf>

4.1.2 INTERCONNECTOR MANAGEMENT/ MARKET INTEGRATION

What is the regulatory framework for integrating the European Union electricity markets?

The organization of electricity markets in the EU is regulated mainly by the Electricity Market Regulation, with some additional aspects defined in the Electricity Market Directive. The detailed rules are laid out in a number of electricity network codes and guidelines²³. As laid out in the Electricity Market Regulation, these codes and guidelines are directly legally binding in all EU Member States. The Electricity Market Regulation lays down the basic principles of the internal electricity market as follows:

- o prices need to be governed by demand and supply and market rules shall encourage such free price formation;
- o market rules shall enable the development of flexible and sustainable low carbon generation as well as flexible demand;
- o consumers shall benefit from retail market competition and be empowered to participate in the energy market and the energy transition;
- o market participation shall be facilitated by opportunities for aggregators²⁴;
- o market rules shall deliver sufficient investment incentives;
- o barriers to cross-border trade shall be removed;
- o market rules shall also allow for demonstration projects.

How are the electricity markets in the European Union organized?

In the EU, different markets exist for trading electricity. These markets are shown in Figure 4. The main markets for selling electricity are depicted in orange.

These include the futures markets, the day-ahead markets and the intraday markets. Trading on the futures markets takes place years, months, weeks or days before the time of delivery. In the day-ahead market, by noon of the day before the day of delivery, market parties submit their offers and bids for each hour of the following day (in form of a one-time auction). The intraday market model is based on continuous trading, with the possibility to carry out complementary regional intraday auctions. Intraday-trading starts at 3 pm on the day before delivery and ends shortly (between 60 and 30 minutes) before the time of delivery. All three market segments are in the process of integration among the EU Member States.

Market integration (or market coupling) is most advanced on the day-ahead market, where almost all national electricity markets are coupled and supply and demand bids are coordinated using a common algorithm and taking into account available

²³ View <https://ec.europa.eu/energy/en/topics/markets-and-consumers/wholesale-market/electricity-network-codes> for more details on the network codes and guidelines.

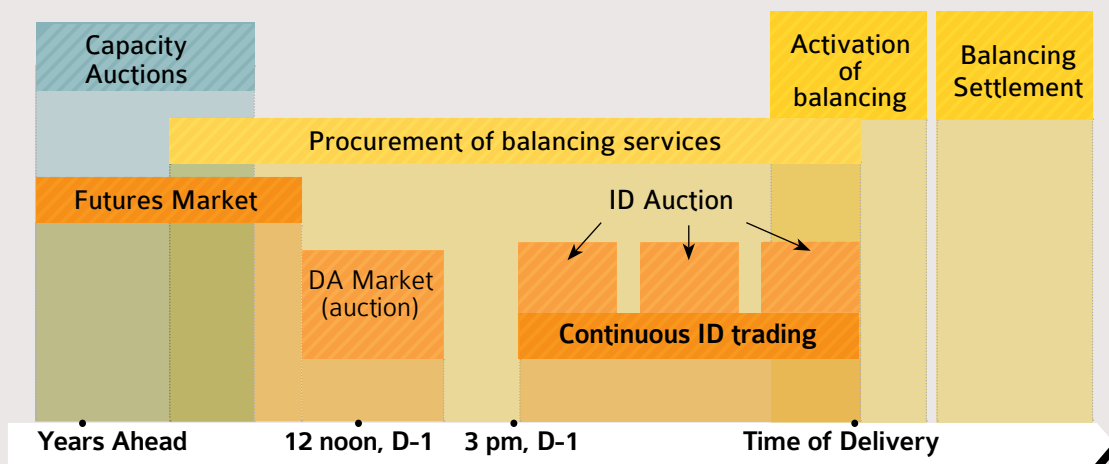
²⁴ Aggregators are market participants that aggregate electricity production or installed capacity of smaller electricity generation plants or storages and participate in the electricity and balancing markets with such a network of plants. For example, the direct participation of renewable plants on electricity markets to receive the market premium support on top of the market price is very costly for each individual plant operator. Thus, aggregators often handle the market participation for a group of renewable plants. Another example is an aggregator of small battery storages who can be active on the balancing market with a group of storages while each individual battery would be too small to participate.

interconnection capacities. On the intraday market, continuous trading is now coupled as well and all bids are placed on the intraday trading platform XBID since June 2018, with a first phase covering 14 countries. The participation of the remaining countries will take place in a second phase, most likely in the course of 2019. On the futures markets, the alignment of products and trading periods is still in process.

Figure 4 also includes the balancing markets and balancing settlement services (in yellow), which are organized by the transmission system operators. The transmission system operators procure balancing services before the time of delivery (depending on the individual member state this can be years, weeks or days before). If deviations between demand and supply occur at the time of delivery, the balancing services are activated. After the time of delivery, market participants responsible for the deviation need to pay for the activation of balancing on the balancing settlement market. The integration of balancing markets is also ongoing among the EU Member States with currently still diverging rules and procedures.

The last type of market depicted in Figure 4 are the capacity auctions. Some EU Member States organize capacity auctions for new and existing generation units as well as in some cases storages, demand side flexibility and interconnectors. These capacity auctions aim at ensuring a high level of security of supply and are held well ahead before the time of delivery (typically 1 to 4 years ahead). Capacity auctions or markets are however seen critically by the EU Commission due to their potential of distorting the other electricity market segments. The new Electricity Market Regulation sets additional rules on how to assess the capacity needs and designs principles for national capacity mechanisms compared to the previous situation.

Figure 4 Overview electricity trading markets



Source: Fraunhofer ISI

Note: DA: day-ahead; ID: Intraday; D: Day of delivery; D-1: one day before day of delivery;

Blue market segments: financing of power plants;

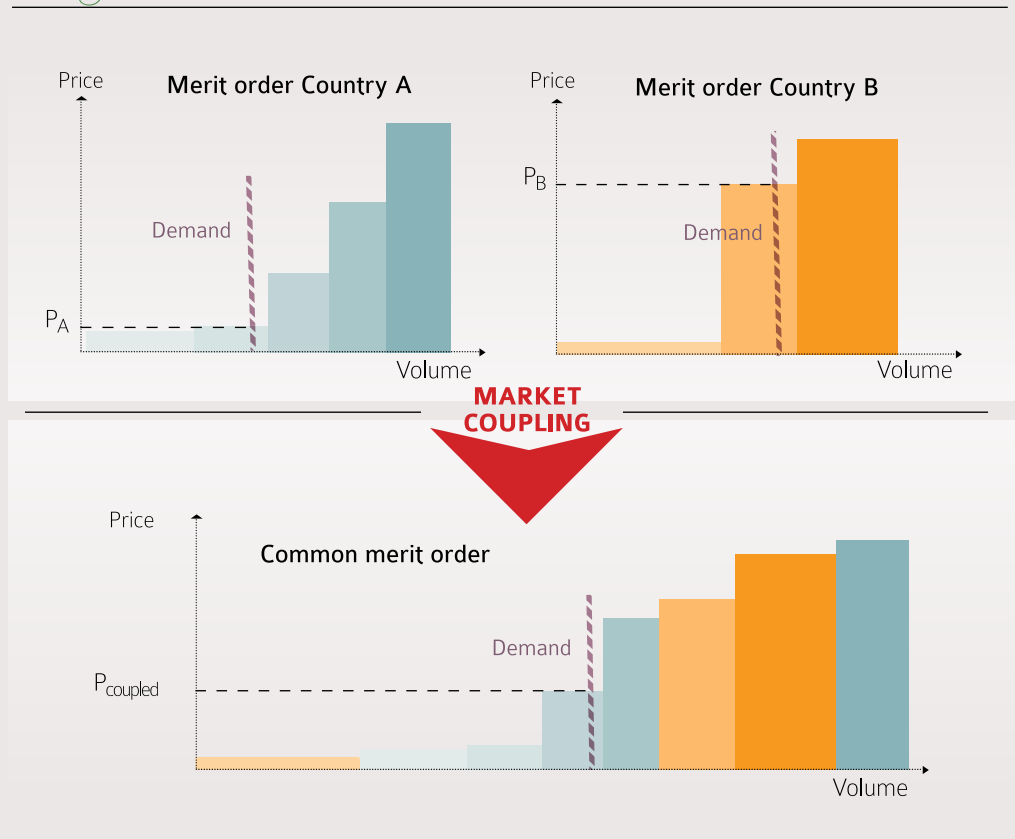
Yellow market segments: balancing services;

Orange market segments: wholesale markets for selling electricity;

How does market coupling work?

Figure 5 shows the effect of market coupling for the example of two countries. If countries A and B have separate electricity markets the price level in Country A is very low (e.g. it is a country with high renewable, nuclear or lignite shares) and the price level in Country B is relatively high (this could be a country with high gas shares). If both markets are coupled, the price in Country A increases while it decreases on Country B. Overall, the generation costs and electricity prices are reduced as cheaper generation units from Country A replace the operation of more expensive generation units from Country B. The example shows however that costs and benefits of market coupling might be different between two countries participating. In the shown example, the consumers in Country B benefit while producers in Country A benefit and vice versa. If there are limited interconnection capacities, the effects of market coupling are less pronounced. The EU aims at full market coupling and market integration as well as sufficient interconnector capacities in order to reduce total system costs and enable the efficient integration of high shares of variable renewables.

Figure 5 Effects of two-country market coupling



Source: Fraunhofer ISI

Note: In the two-country example shown, country B benefits from a lower electricity price following market coupling while the price under market coupling is higher than before in country A. In a different hour, this effect can shift. Overall, the demand can always be served at lesser overall generation costs. The figure does not take into account interconnection capacity restrictions. These would lead to a lower availability of power plants from country A in country B and vice versa, and therefore slightly change the common merit order.

What does unbundling mean?

The EU unbundling rules foresee that the operation and ownership of the grid, electricity generation assets and electricity supply are separated. This also includes the provision that grid operators should not own and operate storage devices, with very strict exemptions. Unbundling is implemented in order to allow for electricity generators and suppliers to act in a free and efficient market environment. If transmission system owners or operators are controlled by a person or persons from third countries, the Commission has the right to give an opinion on the certification of this transmission system owner or operator²⁵.



How are interconnectors managed in the European Union?

The usage of existing interconnectors and the allocation of available capacities differs regarding the time frame. Explicit auctions are currently in place to allocate long term interconnector capacities, especially in the form of financial transmission rights. Explicit auctioning means that interconnector operators auction interconnector capacity in line with the futures market and market participants can reserve interconnector capacities by participating in such auctions. In the day-ahead and intraday timeframe, market coupling includes the implicit allocation of interconnector capacities. In this timeframe, market participants only bid on the electricity market. The allocation of interconnector capacities is realized by an algorithm that aims at the most efficient market outcome. In the example above, the less costly generators from Country A automatically are dispatched to provide electricity to Country B and the interconnector capacity is used accordingly. The available capacity is determined by the respective TSOs. In its market monitoring reports, ACER has consistently pointed out that the capacities available for cross-zonal trade are, in most cases, significantly lower than what would be expected from

²⁵ The Directive of the European Parliament and of the Council on common rules for the internal market in electricity (recast) - Analysis of the final compromise text with a view to agreement provides detailed rules for unbundling.

the benchmark capacities, noting that there is large scope for improvement. The new Electricity Market Regulation therefore includes more precise rules for the determination of available capacities in order to increase those.

Can third countries participate in market coupling?

EU market coupling is in principle open for participation from third countries under the condition that such countries implement large parts of the EU regulations on the electricity sector including but not restricted to unbundling and market liberalization. Currently, only Norway, as member of the European Economic Area (EEA), participates in EU market coupling and has implemented the full EU regulation related to energy. Switzerland is not included in market coupling as it does not fulfill the conditions set out in the network codes and guidelines for its participation. The Signatories of the Energy Community are preparing for inclusion in the integrated EU electricity market. The Energy Community countries have concluded a treaty with the European Union with the aim of establishing an integrated market in natural gas and electricity. In this contract, the Energy Community countries have agreed to follow the Acquis Communautaire related to energy²⁶. The Energy Community Secretariat regularly monitors the progress of involved countries regarding the implementation of EU regulations²⁷.



4.2 IMPLICATIONS FOR SOUTHERN AND EASTERN MEDITERRANEAN COUNTRIES

SUMMARY

In the context of interconnectors and electricity markets, several aspects are of relevance for SEMC.

The EU has set interconnection targets for the interconnection capacity between the EU Member States. Interconnectors with third countries are currently not taken into account for reaching the interconnection target (with the exception of Norway and Switzerland). The EU expert group on interconnection does however recognize the need to discuss the role of such interconnections. Anecdotal evidence from member state representatives shows that including third countries in interconnector target achievement might depend on their integration in the EU electricity markets and especially the availability of interconnector capacity, generation capacity and flexibility.

Interconnectors to third countries can receive the status of a PCI and be eligible for EU funding and streamlined planning procedures if the planned interconnector also contributes to alleviating EU-internal capacity restrictions. Currently, the planned interconnector between Tunisia and Italy ("ELMED") has the status of a PCI.

The highest benefits of cooperating with the EU could be reached if an SEMC fully participates in EU market coupling. For most SEMC however, the participation in EU market coupling would require increased interconnection capacities as well as a deep restructuring of their national electricity markets and is therefore to be seen as a more long-term process. Nevertheless, for participating in joint projects for renewables, the SEMC need to make sure that interconnector capacities can be reserved and are available and renewable plants have a possibility to sell their electricity to a market in the EU.

²⁶ The Acquis Communautaire in energy includes the following regulations:

- (1) Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity, as adopted by Ministerial Council Decision 2011/02/MC-EnC of 6 October 2011.
- (2) Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas, as adopted by Ministerial Council Decision 2011/02/MC-EnC of 6 October 2011.
- (3) Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity, as adopted by Ministerial Council Decision 2011/02/MC-EnC of 6 October 2011.
- (4) Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks, as amended by Commission Decision 2010/685/EU of 10 November 2010, as adopted by Ministerial Council Decision 2011/02/MC-EnC of 6 October 2011.
- (5) Directive 2005/89/ of the European Parliament and of the Council of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment, as adopted by Ministerial Council Decision 2007/06/MC-EnC of 18 December 2007.
- (6) Directive 2004/67/EC of 26 April 2004 concerning measures to safeguard security of natural gas supply, as adopted by Ministerial Council Decision 2007/06/MC-EnC of 18 December 2007.
- (7) Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure, as adopted by Ministerial Council Decision 2015/09/MC-EnC of 16 October 2015.

²⁷ More information about the Energy Community can be found here: <https://www.energy-community.org/>.

RECOMMENDATIONS

- **Advocacy for inclusion of third countries in interconnection target:** While third countries cannot directly influence EU level processes, SEMC could identify and approach interested EU countries for advocacy to include the SEMC interconnectors in the interconnection target or to adapt the criteria for selecting PCIs.
- **Increasing interconnector capacity:** In order to enable trading electricity with EU countries, an increase of interconnector capacities between the EU and the SEMC is necessary. SEMC could approach interested EU countries to increase the future interconnector capacities. Planned interconnectors should be included in the list of PCIs in order to receive EU level funding and streamlined planning procedures. Currently, Italy and Tunisia plan the realization of an interconnector. This interconnector is listed as a PCI as it will contribute to increasing available interconnector capacities on the Northern Italian border and therefore relieve congestion.

- **Preparation of market coupling:**

- **Cooperation with the European Union or European Union Member States**

SEMC could enter into bilateral or multilateral agreements with EU countries to increase electricity market integration. An example for such an agreement is the SET Roadmap agreed upon between Morocco, Spain, Portugal, France and Germany for increasing the trade of renewable electricity between these countries. Such an agreement could be a first step for further cooperation for other SEMC too. A treaty like the Energy Community treaty might be another option especially if several SEMC are interested in a close cooperation with the EU.

- **Trading of electricity on European Union Member States electricity markets**

EU electricity markets are open for participants from SEMC. The Moroccan electricity provider is already trading on the Iberian day-ahead and intraday markets (MIBEL). This could also be an option for other MENA countries. However, these countries would need to allocate the necessary interconnector capacities for importing or exporting electricity.

- **Liberalization of national electricity markets**

In order to prepare for a closer integration of electricity markets with the EU, SEMC could start to liberalize their national electricity markets. Concrete steps for liberalization include, among others, unbundling and enabling competition in trading of electricity, e.g. using a formalized voluntary power exchange.

- **Stepwise market integration**

Possibly, markets can also be integrated one after the other, as is also happening in the EU. Allowing for cross-border trading by independent power producers can be a first step towards market integration. The integration of day-ahead markets could follow with the integration of intraday markets, futures and balancing markets as subsequent steps.

Summary, conclusions and next steps

05



The most important topics of the Clean Energy for All Europeans (CE4ALL) package for the SEMC are related to renewable energy support schemes, interconnectors and electricity market integration.

In the context of renewable energies, SEMC can participate in EU Member States' renewable support schemes in the form of joint projects. While this opportunity has been in place since 2009 it has not been used so far. Under the CE4ALL it might become more attractive for EU Member States, as additional funding from the EU might become available, both in the context of the EU Financing Mechanism and the Connecting Europe Facility. SEMC need to approach potentially interested EU Member States (to be identified among others based on their draft Integrated Energy and Climate Plans) for both advocacy and concrete projects.

It needs to be noted that in the context of joint projects, renewable plants from SEMC need to apply to the rules in place for renewable support in the EU. This means that support levels will be defined based on an auction and be paid on top of the price received for electricity sold to the market. In addition, projects from third countries need to prove the physical export of electricity to the EU e.g. by showing obtained interconnectors capacities for the times when the plant is operating. Thus, in order to receive the support, plants need to be able to reserve interconnector capacities and to sell the electricity they produce to a market.

In order to enable this, SEMC need to increase interconnector capacities to the EU and at least partly liberalize their markets to enable electricity trading. Interconnectors can be supported by EU funds mainly if they are selected as projects of common interest. In that regards, SEMC could try to influence the selection process of PCI and advocate for including interconnectors to third countries in the EU interconnection target.

In the longer term, both the EU Member States and the SEMC could profit from a full market integration between both regions. Apart from increased interconnector capacities, this requires the liberalization and restructuring of the SEMC's electricity markets.

This briefing focuses on information available at the current point in time. However, there are several additional topics that might also be of interest for SEMC in the future:

- The briefing does not contain so far any information on the interactions between joint projects and climate policies under the Paris Agreement and especially the situation with regards to the option to reach carbon reductions internationally. This possibility was previously governed by the Clean Development Mechanism (CDM). In the Paris Agreement (Art.6), such options are governed by the Internationally Transferred Mitigation Outcomes (ITMOs). As the exact rules for ITMOs are currently not clear yet, no further analysis of interactions is possible at this time.
- While the briefing provides general recommendations for all SEMC, the specific situations in each country are manifold. Tailor-made recommendations for specific countries can therefore be envisaged in the future.
- Details about both the EU Financing Mechanisms and the CEF renewable energy projects are still to be defined in the course of 2019. Thus, more details than the ones described in this briefing are not yet available. An update regarding new developments can therefore be useful.
- MED-TSO and the European Commission are currently discussing the possibilities for special PCI projects to interconnect the Mediterranean region. Developments in this regard would of course be of interest for SEMC.

Annex 1

2020 Renewable Energy Share targets

06

Table 4 National overall targets for the share of energy from renewable sources in gross final consumption of energy in 2020

	Share of energy from renewable sources in gross final consumption of energy, 2005 (S ₂₀₀₅)	Target for share of energy from renewable sources in gross final consumption of energy, 2020 (S ₂₀₂₀)
Belgium	2,2%	13%
Bulgaria	9,4%	16%
Czech Republic	6,1%	13%
Denmark	17,0%	30%
Germany	5,8%	18%
Estonia	18,0%	25%
Ireland	3,1%	16%
Greece	6,9%	18%
Spain	8,7%	20%
France	10,3%	23%
Croatia	12,6%	20%
Italy	5,2%	17%
Cyprus	2,9%	13%
Latvia	32,6%	40%
Lithuania	15,0%	23%

	Share of energy from renewable sources in gross final consumption of energy, 2005 (S2005)	Target for share of energy from renewable sources in gross final consumption of energy, 2020 (S2020)
Luxembourg	0,9%	11%
Hungary	4,3%	13%
Malta	0,0%	10%
Netherlands	2,4%	14%
Austria	23,3%	34%
Poland	7,2%	15%
Portugal	20,5%	31%
Romania	17,8%	24%
Slovenia	16,0%	25%
Slovak Republic	6,7%	14%
Finland	28,5%	38%
Sweden	39,8%	49%
United Kingdom	1,3%	15%



Annex 2

Overview of the contents of the Clean Energy for all Europeans Package

07

DIRECTIVE: ENERGY PERFORMANCE IN BUILDINGS

The Directive on the Energy Performance in Buildings was the first of the eight proposals to be agreed upon and adopted by the EU co-legislators, i.e. the European Commission, the EU Parliament and the Council. The Directive aims to tap into the huge potential for efficiency gains in the building sector, which is the largest single energy consumer in Europe. The agreed measures will accelerate the rate of building renovation towards more energy efficient systems and strengthen the energy performance of new buildings, making them smarter.

One of its main achievements is to formulate a clear path towards a low and zero-emission building stock in the EU by 2050. This includes national roadmaps with the intent to decarbonize buildings, as well as the integration of long-term building renovation strategies to reduce household energy bills and to combat energy poverty. The Directive furthermore encourages the use of information and communication technology (ICT) and smart technologies in buildings. Supporting the rollout of the needed infrastructure for e-mobility in all buildings, and the mobilization of public and private financing and investment are also part of the targets.

DIRECTIVE: RENEWABLE ENERGY

The newly adopted regulatory framework foresees a binding renewable energy target for the EU for 2030 of 32% of gross final energy consumption, including a potential upwards revision clause by 2023. The MS have to set national contributions to achieve this common target, as part of their Integrated National Energy and Climate Plans (NECPs), as described in the Governance Regulation.

The EU will support the MS through an enabling framework in order to achieve the 2030 target by providing e.g. EU funds in the form of financial instruments. Article 3, 4(c) mentions explicitly the enhanced cooperation between MS and third countries as a legitimate purpose for the provision of these funds.

Furthermore, the Directive provides MS with the possibility of applying support schemes to reach their national targets, but these should incentivize the integration of electricity from renewable energy in the electricity market "in a market-based and market-responsive way." This means in practice, that support should be granted in the form of market premiums (fixed or sliding) or tradable green certificates, although exemptions for small-scale appliances can be introduced. In order to integrate RES further into the market, the level of support should be based on a competitive process, i.e. auctioning, whereas small-scale installations and demonstration projects can be exempted. Although technology-neutral auctions are foreseen, the Directive provides a list of exemption clauses, which allow for technology-specific tenders.

The Renewable energy Directive II provides the following mechanisms, although they are not mandatory, to support RES projects in other MS and in third countries:



- o Joint projects between MS
- o Joint projects between MS and third countries
- o Joint support schemes between MS.

Further modifications of the Directive include:

- o Streamlining and reduction of administrative procedures
- o Implementation of a clear and stable regulatory framework on self-consumption
- o Increasing the level of ambition for the transport and heating/cooling sectors
- o Improvement to the sustainability of the use of bioenergy.
- o Extension of the interconnector target to 15% of installed capacities
- o Creation of regional entities (ROCs).

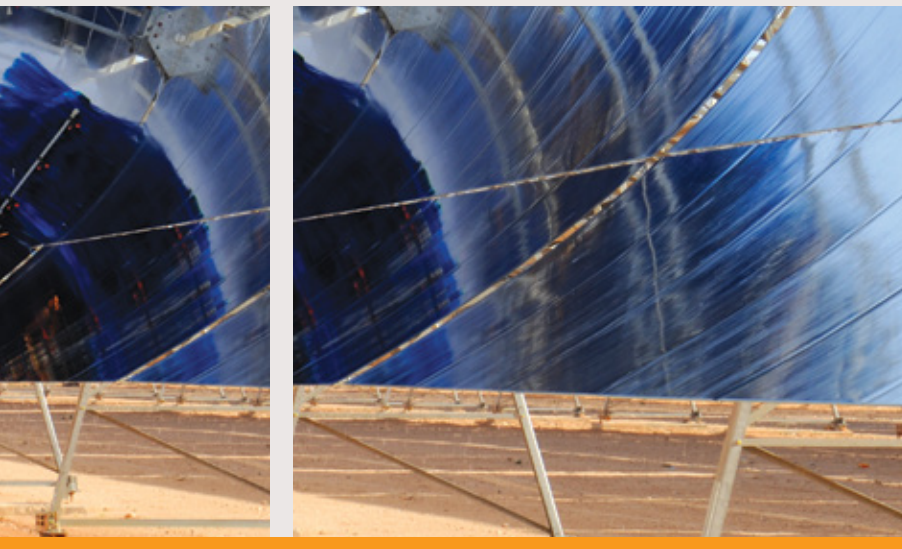
DIRECTIVE: ENERGY EFFICIENCY

The Directive on Energy Efficiency states an energy efficiency target for the EU of 32.5%, including a potential upwards revision clause by 2023, similar to the Renewable Energy

Directive II. This Directive aims to provide the mechanisms to achieve the goals of the Paris Agreement by reducing the energy needs of the EU, thus making the Union less reliant on external suppliers of fossil fuels, lowering the energy bills for consumers, reducing energy poverty, and protecting the environment.

Specifically, the Directive extends the annual energy saving obligations beyond 2020 for the MS with the aim to attract more private investments, as well as real energy savings in the next period 2021-2030.

Improved individual metering and billing of thermal energy aims to enable consumers to better understand and control their heating bills. This goes along with transparent national rules on the allocation of the cost of heating, cooling and hot water consumption in buildings with collective systems.



In general, the Directive aims to reduce energy bills of consumers and health costs for society, thereby also addressing energy poverty and exploiting the positive impacts on economic growth and employment.

REGULATION: GOVERNANCE

In contrast to the previously described documents, the Governance Regulation is a completely new topic of the Clean Energy for all Europeans Package, which is closely linked to the Energy Union strategy. The new system of governance aims to ensure that the EU energy and climate targets will be achieved by 2030 and thereafter in an efficient and transparent manner.

This regulation will be fundamental to delivering on the Energy Union's objectives and ensuring sufficient action is taken to meet the EU's 2030 targets for climate and energy. Therefore, it defines the political process on how the MS and the EU Commission work together, as well as cooperation among MS, in order to achieve the defined goals. The regulation aims to grant the MS the flexibility needed according to their specific conditions, while ensuring that the national objectives and targets are in line with the EU targets, and with a special focus on fostering regional cooperation.

Specifically, the Governance Regulation requires MS to prepare integrated national energy and climate plans (NEPCs) for the period 2021 to 2030. These standardized plans cover all the five dimensions of the Energy Union in the long-term. The frequency and timing of reporting obligations are aligned, so that the administrative costs and uncertainties are decreased across the EU. In addition, the EU requires MS to provide information on their energy and climate strategies beyond the time horizon of 2030 in order to make sure that the EU complies with the Paris Agreement. However, the level of detail is lower than for the 2030 time horizon.

The Regulation also foresees a strong mechanism to ensure the achievement of the collective EU renewable targets, although the functioning of the REs "gap filler" is not yet defined. More details are described in section 2.

ELECTRICITY MARKET DESIGN

The part of the Package, which deals with the Electricity Market Design, consists of three separate proposals: Electricity Regulation, Electricity Directive, and the Risk-Preparedness Regulation. The last proposal in the list deals with adapting and updating the regulation regarding ACER. For all documents there is a political agreement, but final adoption is pending.

The main issues of the Electricity Market Directive, the Electricity Market Regulation and the Risk Prevention Regulation are the following:

Flexible tariffs for consumers

Electricity suppliers with more than 200,000 customers have to offer flexible electricity tariffs in the future. This enables clients with smart meters to reduce their electricity bill, by adjusting their consumption patterns to price signals. In this way, demand can become more flexible and contribute to integrating variable wind and solar electricity into the system.

Marketing of available capacities

Large consumers can reduce electricity costs by offering electric capacity not needed to the market. This can be supported by independent aggregators who do not have to be electricity suppliers and can support the marketing process of selling the excess capacity.

15-minute time frame for electricity trading

By reducing the trading time frame from 1 hour (most countries except Germany) to 15-minute time frames, sales for variable production of renewable energy sources are facilitated as compared to the longer time units. In addition, the shorter time frame facilitates cross-border trade.

Improving security supply through better coordination at EU level

EU Member States have recognized that security of supply can be achieved in a more cost effective and reliable way if production and consumption are balanced across Europe. Member States should therefore take into account power plant capacities in neighbouring countries, when taking measures to ensure security of supply. As a result, the total number of reserve power plants required and the associated costs will decrease. The new regulation on risk prevention also stipulates that the MS must draw up risk prevention plans containing both national and cross-border crisis prevention and management measures.

Regional coordination centres

Regional Coordination Centres assume new tasks in the area of security of supply and electricity trading. The transmission system operators of the respective regions cooperate on the calculation, among other things, of daily trading capacities.

Massive promotion of cross-border electricity exchanges

The new electricity market Regulation provides for the so-called interconnectors to be more opened to cross-border electricity exchanges. According to the new Regulation, trading capacities should gradually increase to 70% of the technically available capacity in the future (considering operational security limits, contingencies). This is intended to increase EU-wide electricity trading. This also involves the question of how MS deal with internal grid bottlenecks. Increased cross-border trade also increases the pressure on



the networks. Until now, MS have often “closed borders” when they had internal grid bottlenecks and thus preferred national electricity trading. Now, the Electricity Market Regulation stipulates that member states must reach the minimum value of 70% and make it available for cross-border electricity trading. MS with internal bottlenecks may decide in future whether they divide their electricity market into several bidding zones/ price zones or present an action plan for reducing grid bottlenecks. Anyone submitting such an action plan will be given a transitional period until the end of 2025, during which interconnectors must be gradually brought from their current level of use to a 70% opening.

Requirements to limit CO₂-intensive power plants in capacity markets

The minimum requirements for capacity markets are also new. In a capacity market, power plant operators receive money for providing capacity. The Electricity Market Regulation contains requirements designed to limit the market-distorting effect of such capacity markets. In addition, an Emissions Performance Standard (EPS) of 550g CO₂/ kWh will be introduced. In future, this will limit the participation of particularly CO₂-intensive power plants in capacity mechanisms. For new plants, the maximum value will

apply from 2020, for existing plants from 2025. The EPS thus sets a clear political signal for climate-friendly new investments in Europe.

Large renewable energy plants have the obligation to participate in electricity markets in equal conditions

The operators of new large renewable energy plants throughout Europe will no longer benefit from priority dispatch. Exceptions shall apply to small plants with a capacity below 400 kilowatts (from 2026 under 200 kilowatts) and for already existing installations, which will continue to benefit from priority dispatch. Member States may, under certain conditions, decide not to apply priority dispatch to small plants

Priority access rules for renewables to be strengthened across Europe

The priority of feeding renewable energies into the electricity grid will also be strengthened. Renewable energies will have priority in case of grid bottlenecks everywhere in Europe and may only be curtailed as the last producers. In the event of such regulations, the plant operators need to be compensated.

EU regulations on market coupling, balancing, and interconnector management

The EU electricity network codes and guidelines (grid codes)²⁸ enable an increasing integration of electricity markets within the EU. For example, on the day-ahead timeframe, gate closure time is now aligned among all EU countries and nearly all markets across the EU are coupled—i.e. a common algorithm determines an EU-wide merit-order—and interconnector capacities are implicitly allocated as part of the trading in the day-ahead auction within the flow-based electricity market design. Market coupling was also recently introduced on the intraday markets. Efforts towards joint balancing markets, a regional adequacy assessment, and closer cooperation on the futures market are also ongoing. The market coupling initiatives are currently only open to countries that apply the EU electricity market rules. The management of interconnectors with third countries such as the Mediterranean countries needs to be regulated at a bilateral level.

²⁸ European Commission, Electricity network codes and guidelines (online), available at: <https://ec.europa.eu/energy/en/topics/markets-and-consumers/wholesale-market/electricity-network-codes>

Glossary

ACER	Agency for the Cooperation of Energy Regulators
CCS	Carbon Capture and Storage
CCU	Carbon capture and utilization
CDM	Clean Development Mechanism
CEF	Connecting Europe Facility
CESEC	Central and South Eastern Europe Energy Connectivity
CE4ALL	Clean energy for all Europeans (EU legislative package)
CEF	Connecting Europe Facility
EEA	European Economic Area
EFSI	European Fund for Strategic Investment
EPS	Emissions Performance Standard
GO	guarantees of origin
ITMOs	Internationally Transferred Mitigation Outcomes
MENA	Middle East and North Africa
MIBEL	Iberian electricity market
MS	Member State/s
NEAP	National Energy Efficiency Action Plan
NECP	National Energy And Climate Plan
NREAP	National Renewable Action Plans
PCI	project of common interest
RES	renewable energy sources
SEMC	Southern and Eastern Mediterranean countries
TEN-E	Trans-European Energy Networks [regulation]
TSO	Transmission System Operator

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