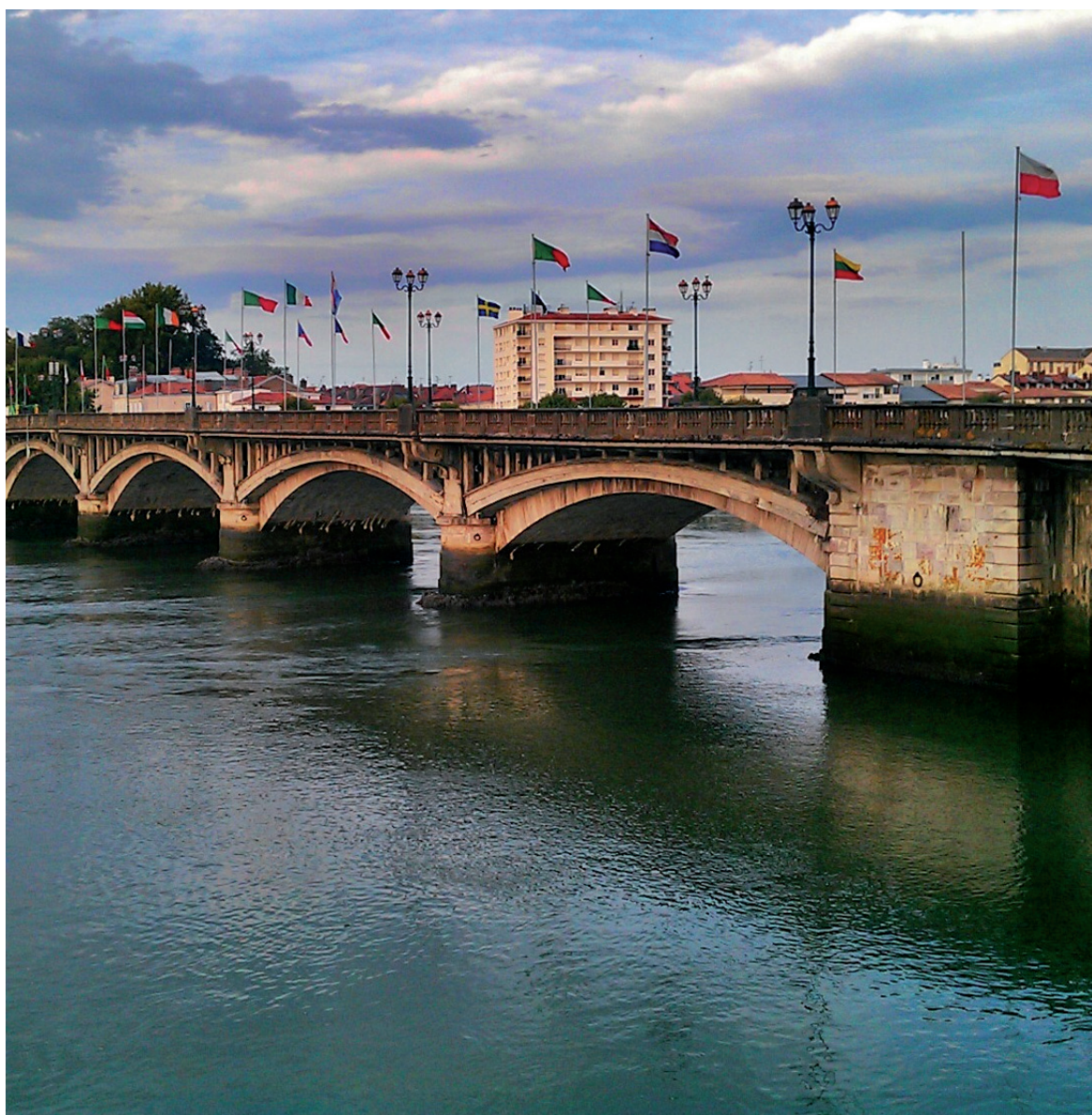


# DRIVING REGIONAL COOPERATION FORWARD IN THE 2030 RENEWABLE ENERGY FRAMEWORK

by Malte Gephart, Lucie Tesnière and Corinna Klessmann, Ecofys



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## Colophon

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## PREFACE

The European Union wants to build an Energy Union with a forward-looking climate policy that aims at the decarbonisation of the European energy system. In order to reach this goal, renewable energy sources will have to play a predominant role in the EU's future energy mix. Accordingly, the EU has set itself the goal of becoming the world's number one in renewables.

Unfortunately, this ambitious goal is not reflected in the decision of EU Member States to only increase the share of renewables of "at least 27%" by 2030. This decision rather reflects a "business-as-usual" approach, reached without major additional efforts. In spite of the benefits of renewable energy use, including diminishing greenhouse gas emissions, ensuring European security of supply, boosting job creation, and providing affordable energy for a competitive economy, the EU did not manage to considerably raise the bar and exploit the full potential of renewables.

Given the lamentable lack of ambition shown by European Heads of State and Government, it is all the more important that the 2030 renewables target is not only reached, but possibly exceeded. The European Commission intends to propose a new Renewable Energy Package in the coming years, which will include legislation to ensure that the 2030 target is met cost-effectively. A strong, transparent, and reliable governance system must be created to meet and exceed the EU-wide binding 2030 renewable energy target through Member States' contributions.

This new governance system is supposed to facilitate the coordination of national energy policies and foster regional cooperation between Member States. This can increase the flexibility for Member States when collectively reaching the EU-wide target. Through regional cooperation, the EU also seeks to maximise cross-border benefits, including balancing options, to increase flexibility in the energy system and to help plan supply and infrastructure in a more integrated and synchronised way.

There is a broad consensus that a more coordinated European approach is crucial for a more climate-friendly, affordable, and secure energy system for the EU. This approach is reflected in the vision of the Energy Union which explicitly promotes regional cooperation in order to open up the "black box" of national energy policy-making and to bridge gaps between the EU and national levels.

The 2030 renewable energy framework presents a great opportunity to boost regional cooperation in order to meet the EU-wide target. Regional cooperation that promotes cross-border development of renewable energy sources is in line with the objective to create a functioning internal energy market and is beneficial for the integration of renewables. It also represents a first step towards an Energy Union.

In view of the benefits of enhancing regional cooperation in the post-2020 renewables framework, the Heinrich-Böll-Stiftung European Union commissioned Ecofys to explore options to strengthen regional cooperation elements, in order to reach the 2030 renewables target. The study, "Driving regional cooperation forward in the 2030 renewable energy framework", presents a thorough analysis of options and policy recommendations to strengthen regional cooperation in the EU's future renewables policy.

With this study, we build on the work that the Heinrich-Böll-Stiftung commenced some years ago with the proposal for a “European Community for Renewable Energy (ERENE)”. In 2012, the proposal was complemented with a variety of policy options for better grids and support schemes for a “European Union for Renewable Energy”. With our new study, we hope to continue and further stimulate the debate on the optimal use of renewable energy sources across national borders via regional cooperation. This presents a win-win situation for all and will help to further accelerate the transition to a renewables-based energy system in Europe.

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## EXECUTIVE SUMMARY

The European Commission, the European Council and the European Parliament have all repeatedly called for regional cooperation in the context of the political debate on the 2030 framework on climate and energy and the Energy Union. This report explores how regional cooperation could be fundamentally strengthened within the 2030 governance and how it can help to reach and exceed the target proposed by the EU Heads of State and Government of at least 27% renewable energy (RES) by 2030. Moreover, regional cooperation can be an integral part of a way forward between nationalisation of RES policies and full harmonisation of RES policies at European level. We focus on the regional cooperation on RES targets and support schemes, as those are among the central cornerstones of RES deployment.

**A wide variety of regional cooperation for relating to RES deployment currently exist with a focus on:**

- electricity markets (Electricity Regional Initiatives/ERI; Pentilateral Energy Forum/PLEF);
- infrastructure (European Network of Transmission System Operators for Electricity/ENTSO-E, Baltic Energy Market Interconnection Plan/BEMIP);
- grid operation (ENTSO-E);
- all of these issues (North Seas Countries' Offshore Grid Initiative/NSCOGI).

These cooperation formats have fostered cooperation on *existing* RES capacity rather than on *future* RES deployment. While a lot has been achieved, a “quantum leap” in regional cooperation is required to address issues related to the further deployment of RES from 2020 to 2030, such as the most efficient use of RES potential, electricity market design affecting RES deployment, and RES support costs and Member States cooperation on envisaged energy mixes.

**There are several options to substantially enhance regional cooperation beyond 2020.**

There is, first of all, a need to define the geographical scope of regions. There are two possibilities: regions could be defined in a top-down manner, i.e. the European Commission defines regions and Member States would have to cooperate within that region. This would have the advantages of ensuring the inclusion of all 28 EU Member States into a regional cooperation framework. This regional grouping could be done by including in each group at least one Member State with an ambitious RES strategy; or by defining regions to bring about specific benefits (such as improved energy security). However, defining regions in a top-down manner might force Member States to join a regional grouping they don't identify with, or don't want to join, leading to a lack of members' ownership for that region.

Against these drawbacks, Member States could group themselves together in a bottom-up process and find their cooperation partners according to their own interests. While bottom-up definitions of regions face potential challenges (such as the exclusion of single Member States and a lengthy process), this approach seems to be more practical and effective, if strongly guided by the European Commission.

**Regional cooperation in policy planning** will be crucial to better coordinate national policies. The European Commission could make a wide variety of topics mandatory in the consultation, by including a binding template in the post-2020 RES legislation. Member States could then state in the national (or even regional) plans, which areas are consensual among the consulted neighbouring Member States and which topics are controversial. The plans could even entail a chapter on the compatibility of the national energy plans. This way the European Commission would gain a better understanding of how European



legislation could best support Member States' interest and complement their efforts. The European Commission should take a strong role in guiding regional cooperation in policy planning, based on regular assessments of cooperation opportunities and benefits. Subnational regions should be part of this regional consultation and policy planning process. They are specifically suited to inform the regional consultation process at Member State level, given that they are often set up across borders.

**Joint regional projects and support schemes** should play an important role in the 2030 framework, as support schemes will play a continued role in RES deployments beyond 2020. They will, at least partially, be organised nationally in a 2030 framework. In order to combine national support schemes with a regional approach, joint regional projects and support schemes could be implemented. In this regard, Member States could be required to achieve part of their RES deployment through joint projects or joint support schemes (potentially as one element in a new Renewable Energy Directive). This would leave Member States the freedom to choose their cooperation partners, the targeted technologies and the scope of cooperation with each partner. It would, at the same time, ensure that Member States start using joint projects and joint support schemes. In addition, this approach could build on current developments of several Member States that are required to open their support schemes by the European Commission (EC).

**Regional RES targets** have the advantage of strongly fostering regional coordination. The EC would have to ensure that the overall EU target of at least 27% RES share is met by the regional targets. The most reliable approach to reach and even exceed the 2030 RES target would be to define regions in a top-down manner, while setting binding targets top-down as well. However, a bottom-up approach would have the advantage to create ownership among Member States of their specific region. But bottom-up approaches also imply there is the risk of leaving out certain Member States. Thus, such an approach would have to be strongly guided by the European Commission. It is also crucial to ensure that

regional targets strengthen the effectiveness of the EU target and do not weaken it. It remains completely open what regional liability in terms of infringement procedures would look like. Thus, while regional cooperation should be strengthened, Member States' accountability within regional cooperation should be defined as firmly as possible.

**Regional RES target monitoring**, i.e. monitoring and implementing targets only on a regional level via peer-pressure, has been proposed in the political debate on a RES 2030 legislative framework. It proves to be a weak option to ensure an adequate level of ambition and reliability at Member State level, if applied without other measures. The "name-and-shame" method is not very strong, and if applied to newly defined regions, the members of this region will most likely not feel responsible for the regional target achievement.

**Regional cooperation at subnational level** can take many different shapes: subnational regions should play a crucial role in drawing up the national – or regional – energy plans. They could be the natural starting point for regional joint projects or support schemes. They could facilitate citizens' participation in policy and spatial planning and support RES deployment through the regional alignment of planning and licencing procedures. Thus, the role of subnational regions would have to be clearly defined in a 2030 framework to ensure its substantial involvement in the overall target achievement.

**Financial incentives** could be provided for regional cooperation, including from the European Regional Development Fund & Cohesion funds, INTERREG, the Connecting Europe Facility, and the European Fund for Strategic Investment or in the context of the Projects of Common Interest. However, such additional funding would have to be substantial to trigger regional cooperation. A dedicated project pipeline for regional cooperation on RES could be established, requiring an upfront template for project applications and a transparent set of selection and/or qualification criteria to turn funding opportunities into concrete regional cooperation projects. Funding



could result in EU-level co-financing by means of upfront-payments, which would significantly lower capital costs. Member States could also organise tenders together with the European Commission. A last resort option would be to make regional cooperation simply obligatory and define in a top-down manner that a minimum share of RES target achievement has to be realised in cooperation with other Member States.

Having explored all these options, one notes that a bottom-up approach is more acceptable to Member States than top-down elements imposed by the European Commission. However, limiting regional cooperation to bottom-up approaches is unlikely to move things forward, in areas which are not consensual and which represent a political risk for Member States (in terms of public acceptance). And progress is required toward 2030.

Thus, **a mix of top-down and bottom-up elements** seems adequate:

- The geographical definition of regions could happen in a top-down manner, however, not as fully binding but as guidance from the EC (together with the European Parliament) to the Member States.

- The topics that Member States should consult on regionally could be defined top-down, including a binding reporting template on regional cooperation.

- The partial opening of support schemes could be defined top-down making sure that Member States use Cooperation Mechanisms.

- The inclusion of subnational regions into the regional consultation and policy planning could be made mandatory for Member States.

Several bottom-up elements would provide Member States with flexibility:

- Agreements on regional cooperation would be made between Member States, allowing for flexibility with whom such agreements are implemented within a region.

- Regarding the opening of support schemes, the actual cooperation partners, technologies to be targeted, and the cost-benefit-sharing would be defined and agreed in a bottom-up process by Member States.

This report presents a variety of options for strengthening regional cooperation. This will help to achieve and even exceed the binding EU target of at least 27% RES in the Energy Union and to bridge existing gaps between citizens, subnational regions, Member States, and the EU. However, regional cooperation has to be embedded into a strong and reliable RES framework in order to deliver its potential.

## LIST OF ABBREVIATIONS

ACER	Agency for the Cooperation of Energy Regulators
BEMIP	Baltic Energy Market Interconnection Plan
CEF	Connecting Europe Facility
CESEC	Central East South Europe Gas Connectivity High Level Group
CSP	Concentrated Solar Power
EC	European Commission
ECSC	European Coal and Steel Community
EEAG	Environmental and Energy Aid Guidelines
EERP	European Economic Recovery Plan
EFSI	European Fund for Strategic Investment
EIB	European Investment Bank
ENTSO-E	European Network of Transmission System Operators for Electricity
EP	European Parliament
ERDF+CF	European Regional Development Fund and Cohesion Fund
ERENE	European Community for Renewable Energies
ERGEG	European Regulators' Group for Electricity and Gas
ERI	Electricity Regional Initiatives
GDP	Gross domestic product
LCOE	Levelised Cost of Electricity
NORDEL	Nordic electricity market model
NSCOGI	North Seas Countries' Offshore Grid Initiative
PCI	Project of Common Interest
PLEF	Pentalateral Energy Forum
RED	Renewable Energy Directive (Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009)
RES	Renewable Energy Sources
RETS	Renewable Energies Transfer System
SO&AF	Scenario Outlook & Adequacy Forecast
TFEU	Treaty on the Functioning of the European Union
TSO	Transmission system operators
TYNDP	Ten Year Network Development Plan

# 1 Introduction

The European Commission, the European Council and the European Parliament have all repeatedly called for regional cooperation in the context of the 2030 framework on climate and energy, and the Energy Union debate.

The European Commission suggested, in its proposal for a 2030 policy framework for climate and energy, to increase the renewable energy (RES) share to at least 27% of the EU's energy consumption by 2030, but also expressed the need for a governance framework based on *“regional cooperation between Member States to help them meet common energy and climate challenges more cost-effectively, while furthering market integration and preventing market distortion”*.<sup>1</sup> It also aims at embedding the 2030 policy framework for climate and energy into the overarching concept of an “Energy Union”. In the Energy Union Package of 25 February 2015, the European Commission stated that *“enhanced regional cooperation within a common EU framework”* is necessary.<sup>2</sup>

EU Heads of State or Government concluded in their Council conclusions on 23 October 2014 that the future governance system should *“foster regional cooperation between Member States”*.<sup>3</sup> In its conclusions on 20 March 2015, the European Council called for regional cooperation to develop *“a more effective, flexible market design”*.<sup>4</sup>

Last but not least, the European Parliament stated in its report on “A 2030 framework for cli-

mate and energy policies” of 5 February 2014 that *“regional integration has a huge role to play in deploying renewable energy sources cost-effectively”*.<sup>5</sup>

This report aims to explore how regional cooperation can be fundamentally strengthened within the 2030 governance and how it can help to reach and exceed the target proposed by the EU Heads of State or Government of at least 27% RES by 2030.

The report analyses what types of cooperation could develop and recommends possible approaches to strengthen regional cooperation. It also discusses challenges that arise from regional cooperation: regional cooperation has the potential to strengthen the RES framework, but it might also weaken it if responsibilities for RES deployment are not clearly distributed between the European Commission, EU Member States and regions.

In this report, we understand “regional cooperation” to be:

- two or more Member States that cooperate within one region (but that do not have to be adjacent Member States);
- cooperation of different actors within one subnational region (which might be a region that crosses Member State borders);
- cooperation between established regions across Europe (including subnational or nationally organised regions).

1 European Commission, 2014. A policy framework for climate and energy in the period from 2020 to 2030. COM (2014) 15 final, available at: [http://ec.europa.eu/energy/doc/2030/com\\_2014\\_15\\_en.pdf](http://ec.europa.eu/energy/doc/2030/com_2014_15_en.pdf)

2 European Commission, 2015. Energy Union Package. COM (2015) 80 final, available at: [http://ec.europa.eu/priorities/energy-union/docs/energyunion\\_en.pdf](http://ec.europa.eu/priorities/energy-union/docs/energyunion_en.pdf)

3 European Council, 2014. 23 and 24 October 2014. Conclusions on 2030 Climate and Energy Policy Framework, available at: [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/ec/145356.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145356.pdf)

4 European Council, 2015. Meeting of 19 and 20 March 2015. Conclusions, available at: [http://www.consilium.europa.eu/en/meetings/european-council/2015/03/european-council-conclusions-march-2015-en\\_pdf/](http://www.consilium.europa.eu/en/meetings/european-council/2015/03/european-council-conclusions-march-2015-en_pdf/)

5 European Parliament, 2014. A 2030 framework for climate and energy policies, available at: <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P7-TA-2014-0094&language=EN&ring=A7-2014-0047>

Multiple formats of regional cooperation currently exist reflecting the fact that reaching (and exceeding) the minimum target of 27% RES depends on many sectors, issues and policy areas (e.g. infrastructure, electricity market design, overall investment frameworks). Covering all these areas and also the wider role of regional cooperation in the overarching framework of the Energy Union exceeds the scope of this paper. We will instead focus on the regional cooperation on RES targets and support schemes (and thus of meeting the target proposed by EU Heads of State or Government), as those are among the central cornerstones of RES deployment. We will touch upon other elements, where appropriate.

Many questions regarding the 2030 climate and energy framework, impacting the role of regional cooperation, are at this stage of the political process not fully addressed and hence impact the drafting of this report.

These questions relate first to the ambition of the RES target: the binding target proposed by Heads of State or Government in the Council conclusions in October 2014 EU of “*at least 27%*” RES falls significantly short of the European Parliament’s call for “*at least 30% of total final energy consumption from renewable energy sources; [stressing] that such a target should be implemented by means of individual national targets taking into account the individual situation and potential of each Member State*” together with a target of “*a binding EU 2030 energy efficiency target of 40%*”.<sup>6</sup> A cross-party coalition in the European

Parliament is challenging the legitimacy of the Council conclusions, arguing that the Council can set general lines, but that it cannot prescribe in a detailed manner the binding or non-binding character of precise targets without co-decision of the European Parliament.

While the design of the 2030 RES governance framework greatly influences the role of regional cooperation, the question of the 2030 governance is still left open at this stage. In a letter to the President of the European Commission, Jean-Claude Juncker, a broad coalition of Members of the European Parliament from the European People’s Party, the Socialists & Democrats, the Alliance of Liberals and Democrats for Europe and from the Greens/European Free Alliance expressed “*strongest reservations on the establishment of any governance system simply based on a ‘pledge and review’ or a ‘European semester’-like approach. [...] Such a mechanism would result in side-lining the European Parliament, a situation totally unacceptable*”.<sup>7</sup>

As a result, this report will not focus on the overall RES governance in a 2030 framework, but will assume that the EU commitment to reduce its greenhouse gas emissions (GHG) by 80 to 95% by 2050 requires higher RES shares until 2030 than 27%<sup>8</sup> as well as national reliable investment frameworks at Member State level (i.e. via national targets and/or other means to create reliable investment conditions for RES), which complement regional cooperation.<sup>9</sup> Hence, this report assumes that ambitious RES targets together with a strong

6 European Parliament, 2014. A 2030 framework for climate and energy policies; also see Heinrich-Böll-Stiftung, European Union/Müller-Kraenner and Langsdorf, 2011. A European Union for Renewable Energy – Policy Options for Better Grids and Support Schemes, available at: [https://eu.boell.org/sites/default/files/hbs-eu\\_renewables\\_web.pdf](https://eu.boell.org/sites/default/files/hbs-eu_renewables_web.pdf)

7 European People’s Party, Socialists & Democrats, Alliance of Liberals and Democrats for Europe, the Greens/EFA, 2015. “No Energy Union without the European Parliament. Letter to the President of the European Commission, Jean-Claude Juncker”.

8 See for instance de Vos et al., 2014. Assessing the EU 2030 Climate and Energy targets, available at: <http://www.ecofys.com/files/files/ecofys-2014-assessing-the-eu-2030-targets.pdf>

9 See on the necessity of a reliable framework not only on EU-level but also on Member State level: Heinrich-Böll-Stiftung, European Union/Wyns et al., 2014. EU Governance of Renewable Energy post-2020 – risks and options, available at: [https://eu.boell.org/sites/default/files/eu\\_renewable\\_energy\\_governance\\_post\\_2020.pdf](https://eu.boell.org/sites/default/files/eu_renewable_energy_governance_post_2020.pdf); Held et al., 2015. Implementing the EU 2030 Climate and Energy Framework – a closer look at renewables and opportunities for an Energy Union, available at: <http://towards2030.eu/sites/default/files/Towards2030-dialogue%20Issue%20Paper%20on%20Implementing%20the%20EU%202030%20Climate%20and%20Energy%20Framework%20-%20Issue%20Paper%20%232%202015.pdf>

governance framework are required from 2020 to 2030, to meet the EU 2050 GHG commitment.

In order to explore what role regional cooperation can play in the 2030 RES framework and how this role can be strengthened, we will first briefly discuss why a regional approach is important in the current policy context (section 2), what approaches to regional cooperation currently exist, and which areas of regional cooperation in RES deployment are still lacking (section 3). We will then explore several options to enhance regional cooperation beyond 2020 (section 4). Last but not

least, we will formulate policy recommendations on how regional cooperation could be strengthened in the 2030 RES framework (section 5).

This report is published in the framework of the debate on the European Community for Renewable Energies (ERENE). Launched in 2010, ERENE intends to pool EU expertise and resources to optimise the use of RES.<sup>10</sup> The long-term goal of ERENE is to meet all of Europe's electricity needs using RES. This report supports this vision by exploring how regional cooperation can contribute to a European energy transition.

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10 See Heinrich-Böll-Stiftung/Schreyer and Mez, 2008. European Community for Renewable Energy, available at: <http://www.erene.org/downloads/ERENE-engl-i-%20%281%29.pdf>

## 2 What is the challenge and how can regional cooperation contribute?

If one calls for regional cooperation, the first question to ask is why regional cooperation is important at all, given the Member States' competences over the national energy mix and the most evident alternative to it: a fully European approach to RES policies. This section outlines the existing challenge that arises from focusing on those two extreme alternatives and underlines what contribution regional cooperation can bring to address this challenge. It presents examples of successful regional cooperation.

### 2.1 Internal Energy Market and EU Member States RES policies

One of the founding principles of the EU is the creation of the internal market, which is epitomised by the European Coal and Steel Community (ECSC), the first supranational organisation founded in 1951. The main advantages of the internal market lies in potential economies of scale and the possibility to distribute the costs of research and development more easily. Moreover, factors of production can be allocated more efficiently over large market areas, which in turn increases productivity. In addition, a single market can be more competitive internally than fragmented and small markets, which can help to prevent or curb monopolies. In a common market, consumers have a larger choice of products, which they can obtain more cheaply.<sup>11</sup> It is important to keep in mind this fundamentally market-driven approach when discussing challenges and potentials within the EU.

While a major *raison d'être* for the European Union is the internal market, different factors hamper its realisation in the energy sector:

- lack of physical interconnections prevents electricity to flow freely between Member States;
- electricity market design and specific rules for market access and operation of power plants differ between Member States;
- regulated energy prices;
- oligopolies (or a lack of realised competition);
- RES support schemes (which have been put in place to make up for the lack of level playing field with conventional energy sources) differ between Member States and perform very differently, making the allocation of RES investments potentially less efficient.

Support schemes in Europe already show an increasing convergence: countries with administratively defined support schemes tend to move towards feed-in premiums (FIP) to incentivise operational decisions according to market signals. Quota schemes have been sometimes modified to include price floors and reduce price risks. However, other aspects of support scheme design in Europe remain fragmented.<sup>12</sup>

At the same time, national energy policies increasingly affect each other. RES shares of one country influence the energy mix of neighbouring countries through cross-border trade and electricity flows, especially in the context of improved cross-border electricity trade. This includes positive impacts such as a more efficient dispatch of

11 Gephart et al., 2012. Contextualising the debate on harmonising RES-E support in Europe. A brief pre-assessment of potential harmonisation pathways, available at: <http://www.res-policy-beyond2020.eu/pdf/final/Contextualising%20the%20debate%20on%20harmonising%20RES-E%20support%20%28beyond2020%20-%20D6-1a%29.pdf>.  
El-Agraa, ed., 2011. The European Union Economics and Policies, 9th Edition, Cambridge, UK, Cambridge University Press. Jovanovic, 2011. International Handbook on the Economics of Integration: Factor, Mobility, Agriculture, Environment and Quantitative Studies: 3, UK, Glos, Edward Elgar Publishing.

12 Held et al., 2014. Design features of support schemes for renewable electricity, available at: <http://www.ecofys.com/files/files/ec-fraunhofer-isi-ecofys-2014-design-features-of-support-schemes.pdf>



power plants in two or more countries because the power plant fleet of both countries can be used jointly. This also includes impacts that are perceived as more ambivalent e.g. on energy security: well-interconnected countries can access each other's resources more easily, but they are also increasingly confronted with their neighbours' higher RES shares.

One option to implement the internal energy market is to fully harmonise RES policies, i.e. support schemes and related regulations. This option has been repeatedly called for in the past by various stakeholders and by the European Commission.<sup>13</sup> Several elements have already been harmonised in the Renewables Directive 2009/28/EC (RED): these include the obligation of Member States to *"introduce measures effectively designed to ensure that the share of energy from renewable sources equals or exceeds that shown in the indicative trajectory"* (Art. 3), planning and reporting requirements (e.g. *"National Renewable Energy Action Plans"*, biannual progress reports from the Member States) and the calculation method of the share of energy from RES. Regarding Guarantees of Origin, the Directive harmonises minimum design criteria (Art. 15). Member States *"shall ensure that transmission system operators and distribution system operators in their territory guarantee the transmission and distribution of electricity produced from renewable energy sources"* and priority dispatch for electricity from RES is obligatory for Member States (Art. 16). Articles 17 and 18 refer to harmonised sustainability criteria for biofuels and bioliquids. Thus, the existing Directive has, to some extent, already harmonised parts of RES policies, albeit without fixing a common or harmonised support scheme.

The recently published Energy and Environment State Aid Guidelines (EEAG) also provided further legally binding prescriptions on how support

schemes should be designed.<sup>14</sup> This includes for instance the implementation of FIPs from 2016 onwards, thereby phasing out feed-in tariffs (FITs) for most RES plants.<sup>15</sup> Moreover, the introduction of competitive bidding schemes to determine strike prices for electricity based on RES is expected as the default option for 5% of planned new capacity in 2015 and 2016 and all capacity from 2017 onwards. In principle, the EEAG suggest technology-neutral support. However, the guidelines allow technology-specific auctions in a number of cases. Exemptions to the requirement of implementing auctions are possible for installations of <1MW (or <6MW of wind capacity).

Thus, while the Renewable Energy Directive (RED) defined first steps in coordinating certain support scheme aspects, in a top-down manner, the EEAG seek to further harmonise parts of RED policies – a process that has been critically labelled *"harmonisation through the backdoor"*.<sup>16</sup>

However, most Member States have fiercely resisted attempts to fully harmonise RES policies, first and foremost because they have deeply ingrained differences in preferences regarding their energy mix. Such preferences are partially embedded historically, and are closely related to industrial and employment policies. Secondly, while energy is regarded as a shared competence under Article 194 of the Lisbon Treaty, Member States retain the exclusive right to determine their energy mix (Article 194(2) TFEU states that *"measures shall not affect a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply"*). Thirdly, opponents to top-down harmonisation argue that a one-size-fits-all-approach will not fit the extremely diverse contexts across the EU with regards to RES deployment. Fourthly, environmentally progressive players fear that harmonisation of RES policies would lead to the

13 See for instance Gephart et. al., 2012. Contextualising the debate on harmonising RES-E support in Europe.

14 European Commission, Guidelines on State aid for environmental protection and energy 2014-2020, available at: [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0628\(01\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0628(01)&from=EN)

15 Apart from installations <500 kW or 3 MW wind.

16 Held et al., 2014. Best practice design features for RES-E support schemes.

implementation of a support scheme based on the “*lowest common denominator*”, hereby loosening favourable conditions for RES deployment in ambitious Member States. Last but not least, full harmonisation of RES policies could result in the inability of Member States to support local sustainable energy development, which is crucial to steer public support for a transition towards RES, because market factors would prevail and Member States would effectively lose their capability to steer national RES deployment.

## 2.2 The benefits of regional cooperation

Regional cooperation is a key element to improve much needed coordination of Member States, policy convergence and to move towards the creation of the internal energy market – without fully giving up national sovereignty in an “uncontrolled” manner. There are potential benefits of regional cooperation for Member States, on a European level and for consumers.

Member States (or subnational entities) with very similar or complementary characteristics could work together to find solutions to their common challenges (such as RES integration and energy security). Relevant similarities might include support schemes, ambition levels for RES deployment, grid or market design regulations. Members in a regional cooperation can find solutions that are “*well-tailored to the specific needs of the region*”.<sup>17</sup> Complementary characteristics might include RES potential (i.e. variable and storable RES sources), which might result in optimised grid management.

Moreover, a major strength of regional cooperation lies in the ability for Member States to coordinate more efficiently: smaller groups can take decisions much quicker than the whole EU.

If countries share certain views, they can move forward and directly implement solutions, without depending on the consent of less ambitious countries.<sup>18</sup> Regional cooperation creates frameworks for members to discuss issues (e.g. unintended consequences of individual Member States’ RES policies), thereby increasing the chance to mitigate potential conflicts early on.

From a European perspective, regional cooperation can foster policy convergence, when Member States in one region agree on common design criteria. This bottom-up convergence of policies can better ensure political acceptance. In addition, new policies can be developed and tested with a specific view of cross-border effects, before potentially upscaling them to a European level. Thus, in several ways regional cooperation could be an incremental step towards completing the internal market and creating an Energy Union.

Consumers who are key to the Energy Union strategy (see the “*New Deal for consumers*”<sup>19</sup>) can benefit from regional cooperation. In the absence of a fully functioning, EU-wide internal market, consumers can access a wider variety of products within a region as a first step.

Last but not least, if Member States within a region jointly use their RES potential by allocating most RES support where resources are most available, they can lower support costs, capital expenditures, and fuel imports (see section 4.3). This in turn can lower consumer prices. However, the geographical distribution of RES investments according to RES potential has to be assessed against the grid expansion, which is required to connect production with demand centres. The redistribution of RES investments through increased regional cooperation has to be balanced with a decentralised approach – following the

17 De Jong and Egenhofer, 2014. Exploring a Regional Approach to EU Energy Policies, available at: [http://www.ceps.eu/system/files/SR%20No%2084%20Energy%20Schengen\\_0.pdf](http://www.ceps.eu/system/files/SR%20No%2084%20Energy%20Schengen_0.pdf)

18 Umpfenbach et al., 2014. Regional cooperation in the context of the new 2030 energy governance, available at: [http://www.ecologic.eu/sites/files/publication/2015/regional-cooperation-energy-2030\\_2.pdf](http://www.ecologic.eu/sites/files/publication/2015/regional-cooperation-energy-2030_2.pdf)

19 European Commission, 2015. Energy Union Package.

principle of *"as much decentralisation as possible, as much centralisation (i.e. regional distribution of RES investments) as necessary"*.<sup>20</sup>

## 2.3 Challenges arising from regional cooperation

Notwithstanding these advantages, regional cooperation can potentially result in policy fragmentation if policies developed in one region are not compatible with policies developed in another region<sup>21</sup>, which Egenhofer and de Jong call a *"risk of tensions between different regional approaches"*.<sup>22</sup> This might relate to technical issues such as grid operation (which need to be compatible).

Egenhofer and de Jong rightly point at potential governance issues: regional cooperation, especially in geographically overlapping regions, can result in overlapping competencies between those regions, Member States and the European Commission. For instance, currently, Member States are fully responsible for RES deployment. Overlaps regarding support scheme design, RES funding, special planning and licencing procedures might occur if the European Commission or regions play a more vital role in this regard in the 2030 framework.

This challenge has to be kept in mind when creating new regional structures and delegating specific competencies to them.

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20 See on how a European-wide optimization of RES investments has been overestimated in the past Ragwitz and Resch, 2010. Quo(ta) vadis, Europe? Available at: [http://www.reshaping-res-policy.eu/downloads/Quo\(ta\)-vadis-Europe\\_RE-Shaping-report.pdf](http://www.reshaping-res-policy.eu/downloads/Quo(ta)-vadis-Europe_RE-Shaping-report.pdf). See on cost savings in a balanced approach between centralized and decentralized RES investments Greenpeace International/Energynautics GmbH, 2011. Battle of the Grids. How Europe can go 100 % renewable and phase out dirty energy, available at: <http://www.greenpeace.org/international/en/publications/reports/Battle-of-the-grids/>

21 Umpfenbach et al., 2014. Regional cooperation.

22 De Jong and Egenhofer, 2014. Exploring a Regional Approach to EU Energy Policies, available at: [http://www.ceps.eu/system/files/SR%20No%2084%20Energy%20Schengen\\_0.pdf](http://www.ceps.eu/system/files/SR%20No%2084%20Energy%20Schengen_0.pdf)

## 3 State of play in regional cooperation

### 3.1 What types of regional cooperation exist so far?

This section provides a rough overview of existing cooperation fora, their broad aims and their contribution to RES deployment.<sup>23</sup> A wide variety of regional cooperation relating to RES deployment exists with a focus on:

- electricity markets (Electricity Regional Initiatives, Pentalateral Energy Forum/PLEF),
- infrastructure (European Network of Transmission System Operators for Electricity/ENTSO-E, Baltic Energy Market Interconnection Plan/BEMIP),
- grid operation (also ENTSO-E),
- all of these issues (North Seas Countries' Offshore Grid Initiative/NSCOGI).

Among existing types of regional cooperation that cover the EU (and beyond) are **ENTSO-E's Regional Groups**, divided into the “operational committee” (responsible for grid operation) and the “development committee” (responsible for grid development). ENTSO-E is the European Network of Transmission System Operators and was established by the EU's Third Legislative Package for the Internal Energy Market in 2009. ENTSO-E promotes closer cooperation across Europe's Transmission system operators (TSOs) to support the implementation of EU energy policies.<sup>24</sup>

The aim of the **operational committee** is to ensure compatibility between system operations on the one side, and market solutions and system development on the other. ENTSO-E's operational committee contributes to successful RES deployment: ensuring the compatibility of system operations and market design is increas-

ingly important with increasing shares of RES (e.g. the relation between gate closure time, balancing responsibilities and operational grid stability become more important). The regions defined in the operational committee are based on synchronous areas (i.e. which operate at a synchronised frequency and which are electrically tied together during normal system conditions), thus on a purely technical criterion. The principal actors in the operational committee are TSOs. In contrast to the operational committee, ENTSO-E's **development committee** is in charge of TSO co-operation regarding the network development and planning. Outcomes of this cooperation include, for instance, the Ten Year Network Development Plan (TYNDP). The development groups contribute to RES deployment because grid development is a crucial requirement in the context of increasing RES shares and missing grid capacities are among the main barriers for regional cooperation.

Another example of regional cooperation are the **Electricity Regional Initiatives** (ERIs), created in 2006 by the European Regulators' Group for Electricity and Gas (ERGEG) and the European Commission<sup>25</sup> as an interim step to create a single EU electricity market by integrating fragmented national electricity markets into regional markets. The Electricity Regional Initiatives bring together regulators, companies, Member States, and the European Commission “to focus on developing and implementing solutions to improve the way in which regional energy markets develop”.<sup>26</sup> Most notably, cross-border capacity is increasingly included into the wholesale market process at the electricity exchanges (through “market coupling”), making cross-border electricity trade easier and much more efficient. Accessing cross-border

23 A geographical overview of the regional cooperation fora is presented in section 4.1.

24 ENTSO-E, available at: <https://www.entsoe.eu/about-entso-e/Pages/default.aspx>

25 ERGEG is the predecessor of the Agency for the Cooperation of Energy Regulators (ACER) that became operational in 2011.

26 CEER, available at: [http://www.ceer.eu/portal/page/portal/EER\\_HOME/EER\\_ACTIVITIES/EER\\_INITIATIVES/ERI](http://www.ceer.eu/portal/page/portal/EER_HOME/EER_ACTIVITIES/EER_INITIATIVES/ERI)

capacities efficiently through regional cooperation is, once more, crucial to increase security of supply in the context of increasing RES shares.

These three examples of regional cooperation largely focus on completing the internal electricity market. Other, geographically limited formats of co-operation focus on RES deployment more explicitly.

For instance, the **North Seas Countries' Offshore Grid Initiative (NSCOGI)** was formed in 2010/2011 by 10 countries<sup>27</sup> around the North Seas represented by their energy ministries, supported by their Transmission System Operators (TSOs, organised in the European Network of Transmission System Operators for Electricity, ENTSO-E), their regulators (organised in the Agency for the Cooperation of Energy Regulators, ACER) and the European Commission. Its aim is *"to evaluate and facilitate coordinated development of a possible offshore grid that maximises the efficient and economic use of those renewable sources and infrastructure investments"*.<sup>28</sup> Through its technological and geographical focus, NSCOGI explicitly targets RES deployment.

The **Pentalateral Energy Forum (PLEF)** was created in 2005 by Energy Ministers from Benelux, Germany and France to promote collaboration on cross-border exchange of electricity. It aims at enabling electricity market integration in the region and improving security of supply. The main characteristic of this forum is its voluntary

nature.<sup>29</sup> It now includes Austria, Belgium, France, Germany, Luxembourg, and the Netherlands. Switzerland participates as an observer country. National regulatory authorities, TSOs, and power exchanges are represented.

The PLEF is mainly driven by the Member States governments and it operates independently from the Electricity Regional Initiatives. However, its output feeds into the other regional cooperation fora: the first regional generation adequacy assessment conducted in 2015 will feed into ENTSO-E's TYNDP.<sup>30</sup> In a Declaration of 8 June of this year 12 "electrical neighbours" agreed on several "no regrets", such as refraining from "legal price caps" and from restriction of "cross-border trade of electricity including in times of high prices" according to the EU regulation on cross-border trade and secure system operation.<sup>31</sup> This declaration, initiated by Germany with its direct "electrical neighbours", went hand in hand with the 10 year PLEF declaration and can be seen as an extension of the PLEF.<sup>32</sup>

The PLEF and the extended "electricity neighbour" initiative support RES deployment: they conduct adequacy assessments, which have to be further developed in the context of higher RES shares.<sup>33</sup> Taking into account the neighbours' situation of system stability as done in the recent adequacy assessment is important, as higher RES shares in one country can affect neighbouring countries through cross-border flows.

27 The countries involved are Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway, Sweden, and the UK. Also the European Commission, ENTSO-E and ACER are represented in this forum.

28 ENTSO-E. North Seas Countries' Offshore Grid Initiative (NSCOGI), available at: <https://www.entsoe.eu/about-entso-e/system-development/the-north-seas-countries-offshore-grid-initiative-nscogi/Pages/default.aspx>

29 Umpfenbach et al. 2014. Regional cooperation.

30 Available at: [http://www.amprion.net/sites/default/files/pdf/2015-03-05\\_PLEF\\_GAA\\_Report\\_for\\_SG2\\_Final.pdf](http://www.amprion.net/sites/default/files/pdf/2015-03-05_PLEF_GAA_Report_for_SG2_Final.pdf)

31 The 12 countries are Austria, Belgium, Czech Republic, Denmark, France, Germany, Luxembourg, Netherlands, Norway, Poland, Sweden, Switzerland. See the Joint Declaration for Regional Cooperation on Security of Electricity Supply in the Framework of the Internal Energy Market, available at: <http://www.bmwi.de/BMWi/Redaktion/PDF/J-L/joint-declaration-for-regional-cooperation-on-security-of-electricity-supply-in-the-framework-of-the-internal-energy-market,property=pdf,bereich=bmwi2012,sprache=en,rwb=true.pdf>

32 Pentalateral Energy Forum, 2015. Second Political Declaration of the Pentalateral Energy Forum of 8 June 2015, available at: <http://www.benelux.int/files/2514/3375/5853/PENTA2.pdf>

33 Also see The Regulatory Assistance Project/Agora, 2014. Power Market Operations and System Reliability, available at: [http://www.agora-energiewende.de/fileadmin/downloads/publikationen/Impulse/Penta\\_Marktdesign/Agora\\_Impulse\\_Penta\\_Market\\_Design\\_1214\\_WEB.pdf](http://www.agora-energiewende.de/fileadmin/downloads/publikationen/Impulse/Penta_Marktdesign/Agora_Impulse_Penta_Market_Design_1214_WEB.pdf)

The **Baltic Energy Market Interconnection Plan (BEMIP)** was created in 2009 by the European Commission and participating Member States. It aims to create *“a fully functioning and integrated energy market in the region, supported by the necessary infrastructure”*.<sup>34</sup> This will be achieved, for instance, by extending the Nordic electricity market model (NORDEL) to the three Baltic States. The BEMIP is partially funded by the European Commission (as part of the European Economic Recovery Plan (EERP)) and includes Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden and, as an observer, Norway.

On the 8th of June 2015, the Members of BEMIP signed a Memorandum of Understanding to strengthen regional cooperation.<sup>35</sup>

An example for regional cooperation at a subnational level is the cooperation within the **INTERREG**. INTERREG is part of the European structural and investment policy and supports cross-border cooperation on a regional level. It aims to reduce existing disparities between EU regions in terms of their economic and social development and environmental sustainability. It is financed under the European Regional Development Fund (ERDF). However, **INTERREG** is neither centrally organised nor governed by the European Commission. It includes cross-border cooperation regarding:

- a) Adjacent regions (INTERREG A);
- b) Transnational cooperation (national, regional and local authorities) spreading across Europe (INTERREG B);
- c) Interregional cooperation (large-scale information exchange and sharing of experience through networks) (INTERREG C).

While this cooperation is not mainly focused on RES projects, both INTERREG B and C have projects including RES: for instance, the “4Power”<sup>36</sup> project focuses on offshore wind energy. Its aim is to exchange knowledge between experienced and learning regions to create a common understanding of challenges for implementation. Another project is the “Regions4GreenGrowth”, which aims to equip regions with policy instruments, mechanisms and approaches improving access to finance RES, and speed up investments in sustainable energy projects in their territories.<sup>37</sup> A third example is the “Renewable Energies Transfer System” (RETS), aiming to increase knowledge and competencies of local and regional policymakers (especially in small, rural regions) in RES systems to facilitate a greater deployment of RES policies.<sup>38</sup>

Of course, there are many more cooperation fora in Europe related to energy and climate policies (such as the Concerted Action for RES<sup>39</sup>, the Central East South Europe Gas Connectivity (CESEC) High Level Group<sup>40</sup> or the Covenant of Mayors<sup>41</sup>), but those either do not resemble “regional” cooperation or they are not even indirectly related to RES deployment.

34 European Commission. Baltic Energy Market Interconnection Plan: <http://ec.europa.eu/energy/en/topics/infrastructure/baltic-energy-market-interconnection-plan>

35 The numerous additional issues to be dealt within BEMIP are security of supply, energy efficiency, RES, nuclear energy and various aspects of the integration of the Baltic States’ electricity network into the Continental European Network. BEMIP’s new structure includes a BEMIP action plan, with the aim of improved implementation and monitoring. See Memorandum of Understanding on the reinforced Baltic Energy Market Interconnection Plan ‘BEMIP’, 2015, available at: [https://ec.europa.eu/energy/sites/ener/files/documents/MoU\\_Final\\_to%20be%20signed%20on%208%20June\\_v2.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/MoU_Final_to%20be%20signed%20on%208%20June_v2.pdf)

36 [www.4-power.eu](http://www.4-power.eu)

37 [www.regions4greengrowth.eu](http://www.regions4greengrowth.eu)

38 [www.rets-project.eu](http://www.rets-project.eu)

39 <http://www.ca-res.eu>

40 <https://ec.europa.eu/energy/en/topics/infrastructure/central-and-south-eastern-europe-gas-connectivity>

41 <http://www.covenantofmayors.eu>



### 3.2 Success factors of regional cooperation and what is missing

Umpfenbach et al.<sup>42</sup> have explored success factors in depth and conclude that successful regional cooperation requires:

- *“Clear political vision guiding the process, i.e. a shared understanding between the involved member states’ governments on what the exact objectives of the cooperation are.*
- *Participation of all relevant stakeholders, particularly market participants, to ensure pragmatic and practical solutions.*
- *Slender working structures.”*

One might add as potential success factors that regional cooperation:

- Needs to be sufficiently flexible to take into account different situations and cooperation preferences of different Member States and regions, as well as existing cooperation formats.
- Requires a step-by-step approach, in which Member States can develop concrete solutions to challenges they commonly face.
- Needs to make potential gains of cooperation evident to political leaders and the public in the involved countries to facilitate political and public acceptance.

Undoubtedly, these cooperation formats discussed above have addressed the creation of the internal energy market and (at least indirectly) RES deployment. Coordinating infrastructure investments, implementing market coupling and exchanging knowledge on the potential for and barriers to North Sea grid connection are all crucial preconditions for allowing higher RES shares in Europe.

However, existing fora have seemingly fostered cooperation on *existing* RES capacity rather than on *future* RES deployment. Some of the issues that regional cooperation has so far not addressed in relation to RES deployment are:

- The most efficient use of RES potential. Redistributing RES capacities according to resource availability has to be well-balanced with overall system costs (i.e. required additional grid development, RES integration costs). Cooperating Member States need to take into account the benefits of local RES deployment. At the same time, with a smart and fair approach to sharing costs and benefits between the cooperating Member States, all parties can improve their situation by lowering support costs.<sup>43</sup> The lack of cooperation in this area is epitomised by the absence of the use of the Cooperation Mechanisms provided by the RES Directive, i.e. of joint target achievement of two or more Member States.

- Electricity market design affecting RES deployment and RES support costs. Whether a country opts for a capacity market or whether it relies on the concept of an “Energy Only Market” (combined with a strategic reserve), influences the market value of RES. Because each electricity market design has effects on the wholesale electricity price, this decision in turn influences the required support payments (i.e. the difference between the wholesale price and the Levelised Costs of Electricity (LCOE)). However, while some Member States have started to cooperate on generation adequacy assessments (as in the PLEF), they do not yet effectively coordinate and cooperate on how to design their electricity market.

- Member States cooperation on envisaged energy mixes (e.g. envisaged RES shares and how these shares interact with each other). A coordinated approach would help neighbouring Member States to take into account their neighbours’ preferences regarding their energy mix and identify synergies and challenges.

While a lot has been achieved in terms of regional cooperation, a “quantum leap” in regional cooperation is required to address important issues related to the further deployment of RES from 2020 to 2030.

<sup>42</sup> Umpfenbach et al., 2014. Regional cooperation.

<sup>43</sup> Also see section 4.3.

## 4 Regional approaches within a 2030 RES framework

### 4.1 Geographical definition of the regions

Any concept on regional cooperation entails the questions of how the geographical scope of a region is defined. When defining the geographical scope of a region, a bottom-up or a top-down approach might be implemented.

#### 4.1.1 Bottom-up approach

One option is a bottom-up approach. In a bottom-up approach, Member States group themselves together and find their cooperation partners, according to their own interests, e.g. neighbouring States that are mutually affected by RES policies, strong partners with similar ambitions, or Member States with lower or higher GDP, ambitious and less ambitious partners on RES (to convince each other of their ambition level on RES). The process of defining regions could be complemented by guidance and coordination from the European Commission to ensure a sensible outcome of this bottom-up regional grouping (to ensure that no Member State is left out). Of course, this guidance would have to be flexible, and should not lead to a strong top-down definition of the regions.

The bottom-up approach to defining regions has several advantages:

- It is politically acceptable for Member States.
- Member States would develop ownership for their region and the related RES commitment as they selected it intentionally.

This has to be evaluated against several disadvantages of bottom-up definition of regions:

- Some Member States might end up being part of no region at all, e.g. economically poor and RES-unambitious countries or countries with a lack of political will to be integrated within a region.

— The process of defining regions in such a bottom-up approach might take too long, especially since several Member States would naturally want/need to be part of several regions (e.g. France and Germany). If Member States seek to consult their national energy plans within their region, such a region would have to be defined well before the post 2020 period starts.

— A bottom-up approach also risks fragmentation and difficulty for the European Commission to coordinate achievement of 2030 targets and other energy objectives.

#### 4.1.2 Top-down approach

Another option is to define regions in a top-down manner, i.e. the European Commission defines regions and Member States would have to cooperate within that region. This would have several advantages: first, a top-down approach would facilitate the inclusion of all Member States into a regional cooperation framework. Secondly, it could enable the definition of regions including at least one Member State with an ambitious RES strategy and the willingness and ability to significantly invest into RES.

A third advantage: regions could be defined to exert a specific function in the 2030 framework or to bring about specific benefits:

- Regions could be grouped according to the principle of “complementarity of resources/efficiency of investment allocations”. Regions that have complementary RES potential could be created by combining good wind sites with bioenergy potential, solar resources or storage potential. This way, regions could achieve cost savings by jointly and complementarily using their best sites together.<sup>44</sup>

44 On potential cost savings see section 4.3.

— Alternatively, countries could be grouped into regions according to “energy security aspects”: regions could be defined having similar energy security challenges, such as the Baltic region, highly dependent on gas imports and poorly connected to central Europe. Such regions could coordinate their RES deployment in the region, together with infrastructure development to increase their overall energy security. In contrast, countries within a region facing very different energy security challenges could be grouped together. This could lead to more coordination and make a country with a high level of energy security share its assets with the “weaker” members of the region.

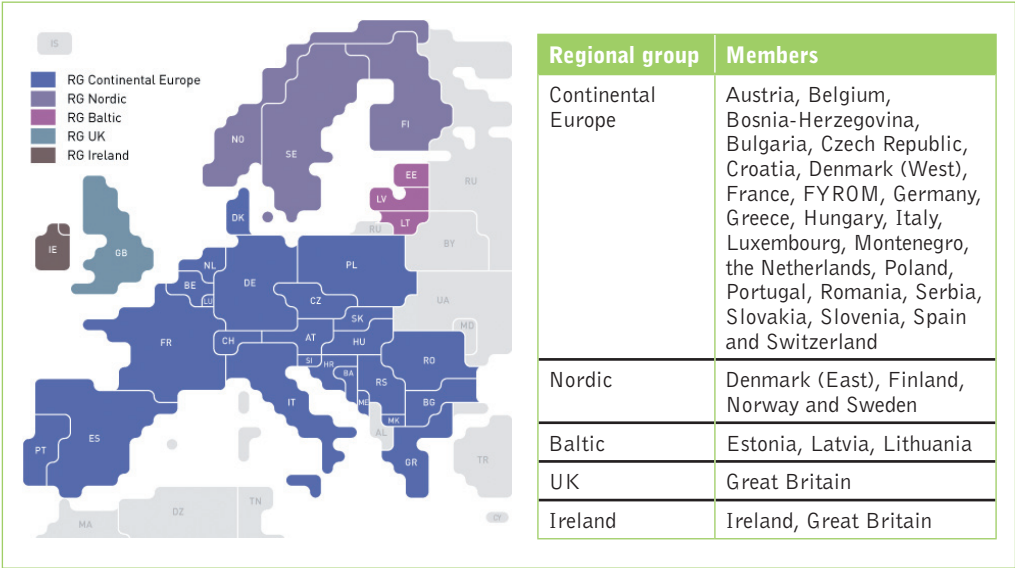
— Infrastructure could be another defining element of a region: different countries could either be put into one region with a similar infrastructural setup, such as the Iberian Peninsula. As Spain and Portugal face similar challenges through the lack of interconnectors and increasing shares of variable RES, their regional cooperation regarding RES deployment seems evidently practical. On the contrary, it would make sense to group together countries whose national energy policies heavily affect each other, and where cooperation is need-

ed (e.g. Portugal and Spain together with France to address lacking interconnector capacities or Poland with Germany to address loop flow issues).

The main question when defining regions according to such criteria is: which criterion to choose? When defining regions from a top-down perspective and in order to avoid governance issues, the European Commission could refer to the existing regional definitions (see below). Using established cooperation fora would have the advantage to build on existing processes and mutual trust within a region. This would be especially important given the large variety of issues and policies that have to be coordinated towards 2030. However, most of the existing regional cooperation formats have significant disadvantages when being considered for top-down definition.

In **ENTSO-E’s “operational committee”**, regions are defined according to “synchronous areas” (i.e. which operate at a synchronised frequency and which are electrically tied together during normal system conditions), thus on a purely technical criterion. The principal actors in the operational committee are Transmission system operators (TSOs).

Figure 1 ENTSO-E’s operational committee regional groups<sup>45</sup>



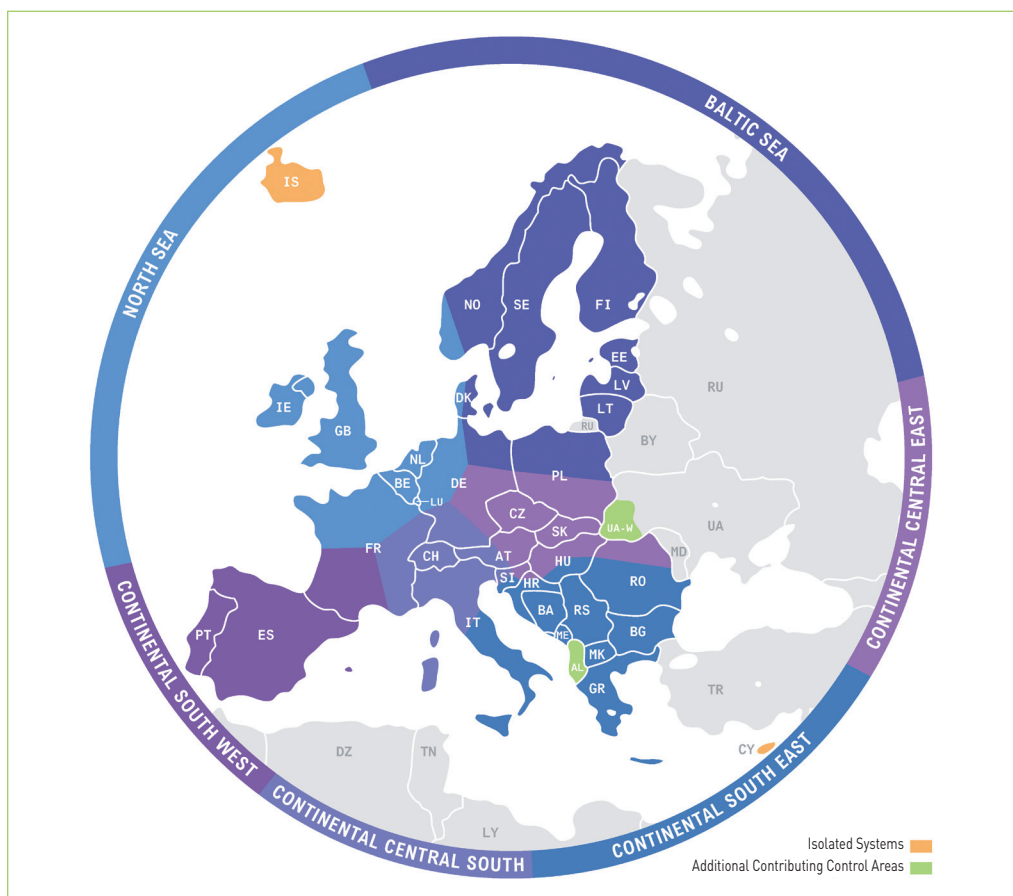
45 Source: <https://www.entsoe.eu/about-entso-e/system-operations/regional-groups/Pages/default.aspx>

The Baltic and the Nordic region might be suitable for a top-down definition of the geographical scope, but the region of Continental Europe is too large to make up a practical region, as this region would have to deploy by far the largest share of RES in Europe. An effective coordination within this region does not seem practical. In addition, the region of Continental Europe does not make sense from an infrastructure perspective, as it includes countries

like Spain, Portugal and Poland in one region as well as countries that are not part of the EU.<sup>46</sup>

Using **ENTSO-E's Development Committee** and its regions would have the advantage of defining regions based on infrastructure issues, which is a fundamental requirement for increased RES shares.

**Figure 2** ENTSO-E's development committee regional groups<sup>47</sup>



The regional scope can be seen in **Figure 2**. Most notably, the difference to the operational groups is that regions in the development com-

mittee are seemingly more balanced (with no region covering a significantly larger part of Europe than another). Moreover, several coun-

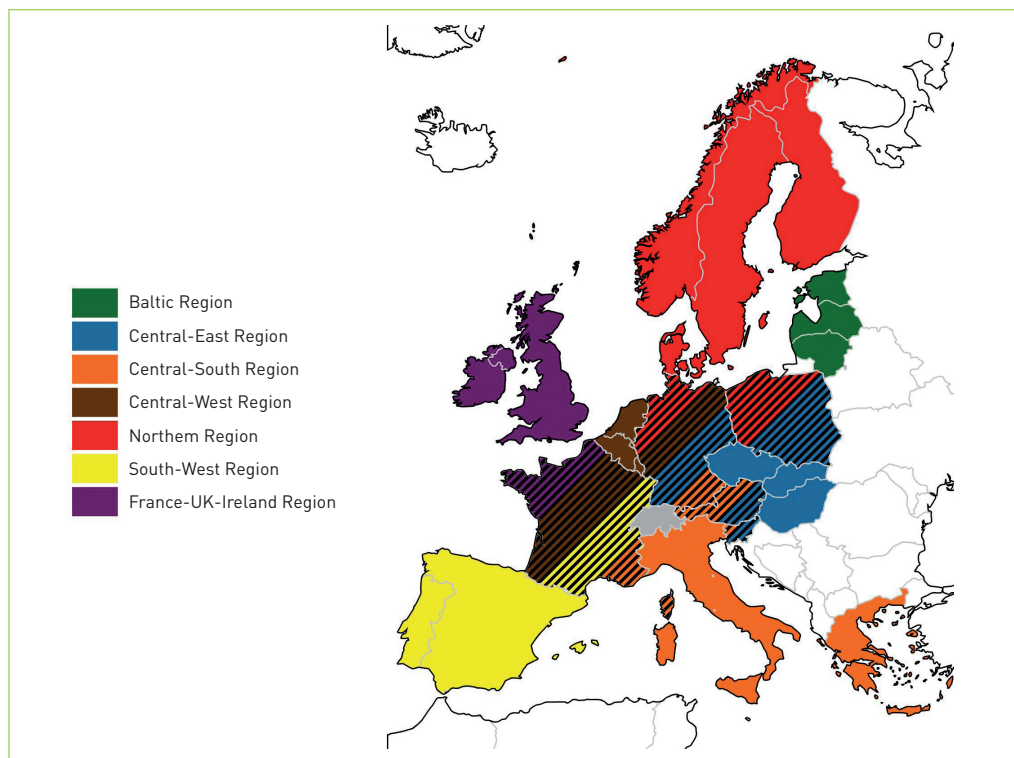
<sup>46</sup> Moreover, the cooperation has created trust among TSOs, but not necessarily among governments who would be participating in this regional cooperation if regional targets were implemented.

<sup>47</sup> Source: ENTSO-E: Regional Development Groups (as reference for map), available at: <https://www.entsoe.eu/major-projects/ten-year-network-development-plan/Pages/default.aspx>

tries are part of different regions (e.g. France is part of three regions). This reflects that this country shares specific infrastructural characteristics with three regions. However, this might be a disadvantage as countries would have to be part of several regional structures.<sup>48</sup>

The **Electricity Regional Initiatives** have the great advantage of being related to electricity markets (e.g. market coupling). Next to infrastructure, functional and interconnected electricity markets are another fundamental prerequisite for higher RES shares and thus the Electricity Regional Initiatives are seemingly a good starting point. Moreover, they are fairly well proportioned with six regions across Europe.

**Figure 3 Geography of the seven electricity RIs<sup>49</sup>**



In addition, they include a large variety of actors (regulators, TSOs, electricity exchanges, etc. in contrast to ENTSO-E's regional groups, for instance). Based on years of cooperation experience, they would thus provide the established basis for mutual trust to coordinate RES deployment up to or beyond 27% in Europe. However, several countries are part of more than one regional initiative

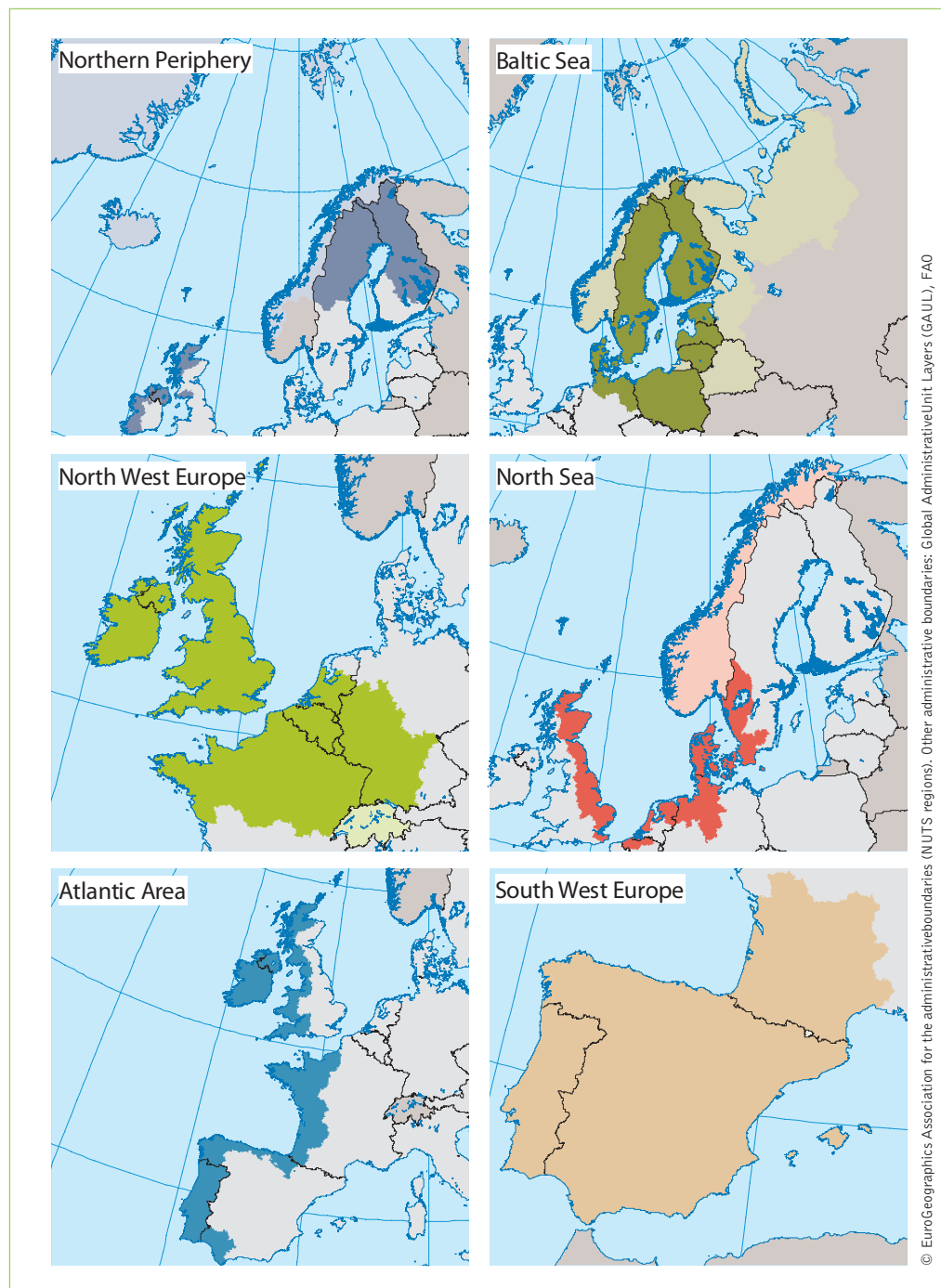
(e.g. Germany is part of the Central-South and Central-West region), which might result in challenges, especially related to regional RES targets (see **Figure 3** and **section 4.4**).<sup>50</sup>

The regional scope of the **INTERREG IV B** (transnational cooperation in the funding period 2007-2013) is shown in **Figure 4**.

48 E.g. in the case of regional targets, see section 4.4.

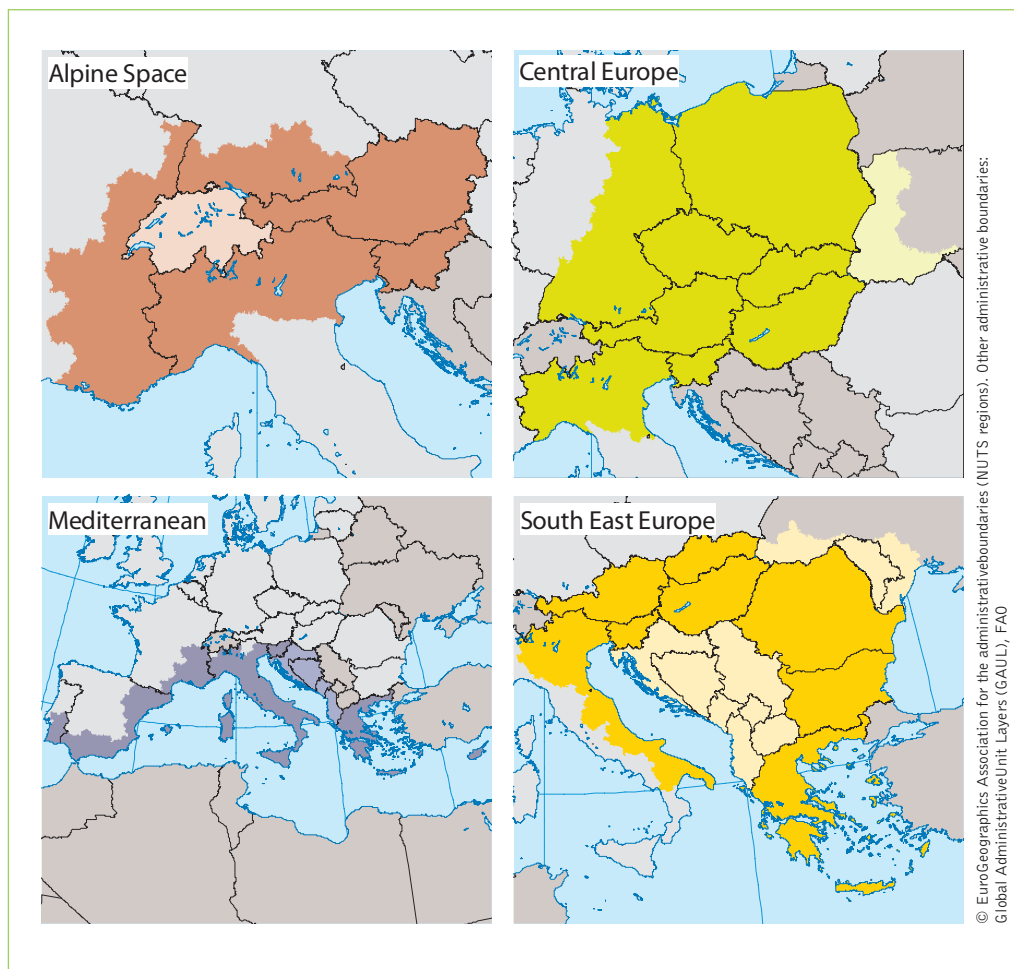
49 Source: Umpfenbach et al./Ecologic Institute.

50 Umpfenbach et al., 2014. Regional cooperation.

**Figure 4 Regional scope of INTERREG Regions<sup>51</sup>**

51 European Commission, DG Regional Policy, 2007, available at:  
[http://ec.europa.eu/regional\\_policy/sources/docoffic/official/regulation/pdf/2007/publications/guide2007\\_en.pdf](http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/pdf/2007/publications/guide2007_en.pdf)

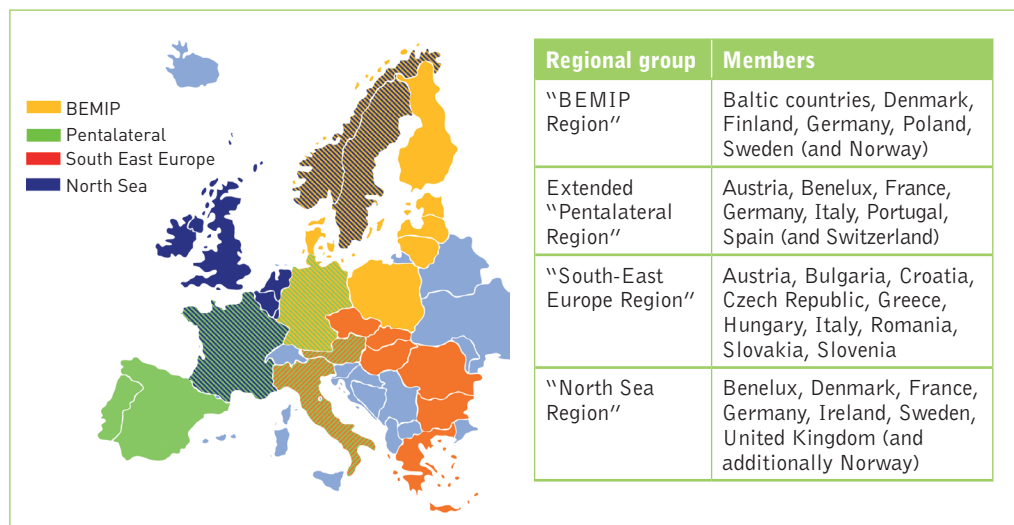




Regions in INTERREG can spread over a nucleus of a few neighbouring countries but they can also spread out alongside the entire continent (such as the Atlantic Coast region). Since strong RES frameworks on EU-level, but also on Member State level are deemed necessary in a 2030 RES governance, regions covering just part of Member States might be a deficient starting point for regional cooperation.

Since none of the existing regional definitions seem to be practical, one might define new regional scopes. Claude Turmes (MEP, Coordinator of the Greens/EFA in the European Parliament's ITRE committee) introduced the idea of dividing Europe into four **regional markets**.<sup>52</sup> This would include the following groups, as shown in **Figure 5**.

<sup>52</sup> See for instance BDEW interview 01/2014.

**Figure 5 Regional scope of regional markets<sup>53</sup>**

Germany would be part of three regions; France, Benelux, Italy, Austria, Sweden and Norway would be part of two regions. An advantage of this approach would be a well-balanced definition of regions based on RES potential, hereby creating efficiency gains in RES support. The disadvantage is that those regions would have to be newly established. Moreover, the South-East region would potentially have less economic resources available to ensure strong RES deployment. Again, several countries are part of more than one region.

In short, defining regions in a top-down manner has the advantages of finding well-scoped regions with characteristics suitable for effective regional cooperation. Moreover, it would ensure that no Member State is left out of regional cooperation. However, there are two significant disadvantages to defining regions in a top-down manner:

- Finding the right mix of members within a region that is acceptable for all its members seems difficult.

- A top-down defined region might lack members' ownership for this region, as Member States could argue that they were put into a region against their will. This is especially problematic if a wide range of topics is to be coordinated within a region (such as electricity market design, energy security issues, etc.).

To summarise, defining regions top-down has several advantages, such as fulfilling objective and transparent criteria (e.g. complementarity of RES potential). However, existing regional definitions do not seem to be practical and setting up a new regional definition seems difficult to implement in terms of political acceptance. While bottom-up definitions of regions face potential challenges, this approach – if guided by the European Commission – seems to be more practical and effective. Such EC guidance could then be informed either by existing regional cooperation models as outlined above or by a regional definition along the lines of Claude Turmes' suggestion.

53 Source: Ecofys, based on comments by Claude Turmes, MEP Greens/EFA.

## 4.2 Regional cooperation in policy planning

According to the European Commission in its January 2014 Communication, *“consultation with neighbouring countries should be a key element in the preparation of the plans”*. The European Commission sees this consultation as necessary against the background of diverging levels of ambition to implement energy transition(s). In concrete terms, this relates for instance to the French reserve regarding Germany’s decision on the Energy Transition, impacting its neighbouring countries without having consulted them. This holds equally true for the UK’s decision to support the nuclear power plant at Hinkley Point C with generous subsidies, affecting electricity prices in continental Europe. National decisions on capacity markets clearly have cross-border effects in terms of wholesale prices and security of electricity supply.

What could this regional cooperation on policy planning look like? The European Commission could provide guidance for the national plans and how they should be consulted among neighbouring Member States.

First, the European Commission could define which Member State has to consult with which other Member States (according to top-down regions or regional definitions which are at least guided by top-down definitions): Member States would be obliged to include their neighbours and would be required to consult Member States with divergent policy preferences. In this context, it is important to note that the larger the number of consulted countries, the more likely conflict will arise.

Secondly, the European Commission could define the content of the consultation and thus of the national plans. This could include first and foremost the:

- envisaged energy mix,
- envisaged RES deployment;
- support schemes (and planned changes to the schemes);

- cooperation in RES deployment and support scheme (i.e. the Cooperation Mechanisms),
- infrastructure planning (related to the regional TYNDPs);
- electricity market design issues (including possible capacity mechanisms vs. strategic reserves and the cross border effects resulting from both approaches);
- a chapter on the compatibility of national energy plans.

In order to establish a binding template and make these chapters mandatory, a legal basis would be required (for instance, as an annex of a new RES Directive).

A more complex and comprehensive approach to consultation, i.e. a larger number of topics to be consulted on, makes sense in terms of RES deployment and integration. However, the more comprehensive the consultation agenda is, the higher the potential for conflicts is. It is unrealistic to ask each neighbour within the region to agree on each point of the plan. As a consequence, such broad consultation will take much more time and might not be realistic until 2020. Thus, the European Commission could make a wide variety of topics a mandatory part of the consultation. Member States could then simply state in the national plans, which areas are consensual among the consulted Member States and on which topic diverging views exist. This way, there would be transparency on the level of agreement and cooperation among the consulted Member States. The EC could then “take stock” of potential for further legislative initiatives on RES policies that would both be in the interest of Member States while being politically acceptable to them.

The European Commission could also actively engage in this process, guide it and push for further cooperation in several iteration rounds, in case the consultation does not result in sufficient cooperation agreements. The EC could implement an inclusive multi-stakeholder dialogue structure, for instance as the one used in Germany for na-

tional grid planning. For the EC to take a credible part in this process, ex-ante analyses should be conducted regarding the potential for regional cooperation, related synergies and benefits for the EU as a whole, as well as for the Member States. Being very well informed seems to be a prerequisite for the EC to enter into consultation with a guiding vision and to provide a true added value for the consultation partners, rather than being limited to the role of European watchdog.

A more ambitious approach would be to require Member States to submit joint regional energy plans. However, depending on the scope of topics to be included into the joint energy plans, the timeframe until 2020 to submit such plans might be too short, given the wide range of positions of Member States on many energy related topics.

### 4.3 Joint regional projects and support schemes

In the 2020 RES framework, the Renewable Energy Directive (RED) set national binding RES targets, and allowed Member States to cooperate to achieve (part of) their target jointly. Joint projects between Member States (Art. 7 of RED) mean that RES electricity or heat projects are developed under framework conditions, jointly set by two or more Member States; the involved Member States define which share of the energy production counts towards which Member State's target. Joint projects can also be developed with third countries (Art. 9 of RED), under the condition that the physical import of electricity into the EU is proven.<sup>54</sup> Joint support schemes (Art. 11 of RED) mean that Member States merge or coordinate (parts of) their RES support schemes and jointly define how the renewable energy produced is allocated to their national targets.

#### 4.3.1 Benefits of joint projects and joint support schemes

Joint projects have the advantage to potentially target single or only few RES installations, as a first step into larger scale cooperation. Joint support schemes can be interpreted as the scaling up of cooperation, as they would provide a more stable and reliant framework for RES deployment.<sup>55</sup>

In the RED, such Cooperation Mechanisms were not defined as “regional” (it only speaks of cooperation “*between Member States*”), but Cooperation Mechanisms might play a significant role in regional cooperation in the 2030 governance framework. Cooperation Mechanisms have the following advantages over purely national RES deployment and over a comprehensive top-down harmonisation of support schemes:

- Member States might cooperate with regards to specific technologies of interest (offshore wind, Concentrated Solar Power (CSP), etc.) and thus focus on technology development and industrial policies.
- The Cooperation Mechanisms allow for two or more Member States to jointly test new support scheme elements (e.g. the introduction of specific premium calculations in a FIP system or the introduction of auction schemes for specific technologies).
- Cooperation Mechanisms enable savings of different kinds compared to purely national RES deployment: if two countries cooperate according to the Cooperation Mechanisms, geographical shifts in RES investments can happen from one Member State to the other. For instance, investments in PV deployment would take place in the country where most sun is available, but (part of) this re-allocated investment would still count towards both Member States' target achievement, according to their agreement. This can lead to:<sup>56</sup>

54 See on Art. 9 Cooperation also the results of the BETTER project at: <http://www.better-project.net/>

55 However, the difference between both mechanisms might be somewhat blurry in practice because also a joint support scheme might support just one installation (an offshore wind farm) and Member States might agree on a framework for multiple joint projects.

56 Also see <http://www.green-x.at/> and Busch et al., 2014. Cooperation under the RES Directive. Case studies: Joint Support Schemes, available at: [http://res-cooperation.eu/images/pdf-reports/2014\\_Cooperation\\_under\\_the\\_RES\\_Directive\\_Case\\_study\\_Joint\\_Support\\_Schemes.pdf](http://res-cooperation.eu/images/pdf-reports/2014_Cooperation_under_the_RES_Directive_Case_study_Joint_Support_Schemes.pdf)

- Support costs savings, because RES installations are built at preferable sites in a wider geographical region, requiring less support to be economically feasible;

- Reduction of capital expenditure: with the cooperation of several countries, better sites require less RES capacity to produce the same amount of electricity.<sup>57</sup>

Ecofys together with the Technical University Vienna have assessed potential cost savings through joint support schemes in a project on the Cooperation Mechanisms for the European Commission.<sup>58</sup> Two scenarios have been compared: a reference "business-as-usual" scenario (without Cooperation Mechanisms) and the following scenarios including a joint quota system in Scandinavia, a joint FIP system in Central and Eastern Europe and a technology-specific joint support scheme for offshore wind energy.<sup>59</sup>

In the **joint quota system in Scandinavia**, the existing technology-neutral quota system between Norway and Sweden would be extended to Denmark and Finland. Busch et al. find cumulative support cost savings (2015-2020) of about € 60 million (2% of support costs), because preferable sites are used for RES deployment.

However, the implementation of this joint quota system would reduce capital expenditures much more significantly by about € 680 million. The relative small savings in support costs can, to some extent, be explained by the introduction of a technology-neutral support instrument, which would not pass on all the cost savings to the consumers, but which would enable RES-E producers to make "windfall profits" at cheaper sites: in a technology-neutral support scheme all RES producers receive the same support level – those who have very favourable sites might receive more support than they actually need, since their support level is defined by the most expensive sites and technologies (the marginal technologies).

In the **joint FIP system in Central and Eastern Europe**, the involved countries are Austria, the Czech Republic, Hungary and Slovakia. This would generate cumulative support cost savings of € 400 million. Support costs savings can be explained by an optimisation of the resource allocation. Setting up this support scheme would save about 25% of total support costs occurring in the reference case (i.e. without regional cooperation). The implementation of this joint FIP would also reduce capital expenditure by about € 325 million, because preferable sites would be used.

In the **technology-specific joint support scheme for offshore wind energy**, Belgium, Denmark, France, Germany, Ireland, Finland, the Netherlands, Sweden and the United Kingdom would apply a "floating premium payment" (i.e. a payment on top of the market price to compensate the difference between the market price and the required remuneration). This would create the largest cost savings in absolute terms of all three cases, amounting to about € 2.3 billion, which accounts for about 18% of total support costs that would occur in the reference case (i.e. without regional cooperation). These quite substantial savings in support costs are composed of different effects:

- At cluster level, capital expenditures can be decreased by about € 620 million from the shifting of generation capacity from Belgium to Germany and Ireland and improvements in resource conditions.

- Under this joint support scheme, over-support is minimised compared to the reference case: support expenditures might be saved compared to the reference case by changing the support instrument (as in the UK with the replacement of the Renewables Obligation by Contracts for Difference for wind offshore<sup>60</sup>). The same level of additional generation of about 37 TWh leads to support expenditures of about € 4.2 billion in the cooperation case and € 5.3 billion in the reference case.

57 Note that the redistribution of RES capacity has to be assessed against expenditures for additional grid expansion.

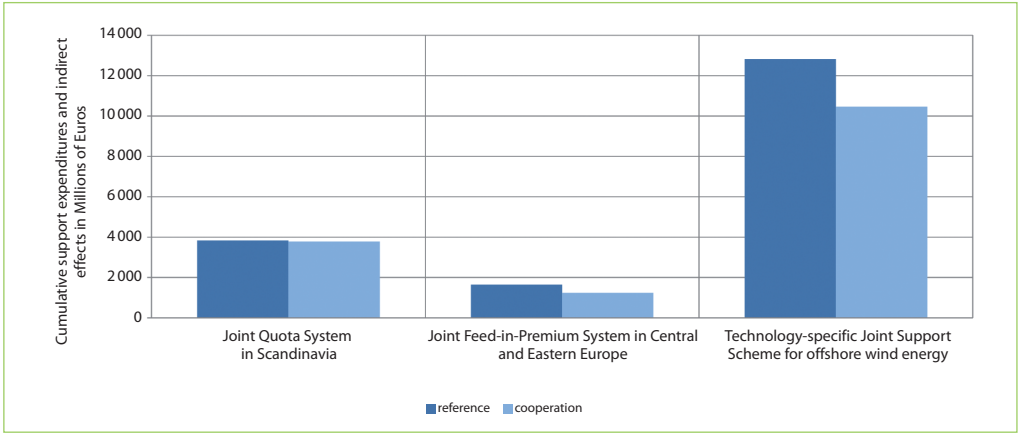
58 Also see <http://res-cooperation.eu/>

59 Busch et al., 2014. Cooperation under the RES Directive. Case studies: Joint Support Schemes.

60 These numbers do not yet include potential savings from installing and operating a joint grid infrastructure as alternative to point-to-point connections, as these costs have not been modelled explicitly.

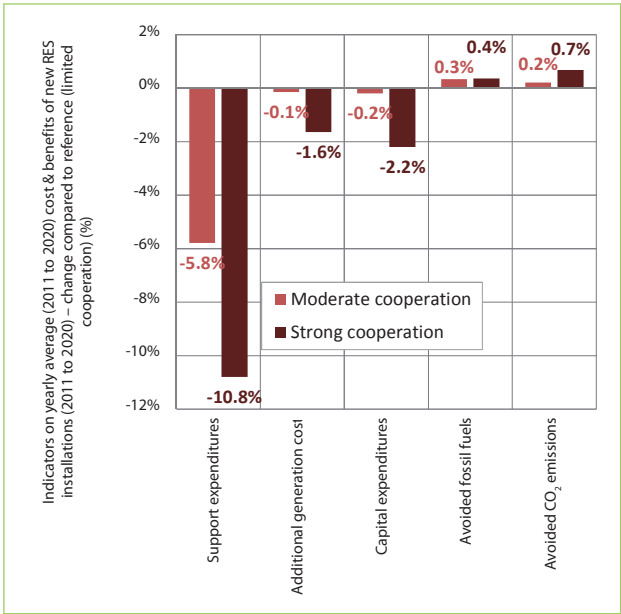
Thus, in these selective cases of regional co-operation, savings in support costs can be found in the range of 1.5% to 25% (see Figure 6).

Figure 6 Cumulative support expenditures in millions of euros in the three case studies displayed for the reference and cooperation cases<sup>61</sup>



In the same project, Resch et al. estimate the following savings potential for 2020 on a European level, compared to a reference case scenario with very limited cooperation (Figure 7).

Figure 7 Deviation from the (reference) case of limited RES cooperation. Indicators on yearly average (2011 to 2020) cost and benefits of new RES installations (2011 to 2020) at EU level for all assessed cases<sup>62</sup>



61 Source: De Visser et al., 2014. Cooperation between EU Member States under the RES Directive and interaction with support schemes. Final report.

62 Source: Klessmann et al., 2014. Cooperation between EU Member States under the RES Directive, available at: <http://www.ecofys.com/files/files/ec-ecofys-tuvien-2014-cooperation-member-states-res-directive.pdf>

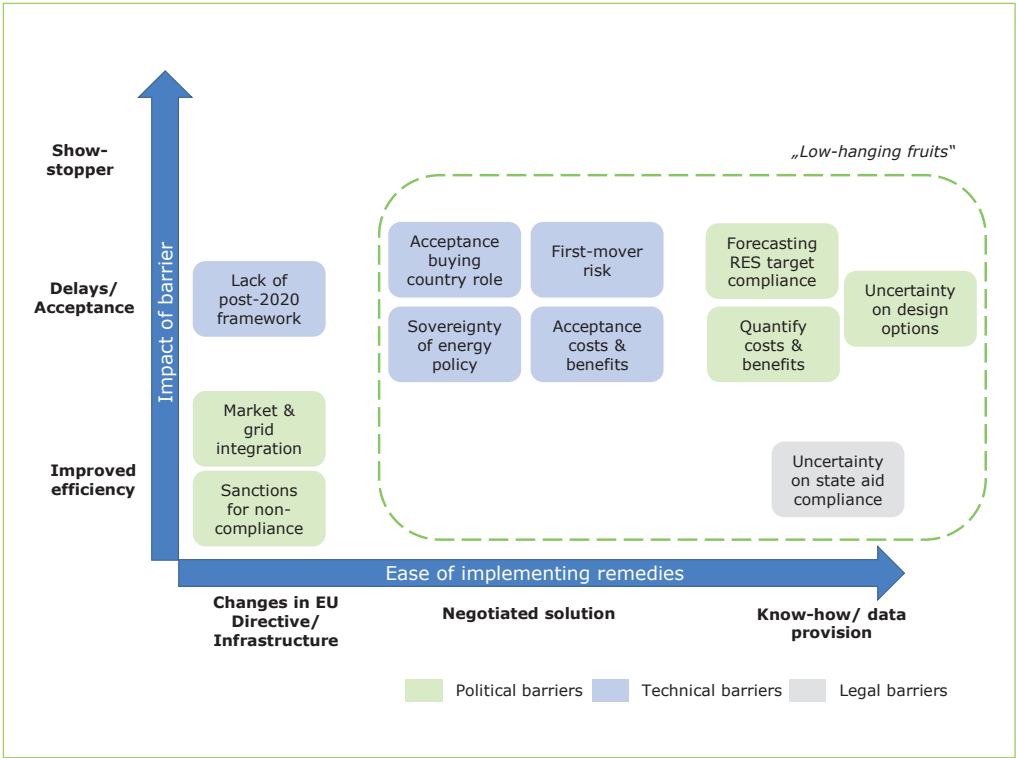


Strong cooperation (albeit not defined as “regional cooperation”) would lead to almost 11% of savings in support expenditure compared to no cooperation taking place. Capital expenditure would decrease by more than 2% and fossil fuels and CO<sub>2</sub> emissions would decrease, as RES deployment would increasingly take place in countries with large fossil fuel shares in the energy mix. Although these assessments are related to the 2020 framework, the results imply that also beyond 2020 cost saving potentials through regional cooperation could be significant compared to a national approach.

4.3.2 Barriers to Cooperation Mechanisms

Despite this immense potential, so far the Cooperation Mechanisms have not been applied.<sup>63</sup> This is mainly due to political, technical and legal barriers. Figure 8 provides an overview of these barriers: barriers are placed according to whether Member States can easily address them (horizontal axis), and according to their impact (vertical axis).

Figure 8 Barriers to Cooperation Mechanisms: impact and difficulty to implement remedies<sup>64</sup>



63 Apart from the Joint Quota System implemented in Sweden and Norway.

64 Source: Klessmann et al., 2014: Cooperation between EU Member States under the RES Directive.

### Political barriers

— There is a challenge regarding public acceptance, especially for the country whose consumers pay for RES deployment beyond their borders.<sup>65</sup> This issue would be relevant also in a post-2020 context, in case electricity consumers in certain Member States pay for RES deployment abroad by means of regional cooperation. Currently, the political will to implement Cooperation Mechanisms is quite limited, as the benefits of cooperation are not clearly communicated and the political risk seemingly outweighs potential advantages so far. Thus, the actual aims of cooperation and the specific benefits related to cooperation need to be publicly defined, explained and discussed in order to generate public support and, ultimately, political will to cooperate.

### Technical barriers

— It is difficult to exactly quantify costs and benefits, especially when taking into account indirect costs and benefits of cooperation (e.g. job effects in each country, grid integration costs if more RES deployment takes place in one country due to cooperation, etc.).

— The design of the specific cooperation is perceived as a barrier, since the possible design options are numerous.

— It is difficult to exactly predict RES deployment until 2020, making it difficult to assess the need for cooperation of a Member State.

— Some Member States argue that they have not used these mechanisms yet, because they have first to ensure that they meet their own targets. However, if joint projects are implemented,

the achievement of the target of the Member State where the joint project takes place, is not a legal issue: Joint Projects are considered to be additional RES deployment.

— The lack of transmission infrastructure constitutes a barrier: some countries want physical effects of RES deployment they pay for abroad and transmission line scarcity is a limiting factor for such effects.

### Legal barriers

— Member States see the potential incompatibility of cooperation with their national legislation as a real obstacle. There is uncertainty among EU Member States on how national legislation will have to be exactly changed to legally allow cooperation to take place.

However, most issues can be successfully dealt with:<sup>66</sup> it is a matter of exploring solutions in detail. It depends on the Member States' political will to drive such solutions forward.

### 4.3.3 Relevance of the Cooperation Mechanisms in a 2030 framework

While the findings are related to the 2020 framework, they are relevant for the post-2020 period. Some of these issues will arise, regardless of the target-setting structure:

— Countries that cooperate regionally will want to know which economic costs and benefits are related to the cooperation and how these can be shared in a way that all participating countries are better off than without cooperation beyond 2020.

65 The envisaged cooperation between the UK and Ireland, which got put on hold in late 2014, is to some observers one example where the benefits of cooperation were not sufficiently identified and explained to the public.

66 Gephart et al., 2014. Cooperation under the RES Directive. Case study: Joint Projects between the Netherlands and Portugal, available at: [http://res-cooperation.eu/images/pdf-reports/2014\\_Cooperation\\_under\\_the\\_RES\\_Directive\\_Case\\_study\\_Joint\\_Projects\\_Netherlands\\_Portugal.pdf](http://res-cooperation.eu/images/pdf-reports/2014_Cooperation_under_the_RES_Directive_Case_study_Joint_Projects_Netherlands_Portugal.pdf). Ten Donkelaar et. al, 2014. Cooperation under the RES Directive. Case study: Statistical Transfer between Estonia and Luxembourg, available at: [http://res-cooperation.eu/images/pdf-reports/2014\\_Cooperation\\_under\\_the\\_RES\\_Directive\\_Case\\_study\\_Statistical\\_Transfer\\_Estonia\\_Luxembourg.pdf](http://res-cooperation.eu/images/pdf-reports/2014_Cooperation_under_the_RES_Directive_Case_study_Statistical_Transfer_Estonia_Luxembourg.pdf). Cusumano et al., 2014. Cooperation under the RES Directive. Case study: Joint Projects/Statistical Transfer between Malta and Italy, available at: [http://res-cooperation.eu/images/pdf-reports/2014\\_Cooperation\\_under\\_the\\_RES\\_Directive\\_Case\\_study\\_Italy\\_Malta.pdf](http://res-cooperation.eu/images/pdf-reports/2014_Cooperation_under_the_RES_Directive_Case_study_Italy_Malta.pdf)

- In a 2030 framework, Member States would want to predict RES deployment in their country, in order to assess the need for cooperation in target achievement.<sup>67</sup>

- All countries will have to make legal changes to existing national legislation (e.g. to support schemes, to electricity laws, etc.) to legally implement regional cooperation.

- Beyond 2020, the specific set-up of such a cooperation has to be defined: this relates to which support scheme is set up, how this support scheme interacts with existing national support schemes, and how target achievement is shared among the members (in case no regional target is implemented).

The implementation of joint projects and support schemes in a 2020 framework was linked to the binding targets set by the 2009/28/EC Directive on national level. Since there are no national binding targets for RES deployment in the 2030 framework, it is difficult to assess efficiency gains against a national “business-as-usual” case. Thus, the actual use of joint projects or support schemes will depend on whether some sort of obligation at national or regional level exists to make this type of cooperation economically attractive compared to the reference case of national RES deployment.

Moreover, their role in the 2030 framework depends on the political will of the European Commission to extend the Cooperation Mechanisms beyond 2020, e.g. either via incentives (see section 4.7), or via the forced opening of national support schemes (i.e. legally implementing the opening of national support schemes in a Directive or enforcing this through the European Commission, based on amended State Aid Guide lines after 2020).

However, regardless of the exact role of the Cooperation Mechanisms in the 2030 framework,

the European Commission should explore (e.g. through studies) the potential economic benefits of cooperation between Member States on support schemes and RES deployment.

#### 4.3.4 Top-down and bottom-up approach

Joint projects and joint support schemes could be implemented top-down and in a binding manner: the European Commission could define that Member State “x” has to cooperate with Member State “y” regarding their support scheme, i.e. meet 50% of its RES target through a joint support scheme. However, such a fully-fledged top-down approach seems politically unfeasible.

Alternatively, the Cooperation Mechanisms could be implemented in a bottom-up and voluntary approach, as in the current framework. However, this seems to be insufficient to actually trigger cooperation, as ultimately domestic RES deployment will politically be valued more than potential cost savings.

A third option is a mixed approach, combining obligatory and voluntary bottom-up elements to enable compromise among Member States. For instance, Member States could be obliged to achieve x% of RES deployment through joint projects or joint support schemes. This would leave Member States the freedom to choose their cooperation partners, the targeted technologies and the scope of cooperation with each partner and, at the same time, would ensure that Member States start using joint projects and joint support schemes. In addition, this approach reflects current developments of several Member States that are considering to open their support schemes. Therefore, this approach would build on existing development and simply scale them up.

67 However, in case Member States have no national targets in the 2030 framework, they would not be incentivised to reach that target more cheaply through cooperation. See also CE Delft et al., 2015. Mid-term evaluation of the RED, available at: [https://ec.europa.eu/energy/sites/ener/files/documents/CE\\_Delft\\_3D59\\_Mid\\_term\\_evaluation\\_of\\_The\\_RED\\_DEF.PDF](https://ec.europa.eu/energy/sites/ener/files/documents/CE_Delft_3D59_Mid_term_evaluation_of_The_RED_DEF.PDF)

## 4.4 Regional RES targets

The 2014 European Council conclusions<sup>68</sup> excluded the breakdown of the EU binding 2030 RES target into national binding targets, unlike the 2020 RES legislative framework.<sup>69</sup> However, they did not explicitly exclude regional targets nor indicative national targets. Hence, the setting up of either binding or indicative regional RES targets could be an option to foster regional cooperation. In this option, Member States within one region would have a common EU RES target. Setting a regional target would add an intermediary level between the EU level and the national level.<sup>70</sup>

The setting of regional targets depends on several elements:

- the definition of the targets as “binding” or as “indicative”;
- the break-down of the EU-wide target to regions and Member States in a top-down or bottom-up approach (through regional pledges);
- the geographical definition of the regions in a top-down or a bottom-up approach (as discussed in section 4.1).

### 4.4.1 Benefits and challenges of regional targets

Advantages of regional targets should be mentioned, regardless of whether the target is binding or indicative, whether it is set bottom-up or top-down, and whether the region is defined in a top-down or bottom-up manner.

Regional targets require Member States to agree on how the regional target should be met, i.e.

whether Member States split up the regional target among themselves or whether they would reach such a target jointly through joint support schemes.<sup>71</sup>

A regional target would trigger a common assessment of cross-border effects of RES deployment, including effects on electricity prices, security of supply, etc.<sup>72</sup> Such assessments have not happened so far under the 2020 legislative framework, although the effects have taken place. A common understanding of these effects is the prerequisite to effectively tackle the unintended consequences of increased RES shares and to boost positive effects (e.g. avoiding loop flows, reducing the demand for generation capacity, increasing security of supply, ensure competition by local actors, etc.). Ultimately, Member States would have an incentive to formulate joint RES strategies, action plans and policies, even if they are not obliged to do so. Formulating such plans would lower the potential for conflict, as unintended consequences can be mitigated and costs and benefits of RES deployment can be jointly analysed and shared. Regional targets can enable a more coherent approach of RES deployment within a region in terms of coordination of infrastructure and RES deployment.

Regional RES targets allow to test innovative approaches among interested Member States (e.g. with regards to joint support schemes) and to move forward in the integration process of the internal market. Regional RES targets allow Member States to cooperate within a wider geographical area, thereby overcoming the boundaries of nation states. In addition, regional targets could result in cost savings compared to national targets (as in the Cooperation Mechanisms).

68 European Council, 2014. Conclusions on 2030 Climate and Energy Policy Framework.

69 As stated in the introduction, the EP has contested the legitimacy of the European Council conclusions of October 2014.

70 The European Council conclusions also did not explicitly exclude national indicative targets, which might be a suitable option to make Member States responsible for reaching the overall EU target. However, in this context we focus on regional targets as the report focuses on the specific added value of regional cooperation.

71 Held et al., 2015. Implementing the EU 2030 Climate and Energy Framework: a closer look at renewables and opportunities for an Energy Union, available at: <http://towards2030.eu/sites/default/files/Towards2030-dialogue%20Issue%20Paper%20on%20Implementing%20the%20EU%202030%20Climate%20and%20Energy%20Framework%20-%20Issue%20Paper%20%232%202015.pdf>

72 Addressing issues of system management should primarily be dealt with through ACER and ENTSO-E, potentially in reformed and strengthened roles. However, these aspects are also influenced by the incentives that support schemes generate and as such cooperation between Member States might also have positive effects on systems management.

However, there are several challenges related to regional targets:

- Regional RES targets (as opposed to national targets) could call into question the social acceptability of RES projects: why would citizens accept a wind project in their backyard, if this wind project would contribute to a target only loosely related to their Member State?

- The legal enforcement of regional targets seems difficult as it seems unclear who would be ultimately responsible for not meeting a RES target.

- Some might argue that a regional target undermines Member States' exclusive right provided in the Lisbon Treaty to determine their energy mix.

- Regional RES targets might induce complexity from an investors' perspective (and not bring about certainty) if a regional target leaves open how much RES deployment has to take place in each Member State.

Addressing these challenges would require further reflection: for instance, the issue of social acceptability could be addressed through adequate communication of the benefits of regional cooperation. The complexity for investors could be reduced if regional targets are embedded into transparent and clear responsibilities for the regions to reach the target.

#### 4.4.2 Definition of the targets as “binding” or as “indicative”

Similar to national RES targets, regional RES targets can be binding or indicative.

Binding targets in the 2020 RES framework bring about several challenges:

- The Council conclusions of October 2014 excluded binding national targets. Setting binding regional targets is likely to trigger political opposition from certain Member States. However, as stated in the introduction, the exclusion of national binding targets through the Council conclusions of October 2014 can be challenged and ultimately the target architecture (and thus the political acceptance of regional approaches) might still change.

- In the 2020 framework, binding national targets have attributed a clear responsibility to each Member State to meet its target. But if binding targets are set up regionally, the responsibility of each Member State to contribute to target achievement becomes blurred. Who would be named and shamed if a regional target is not met? And, more importantly, who would be held legally responsible for not meeting a target? It seems difficult from a legal and political perspective to hold several Member States responsible for not fulfilling part of an agreement/target, if none of the Member States can fully ensure on their own that the regional target is met. Ultimately, each Member State could point to other Member States and shift responsibilities.<sup>73</sup>

However, there would be several advantages related to regional binding RES targets:<sup>74</sup>

- Binding targets have proven crucial to maintain EU Member States' commitments towards 2020 beyond the financial crisis, government changes etc.

- National binding targets have contributed to investor security in many countries, thus limiting the cost of capital and the Levelised Cost of Electricity and would do so also in principle in a regional setup in a 2030 framework.<sup>75</sup>

73 Ways to address this issue would be to explore the concept of “joint and several liability” according to which multiple parties can be sued although it is not clear whether all/several/one/none are liable for a particular event. Another option would be to agree on some kind of regional burden sharing which would ultimately result in a sort of national binding targets.

74 Tesnière et al., forthcoming. Building on the Renewables Directive. The way forward for a new renewables governance system in the EU. Climate Action Network Europe, Greenpeace and WWF.

75 Of course, national targets are one of many components of a stable RES framework. Measures to support RES deployment (i.e. support schemes) and the overall regulatory and investment environment are other important elements of a stable RES framework.

— Last but not least, binding regional targets have not been ruled out in the Council conclusions of late 2014, thus strictly speaking, they are still a political option.<sup>76</sup>

In sum, binding targets are the preferred option from a RES investment perspective. If indicative targets were adopted, they should be combined with obligatory measures that regions have to take in order to ensure target realisation (e.g. provide efficient and effective support schemes for RES to ensure target achievement).

#### 4.4.3 Break-down of the EU-wide target to regions

A key question regarding the 2030 regional target setting would be how the EU-wide target is broken down into the regions. If regional targets were adopted, they would have to make up together at least the EU-wide target of 27%. One option for the Commission is to define regional targets (indicative or binding) in a top-down process. Alternatively, it could publish regional benchmarks for regional pledges.

If a top-down target-sharing among regions is implemented, the European Commission would set regional RES targets (binding or indicative) according to a fixed formula (e.g. the flat rate/GDP approach<sup>77</sup>, according to RES potential or according to a combination of them). Defining the target top-down would ensure that – with the contributions from all regions – the EU meets its binding 2030 target. The target sharing would also be based on a fair and transparent approach.

Alternatively, the regional targets could be fixed in a bottom-up approach, via regional pledges made by the respective Member States. The Commission would have to publish benchmarks showing how to break down the EU-wide

target among regions (again according to a flat rate/GDP approach, according to RES potential or according to a combination of them). As pointed out by Held et al.<sup>78</sup>, such benchmarks would require to encourage sufficiently ambitious pledges. Regions would be free to accept the benchmark or to pledge a higher or lower target. It would be crucial for the European Commission to publish the benchmarks before regions come up with their pledges, in order to have a publicly available reference point to pledge against. The European Commission would in a first step collect the regional pledges and assess whether all pledges together sum up to the overall EU target. In an iterative process the European Commission would discuss the pledges with each region to ensure that all pledges enable the EU to meet or exceed its 27% target.

The advantage of the bottom-up approach is that it grants regions flexibility to define their ambition level through the pledges. This would increase the political acceptability of regional targets. However, regions (and the Member States pertaining to the regions) are likely to commit to low pledges. Hence, the sum of the binding regional targets could end up being less than the EU binding target. Moreover, in this setting exceeding the 27% might even be less likely. The preferred option are thus regional top-down targets. However, if benchmarks with pledges are adopted and if, following several iteration rounds, a gap between regional pledges and the EU target remains, additional measures would need to be taken to achieve the EU 2030 target.

## 4.5 Regional RES target monitoring

The idea of ensuring peer pressure to meet the targets among Member States via regional initiatives has been considered by policy makers in the context of the debate on the 2030 RES framework.

76 As mentioned above, also national indicative targets have not been explicitly ruled out. Thus they could be a suitable option, too.

77 Half of the 2020 RES target was shared among Member States according to a flat-rate approach, i.e. distributed equally across Member States. The remaining part of the overall target was distributed according to the economic strength of each Member State (GDP). This approach did not take into account the RES potentials in Member States, in order to avoid lengthy discussions among Member States.

78 Held et al., 2015. Implementing the EU 2030 Climate and Energy Framework.

The principle is the following: Member States rely on each other to meet their regional target/benchmark. Member States within one region monitor their common RES deployment (e.g. via regular progress reports) and measure it against the target/benchmark. If one Member State is falling behind, it will be expected to catch up. The underlying assumption is that Member States do not want to “underperform,” because they are worried about their image in the European Union and within their region. As a result, peer-pressure will be built up to lead Member States to fulfil their responsibility.

If RES deployment falls behind the agreed trajectory, regional consultation could take place to explore why RES deployment is falling behind. This could address specific non-cost barriers or support-levels for RES deployment in each of the Member States.

However, the concept of regional peer-pressure brings about the following disadvantages:

- A prerequisite for peer-pressure would be to have fully established, functional and widely recognised regions. If a country is not strongly identified with an established region, it will not develop “ownership” for that region and, hence, will not react to a peer-review mechanism.

- The “name and shame”/“peer-pressure” approach has proven to be generally weak, especially when compared to the enforcement tools used in the current 2020 framework, such as infringement procedures. Moreover, if applied to a yet-to-be-established concept of regions, it seems unlikely that a specific Member State will substantially increase its RES deployment efforts, if summoned by regional target monitoring only.

- In the worst case, even the opposite might take place: if challenges occur related to further RES deployment, such as loop flows, RES integration, grid stability etc., members of a region might

seek to pressure other members to reduce their level of ambition.

Against this background, a light touch approach including a regional target monitoring (but lacking compliance mechanisms) seems – by itself – unfit to contribute to the RES target achievement through regional cooperation.

## 4.6 Regional cooperation at a subnational level

Regional cooperation is mainly referred to as cooperation on Member State level within a region. However, potential for cooperation exists on a subnational level, and regions engage in numerous activities within and between sub- and cross-national regions. One example is the “Donauraumstrategie” (Strategy for the Danube region) comprising subnational entities from 14 Member States and seeking to interconnect the Danube region, to promote environmental protection and foster economic development. Several other regions have started to promote cooperation on RES, e.g. Southern Denmark/Schleswig-Holstein. The “Future Renewable Energy” (FURGY) project seeks to bring together SMEs and scientists from both countries to support innovation and technological development.<sup>79</sup> Another example is cooperation within the INTERREG, as introduced in [section 3](#).

The main advantage of subnational regional cooperation relates to the principle of subsidiarity: subnational regions are best suited to promote local development (i.e. RES deployment), when they reflect common characteristics. This includes specific geographic characteristics (e.g. North Sea) or specific infrastructural characteristics (e.g. scarcity of grid access, demand patterns, etc.). Moreover, subnational regional entities may be better suited to allow for the participation of non-state actors: citizens best

<sup>79</sup> The first step of the project is to research small and medium sized enterprises, and research and development institutions in the whole programme region that can bring work or expertise into the value chain of renewable energy and energy efficiency. This is necessary because there is no cross-border knowledge currently. Also see: [http://ec.europa.eu/regional\\_policy/en/projects/denmark/furgy-boosts-renewable-energy-and-energy-efficiency-in-denmark-and-germany](http://ec.europa.eu/regional_policy/en/projects/denmark/furgy-boosts-renewable-energy-and-energy-efficiency-in-denmark-and-germany)



identify to the region they live in (Alps, Basque country, Danube region, Ruhr area, etc.). Local public authorities are often in closer contact to citizens and know best how to organise effective and meaningful spaces for local participation. In addition, the EU is confronted with a wider crisis of representation. In order to address this crisis, the involvement of citizens in the Energy Union is crucial. Subnational regional cooperation and local public authorities are potentially strong means to support and facilitate citizens' involvement in EU matters.

In a 2030 framework, subnational regional cooperation could play a role in several ways. First, regions could be the starting point for joint regional projects and support schemes. They could propose joint regional projects or support schemes based on their shared characteristics, e.g. offshore wind deployment in the North Sea. Member States would then agree that part of their RES deployment will take place in that specific region and combine efforts by creating a common support scheme (e.g. RES auction) for that region.<sup>80</sup> Regions already take up this role in the current 2020 RES framework, but their role in setting up joint regional projects and/or support schemes could be strengthened in the 2030 framework through consultations guided by the European Commission.

Secondly, subnational regions could play an integrated role in the regional policy planning and submit their plans to the consultation process between Member States and the Commission (i.e. the participating parties in the regional consultation process would comprise of the Member States, the European Commission and representatives of the regions). The EC could make the involvement of subnational regions in drafting the plans mandatory, as a means to support citizens' involvement in policy planning. As subnational regions are often cross-border, they are specifically suited to inform the regional consultation process on Member State level. A fixed item in this consultation process could be the possibility for regional joint projects.

Thirdly, subnational regions could cooperate to align spatial planning and licencing procedures, possibly in relation to a regional support scheme. While some of this regulation is related to the national level, some spatial and licensing procedures are defined on regional level and could be aligned and harmonised in cross-national regions to facilitate RES deployment and to reduce related costs.

In a post-2020 framework and within a comprehensive governance framework, subnational regions could and should play a significant role in reaching the EU-wide RES target of at least 27%.

## 4.7 Incentives for regional cooperation

As we have seen, several types of regional cooperation already exist. But, regional cooperation lags behind in its potential. Additional incentives might be helpful to trigger regional cooperation.

### 4.7.1 Financial incentives

One way of promoting regional cooperation is to provide financial incentives:

The European Regional Development Fund & Cohesion Fund (ERDF & CF) could be used to incentivise regional cooperation. Already from 2014 to 2020, a minimum share of each region's ERDF has to be invested in measures supporting the shift towards a low-carbon economy, targeting the energy efficiency and RES sectors. This minimum share ensures an investment of at least € 23 billion for 2014-2020 from the ERDF, with further investments coming from the Cohesion Funds (about € 36 billion). A minimum share of the ERDF could be earmarked solely for regional RES investments: 20% of available funding shall be directed to RES projects in more developed regions, 15% in transition regions, and 12% in less-developed regions.

The advantage of using the ERDF is that the structural funds already exist, and entail an earmarking including RES investments. Under the

80 Such a regional joint support scheme could also entail measures to ensure participation of local community projects.

2007-2013 programmes, € 3.5 billion from the Member States operational programmes (or 79% of all funding planned which amounted to a total of € 4.4 billion) had effectively been allocated to RES projects by the end of 2013. Specific earmarking for regional RES projects could be created.

INTERREG is part of the ERDF. Its structure could be enhanced and funds could be earmarked for RES deployment.<sup>81</sup> Funding opportunities for subnational regions could be strengthened. Moreover, funds from the European Investment Bank (EIB) will be made available via the European Fund for Strategic Investment (EFSI) for investments in energy efficiency, RES and energy infrastructure. EFSI is set to start by September 2015. Eligible projects can receive financial securities from the EU budget and thereby receive private sector financing more easily and cheaply. The EFSI could also play a role in providing financial incentives for regional cooperation.

Moreover, the so-called “Projects of common interest” (PCIs) could play a role in providing financial incentives for regional cooperation. The European Commission has drawn up a list of 248 projects, which may benefit from accelerated licencing procedures, improved regulatory conditions, and access to financial support totalling € 5.85 billion from the Connecting Europe Facility (CEF) between 2014 and 2020.<sup>82</sup> So far, the majority of projects involve electricity and gas transmission lines.<sup>83</sup> However, in view of the 2030 framework, this framework could also be used to explicitly support regional RES deployment (requiring a redefinition of the current eligibility criteria, which so far focus on *“the timely development and interoperability of priority corridors and areas of trans-European energy infrastructure”*).

For funding (be it under INTERREG, ERDF, CEF, or EFSI), a dedicated project pipeline for regional cooperation for RES could be established. An upfront template for project applications and a transparent set of selection criteria could help to turn funding opportunities into concrete projects. A project could be required to improve security of energy supply within a region, e.g. a Concentrated Solar Power, offshore wind or hydro project<sup>84</sup> with connection to more than one Member State or with credible positive cross-border effects on security of supply (for instance by means of offering balancing services across borders). In this approach, transparent criteria would also have to be defined to avoid simply counting any project with a cross-border effect as a “regional project”. The decision on such criteria should include the European Parliament to include sufficient legitimacy of the envisaged character of regional projects.

- EU co-financing could be provided by means of upfront-payments, which would significantly lower capital costs - a large cost component in RES projects. Upfront-payments would be combined with production support (potentially from the involved Member States) to ensure that RES installations receive adequate incentives.

- Involving EU funding could potentially lower capital costs in countries that have higher investment risks, by providing a reliable EU financing, thereby making regional RES projects more bankable.

- Member States could also organise tenders together with the EC to ensure that the most cost-effective projects are selected by introducing competition between them. In this case, a distribution of available funds should be defined (between more developed regions, transition regions and less-developed regions) to ensure that tenders lead to a level playing field for competing projects.

81 So far INTERREG has not directly financed support schemes, but it could potentially do so in the 2030 framework.

82 Under the first round of CEF funding in 2014, € 647 million was allocated to PCIs.

83 There has been major critique of the bias of CEF funding towards gas projects. E3G has argued that “Gas demand in Europe has fallen by 9% over the last decade, but gas projects are currently evaluated against scenarios that assume 72% higher EU gas demand in 2030 than would be the case if the proposed 30% energy efficiency target for 2030 is met.” E3G, 2014. Energy Security and the Connecting Europe Facility: Maximising public value for public money, available at: [http://e3g.org/docs/E3G\\_Energy\\_Security\\_and\\_the\\_Connecting\\_Europe\\_Facility\\_110914.pdf](http://e3g.org/docs/E3G_Energy_Security_and_the_Connecting_Europe_Facility_110914.pdf)

84 It is important to note that hydro projects would have to follow strict requirements regarding environmental impact assessments to avoid unintended negative externalities (e.g. negative effects on biodiversity, etc.).

#### 4.7.2 Malus for lack of regional cooperation

A malus system could be put in place to sanction the lack of regional cooperation: Member States who decide to reach their RES target only nationally could be required to reach a higher RES share than their target or benchmark: for every percentage point achieved nationally, they have to increase their RES share by a factor of 1.1. If they reach all of their increase in RES share through regional cooperation, they would end up with the actual RES share indicated by the target or benchmark. Thus, if all Member States planned to reach their entire increase of RES share through regional cooperation, the EU would end up with an “at least 27%” RES share in 2030 – if not, this share would be higher. Of course, this approach would require meaningful national benchmarks or targets.

Alternatively, if no national targets are established within the 2030 framework, the EC could require that a maximum of 25 percentage points of the 27% target are achieved nationally. The missing share of at least 2 percentage points would have to be delivered through regional efforts (i.e. through joint targets, joint projects, and or joint support schemes). The legal basis for this proceeding would be the October Council conclusions, which supported the role of regional cooperation.

#### 4.7.3 Making regional cooperation mandatory

As an alternative, the EC could require that e.g. 25% of the overall EU target of at least 27% is achieved nationally and 2% is achieved via regional projects. This would impact Member States’ RES deployment plans. The plans would have to state e.g. that 95% of RES deployment will be performed nationally and 5% regionally (i.e. through joint targets, joint projects, and/or joint support schemes). The legal basis for this proceeding would be the October Council conclusions, which support the role of regional cooperation.

The most straightforward way to enhance regional cooperation is to make it mandatory, on the basis of a framework obligation (for instance, as implemented in the Water Framework Directive, which requires basin planning for transboundary watercourses/basins). This approach, of course, would not count as an “incentive” in a strict sense anymore. In this case, it seems advisable to combine such an obligation with sufficient flexibility for Member States to cooperate with whoever they want (as described above in the obligation to achieve x% of RES deployment through regional joint projects or joint support schemes).

## 5 Conclusions and policy recommendations

This report aimed at exploring how regional cooperation could be strengthened within the 2030 governance in order to reach and exceed the target proposed by the EU Heads of State or Government of at least 27% RES by 2030. It started from the assumption that ambitious 2030 RES targets together with a strong governance framework are required from 2020 to 2030.<sup>85</sup>

The report shows that numerous cooperation fora already exist and have provided positive results on regional cooperation, which indirectly support RES deployment. While a lot has been achieved, a “quantum leap” in regional cooperation is required to address important issues related to the further deployment of RES from 2020 to 2030 and to effectively bridge the gap between national RES policies and a Europeanised approach to RES deployment.

**Regional cooperation in policy planning** will be crucial to better coordinate national policies. The European Commission should take a strong role in guiding regional cooperation in policy planning, based on regular assessments of cooperation opportunities and benefits. Subnational regions should be part of this regional consultation and policy planning process, as they are often set up across borders, and therefore specifically suited to inform the regional consultation process on Member State level.

**Joint regional projects and support schemes** should play an important role in the 2030 framework. Support schemes will play a continued role in RES deployments beyond 2020. They will, at least partially, be organised nationally in a 2030 framework. In order to combine national support schemes with a regional approach, joint regional projects and support schemes are required.

**Regional RES targets** have the advantage of strongly fostering regional coordination. The EC would have to ensure that the overall EU target of at least 27% RES share is met by the regional targets. It is also crucial to ensure that regional targets strengthen the effectiveness of the EU target and do not weaken it. It remains completely open how regional liability in terms of infringement procedures would look like. Thus, while regional cooperation should be strengthened, Member States’ accountability within regional cooperation should be defined as clearly as possible.

**Regional RES target monitoring**, i.e. monitoring targets only on a regional level via peer-pressure, has been proposed in the political debate. It proves to be a weak option to ensure an adequate level of ambition and reliability on Member State level, if applied without other measures.

**Regional cooperation at subnational level** is multifaceted: thus, the role of subnational regions would have to be clearly defined in a 2030 framework. Subnational regions should play a crucial role in drawing up the national – or regional – energy plans.

**Financial incentives** should be provided for regional cooperation, including under the European Regional Development Fund & Cohesion Fund, INTERREG, the Connecting Europe Facility, and the European Fund for Strategic Investment or in the context of the Projects of Common Interest. A dedicated project pipeline for regional cooperation on RES could be established requiring an upfront template for project applications and a transparent set of selection and/or qualification criteria to turn funding opportunities into concrete regional cooperation projects.

85 Including transparent, clear and binding obligations/commitments on Member State level.

It seems increasingly obvious that a bottom-up approach is more acceptable to Member States than top-down elements imposed by the European Commission. However, limiting regional cooperation to bottom-up approaches is unlikely to move things forward, in areas which are not consensual and which represent a political risk for Member States (in terms of public acceptance). And progress is required toward 2030. Thus, a mix of top-down and bottom-up elements seems adequate.

This report presents a variety of options for strengthening regional cooperation. This will help to achieve and even exceed the binding EU target of at least 27% RES in the Energy Union and to bridge existing gaps between citizens, subnational regions, Member States, and the EU. However, regional cooperation has to be embedded into a strong and reliable RES framework in order to deliver its potential.

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The European Commission, the European Council, and the European Parliament have all repeatedly called for more regional cooperation in the context of the 2030 climate and energy framework and the Energy Union debate. Regional cooperation can effectively bridge the gap between national renewables policies and a Europeanised approach to renewables deployment. While multiple formats of regional cooperation already exist, a “quantum leap” in regional cooperation is required to address the further deployment of renewable energy from 2020 to 2030.

But how can regional cooperation be strengthened within the 2030 governance and how can it help to reach and even exceed the binding EU target of at least 27% renewable energy by 2030?

This is the guiding question addressed in this study. The result is a variety of policy recommendations for substantially enhancing regional cooperation in the Energy Union. Regional cooperation has the potential to strengthen the renewable energy framework. But it might also weaken it if responsibilities are not clearly distributed between the European Commission, Member States and regions. This study analyses what types of cooperation could develop and explores how regional cooperation can effectively contribute to a European energy transition.

