

# EU Governance of Renewable Energy post-2020 – risks and options

*A report for the  
Heinrich-Böll-Stiftung European Union*

Tomas Wyns  
Arianna Khatchadourian  
Sebastian Oberthür

Institute for European Studies - Vrije Universiteit Brussel  
December 2014

*For more information please contact:*

Tomas Wyns  
Institute for European Studies, Vrije Universiteit Brussel  
Pleinlaan 5, 1050 Brussels, Belgium  
E-mail: [Tomas.Wyns@vub.ac.be](mailto:Tomas.Wyns@vub.ac.be)  
Website: [www.ies.be](http://www.ies.be)

Heinrich-Böll-Stiftung European Union  
15 Rue d'Arlon - 1050 Brussels - Belgium  
Tel: +32 2 7434100  
Fax: +32 2 7434109  
E-mail: [info@eu.boell.org](mailto:info@eu.boell.org)  
Website: [www.eu.boell.org](http://www.eu.boell.org)

*The views expressed in this publication are those of the authors alone. They do not necessarily reflect the views of the Heinrich-Böll-Stiftung European Union.*

## **Preface**

*The European Union (EU) has put forward key elements of the climate and energy framework for the next decade. In order to reach its climate, security and competitiveness goals, the EU must decarbonise its energy system. The share of renewable energy sources in the energy mix should reach at least 27 % by 2030 according to the European Council decisions from October 2014. While this is far from ambitious, the agreement on a post-2020 renewables target reflects the need for continued support for renewable energy sources.*

*A clear and stable policy framework for renewables is crucial to create investment and investor certainty for the years to come. In the current climate and energy framework, the EU has committed itself to increasing its renewables share to 20 % by 2020. This European target was then translated into binding national targets, as embedded in the 2009 Renewable Energy Directive. Nationally binding targets were a key determinant of the growth of renewables across Europe. In contrast, under the current set of proposals for the post-2020 framework, the renewables target will only be binding at EU level and not at Member State level. It remains unclear what this means for compliance and investor certainty. The absence of binding national targets could have a detrimental effect on national renewable energy supporting policies in some EU Member States.*

*Policy uncertainty about future support for the deployment of renewable energy can lead to uneven growth in renewable energy generation. This puts further integration of the European energy market at risk. It also contradicts the notion of a European Energy Union, which strives for closer cooperation and coordination of Member States' energy policies.*

*A crucial question is therefore: How can the post-2020 climate and energy framework, even without nationally binding targets, set the necessary conditions to further enhance the growth of renewables across the European Union?*

*Together with the 2030 targets, the EU also proposed the development of a new governance system. This system seeks to establish a middle ground between Member States' freedom to determine their energy mix and the goals and legislation at EU level. So far, however, it remains largely unclear what this means and, in particular, to what extent such a governance mechanism can guarantee compliance with the EU-wide binding renewable energy target of at least 27 %.*

*The Heinrich-Böll-Stiftung European Union has commissioned the Institute for European Studies (IES) at the Vrije Universiteit Brussel (VUB) to explore the options for the post-2020 EU renewable energy policy and governance system. The report 'EU Governance of Renewable Energy post-2020 – risks and options' provides innovative ideas for the current debate on future EU energy governance and renewables policy in order to accelerate the transition to a renewables-based energy system in Europe.*

**Silvia Brugger**

*Director Climate and Energy Programme, Heinrich-Böll-Stiftung European Union*

# Table of Contents

<b>1. Introduction.....</b>	<b>1</b>
<b>2. The current EU Renewable Energy Directive and how it relates to post-2020 proposals.....</b>	<b>4</b>
2.1. General Objective & Obligations .....	4
2.2. Mechanisms supporting the deployment of renewable energy.....	5
2.2.1. Listing the mechanisms.....	5
2.2.2. What happens to these mechanisms after 2020?.....	7
2.3. Compliance & Enforcement in the Directive .....	10
2.4 The European Commission’s and European Council’s visions on Renewable Energy post-2020.....	12
<b>3. Examples of renewable energy policy outside Europe and possible lessons for post-2020 .....</b>	<b>18</b>
3.1. The use of Renewable Portfolio Standards in the United States of America .....	18
3.2. Investments and Renewable Energy Targets: The opposite cases of Chile and Australia .....	21
<b>4. Lessons on governance from the European Semester, EU ETS and Energy Efficiency Directive.....</b>	<b>22</b>
4.1. Europe 2020, Economic Governance and the European semester .....	22
4.2. Governance under the EU ETS.....	28
4.3. The EU Energy Efficiency Directive .....	31
<b>5. Tools to enhance post-2020 EU Renewable Energy Policy and governance .....</b>	<b>33</b>
5.1. Increasing investment certainty and access to finance for renewable energy .....	33
5.2. Signposts towards a rules-based post-2020 EU energy governance framework .....	37
<b>6. Conclusions: options to enhance the post-2020 EU Renewable Energy Directive.....</b>	<b>40</b>
6.1. Framing the (need for a) review of the EU Renewable Energy Directive. ....	40
6.2. Options to enhance the EU Renewable Energy Directive.....	40
<b>7. References.....</b>	<b>44</b>

## **1. Introduction**

Following the European Commission's 2030 climate and energy communication of January 2014 and the EU Council of October 2014, it is expected that the EU's post-2020 renewable energy and energy efficiency policy framework will alter significantly. One major difference would be the removal of nationally binding renewable energy targets after 2020. This change could have a significant impact on the chances for the EU to meet its own binding 2030 renewable energy target. The risk that this non-binding bottom-up approach does not deliver the EU 2030 target could be significant given that several Member States are currently not on track to meet their (lower) binding national targets for 2020. To mitigate this concern, the European Commission considers the introduction of a new energy governance system that seeks to address the middle ground between Member States' increased flexibility (including the competence on its energy mix) and the goals set at EU level. However, little is known about this proposed governance system, most importantly if it will succeed in bringing about the EU-wide target.

This paper's goal is to explore what a post-2020 EU renewable energy policy and governance system might look like and what the options are to secure enhanced deployment of renewable energy across the EU, even in the absence of nationally binding targets.

The paper starts by looking back at the design of the current EU Renewable Energy Directive and in particular its obligations and mechanisms. The paper simulates a scenario in which the EU Renewable Energy Directive is not reviewed before 2020. This scenario highlights the important role for National Renewable Energy Action Plans and the reporting thereof. This is further elaborated in the following section that deals with compliance and enforcement measures in the Renewable Energy Directive.

The paper next features the concepts on post-2020 energy governance as proposed by the European Commission and the European Council. Using the information available, a table has been constructed to illustrate how this proposed governance framework relates to the existing EU Renewable Energy Directive. This assessment shows that the current state of post-2020 EU renewable energy policy introduces a certain level of policy or regulatory uncertainty.

Section 3 looks at three non-EU renewable energy policies and elements in them that could offer lessons for the further development of post-2020 renewable energy policies in the EU. The first example is the introduction of Renewable Portfolio Standards (RPS) at State level across the United States. This example can be useful since it represents a bottom up introduction of renewable energy targets in the absence of targets at federal level. The second and third examples are the recent renewable energy policy developments in Chile and Australia. The two countries essentially represent two extreme sides of the renewable energy target-setting spectrum in that Chile has recently augmented its renewable energy target, while Australia has moved to abolish

its existing target. These two decisions have significant impacts on future investments in renewable energy in these countries.

Section 4 broadens the scope again but this time towards existing EU governance systems and lessons that can be learned from these systems. The experience with EU economic governance (including the European semester) could be relevant for future EU energy governance since it represents an advanced form of the open method of coordination and because it has been operational for a few years now. The EU Emissions Trading System (ETS) and in particular its first two phases (2005-2007 and 2008-2012) are of interest because of EU-wide target (cap) setting through a bottom-up process from national allocation plans. The Energy Efficiency Directive (EED) is of interest because it is expected that future EU energy governance will seek to streamline renewable energy and energy efficiency reporting. Furthermore, the EED introduced new concepts such as indicative national targets and binding sub-targets (or policies with similar impact) that could be considered under a reviewed EU Renewable Energy Directive.

Section 5 takes a deep dive into two elements that were highlighted by the European Commission in its 2030 energy and climate communication: enhancing investor certainty and the streamlining of energy planning and reporting. The section starts by introducing the important elements of investor certainty and risk mitigation for renewable energy projects. While the current Directive includes mechanisms to remove regulatory investment barriers, it has limited mechanisms for policy and finance risk mitigation.

The paper next looks at other elements that could be considered as part of future EU energy governance. The main focus will be on the streamlining of the two main horizontal EU tools, namely the EU Energy Efficiency Directive and the Renewable Energy Directive. The section also initiates a discussion on how other EU energy legislation could be integrated in this governance framework and how an additional governance and coordination layer could be added through an intergovernmental agreement.

Finally, Section 6 brings together the lessons and recommendations formulated earlier in this paper. The goal is to outline a theoretical blueprint of how the existing Renewable Energy Directive could be reformed after 2020. This reform is necessary because important elements such as the reporting obligations (and linked measures) in the Directive will expire in 2020. The need for reform is further strengthened by the political agreement in the EU to increase the EU's renewable energy target by 2030, though the target will most likely not be translated in national sub-targets. The third reason for reform follows from the European Commission's and the European Council's proposal for a new governance framework (still to be specified) post-2020, that intends to streamline existing renewable energy and energy efficiency obligations and enhance investor certainty.

Such a review of the EU Renewable Energy Directive needs to consider what the (new) legal principles or concepts are that can be introduced to strengthen the Directive in the absence of binding national targets. In other words, how can

these principles enhance investor certainty, reduce policy risk, improve finance, enhance cooperation between Member States and remove other barriers?

The paper concludes by formulating a non-exhaustive list of policy proposals that could become part of a legal revision of the current Renewable Energy Directive.

## 2. The current EU Renewable Energy Directive and how it relates to post-2020 proposals

This section starts by looking back to the design of the current EU Renewable Energy Directive and in particular its obligations and mechanisms. The paper simulates a scenario in which the EU Renewable Energy Directive is not reviewed before 2020. This scenario highlights the important role for National Renewable Energy Action Plans and the reporting thereof. This is further elaborated in the following section that deals with compliance and enforcement measures in the Renewable Energy Directive.

The paper next looks at the concepts on post-2020 energy governance, as proposed by the European Commission and the European Council, to analyse how the EU's Renewable Energy Directive could be affected.

### 2.1. General Objective & Obligations

The 'general objective' of the EU Renewable Energy Directive 2009/28/EC is to achieve at least a 20 % gross final consumption from renewable sources in the EU by 2020.<sup>1</sup> To achieve this, the Renewable Energy Directive allocates nationally binding targets to each of its Member States, which must be reached by the end of 2020, while providing for additional interim targets through an indicative trajectory to be met at specific times along the way.

The Renewable Energy Directive sets out the requirement for Member States to adopt 'mandatory national overall targets'. These mandatory national overall targets are 'consistent' with the 20 % target share of 'energy from renewable sources' of the EU's 'gross final consumption of energy in 2020'.<sup>2</sup> The gross final renewable energy consumption indicates the total share of energy actually consumed by each Member State from the different energy sectors (e.g. heating and cooling, electricity, and biofuels/bioliquids).<sup>3</sup>

In addition to the national overall targets, each Member State is required to produce a 'National Renewable Energy Action Plan' (NREAPs) that shows how the Member State plans to achieve their binding national targets. This includes breaking down the renewable energy shares from the different sectors (i.e. transport, electricity and heating and cooling) and setting targets for each sector. The national overall targets have been calculated and listed for each Member State in Annex I of the Directive,<sup>4</sup> along with an 'indicative trajectory'<sup>5</sup> against which each Member State must measure its progress within different time periods (the next expected periods being in 2015-2016 and 2017-2018).

The Renewable Energy Directive does acknowledge various 'starting points and potentials' of EU Member States, hence the Directive allocates different

---

<sup>1</sup> Directive 2009/28/EC: provision 96.

<sup>2</sup> Ibid., Article 3(1), Article 4.

<sup>3</sup> Ibid., Article 4; Article 5(1)a-c.

<sup>4</sup> Ibid., part A of Annex I.

<sup>5</sup> The Indicative Trajectory is referred to in Article 3(2), with details regarding the formula for calculating the percentage target and dates in Annex I, 2009/28/EC.

renewable energy targets to Member States. Furthermore, the NREAPs of Member States allow a degree of flexibility in choosing preferred approaches and areas of focus allowing for Member State to harness and develop their strengths.

## **2.2. Mechanisms supporting the deployment of renewable energy**

### *2.2.1. Listing the mechanisms*

Next to the binding renewable energy targets and trajectories, the Directive contains important mechanisms and measures to be implemented both at the national level and at the European level to facilitate favourable conditions or eliminate barriers for renewable energy growth. The Renewable Energy Directive clearly states that: *'Member States shall introduce measures effectively designed to ensure that the share of energy from renewable sources equals or exceeds that shown in the indicative trajectory set out in part B of Annex I'* (emphasis added).<sup>6</sup> This demonstrates the binding nature of Member States' obligations to ensure *favourable conditions* for growth in renewable energy by implementing the measures and mechanisms necessary for the achievement of the interim targets.

The NREAPs<sup>7</sup> and the bi-annual reporting on their implementation<sup>8</sup> can be regarded as the key governance tools throughout the Directive.

Through the NREAPs, Member States provide their 'expected final energy consumption' for 2020, along with a breakdown of the national sectoral (electricity, transport, heating and cooling) estimated shares and targets including the indicative trajectory and conditions for assessment.<sup>9</sup> The NREAPs should provide a detailed roadmap of how each State endeavours to reach its allocated 2020 binding renewable energy target. The NREAPs also require Member States to indicate the 'measures [taken] for achieving the targets', which extends to include the policies, measures and mechanisms (see below) implemented.<sup>10</sup> The NREAPs together with the reporting of their implementation serve as the central mechanism, or point of reference from which compliance and progress can be tracked. This allows for corrective actions, in case of underperformance, to rectify the situation. The European Commission developed an NREAP template and guidance to ensure harmonisation of implementation across the 28 Member States, thereby facilitating the monitoring and reporting process.<sup>11</sup>

Member States were required to formally submit these national action plans by June 2010. From 2011 and every two years thereafter, Member States are required to submit progress reports, on their respective achievements on the 'promotion and use of energy from renewable sources' in accordance with the target goals and requirements put forward in the NREAPs. This also includes

---

<sup>6</sup> Directive 2009/28/EC: Article 3(2).

<sup>7</sup> Ibid., Article 4.

<sup>8</sup> Ibid., Article 22.

<sup>9</sup> Ibid., Annex VI, 1-4.

<sup>10</sup> Ibid., Annex VI, 3.

<sup>11</sup> Directive 2009/28/EC: Article 4.

reporting on the implementation of the other mechanisms, as listed below, such as the removal of administrative barriers for the deployment of renewable energy.

The NREAPs (including the reporting on their implementation) therefore serve as an important central platform because they steer and monitor the national implementation of the other mechanisms and measures (listed below). This includes the enhanced coordination among Member States.

The following mechanisms aim to allow flexibility and promote intra-European coordination:

#### *Statistical Transfers*<sup>12</sup>

Member States can mutually agree to statistically (virtually) transfer their excess produced renewable energy to another Member State, thus counting towards the national renewable energy target of the latter.<sup>13</sup> This enables Member States with excess production, and those States in need of more renewable energy shares, to mutually benefit from the exchange, while allowing the latter to meet its national targets.

#### *Joint Projects*<sup>14</sup>

Two or more Member States can cooperate to finance (and implement) a renewable energy project thereby sharing the costs and benefits in the endeavour. There is also a provision for cooperation with Non-EU Member States.<sup>15</sup> These joint projects can assist in the development of renewable energy projects while reducing the burden and risk of investment. Additionally, it facilitates cooperation among Member States towards the overall EU 2020 target.

#### *Joint Support Schemes*<sup>16</sup>

Two or more Member States can coordinate their national support schemes for renewable energy generation.<sup>17</sup> The joint support schemes should enable Member States to jointly move the realisation of their renewable energy targets in a cost-effective manner but also facilitate the overarching aim of completing the internal energy market.

The following mechanisms have the goal of reducing barriers and enhancing the conditions for the deployment of renewable energy, within and between Member States.

#### *Administrative Procedures, Regulations and Codes*<sup>18</sup>

The Directive provides a list of procedures and measures that need to be implemented by Member States regarding renewable energy 'authorisation,

---

<sup>12</sup> Directive 2009/28/EC: Article 6.

<sup>13</sup> Bistola, 2012.

<sup>14</sup> Directive 2009/28/EC: Article 7.

<sup>15</sup> Klessmann, 2010.

<sup>16</sup> Directive 2009/28/EC: Article 1.1.

<sup>17</sup> Bistola, 2012.

<sup>18</sup> Directive 2009/28/EC: Article 13.

certification and licensing procedures'. Member States need to take the 'appropriate steps' to ensure the optimisation, and compatibility of decentralised renewable production sources and of renewable energy transfers between Member States.<sup>19</sup>

#### *Guarantees of Origin<sup>20</sup>*

The Directive introduces so-called guarantees of origin. It is a certificate system which proves that the electricity (MWh) has been produced from a renewable energy source, and the type of technology used to create the energy. The guarantees of origin are tradable between the EU Member States (including Switzerland and Norway). The use of guarantees of origin can enhance intra-European cooperation, while providing assurances that the electricity generated is from a renewable energy source. It increases transparency among such agreements for consumers by enabling the producing Member States and sources to be traced.

#### *Access to and Operation of the Grids<sup>21</sup>*

Member States need to ensure that grid operators do not discriminate against renewables with respect to administrative, procedural, cost or physical connection barriers. Priority access for renewable energy producers to the grid has to be provided. Appropriate steps need to be taken to further develop the national and cross-border 'transmission and distribution infrastructure', including 'intelligent networks, storage facilities and the electricity system'. Interconnections between the Member States as well as grid connections to renewable sources need to be improved.<sup>22</sup>

#### *Transparency Platform<sup>23</sup>*

The Transparency Platform is an online platform established by the European Commission which aims to 'facilitate and promote cooperation' between Member States through, for example, the NREAPs, joint projects and statistical transfers.<sup>24</sup> The platform allows for the developments and progress of the Member States to be monitored and broken down, thus allowing for effective monitoring on the current trajectory (and potential divergences if occurring) of the individual States, as well as highlighting the degree of their non-compliance.

#### *2.2.2. What happens to these mechanisms after 2020?*

Because the above-mentioned mechanisms, including the NREAPs and the related reporting form an important part of the current Directive, it is worth simulating what would happen to these elements if the Directive is not reviewed for application post-2020.

Table 2.1 below shows that the successful deployment of these different mechanisms depends on the implementation through the NREAPs and on the

---

<sup>19</sup> Peeters, 2014: p. 39.

<sup>20</sup> Directive 2009/28/EC: Article 15.

<sup>21</sup> Ibid., Article 16.

<sup>22</sup> Peeters, 2014.

<sup>23</sup> Directive 2009/28/EC: Article 24.

<sup>24</sup> DG Energy, 2014.

reporting thereof by the Member States. There are however sunset dates in the Directive. The NREAPs only run until the end of 2020. The bi-annual reporting by Member States on their implementation of the Directive and of their NREAPs ends in 2021.

Abrupt discontinuation of the NREAPs post-2020 could lead to the strange situation of Member States being in non-compliance with their 2020 targets after 2020. A continuation of the NREAPs would therefore be required to cement the *acquis communautaire* in the current EU Renewable Energy Directive.

Even in the absence of nationally binding targets after 2020, such long-term planning is important to safeguard the cost-effective deployment of renewable energy, in particular with the goal of reducing policy uncertainty and its impact on financing.<sup>25</sup> It could however be considered to keep the NREAPs in a binding form, e.g. in a consolidated form with the National Energy Efficiency Action Plans (NEEAPs). This option is further elaborated in Section 5 of this paper.

A second point of concern is the disappearance of the (binding) bi-annual reporting after 2021. The successful implementation of most, if not all, of the mechanisms in the Directive depends indirectly on the reporting by Member States. Without access to these reports, the European Commission would become partially blind to possible non-compliance by Member States.

**Table 2.1: Mechanisms in the Renewable Energy Directive and their dependence on Member States’ reporting obligations.**

Directive 2009/28/EC	Analysis	End of obligation period or final reporting
<i>NREAPs</i> (Article 4)	<p>The NREAPs serve as a roadmap for Member States towards the 2020 target. As such, they provide minimum requirements (see 2009/28/EC, Annex VI) for the goals and measures of different mechanisms.</p> <p>The article specifies that Member States only need to provide their ‘estimated’ projections for Article 6-11 ‘until 2020’. This indicates that the obligation ceases post-2020.</p>	The year 2020 would see the end of the obligation period. This is specified in: Article 4(3)a & b.
<i>Statistical Transfers</i> (Article 6)	<p>There is no specific reference or proposed date for the obligation period.</p> <p>Instead, there has been a general mention that the projections for Articles 6-11 will not continue beyond 2020 (see above, Article 4).</p>	Dependent on Article 4 NREAPs.
<i>Joint Projects</i> (Article 7)	The ‘proportion or amount of electricity, heating or cooling from renewable sources’ produced through joint projects counts towards the ‘national overall target’ of the respective Member State and ‘shall not extend beyond	The year 2020 would see the end of the obligation period.

<sup>25</sup> This topic will be further elaborated in Section 5.1.

Directive 2009/28/EC	Analysis	End of obligation period or final reporting
	2020', even if the joint project continues beyond this time (Article 7(2), 3(d), (4)).	This is specified in Article 7(4).
<i>Joint Support Schemes</i> (Article 11)	There is no specific reference or proposed date for the obligation period.  There has instead been a general mention that the projections for Articles 6-11 will not continue beyond 2020 (see above, Article 4).	Dependent on Article 4 NREAPS and Article 22. Reporting by Member States.
<i>Administrative Procedures, Regulations and Codes</i> (Article 13)	There is no specific reference or proposed date for the obligation period within the Article itself.  Instead, there is a requirement to provide progress updates for the Article in question, under Article 22 on Reporting by Member States.	Dependent on Article 22. Reporting by Member States.
<i>Guarantees of Origin</i> (Article 15)	There is no specific reference or proposed date for the obligation period within the Article itself.  Instead, there is a requirement to provide progress updates for the Article in question, under Article 22 on Reporting by Member States.	Dependent on Article 22 Reporting by Member States
<i>Access to and Operation of the Grids</i> (Article 16)	There is no specific reference or proposed date for the obligation period within the Article itself.  Instead, there is a requirement to provide progress updates for the Article in question, under Article 22 on Reporting by Member States.	Dependent on Article 22 Reporting by Member States.
<i>Reporting by Member States</i> (Article 22)	Reports are to be submitted every two years starting from the first report in December 2011 and the (sixth) final report is to be submitted on December 2021 (Article 22(1)).  This Article encompasses the reporting obligation for the above-mentioned mechanisms: Article 11, Article 13, Article 15, and Article 16.  This article provides a list of elements required in the reporting, and includes two provisions which indicate the need to provide the 'estimated excess production' of renewable energy and the potential for 'joint projects until the year 2020'.	The final obligatory reporting period has been set as 2021.  The year 2020 is the final year from which reporting on activity and progress will be analysed. Article 22(1)i.
<i>Transparency Platform</i> (Article 24)	There is no specific reference or proposed date for the obligation period.	N/A

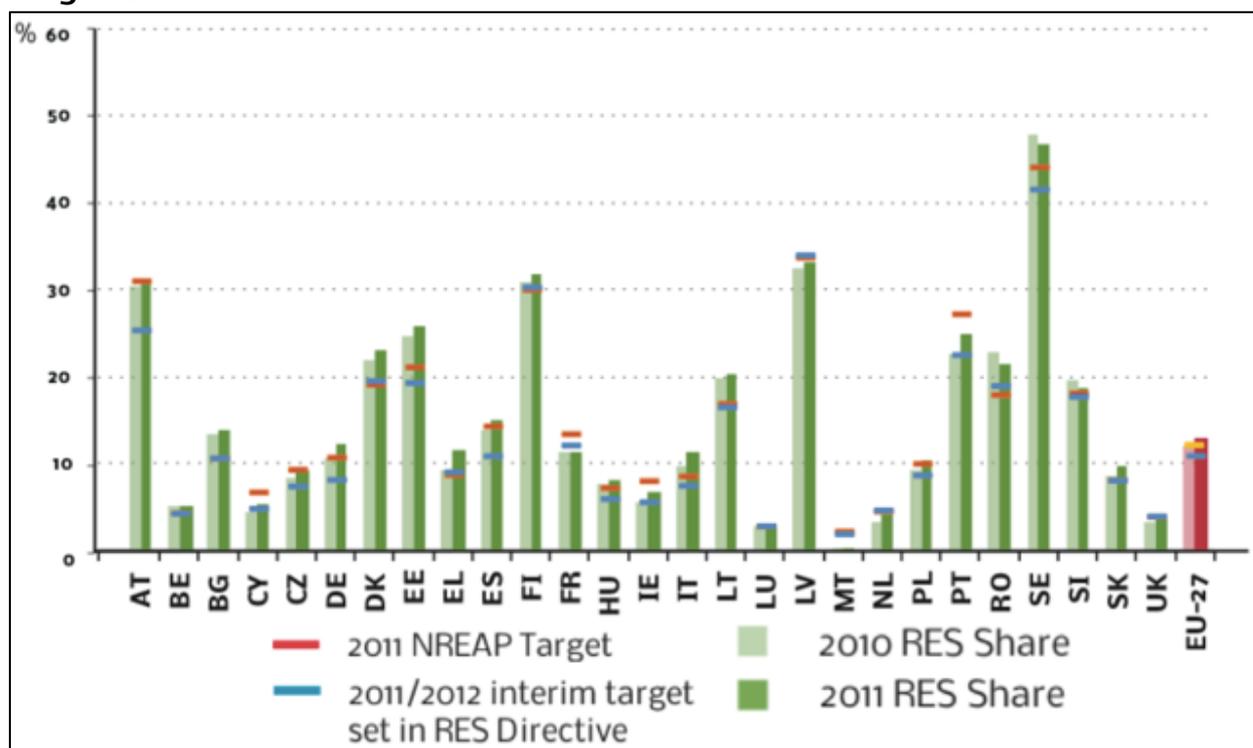
### **2.3. Compliance & Enforcement in the Directive**

As mentioned in Section 2.2, the mechanisms in the Directive (including the reporting on their implementation) are important tools for the EU and its Member States to achieve the 2020 target. They create obligations for Member States towards achieving the 2020 targets and seek to facilitate the deployment of renewable energy through policies and measures that remove barriers or facilitate cooperation. In particular the reporting obligations under the NREAPs and the bi-annual reporting on implementation by Member States facilitate the monitoring of Member States' progress and compliance with the Directive.

The NREAPs, serve as a roadmap by using the national target (and trajectory to the target) to indicate the national policies and measures that will be implemented to achieve that target. Additionally, the NREAPs and the reporting on their implementation facilitate the monitoring of Member States' compliance with their nationally binding targets but also with the overall progress of the EU Member States as they move towards the EU's 20 % renewable energy target. The bi-annual reporting makes it possible to discern which Member States are deviating from their renewable energy trajectory, and more importantly, by what percentage and in which aspects they are lagging. The latter includes the failure to implement some of the measures that remove the (regulatory) barriers for renewable energy deployment.

The Directive did not introduce a strict enforcement or penalty mechanism that can be directly exercised on Member States. This could be perceived as a missed opportunity as several EU Member States have fallen short of their 2011/2012 interim targets, and are also expected to miss their 2020 binding targets. Consequently, options for the European Commission to force Member States to implement assistive or corrective measures are limited.

**Figure 2.1: Member States' progress towards 2020 renewable energy targets.<sup>26</sup>**



Actual overall RES Share in 2010 and 2011 vs. 2011/2012 interim targets of the RES Directive and 2011 NREAP targets (in %). (Shares are estimated by Eurostat for Hungary, and estimated by Fraunhofer for Belgium. Final figures will confirm whether Belgium is on track). Please note that, should the NREAP target and the interim target coincide, only the latter is visible in the graph. Source: Fraunhofer ISI based on Eurostat and other sources (see EREC, 2013).

The current compliance procedure is as follows. Member States that are unable to meet the interim targets related to their renewable energy trajectories are required to produce an amended NREAP, which is analysed by the European Commission (EC) and subsequent recommendations for corrections are produced. However, Member States are not obliged to follow these recommendations.

Continued failure by Member States to comply<sup>27</sup> with the obligations in the Directive, can lead to infringement proceedings.<sup>28</sup> This procedure starts with the issuance of a Reasoned Opinion by the European Commission, followed by a referral of the Member State to the European Court of Justice (ECJ) and can culminate in a 'lump sum or penalty payment'.<sup>29</sup> Yet, due to the duration of the infringement procedures (i.e. several years at best), it is not the most efficient or productive way of enforcing national policy change in the short term. The European Commission is currently using this compliance tool. It issued 'Reasoned Opinions' to Austria, Belgium, Cyprus, Czech Republic, Finland,

<sup>26</sup> Source: EREC, 2013: modified image.

<sup>27</sup> Directive 2009/28/EC allocates 'mandatory national overall targets', and explicitly indicates that that 'Member States shall introduce measures effectively designed [emphasis added] to ensure' that energy shares from 'renewable sources equals or exceeds' the indicative targets stated in Annex I. (Directive 2009/28/EC: Article 3(2)).

<sup>28</sup> European Commission, 2012.

<sup>29</sup> TFEU, 2012: Article 258, Article 260.; European Commission, 2014d.

Hungary, Ireland, Latvia, Luxembourg, the Netherlands, Poland and Slovenia for 'not informing the Commission about the full transposition of the Renewable Energy Directive'.<sup>30</sup>

Notwithstanding the somewhat limited enforcement provisions in the 2009 Renewable Energy Directive, EU Member States have seen a 'significant growth in renewable energy' since the previous progress report in 2011'.<sup>31</sup> However, the slow implementation of the Directive's mechanisms to facilitate the successful deployment of renewable energy is of concern. The European Commission sees a 'slower than expected removal of key barrier issues' in specific areas such as administration procedures, improved grid access and more favourable national support schemes.<sup>32</sup> Overall, the 2013 progress reports indicate that more effort needs to be made, especially in furthering the complementary measures and mechanisms needed for the successful deployment of renewable energy and ensuring the attainment of the EU 2020 target.<sup>33</sup>

## ***2.4 The European Commission's and European Council's visions on Renewable Energy post-2020***

While the implementation of the current Renewable Energy Directive is still ongoing, preparations have started for the EU's post-2020 climate and energy framework. On 22 January 2014 the European Commission presented its communication on a policy framework for climate and energy in the period from 2020 to 2030. The communication proposed a target of at least 40 % (domestic) EU-wide greenhouse gas emissions reduction until 2030, as well as a renewable energy target of at least 27 % by 2030 that is binding at EU level.<sup>34</sup> However, the latter will not be translated into binding national targets. The European Commission's reasoning for abandoning nationally binding renewable energy targets is that it would grant Member States greater flexibility in meeting their target in 'accordance with their specific circumstances, energy mixes and capacities to produce renewable energy'.<sup>35</sup> Member States are expected to decide upon and propose their own 'clear commitments', which should 'build upon' their current efforts to meet the 20 % mark by 2020.<sup>36</sup>

The European Commission also introduced a new concept under the form of national plans for competitive, secure and sustainable energy. According to the European Commission, these plans should give Member States the flexibility to choose policies that are best matched to their national energy mix and

---

<sup>30</sup> European Commission, 2013: p. 13; European Commission, 2014j.

<sup>31</sup> European Commission, 2013: p. 3.

<sup>32</sup> Ibid., p. 2.

<sup>33</sup> Ibid., p. 12.

<sup>34</sup> In July 2014, the Commission adopted a Communication on energy efficiency and its contribution to energy security and the 2030 framework for climate and energy policy that proposed an energy savings target of 30 % by 2030, (Brussels, 23 July 2014, COM(2014) 520 final).

<sup>35</sup> EU Commission, 2014: p. 6.

<sup>36</sup> Ibid., p. 6.

preferences. However, this flexibility must be compatible with the attainment of EU-wide climate and energy objectives, further market integration and increased competition. The Commission argued that there is a need to:

- simplify and streamline the current separate processes for reporting on renewable energy, energy efficiency and greenhouse gas reduction for the period after 2020, and
- have a consolidated governance process with Member States because meeting the relevant targets would require a mix of Union measures and national measures.

The latter measures will have to be described in the Member States' national plans for competitive, secure and sustainable energy. According to the European Commission these plans would:

- ensure that EU policy objectives for climate and energy are delivered;
- provide greater coherence of Member States' approaches;
- promote further market integration and competition;
- provide certainty to investors for the period after 2020.

The Commission finally stated that the explicit aim of the plans and related governance should be to create more investor certainty and greater transparency. It is considering a governance structure with an iterative process led by the Commission to assess the Member States' plans regarding these common issues and to make recommendations as appropriate. The national plans should be operational well before 2020 in order to guide Member State actions in good time for the 2020–2030 period and to encourage investments. Member States would have the option of updating national plans at least once in the period up to 2030 to take account of changing circumstances while also taking account of investors' legitimate expectations.

On 23 October 2014 the European Council broadly confirmed the European Commission's vision on 2030. The Council however, did support a 2030 target on energy efficiency of at least 27 %. The Council Conclusions additionally state that while the (at least) 27 % target for renewable energy will be 'binding at EU level' and 'fulfilled through Member States contributions', it has to be guided by the need to deliver the target collectively *without preventing* Member States from setting their own more ambitious national targets and implementing them according to the state aid guidelines.<sup>37</sup>

The Commission and Council's 2030 view on renewable energy in the EU can be seen as containing a somewhat conflicting message. On the one hand, there is the EU-wide binding 2030 target. Yet, on the other hand, Member States are granted the liberty to decide on their own targets, based on their own capabilities and preferences, without being provided with a reference or minimum target, and despite being required to contribute towards a collective, binding EU target. The risk that this non-binding bottom-up approach does not deliver the EU 2030 target could be significant given that several Member

---

<sup>37</sup> EU Council Conclusions, 2014: p. 5.

States are currently not on track to meet their (lower) *binding* national targets for 2020.

The absence of nationally binding targets should put more emphasis on specific mechanisms and measures to enhance wider deployment of renewable energy or remove (regulatory and other) barriers that hinder renewable energy growth. Section 2.2 analysed these mechanisms that are part of the current Renewable Energy Directive. However, it is uncertain whether these measures remain in place or effective post-2020. As indicated, numerous mechanisms are dependent upon the reporting obligation of NREAPs or the bi-annual reporting by Member States under the Renewable Energy Directive. These obligations expire respectively in 2020 and 2021.

Table 2.2 below provides a side-by-side comparison of the first Renewable Energy Directive (2001),<sup>38</sup> the current Directive (2009)<sup>39</sup> and what is currently known about the 2030 renewable framework following the European Commission’s communication and the October 2014 Council conclusions. The table highlights the key differences between the objectives, mechanisms, compliance and enforcement procedures. A comparison between the 2001 Directive and the current Directive demonstrates stronger obligations for Member States. The proposed 2030 framework on the other hand can be seen as a step backwards as it removes certain existing obligations. It is important to stress that this 2030 framework is still being developed. The analysis presented here is therefore only based on the European Commission’s Communication on the 2030 framework proposal, as well as the October 2014 Council Conclusions.

**Table 2.2: A comparison of relevant contents between Renewable Energy Directives 2001/77/EC and 2009/28/EC, as well as the 2030 Climate and Energy Framework proposal.**

Reference: C1 = EU Commission Communication 2014 & C2 = EU Council Conclusions 2014

Content	Directive 2001/77/EC	Directive 2009/28/EC (current Directive)	2030 Climate & Energy Framework Proposal <sup>40</sup>
Purpose/ Objective	<ul style="list-style-type: none"> <li>- The Directive endeavours to ‘promote an increase in the contribution of renewable energy sources to electricity production in the internal market’ (Article 1).</li> <li>- The goal is to be achieved by 2010.</li> </ul>	<ul style="list-style-type: none"> <li>- The general objective of the Directive is to achieve an overall EU target of 20 % renewable energy, through the allocation of specific binding national targets for the individual Member States.</li> <li>- The goal is to be achieved by 2020.</li> </ul>	<ul style="list-style-type: none"> <li>- The overall objective of the proposal is to provide a policy framework structure for climate and energy in the period from 2020 to 2030 (for the purposes of this research, references shall be limited to the topic of renewable energy) (C1, p. 3 - 4).</li> </ul>
Obligation	<ul style="list-style-type: none"> <li>- Member States are</li> </ul>	<ul style="list-style-type: none"> <li>- The Directive</li> </ul>	<ul style="list-style-type: none"> <li>- The proposals put</li> </ul>

<sup>38</sup> Directive 2001/77/EC.

<sup>39</sup> Directive 2009/28/EC.

<sup>40</sup> Information derived from (C1) EU Commission Communication 2014 & (C2) EU Council Conclusions 2014.

Content	Directive 2001/77/EC	Directive 2009/28/EC (current Directive)	2030 Climate & Energy Framework Proposal <sup>40</sup>
	<p>expected to set their own National Indicative Targets for future consumption of electricity produced from renewable energy sources which should be consistent however, with the 'global indicative target of a 12 % share of gross renewable energy consumption by 2010' (Article 3).</p> <ul style="list-style-type: none"> <li>- Member States are expected to 'take appropriate steps to encourage' the production of electricity from renewable energy (Article 3(1)).</li> </ul>	<p>introduces an overarching binding, EU target of 20 % to be achieved by 2020.</p> <ul style="list-style-type: none"> <li>- Member States are expected to adopt 'mandatory national overall targets' which have been calculated and allocated for each of the Member States (see 2009/28/EC Annex I), in order to achieve the aforementioned 20 % binding EU target.</li> <li>- Additionally, Member States are expected to 'introduce measures' which will 'ensure' that the indicative trajectory (or interim targets), are either met or exceeded within a specific timeframe (Article 3(2)).</li> <li>- NREAPs (detailed information in Section 2.2).</li> </ul>	<p>forward an EU level binding target of at least 27 % (C1, p. 6; C2 p. 5).</p> <ul style="list-style-type: none"> <li>- The binding EU target will not be translated (like the 2009 RE Directive) into compulsory national targets for Member States, thus granting flexibility in the approach (C1, p. 6; C2, p.5).</li> <li>- Despite the lack of binding national targets, Member State obligations towards the overall 27 % EU target are expected to be fulfilled through 'clear commitments decided' by Member States themselves (C1, p.6).</li> <li>- Additionally, the targets delivered should be anticipated in 'relation' to the 'current targets for 2020'.</li> </ul>
Mechanisms <sup>41</sup>	<ul style="list-style-type: none"> <li>- The Directive explicitly highlights the following areas as needing to be improved in order to facilitate the overall objective: <ul style="list-style-type: none"> <li>• <i>Support Schemes</i> (Article 4)</li> <li>• <i>Guarantees of Origin</i> (Article 5)</li> <li>• <i>Administrative procedures</i> (Article 6)</li> <li>• <i>Grid systems</i> - e.g. transmission and distribution (Article 7)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- The Directive highlights specific mechanisms, which need to be fully implemented in order to create increasingly favourable conditions to further renewable energy production: <ul style="list-style-type: none"> <li>• <i>NREAPs</i> (Article 4)</li> <li>• <i>Statistical Transfers</i> (Article 6)</li> <li>• <i>Joint Projects</i> (Article 7)</li> <li>• <i>Joint Support Schemes</i> (Article 11)</li> <li>• <i>Administrative Procedures, Regulations and Codes</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Several potential mechanisms have been proposed (but the final presentation of the framework is yet to be seen). Mechanism references included: <ul style="list-style-type: none"> <li>• National Support Schemes (with an emphasis on rationalisation)</li> <li>• The 'transformation of [the] energy structure with more cross-border interconnections'</li> </ul> </li> </ul>

<sup>41</sup> Refers to Articles in the Directives which put forward different obligations on Member States, which collectively work towards achieving the general objective of the Directives.

Content	Directive 2001/77/EC	Directive 2009/28/EC (current Directive)	2030 Climate & Energy Framework Proposal <sup>40</sup>
		<p>(Article 13)</p> <ul style="list-style-type: none"> <li>• <i>Information and Training</i> (Article 14)</li> <li>• <i>Guarantees of Origin</i> (Article 15)</li> <li>• <i>Access to and Operation of the Grids</i> (Article 16)</li> <li>• <i>Reporting by Member States</i> (Article 22)</li> <li>• <i>Transparency Platform</i> (Article 24)</li> </ul>	<ul style="list-style-type: none"> <li>• Improved ‘storage potential’</li> <li>• ‘Smart grids’ which can manage demand</li> <li>• ‘Enhancing investor certainty’ (while not a mechanism per se, it is a significant catalyst with respect to driving the innovation and production in RE technology) (C1, p.4, 7)</li> </ul>
Compliance	<ul style="list-style-type: none"> <li>- Member States are expected to publish a report every two years from 2003 which analyses the successes experienced by the Member States in achieving the national indicative targets (Article 3(3)).</li> <li>- The Commission will examine the reports and assess to what extent the Member States have progressed towards the achievement of their national indicative targets, and publish its conclusions in a report (Article 3(4), Article 8).</li> <li>- Moreover, the mechanisms listed above contain provisions which require Member States to provide a report on the methods and progress achieved in these specific areas (Article 3(2), Article 4(2); Article 5(5, 6), Article 6(2, 3), Article 7(7)).</li> </ul>	<ul style="list-style-type: none"> <li>- Member States are expected to publish a progress report every two years from 2011 onwards, which provides input on the evaluation or development of the different mechanisms and elements highlighted in the Directive (Article 22).</li> <li>- Member State progress is monitored through interim targets every two years and is checked against their expected target for that time (see Table 2.1. The formula and dates for the targets are provided in Annex I, 2009/28/EC).</li> <li>- Transparency Platform enables for enhanced monitoring of Member State internal and intra-State cooperation regarding Renewable Energy production.</li> </ul>	<ul style="list-style-type: none"> <li>- The proposal does not make any explicit reference to compliance mechanisms, but refers to the new 2030 commitments which, ‘if necessary, would be complemented by further EU action and instruments to ensure delivery’ of the 27 % EU Target (C1, p. 5).</li> </ul>

Content	Directive 2001/77/EC	Directive 2009/28/EC (current Directive)	2030 Climate & Energy Framework Proposal <sup>40</sup>
Enforcement	<ul style="list-style-type: none"> <li>- No specific enforcement provisions.</li> <li>- However, the Commission can either financially penalise, or 'refer' non-compliant Member States to the ECJ. However this process takes numerous years to complete and as such is not the most effective.</li> </ul>	<ul style="list-style-type: none"> <li>- No specific enforcement provisions.</li> <li>- Similarly, the Commission can either financially penalise, or 'refer' non-compliant Member States to the ECJ. However this process takes numerous years to complete and as such is not the most effective (See Section 2.3).</li> </ul>	<ul style="list-style-type: none"> <li>- References regarding enforcements are not discernible in the Commission proposal or Council Conclusions.</li> </ul>

Finally, while the European Commission's Communication indicated the development of a new post-2020 governance system, it did not specify its legal form or if a legal basis would be provided for this system. This is of concern. Section 4 will show that other important EU governance systems such as the EU semester do have a solid legal or rule-based foundation. Furthermore, the Communication and Council conclusions did not mention a forthcoming review of the existing Renewable Energy Directive. As stated above and demonstrated in Sections 2.2 and 2.3, there are important elements (i.e. mechanisms, measures, NREAPs and reporting thereof) in the existing Directive that risk being lost if the Directive is not reviewed before 2020. The current proposals by the European Commission and the European Council have therefore increased the policy uncertainty post-2020. As will be argued in Section 5.1, this could make renewable energy less financeable and hence more expensive after 2020. To mitigate this concern, it is advisable to address the uncertainty about the legal framework and the legal basis of the governance structure needs in the short term.

### 3. Examples of renewable energy policy outside Europe and possible lessons for post-2020

This section will look at three non-EU renewable energy policies that could offer lessons for the further development of post-2020 renewable energy policies in the EU.

The first example is the introduction of Renewable Portfolio Standards (RPS) at State level across the United States. This example is useful since it represents a bottom-up introduction of renewable energy targets in the absence of targets at federal level. Next are the cases of Chile and Australia. The two countries currently represent two extreme sides of the renewable energy target spectrum. Chile has recently augmented its renewable energy target, while Australia has moved to abolish its existing target. These two decisions had different impacts on future investments in renewable energy in these countries.

#### ***3.1. The use of Renewable Portfolio Standards in the United States of America***

The goal of the Renewable Portfolio Standards (RPS) introduced in different US States is to increase the production shares of renewable energy through a market-based approach, and determining a predefined percentage or numeric target of electricity which must be provided by energy suppliers from renewable sources.<sup>42</sup> Usually these purchase obligations are either maintained or increased overtime. Most RPS systems engage in (tradable) renewable energy certificates, allowing producers who generate excess beyond their RPS requirements to sell or trade their renewable energy certificates to other suppliers in need.<sup>43</sup>

The RPS programmes in the US aim to increase the production share of renewable energy through a predefined target. However, US States are able to self-tailor their RPS requirements to satisfy their own policy objectives while focusing on their own strengths in resource potentials.<sup>44</sup>

The RPS is a State-level initiative (not at the federal level), in which US States put forward their own, voluntary numeric target, thus providing significant variations between the different US States, for example, ranging from 33 % for California to 15 % for Massachusetts both by 2020, and Texas with 10 000 MW by 2025.<sup>45</sup> As from 2001, several US States began to adopt RPS requirements. This also led to an increase in renewable energy generation from 2001 to 2012.<sup>46</sup> Despite the increase however, the data reveals that renewable energy did not experience a continuous and stable growth trajectory, but was marked by levels of (varying) degrees of depreciation as shown in Figure 2.2. The inconsistent growth is partially attributable to the fact that not all States are under the same pressure regarding their renewable energy targets, as some

---

<sup>42</sup> Wiser, 2007; SolSystems, 2010; Leon, W., 2013.

<sup>43</sup> Wiser, 2007: p. 3; EIA, 2012.; Leon, 2013.

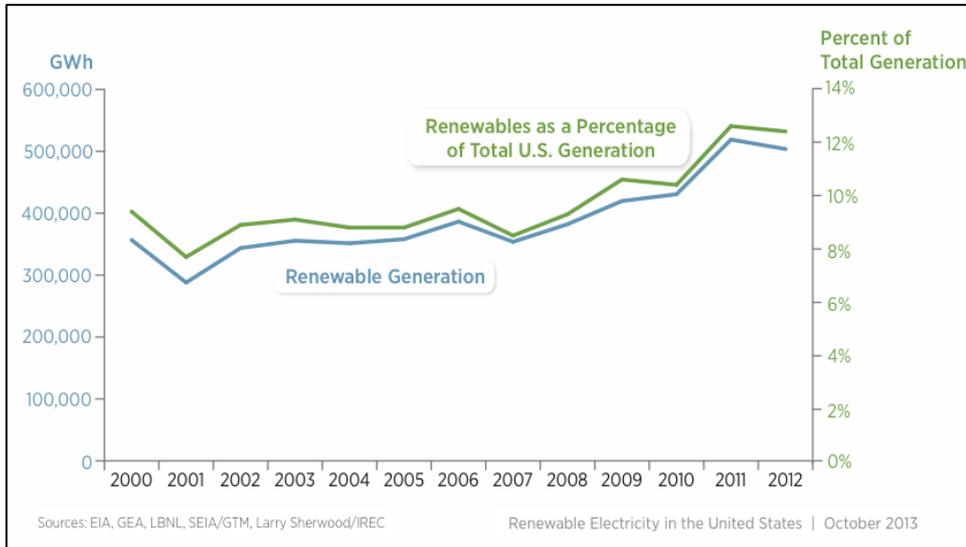
<sup>44</sup> EPA, 2014a.

<sup>45</sup> DSIRE, 2014; EIA, 2012.

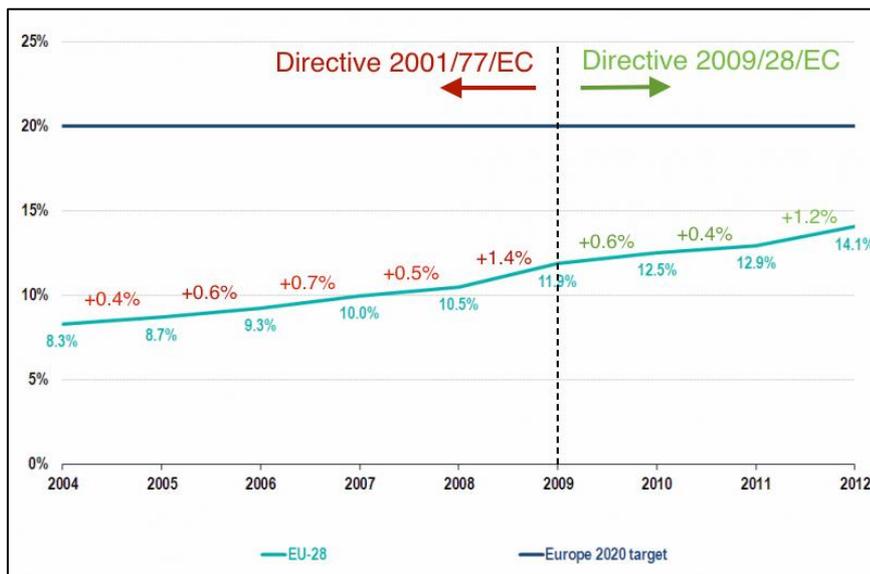
<sup>46</sup> Wiser, 2007: p. 7.

states operate through RPS (which is enforced by an appropriate state regulatory agency), and others operate through voluntary Renewable or Alternative Portfolio Goals.<sup>47</sup> The fluctuation in deployment can also be related to the uncertainty of the continuation of federal wind energy tax<sup>48</sup> credits over the period.

**Figure 2.2: US Renewable Electricity Generation (Percentage of total Generation)<sup>49</sup>**



**Figure 2.3 Share of energy from renewable sources in gross final consumption of energy, EU28, 2004-2012<sup>50</sup>**



<sup>47</sup> NB: The different portfolios which currently operate in the US are the Renewable Portfolio Standard (27 States), Alternative Energy Portfolio Standard (4 States), Renewable or Alternative Energy Goals (7 States); Lyon, 2010: p. 135.

<sup>48</sup> Barradale, 2008: pp. 21-22.

<sup>49</sup> Source: US Department of Energy (2013), 'Energy Efficiency & Renewable Energy', 2012 *Renewable Energy Data Book* (Modified).

<sup>50</sup> Source: Eurostat, Website, 2014: Modified Image.



### **3.2. Investments and Renewable Energy Targets: The opposite cases of Chile and Australia**

Comparing the recent and opposite developments on renewable energy policy in Chile and Australia can illustrate the connection between renewable energy targets and investments.

Chile, a country with significant potential for the use of wind and solar energy, revealed its new ambition to increase its renewable energy target from a 10 % share of renewable energy by 2020 to a 20 % share by 2024<sup>52</sup> as part of the *National Energy Strategy (2012–2030)*. Following the approval of this target, Chile has seen the approval for investments in 51 projects<sup>53</sup>. These have made Chile one of the worlds ‘top renewable energy markets’.<sup>54</sup> Its new ambitious target enabled Chile to attract an estimated USD 7 billion worth of investment in its solar and wind energy market.<sup>55</sup>

Conversely, Australia’s renewable energy development has lately been shrouded in uncertainty due to plans to reduce or scrap its national target. This uncertainty has led to recent reports on investment ‘plummeting’.<sup>56</sup> The Chief Executive of General Electric (leading global investor in renewable energy) has called the Australian national government to provide a clear renewable energy target because billions of dollars have been put on hold.<sup>57</sup> ‘Without the [renewable energy target], investment in renewables is significantly reduced’, worse still, if the renewable energy target is ‘scrapped, most of the investment in [renewable] energy won’t happen’.<sup>58</sup>

The planned investments made in Australia had been based on the legally binding national renewable energy target set at 41 000 gigawatt-hours (GWh) to be produced by 2020 and to remain in effect until 2030.<sup>59</sup> This long-term target provided investors a secure investment horizon. The reduction of the 41 000 GWh target destabilises these large-scale renewable energy projects by inducing financial distress due to the loss of investor confidence.<sup>60</sup> Moreover, existing generation could also be deeply affected as a reduced target would impact the value of renewable energy certificates and therefore decrease the revenue returns of previous investments.<sup>61</sup>

The Chilean and Australian examples show (from two opposite sides) the correlation between binding renewable energy targets, investor certainty and related investments.

---

<sup>52</sup> Hatzfeldt, 2013.

<sup>53</sup> PVTECH, 2014.

<sup>54</sup> Clean Technica, 2014; PVTECH, 2014.

<sup>55</sup> Bloomberg, 2014; Renewable Energy World, 2014.

<sup>56</sup> Climate Control News, 2014.

<sup>57</sup> The Sydney Morning Herald- Business Day, 2014.

<sup>58</sup> Clean Energy Council, 2014a; Sydney Morning Herald, 2014; ROAM, 2014: p. 44.

<sup>59</sup> Clean Energy Council, 2014b; ROAM, 2014: p. 2.

<sup>60</sup> Clean Energy Council, 2014a: p. 2.

<sup>61</sup> Ibid., p. 3.; ROAM, 2014.

## 4. Lessons on governance from the European Semester, EU ETS and Energy Efficiency Directive

This section will analyse selected examples of existing EU policies and measures and/or governance systems that contain useful lessons for future EU renewable energy governance. Where possible, the performance of these systems will be highlighted. It is the goal to identify governance or policy design elements from these systems that could be implemented in a post-2020 EU renewable energy policy and governance framework.

The policies and systems to be considered here are:

- The Europe 2020 strategy, the EU semester and EU economic governance
- The EU emissions trading system (EU ETS, pre- and post-2012)
- The Energy Efficiency Directive (EED)

Current EU economic governance (and the European semester) can be deemed relevant for future EU energy governance since it represents a rules-based approach in combination with an open method of coordination. Europe's economic governance also introduced innovative tools to assist with monitoring, compliance and enforcement that could be of interest for future EU energy governance.

The EU ETS and in particular its first two phases (2005-2007 and 2008-2012) are of interest because of the construction of an EU-wide target (cap) through a bottom-up process that used national allocation plans. As of 2013, the EU ETS abolished national target setting in favour of an EU-wide target that directly applies to the operators of installations covered by the system.

The Energy Efficiency Directive is of relevance here because (it is expected that) future EU energy governance will seek to streamline renewable energy and energy efficiency reporting. Furthermore the EED introduced new concepts such as indicative national targets and binding sub-targets (or policies with similar impact) that could be considered under a reviewed EU Renewable Energy Directive.

### 4.1. Europe 2020, Economic Governance and the European semester

#### *Europe 2020 Strategy and the European Semester*

Europe 2020 is a ten-year strategy that has the goal to overcome the current economic crisis through smart and sustainable growth. The strategy has five target areas: Employment, Research & Development (R&D), Climate Change & Energy Sustainability, Education, and Fighting Poverty & Exclusion. The specific goals in these target areas are:

- Employment: 75 % of 20-64 year-olds to be employed;
- R&D: 3 % of the EU's GDP to be invested in R&D;
- Climate change & energy sustainability: greenhouse gas emissions 20 % (or even 30 %, if the conditions are right) lower than 1990, 20 % of energy from renewables and 20 % increase in energy efficiency;

- Education: Reducing the rates of early school leaving below 10 % and at least 40 % of 30-34 year olds completing third-level education;
- Fighting poverty & social exclusion: at least 20 million fewer people in or at risk of poverty and social exclusion.

The above-mentioned targets give an overall indication of where the EU should be on key parameters by 2020. They are translated into national targets so that each Member State can verify its own progress towards the goals. The targets on renewable energy and greenhouse gas emissions are part of the EU's 2020 climate and energy package and are binding at national level. The target on energy efficiency, while non-binding at national level, has been implemented through diverse EU legislative instruments such as the Energy Efficiency Directive and the Energy Performance in Buildings Directive.

According to the European Commission, the European Semester should oversee the implementation and monitoring of the EU 2020 strategy<sup>62</sup>. The European Semester is a governance system with a yearly cycle of policy coordination and economic consolidation among Member States. The European Semester finds its legal base in the Treaty on the Functioning of the European Union (TFEU) that commits Member States to economic policy coordination, while phasing out detrimental policies or actions that can negatively impact the functioning of the Economic and Monetary Union.<sup>63</sup>

The Annual Growth Survey (AGS) is the European Commission's main tool for budgetary and policy coordination under the European Semester. The annual publication of the AGS sets the yearly process in motion by indicating the broad economic and fiscal policies for the coming year. These are grouped within five main priority areas:

1. Pursuing differentiated, growth-friendly fiscal consolidation
2. Restoring lending to the economy
3. Promoting growth and competitiveness for today and tomorrow
4. Tackling unemployment and the social consequences of the crisis
5. Modernising public administration

The country-specific recommendations (CSRs) are another important element of the European Semester process and work together with the AGS. The CSRs offer tailored advice to Member States on how to boost growth and jobs, while maintaining sound public finances. The recommendations are based on the general priorities identified in the latest Commission's AGS and on the information Member States submitted in their medium-term budgetary plans and economic reform programmes. The recommendations are published every spring, following the analysis of Member States' budgetary plans and reform programmes by the Commission. They focus on what can realistically be achieved in the next 12-18 months to make growth stronger, more sustainable and more inclusive, in line with the Europe 2020 strategy, the EU's long-term growth and jobs plan. The recommendations are then discussed with the aim

---

<sup>62</sup> European Commission, 2014f.

<sup>63</sup> The TFEU is also referred to as the Lisbon Treaty. TFEU, 2012: Articles 121 and 148.

of being endorsed by EU leaders and ministers and formally adopted by EU finance ministers, as part of the European Semester.

While energy (or environmental/climate) related topics, have been somewhat integrated into the Semester process, it is prudent to recognise the context under which they are included. That is to say, the primary focus of the process is geared towards fiscal and budgetary consolidation while ensuring continued economic growth. Therefore, energy-related issues such as those depicted in EU 2020 are approached from an economic perspective. For example, energy (environment/climate) is often referred to as a ‘facilitator of growth, economic and labour market recovery’, or the ‘completion of the energy market & improving energy efficiency’<sup>64</sup> is considered for ‘*employment, competitiveness & other economic benefits*’, similarly the ‘develop[ment] of infrastructure in energy & transport’ to ‘*improve employment potential*’. The priorities in the AGS regarding energy in particular are not capable of addressing all the targets of the EU 2020 climate and energy package, because the European Semester system itself has been designed to be primarily concerned with economic and fiscal policy, but also because the existing EU climate and energy policy already contains some compliance provisions. As such, the Semester’s contribution towards ‘Climate Change & Energy Sustainability’ targets of 20 % for renewables, energy efficiency (and greenhouse gas emissions reductions), is limited within the constraints of economic policy. However, a topic as complex and multifaceted as energy requires further consideration and input to address all the issues (e.g. sovereignty, individual interests etc.) which need to be resolved for the eventual realisation of the internal energy market.

This limited mainstreaming of energy and climate within the Semester can be explained by the fact that the Semester process itself was designed with a narrow function (economic governance) that was further compounded by the prevalence of political priorities and overall recovery from the economic crisis. The mainstreaming of energy into the Semester process can still be interpreted positively as it can provide visibility, however limited. Currently the references included in the AGS regarding energy are mostly perceived as only ‘win-win’ options, because the outcomes of the country-specific recommendations work towards increasing financial benefits, improved competition, as well as energy security through the reduction of dependence on foreign energy resources.

#### *EU Economic governance and the Stability and Growth Pact*

As mentioned before, economic governance forms the core of the European semester. While the European Semester can be seen as an example of open method of coordination, the economic and fiscal coordination is firmly embedded in a rules-based or legal framework. This section gives a brief introduction to that legal framework and some of its (innovative) tools.

The philosophy behind the EU’s economic governance system rests on three pillars:

- *Monitoring* through the analysis and forecasting of economic data, the annual growth survey and the introduction of an alert mechanism;

---

<sup>64</sup> IEEP, 2013.

- *Prevention* through medium-term objectives, stability and convergence programmes, national reform programmes, assessment of draft national budgetary plans and the country-specific recommendations;
- *Correction* through the excessive deficit and imbalance procedures.

The Stability and Growth Pact (SGP) is the rules-based framework for the coordination of national fiscal policies in the EU. It was established at the same time as the single currency to safeguard sound public finances, based on the principle that economic policies are a matter of shared concern for all Member States. To do this, the SGP seeks to identify and correct macroeconomic imbalances. The SGP is composed of two parts, a preventative arm and a corrective arm. The preventative arm of the SGP (outlined in Article 121 TFEU) seeks to ensure that Member States implement their fiscal policies in a 'sustainable manner' by achieving a 'country-specific assigned reference value' known as the Medium-Term Budgetary Objective (MTO). The Member States are expected to reach the assigned MTOs or adjust their current trajectory to achieve the targets. The corrective arm<sup>65</sup> of the SGP on the other hand strives to ensure Member States adopt appropriate policy responses to 'correct excessive deficits'. The corrective arm also finds legal basis in the TFEU.

While the EU Treaty forms the foundation for the SGP, there is a secondary set of legislation that has been implemented to complement and address the gaps found in the SGP framework. This secondary legislation is referred to as the 'Six Pack' (which became law in December 2011) and is composed of five regulations and one directive and the Two Pack (which entered into force in May 2013), and is reinforced by the Treaty on Stability, Coordination and Governance<sup>66</sup>. These push forward greater surveillance, as well as enforcement and coordination. The 'Six Pack' is primarily geared towards fiscal policy, and lacking specific provisions for energy and environment. 'Thematic surveillance' and 'macro-economic surveillance' do not fall under fiscal policy but under the EU 2020 targets, forming the core components of National Reform Programmes (NRPs), which are evaluated by the Commission, before the issuance of the CSRs.

Non-compliance with either the preventive or corrective arms of the Pact can lead to the imposition of sanctions for Eurozone countries. In the case of the corrective arm, this can involve annual fines for Eurozone Member States and, for all countries, possible suspension of Cohesion Fund financing until the excessive deficit is corrected.

The corrective arm of the SGP is operationalised through the Excessive Deficit Procedure (EDP). If Member States breach either the deficit or debt criteria<sup>67</sup>, they are placed in an Excessive Deficit Procedure, where they are subject to extra monitoring (usually every three or six months) and are set a deadline for

---

<sup>65</sup> Specifically Article 126.

<sup>66</sup> Note that Treaty on Stability, Coordination and Governance is an *inter-governmental* treaty.

<sup>67</sup> The EDP operationalises the limits on the budget deficit and public debt given by the thresholds of 3 % of deficit to GDP and 60 % of debt to GDP not diminishing at a satisfactory pace. See also:

[http://ec.europa.eu/economy\\_finance/economic\\_governance/sgp/corrective\\_arm/index\\_en.htm](http://ec.europa.eu/economy_finance/economic_governance/sgp/corrective_arm/index_en.htm)

correcting their deficit. The Commission checks compliance throughout the year based on regular economic forecasts and Eurostat data. The Commission can request more information or recommend further action from those at risk of missing their deficit deadlines. Fines for Eurozone Member States apply only as a last resort and are levied for repeated failure to take action, not on the imbalances themselves. For example, if the Commission repeatedly concludes that a corrective action plan is unsatisfactory, it can propose that the Council levy a fine of 0.1 % of GDP a year (euro area only). Penalties also apply if Member States fail to take action based on the plan (starting with an interest-bearing deposit of 0.1 % of GDP, which can be converted into a fine if there is repeated non-compliance).

Decisions on most sanctions under the Excessive Deficit Procedure are taken by reverse qualified majority voting (RQMV), which means that fines are deemed to be approved by the Council unless a qualified majority of Member States overturns them. This was not possible before the Six Pack entered into force. In addition, the 25 Member States that have signed the Treaty on Stability, Coordination and Governance have agreed to replicate the RQMV mechanism even earlier in the process, for example, when deciding whether to place a Member State in the Excessive Deficit Procedure.

### *Conclusions*

Europe's economic governance, in the form of the Stability and Growth Pact (SGP), consists of a sophisticated set of legislative tools that include EU-wide and national binding (budgetary) targets and the compliance and enforcement procedures to achieve these. The governance system is topped-up, through the European semester, by a systemic monitoring procedure under the form of the annual growth survey (AGS) and country-specific recommendations. The European Semester and the SGP hence have a mutually reinforcing symbiotic relationship. On the one hand, meaningful economic governance (through the legally binding SGP) requires continuous, updated and guided reporting back and forward between the European Commission and the Member States (through the AGS and CSR). On the other hand, more legal and political weight is given to the Member States' reporting obligations (through the AGS) and the related recommendations by means of the rules-based framework of the SGP.

### ***Possible lessons from EU economic governance for future EU renewable energy policy and governance***

*The European Semester and EU economic governance counter the idea that a meaningful (EU energy) governance system can be established without legal basis and in particular without legally binding provisions that seek to implement binding EU goals or targets. This is relevant because Section 2 of this report showed that, without legal intervention, important reporting obligations for Member States regarding the implementation of EU renewable energy obligations (in particular the mechanisms to enhance deployment of renewable energy) come to expire after 2020. Building an EU energy governance system in the absence of this legal base would be as if the EU had a European Semester without the rules-based framework of the Stability and Growth Pact.*

*The concept of 'monitoring, prevention and correction' as a governance system is interesting to further consider under a future EU energy (governance) framework. When it comes to monitoring this can include the development and use of energy-related parameters (e.g. benchmarks) and trajectories aimed at (measuring) the enhancement of EU-wide and national renewable energy and energy savings deployment. These parameters and trajectories can be part of the development of national energy plans.*

*While binding national renewable (or energy savings) targets might not be part of the EU 2030 energy policy framework, indicative trajectories (or targets) could be introduced. Ensuring that an EU-wide binding 2030 target on renewable energy is met could be linked to the implementation of these trajectories. The concept of 'excessive deviation' as used in the EU economic governance may be of interest in this context. For instance, an excessive deviation of (nationally determined) renewable energy (deployment) trajectories could trigger corrective action by the European Commission since the deviation could endanger the EU meeting its own binding 2030 target.*

*The use of reverse qualified majority voting in the EU (energy) council as to approve to the initiation of corrective action at EU level could be considered part of the future EU energy governance process. For instance, the European Commission can propose measures to be taken at national level but those measures have to be approved by the Council and can only be overturned by a RQMV of EU Member States. This procedure could be a (political) middle ground in the debate on EU and national competences with regard to energy policy.*

*It is also worth highlighting another issue that directly relates national renewable energy policies with the macro-economic imbalance procedure. The current EU rules with regard to exceeding the national debt/GDP ratio or budgetary deficits could impede the (long-) term finance of renewable energy projects (in some EU Member States). The issue of financing renewable energy investments will be further explored in Section 5.1, but it is already important to highlight that a review of the EU macro-economic imbalance procedure regulation could introduce specific budgetary flexibilities for national renewable energy finance. This type of investment, in particular, can offer multiple benefits, including macro-economic benefits, for Member States such as higher employment levels, improved energy security and the related current account balance. There are indications that the new investment plan for Europe as presented by the European Commission on 26 November 2014 opens up this possibility<sup>68</sup>.*

---

<sup>68</sup> European Commission, 2014b, p. 4: 'Member States with more limited fiscal space should prioritise investment and growth-related expenditure in their budgets'.

#### 4.2. Governance under the EU ETS

The EU ETS is a classical 'cap and trade' system with an 'ex-ante' cap or emissions ceiling. The principal goal<sup>69</sup> of the EU ETS is to promote reductions of greenhouse gas emissions in a cost-effective and economically efficient manner. The EU ETS started on 1 January 2005 and its first trading period lasted until 31 December 2007. This was followed by a second trading period, matching the Kyoto protocol 1<sup>st</sup> commitment period (2008-2012). The EU ETS is currently in its third phase 2013-2020.

Important to the design of emissions trading is the way in which allowances or emission rights enter the system. There are broadly speaking two ways in which this can be done: by handing out allowances for free or through auctioning (or a combination of the former and the latter). Once an absolute cap is set and allowances are distributed (for free and through auctioning), operators of installations covered by the system have to submit every year a number of EU allowances equivalent to the emissions of the preceding year. For this purpose, operators can choose to reduce emissions and/or purchase emission allowances from other operators that have a surplus following reduction efforts or a reduction in production output. Operators failing to submit a number of allowances equal to the emissions of the preceding year face a fine and still have the obligation to submit the remainder allowances. The scope of the system is large industrial installations, fossil fuel-based power producers and domestic airline operators. These represent between 45-50 % of the EU's total greenhouse gas emissions.

There is an interesting policy analogy between the National Energy Plans that could be part of EU energy governance post-2020 (as mentioned in Section 2) and the EU ETS National Allocation Plans (NAPs) in the period 2005-2012. In particular, both processes could be called bottom-up driven from the Member State level to an EU-wide goal but at the same time processes that follow EU level set guidance and guidelines.

The NAPs were an important feature of the EU ETS from 2005 to 2012. In the first two phases of the EU ETS, no cap or absolute limit on emissions was set through the Directive's legal text, nor were there harmonised rules for allocation of EU ETS emission allowances. The Directive made EU Member States, through the development of NAPs, responsible for setting national caps for the EU ETS installations within their territory and for the allocation methodologies. However, Member States needed to follow criteria and guidelines for the implementation of these caps and allocation methodologies.

The European Commission developed and improved the guidance for the development of these NAPs and had the power to reject allocation plans that did not meet the legal criteria and the guidance thereof. It is interesting to note that the EU ETS cap setting evolved from what could be called a 'bottom-up' process towards an approach, which was almost 'top-down'. In the first trading period of the EU ETS (2005-2007), each Member State set an EU ETS cap which was not directly restricted by an economy-wide cap. The European Commission

---

<sup>69</sup> Directive 2003/87/EC, Article 1.

mostly assessed these caps as being consistent with previously reported Member States' emission projections. However, for the period 2008–2012 there was an economy-wide Kyoto commitment cap in place in all Member States.

With this in mind, the European Commission developed a quantified method, using its own data and modelling. The Commission furthermore used a consistent base year (i.e. the 2005 EU ETS verified emissions) as the starting point to apply the above-mentioned methodology. As such, the European Commission implicitly set an absolute EU ETS cap/target for each Member State. Allocation plans with a cap higher than the one calculated by the Commission were rejected or only accepted if the Member States amended the cap to make it consistent with the calculation by the European Commission. The strength of the method used by the European Commission lays in its dependence on a limited list of parameters such as historical and projected GDP and carbon intensity evolutions. The European Commission developed these parameters for each Member State by means of an independent model. Finally, the use of verified historical emissions was an important cornerstone to control the EU ETS caps that Member States planned to set under their allocation plans.

Furthermore, the assessment of the National Allocation Plans 2008–2012 can be seen as a rigorous scrutiny process on national climate policies beyond the EU ETS sectors. Even with the use of improved and consistent data, there still remained a risk that Member States were too generous in setting the cap under their NAPs. If a Member State decided to purchase emission credits generated under the Kyoto Protocol with public funds, the need for domestic emission reductions (to meet its targets set under the Kyoto Protocol) would be more limited. In practice, a Member State could argue for a more lenient EU ETS cap by stating that it would meet its overall Kyoto target through the purchase of emission allowances or credits. However, the substantiation of this claim was often deemed to be low. Therefore, the European Commission stated in the new guidance for the 2008-2012 allocation plans that the substantiation of the intended government purchase of Kyoto units would be crucial for checking consistency of a national allocation plan with criteria as stated in the EU ETS Directive. Member States that intended to purchase Kyoto units (so as to meet their Kyoto commitment) were now requested to provide more detailed information and proof in their national allocation plan. This included proof of the administrative arrangements put in place for realising the planned purchases, such as national programmes or purchase tenders for purchasing Kyoto units.<sup>70</sup> A similar approach was taken to assess the impact of policies and measures outside the EU ETS so as to avoid unsubstantiated emission reduction claims that could indirectly lead to an inflated EU ETS cap.<sup>71</sup>

It can be concluded from the above outlined EU ETS NAP process that the Commission, in order to prevent over-allocation or under-achievement in the absence of national caps or targets (especially in 2005–2007), had to develop a methodology and assessment that implicitly introduced such a cap at Member State level. As such, a binding national cap (on the EU ETS sectors) was

---

<sup>70</sup> European Commission, 2006: pp. 6-7.

<sup>71</sup> *Ibid.*, pp. 7-8.

imposed through the governance process. However, the European Commission's authority to do this was legally (and successfully) challenged. The European Court of Justice pointed in its judgment to ambiguous language in the actual EU ETS Directive that did not specifically allow the European Commission to set a cap at Member State level. This complexity and legal uncertainty led to a review of the EU ETS in 2008. As from 2013, the EU ETS started operating in a more consolidated manner. For the third phase (2013-2020) the cap was set in the Directive and set at EU level and no longer at Member State level through NAPs. The allocation methodology is now fully harmonised across the EU<sup>72</sup>.

***Possible lessons from the EU ETS for future EU renewable energy policy and governance***

*The EU ETS historical experience offers important lessons for the design and legal framework of the forthcoming energy governance and in particular the development, guidance, assessment and implementation of national energy plans.*

*One first element to consider is that the European Commission in its 2014 communication on the EU 2030 climate and energy framework did not clarify if the national energy plans and forthcoming EU energy governance would be embedded in a 'legal' framework. With the expiration of the NREAPs (as mentioned in Section 2 of this study) and possibly large pieces of the EU Renewable Energy Directive (if not reviewed) this may be a cause for concern. The need for a link between a firm legislative base and a meaningful governance system was already highlighted when this paper discussed the European Semester and EU economic governance. The experience under the EU ETS seems to confirm this finding.*

*A more specific lesson from the EU ETS on governance is that the development, guidelines and assessment of the National Allocation Plans depended significantly on their legal basis (e.g. criteria for NAPs) inside the EU ETS Directive. This basis allowed the Commission to further enhance the guidance and assessment of the NAPs over time. It is therefore recommended that, the elements forming the guidance and guidelines for national energy plans need to be embedded in (secondary) legislation (e.g. reviewed RE Directive and EED). Without specific guidelines, the (negative) assessment of the national energy plans could be open to legal challenge by Member States. Finally, the legal framework for EU energy governance should specify the assessment powers of the European Commission (and the Council).*

*The shorter test period of the EU ETS proved important to correct and specify the NAPs, their guidance and assessment. Interim assessment of the implementation of national energy plans is therefore recommended together with an overall mid-term review of the EU energy (governance) framework by e.g. 2025. If at that time significant deviations are found between the actual renewable energy deployment and the trajectory needed to meet the EU-wide 2030 target, the re-introduction of binding targets could be considered.*

<sup>72</sup> Directive 2009/28/EC: Article 9, Article 10 and Article 11.

### 4.3. The EU Energy Efficiency Directive

The EU Energy Efficiency Directive (EED)<sup>73</sup> entered into force on 4 December 2012. This Directive aims to establish a common framework of measures for the promotion of energy efficiency within the EU. Its goal is to ensure the achievement of the EU's 2020 20 % target on energy efficiency but also to pave the way for further energy efficiency improvements beyond 2020. All EU Member States are required to use energy more efficiently at all stages of the energy chain – from the transformation of energy and its distribution to its final consumption. The new Directive aims to help remove barriers and overcome market failures that impede efficiency in the supply and use of energy.

The Directive includes the obligation for each Member State to set an indicative national energy efficiency target for 2020, but in the form they prefer (e.g. primary/final savings, intensity, consumption). It also introduces a legal definition and quantification of the EU energy efficiency target<sup>74</sup>. Member States had to notify this target to the European Commission by 30 April 2013 together with its 'translation' in terms of an absolute level of primary energy consumption and final energy consumption in 2020.

Member States have to achieve a certain amount of final energy savings over the period 2014-2020 by using energy efficiency obligations schemes (for energy suppliers) or other targeted policy measures to drive energy efficiency improvements in households, industries and transport sectors.

Large enterprises now have to carry out an energy audit at least every four years, with a first energy audit at the latest by 5 December 2015. The Directive also proposes incentives for SMEs to undergo energy audits to help them identify the potential for reduced energy consumption.

3 % of buildings owned and occupied by the central governments have to be renovated and energy efficiency considerations have to be included in public procurement.

National Energy Efficiency Action Plans (NEEAPs) form an important part of (enabling) the implementation of this Directive. By 30 April 2014 and every three years thereafter, Member States will have to submit their NEEAPs to the Commission. On 22 May 2013 the Commission adopted the template for these NEEAPs. This template specifies the information that Member States are required to provide on measures adopted or planned to be adopted to implement the main elements of the Directive, although the actual format of the reporting remains non-binding.

---

<sup>73</sup> Directive 2012/27/EC.

<sup>74</sup> European Commission, 2014h: This is defined as the '*EU's 2020 energy consumption of no more than 1 474 Mtoe primary energy or no more than 1 078 Mtoe of final energy*'. With the accession of Croatia the target was revised to '*1 483 Mtoe primary energy or no more than 1 086 Mtoe of final energy*'.

In addition to the NEEAP template and in order to support Member States in their transposition and implementation efforts, on 6 November 2013 the Commission adopted a Communication and seven guidance notes covering nine articles of the Energy Efficiency Directive<sup>75</sup>. The Communication and the guidance notes aim to explain in more detail how the Directive should be read and can best be applied. According to the Commission these do not alter the legal effects of the Directive<sup>76</sup>.

***Possible lessons from EU Energy Efficiency Directive for future EU renewable energy policy and governance***

*The experience under the EED is interesting because of the similarity in (political) starting points to the current EU 2030 renewable energy debate, in particular the absence of binding national targets. The EED seeks to circumvent this absence and still achieve the overall EU 2020 energy efficiency goal by:*

- having Member States set indicative national targets;*
- the introduction of binding energy savings targets (or binding measures with similar impact) downstream on energy suppliers;*
- strengthening the demand side of energy savings investments through public procurement;*
- streamlining and monitoring the implementation of the Directive through the NEEAPs and European Commission guidance.*

*Some of these elements such as enhanced public procurement for renewable energy and the use of national plans are already present in the current Renewable Energy Directive. It can be considered to further strengthen and streamline these tools (e.g. combination of NEEAPs and NREAPs post-2020).*

*The use of indicative national renewable energy targets and trajectories towards 2030, as part of the national energy plans, can be considered as an option if binding national targets remain absent.*

*The current Renewable Energy Directive also includes a list of binding measures, mostly aimed at removing the barriers for renewable energy deployment. Enhancing these measures and ensuring they remain in place post-2020 should be considered a priority in case the Directive is reviewed.*

*Furthermore, the option to introduce binding renewable energy targets downstream e.g. on energy suppliers could circumvent the resistance against national binding targets. However, this option must be treated carefully so as to not prevent the deployment of smaller decentralised renewable energy systems.*

---

<sup>75</sup> In particular Articles 5, 6, 7, 8, 9–11, 14 and 15.

<sup>76</sup> The communication and guidance notes are, according to the European Commission, without prejudice to the binding interpretation of the Directive as provided by the Court of Justice.

## 5. Tools to enhance post-2020 EU Renewable Energy Policy and governance

This section goes beyond the experience with governance mechanisms that were highlighted in the previous section. It will investigate two important principles that were mentioned by the European Commission in its 2030 energy and climate communication: enhancing investor certainty and the streamlining of energy planning and reporting.

The first part of this section introduces investor certainty and risk mitigation for renewable energy projects and in particular the interaction of policy and finance risk. Using the findings of a recent report commissioned by the European Commission, key drivers to reduce policy and finance risks are identified. Finally, these findings are translated into policy recommendations for a possible forthcoming review of the EU Renewable Energy Directive.

The second part explores how National Energy Efficiency Action Plans (NEEAPs) and National Renewable Energy Action Plans (NREAPs) could be streamlined and consolidated. This part concludes by indicating other parts of what could become the rules-based foundation of post-2020 EU energy governance framework and highlights areas of further research.

### ***5.1. Increasing investment certainty and access to finance for renewable energy***

Investors in renewable energy have to deal with multiple risks that influence the decision to go ahead with renewable energy projects. The following risks can materialise in the development and running of renewable energy projects<sup>77</sup>:

- Financial risk (e.g. the access to and cost of capital)
- Business and strategic risk (e.g. the risk of technological obsolescence)
- Building and testing risk (e.g. use of unproven technologies and natural hazards)
- Operational risk (e.g. plant closure due to resource unavailability or plant damage due to component failure)
- Environmental risk (e.g. possible liabilities due to environmental damage)
- Policy/regulatory risk (e.g. changes to public policies that affect the profitability of the project)
- Market risk (e.g. increase in commodity prices, decrease in power and/or CO2 prices)
- Weather-related volume risk (e.g. lack of wind or sunshine)

This section focuses on the policy and financial risk for renewable energy, how these interact and influence the (future) cost of renewable energy projects. The dramatic change of EU renewable energy policy from a system with binding national targets up to 2020 towards a system with binding EU-wide targets by 2030 without national sub-targets does indeed introduce a level of policy uncertainty. This uncertainty is strengthened due to the fact that little is known about the EU legal framework (if any) that will govern renewable energy post-

---

<sup>77</sup> The Economist Intelligence Unit, 2011: p. 9.

2020. In particular, the expiration of important elements under the current Renewable Energy Directive after 2020 does increase the perceived policy risk in the renewable energy sector.

Public policy can influence financing (e.g. access to capital and rent paid) of renewable energy by addressing the barriers that exist for sustainable finance of renewable energy. While the 2009 Renewable Energy Directive included mechanisms for removing regulatory barriers it fell short on specifically addressing financial barriers. The Directive implicitly acknowledged this gap by mentioning that the European Commission will publish a report on this issue. In January 2011, the European Commission presented such a report<sup>78</sup> on financing renewable energy in the European energy market. The report focuses on the investment risks related to renewable energy and the relation with policy and financing. Since this report represents extensive research into financing renewable energy in a European context it is relevant to highlight its main conclusions and recommendations in the following paragraphs.

*Policy makers need to ensure long-term commitment towards renewable energy.*

A clear political and societal long-term commitment towards renewable energy is required. Based on this, a stable and reliable support mechanism can be designed. Commitment, stability, reliability and predictability are all elements that increase confidence of market actors, reduce regulatory risks, and hence significantly reduce cost of capital. This effect can be significant: the levelised cost of electricity (LCOE) can be reduced by 10 % to 30 %, as compared to a support scheme with no particular attention to risk mitigation.

*Investment and finance risks can be removed by removing barriers.*

Policies that improve the success rate of the project development phase will reduce the project investment and hence levelised energy costs of renewable energy technologies. This refers to, amongst others, improving permitting procedures and grid connection procedures. The overall effect on the cost of capital of removing barriers is hard to quantify. The direct effect on the LCOE may be in the range of 5 % to 10 %. Next to the generic measures described above, governments can align their generic financial and fiscal regime towards the practice of renewable energy project development.

*Financing risks can be removed through risk sharing.*

The report identifies how government supported financing can significantly reduce the cost of capital for renewable energy projects. *Government loan guarantees* that underwrite all or part of the debt for a project offers lenders a significantly lower risk in case of default or underperformance of the project. This risk reduction is translated in lower interest rates (e.g. 1-2 %, resulting in reductions up to 5-10 % in the LCOE), but potentially also in longer debt terms and more favourable debt service requirements with even higher reductions in the cost of capital. *Government project participation*, for instance by investing in large-scale electrical infrastructure solutions for offshore wind energy, can reduce LCOE by for instance 15 % or more (with about one third as a direct effect of a reduction in the cost of capital). The report further recommends

---

<sup>78</sup> De Jager et al, 2011: pp. 135-150.

increasing the role of the European Investment Bank (EIB) and national equivalents in providing equity, debt or guarantees. These institutes have a strong multiplier effect by attracting other forms of finance at lower cost of capital.

*Tailored debt measures* are an additional tool to improve financing of renewable energy. An example is to provide low interest loans and, importantly, align the debt term with the technical lifetime. Policies that anticipate on risk assessment practices by lenders can reduce costs of capital significantly by creating market conditions and designing support schemes that result in debt terms being close to technical lifetimes (e.g. longer duration of production support and power purchase agreements (PPAs))<sup>79</sup>.

*Fiscal measures* can also have a significant impact on reducing the LCOE of a project. Investment tax deduction, production tax deduction, and flexible or accelerated depreciation schemes reduce LCOE up to 10-20 %, depending on the specific characteristics of the measure<sup>80</sup>.

*Investment subsidies* are, according to the report, believed to be more effective at the demonstration and market introduction phase, than during the deployment phase with a larger emphasis on stimulating production of renewable energy. Investment grants could be converted into equity (i.e. government capital participation) or debt after successful commissioning of a project. This transition of grants to equity or debt is interesting since it keeps the effect on the government's budget to a minimum.

Next to enhancing the financing of renewable energy, the report has additional suggestions for national, multilateral and EU-wide policy designs for renewable energy.

First of all, a continuing *improved design of current production support schemes (such as FITs, FIPs and obligation schemes)*, and notably good alignment with other support policies, can result in additional cost reductions in the range of 2-30 % (on LCOE). The high end concerns projects with relative high project risk, such as offshore wind energy or biomass co-generation. For onshore wind energy, these potential improvements are smaller (several percentages to 10-15 %), notably for some feed-in tariff and premium schemes.

Member States are recommended to *not restructure their support scheme too drastically but improve their support schemes, with a strong notion of the consequences for financing*.

---

<sup>79</sup> Low-interest loans, with discounts on interest rate in the range of 1-2 %, can contribute to this. The report (De Jager et al.) estimates direct overall effect of these kinds of debt schemes is up to 5-10 % on levelled cost of electricity. However, it is possible that indirectly these measures affect other key financial parameters used by investors and other lenders, such as the economic lifetime, debt term and debt service conditions.

<sup>80</sup> Not all projects and finance models will be able to get the tax benefits of these schemes. A critical issue is the dependency on policies as the fiscal measures result in lower tax income for governments.

The report finally favours an *extensive use of renewable energy (infrastructure) cooperation mechanisms* (as currently mentioned in the EU Renewable Energy Directive) in order to enhance optimal resource allocation. The report stresses that this needs to be combined with a strong EU focus on the support of infrastructure for RES development and, if possible, the establishment of a European working group on the ‘coordination of renewable energy support’, which might for example reduce cherry-picking of investors between Member States.

***Recommendations on public policy and finance towards a review of the EU Renewable Energy Directive***

*It seems clear that firm long-term commitments on renewable energy by governments have significant impact on the cost of renewable energy. The negative form of this conclusion is that scaling back commitments (especially in a non-predictable way) can make renewable energy more expensive. Therefore it seems critical that a reviewed EU Renewable Energy Directive places continuation and improvement of existing legislation and support systems (at Member State level) at its core. This includes strengthening the measures (and the enforcement thereof) that help address the regulatory barriers towards renewable energy deployment. Also the mechanisms in the Directive that facilitate enhanced cooperation between two or more Member States on renewable energy (supporting) infrastructure and support schemes should be strengthened.*

*As optimised finance of renewables, through government support, can significantly lower the LCOE, the reviewed Directive should have a new chapter dedicated to the elimination of financing barriers with the goal of introducing or facilitating national and EU-wide financing mechanisms. The report mentioned earlier in this section offers a list of good and tailored examples of these mechanisms. This also includes the options to enhance the role of the EIB, other finance (national) institutions and EU funds in the financing of renewable energy.*

*Dedicated long-term policy commitments could be linked with access to EU-level finance. For instance, forthcoming national energy plans that lack these national (binding) long-term commitments could be excluded from EU financing. This ineligibility for finance can be motivated through the related high policy risk in the country.*

*Next to assisting with actual financing of projects, the European Investment Bank (EIB) could be a ‘practical’ facilitator of renewable energy projects by offering an ‘(non) investment grade’ assessment of projects in the pipeline. A positive assessment by the EIB could facilitate the participation of other lenders at favourable conditions.*

*Finally, some government-supported financing mechanisms (such as loans or loan guarantees) might (in the short term) negatively affect the budget of EU governments and induce a macro-economic imbalance related procedure (e.g. under the Stability and Growth Pact). Since these measures are taken with the goal of contributing to an overall EU (binding) target and because they have*

*other economic (long-term) co-benefits, the EU economic governance system should include flexibilities towards EU governments (budgets) that have engaged in these mechanisms. As mentioned earlier, there are signs that the new investment plan for Europe as presented by the European Commission on 26 November 2014 could enable this<sup>81</sup>.*

## **5.2. Signposts towards a rules-based post-2020 EU energy governance framework**

This section considers other elements that could be part of future EU energy governance. The main focus will be on the streamlining of the two existing main horizontal EU tools, namely the EU Energy Efficiency Directive and the Renewable Energy Directive. The section next initiates a discussion on how other EU energy legislation can be integrated into this governance framework and how an additional governance and coordination layer can be added through an intergovernmental agreement. A full discussion on this broader governance integration is however beyond the remit of this paper.

Combining the National Renewable Energy Action Plans (NREAPs) and the National Energy Efficiency Action Plans (NEEAPs) is, on first sight, a good option to streamline national energy planning. Not only is there an overlap in some of the data that Member States need to provide under these plans, there also exists a fundamental interaction between the consequences of energy efficiency and renewable energy policies. On the one hand, energy savings in power consumption lead to a relative increase in the share of renewable energy production. On the other hand, a higher level of renewable energy production leads to primary energy savings<sup>82</sup>.

However, a direct integration of NEEAPs and NREAPs might be less straightforward. While both tools encourage Member States to develop energy policy-related planning, the philosophy behind them is different. NEEAPs are built on the premise of continuing improvement in national energy savings policies. Therefore Member States need to update their NEEAPs every three years so as to include new (and improved) policies and measures related to the saving of primary energy. The NREAPs, on the other hand, start from a different perspective. These plans are supposed to work over a longer time period until 2020 and have the goal of reflecting and enhancing policy stability at national level. The Renewable Energy Directive makes it difficult for Member States to change these plans once they are submitted. The exception to this rule is changes to the plan that reflect corrective action by the Member States to safeguard the renewable energy deployment trajectory and achievement of 2020 targets. This approach makes sense as policy or regulatory stability is important for e.g. generating favourable financing conditions (as argued in Section 5.1).

---

<sup>81</sup> European Commission, 2014b, p. 4: 'Member States with more limited fiscal space should prioritise investment and growth-related expenditure in their budgets'.

<sup>82</sup> For a broader introduction and discussion on this effect see: Harmsen, R., Wesselink, B., Eichhammer, W., & Worrell, E. (2011).

There are two ways in which the conflicting approaches of NEEAPs and NREAPs can be resolved. First, it can be considered to allow for interim reviews of national renewable energy planning, as part of consolidated energy planning. However, the reviews related to renewable energy policy can only contain enhanced or more ambitious policies. This would provide a safeguard against Member States using the review to backtrack on previous commitments. The second option goes in the opposite direction and allows for a longer planning period on energy efficiency policies (again as part of consolidated national energy planning). In that case, the (bi-) annual reporting format could be strengthened so as to allow broader reporting of enhanced energy savings policies at national level. These reports could next become formal addendums to the originally submitted national consolidated energy plan.

There are options to streamline energy governance further beyond renewable energy and energy efficiency. The Energy Efficiency Directive is an example of this type of rationalisation because it already replaces and encompasses the Energy Services Directive and the Cogeneration Directive. The priorities identified in the European Commission's communication on a 2030 climate and energy framework and the Communication on Energy Security can offer some guidance on the priority areas that could become part of broader EU energy governance. These include the need for energy (infrastructure) investments (including cross-border energy projects) and enhanced security of supply, the completion of the internal energy market and international industrial competitiveness and its relation to EU energy prices. These are some of the EU legislative tools that are relevant for these priorities (non-exhaustive list):

- Directive (2008/92/EC) of 22 October 2008 concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users;
- Directive (2005/89/EC) of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment;
- Directive (2009/72/EC) of 13 July 2009 concerning common rules for the internal market in electricity;
- Directive (2009/73/EC) of 13 July 2009 concerning common rules for the internal market in natural gas;
- EU Regulation (No 1227/2011) of 25 October 2011 on wholesale energy market integrity and transparency.

The next step would be to check if these legal instruments, in their current form, are optimised to fulfil the broader energy related goals beyond 2020. Optimisation could lead to reviews or recasts if required. If opportune, this should include the option to further streamline Member States' reporting obligations that follow the implementation of these instruments.

What would be the next steps? Assume first that over the next years the above-mentioned legislation (with focus on renewable energy and energy efficiency) will be reviewed with the goal of laying the foundation for a rules-based energy governance framework. If this (streamlined) framework is in place, policy makers could consider the development of an over-arching governance and coordination system to enhance the cohesion and coordination between the

different legal instruments even further. The Treaty on Stability, Coordination and Governance that is part of the EU economic governance system can become an interesting precedent as it is an example of a European intergovernmental legal agreement that stands apart from EU primary and secondary legislation but at the same time can make use of existing EU legislation. Such an intergovernmental agreement on energy could further implement certain elements related to reporting, monitoring, coordination, compliance and enforcement of post-2020 EU energy legislation beyond what is provided for in existing directives, regulations and decisions. A specific example would be that recommendations of the European Commission on corrective action to be taken by a Member States are deemed to be approved by the Council unless a qualified majority of Member States overturns them (i.e. an RQMV procedure).

The above-mentioned approach must be seen as an illustration of one option and hence be treated carefully at the moment as further and broader research is required to assess its full and long-term implications on EU policy development.

## 6. Conclusions: options to enhance the post-2020 EU Renewable Energy Directive

### 6.1. Framing the (need for a) review of the EU Renewable Energy Directive

This paper concludes by bringing together the lessons and recommendations that emerged from the previous sections. The goal is to outline a theoretical first blueprint of how the existing Renewable Energy Directive could be reformed after 2020.

This reform is necessary because important elements such as the reporting obligations (and measures) in the Directive will expire after 2020. The need for reform is further strengthened by the political agreement in the EU to increase the EU's renewable energy target by 2030, though the target will most likely not be translated into national sub-targets. The third reason for reform follows from the European Commission's and the European Council's proposal for a new governance framework (still to be specified) post-2020, that intends to streamline existing (planning and reporting) obligations but also enhance investor certainty.

A review of the EU Renewable Energy Directive needs to consider which (new) legal principles or concepts can be introduced to strengthen the Directive in the absence of binding national targets. That is to say, how can these principles enhance investor certainty, reduce policy risk, improve finance, enhance cooperation between Member States and remove other barriers?

In this context it is worth repeating that the European Commission's 2030 climate and energy communication mentioned that Member States are expected to decide upon and propose their own 'clear commitments', which should 'build upon' their current efforts to meet the 20 % target by 2020<sup>83</sup>. This can be read as the European Commission expecting Member States to come forward with their own 2030 targets (and trajectories towards these targets) and that these commitments should at least be more ambitious than the current actions being undertaken.

### 6.2. Options to enhance the EU Renewable Energy Directive

The options and proposals below are derived from the lessons learned from other governance systems (see Section 4) and on the recommendations to enhance policy certainty to facilitate renewable energy financing (Section 5). They should be considered a non-exhaustive list. It is also recommended that each of the options mentioned below is further explored (e.g. on its legal and political viability) and further developed.

#### *Meeting the 2020 nationally binding targets is the starting point*

A reviewed Directive should ensure that the current nationally binding targets for 2020 will be met, also after 2020. Reporting, compliance and enforcement procedures must therefore continue post-2020, at least to make sure that pre-2020 commitments are met (even if they are delayed).

---

<sup>83</sup> EU Commission, 2014a: p. 6.

*Introduce the 'no-backsliding' principle*

The reviewed Directive should establish that, next to the commitment to meet the 2020 national renewable energy target in the absence of post-2020 national targets, having a lower share of renewable energy post-2020 as compared to that target is not permitted.

Furthermore, following the observation that long-term and stable policy commitments are crucial to keep the cost of renewable energy low, the reviewed Directive could embed the principle that national support mechanisms for renewable energy in place before 2020 cannot be radically altered or abandoned in the short term. Retroactive abolishment of support mechanisms should be forbidden. However, Member States should be encouraged to systemically improve their existing mechanisms following changed market and cost conditions for (certain) renewable energy technologies. These improvements should aim to secure the long-term commitment to renewable energy in a cost-efficient manner.

*Consider the use of nationally determined indicative targets, trajectories and an excessive deviation procedure*

Following the example set in the Energy Efficiency Directive, a reviewed Renewable Energy Directive could ask Member States to submit indicative national targets for 2030 and the planned trajectory to achieve these. This approach could, in the absence of nationally binding targets, give an upfront indication if the EU 2030 target is likely to be achieved under the assumption that the national implementation of the indicative targets follows. It can further be considered, using the EU economic governance as a precedent, to not allow an *excessive* (downward) deviation from the trajectory. In case such an excessive deviation occurs, the European Commission is allowed to start a procedure through which corrective action is proposed.

*Anchor of the national commitments and policies through the Directive*

Next to safeguarding existing policies and commitments in the reviewed Directive, a similar approach could be taken towards new domestic policies. Assume that Member States propose new renewable energy policies through the national energy plans and implement these in the period until 2030. Again, it would harm investor confidence if these plans are radically changed or abandoned with little notice. The reviewed Directive should contain provisions to 'anchor' these commitments. An option could be to force Member States to *motivate* such policy revisions, certainly if they could impact the indicative national target and trajectory negatively. This motivation can happen through the obligation to submit a reviewed national energy plan that will be assessed by the European Commission.

*Keep and enhance the existing mechanisms that aim to remove (regulatory) barriers*

The current Directive contains important mechanisms (such as ensuring priority grid access for renewable energy) that have the goal of lowering regulatory barriers for renewable energy (see Section 2). The reviewed Directive should keep these mechanisms in place and seek to strengthen them; for instance by making (some of) the non-binding mechanisms binding.

*Keep and enhance mechanisms for enhanced energy cooperation between two or more Member States*

Improving the cooperation between Member States on energy projects (e.g. cross-border infrastructure) is an important element in the European Commission's 2014 climate and energy communication. The reviewed Directive should seek to further encourage this cooperation through the use of cooperation mechanisms. Elements that can facilitate this cooperation are lowering the administrative burden related to (reporting on) this cooperation and priority access to EU financial support to implement these projects.

*Keep and enhance demand-side mechanisms*

Public sector procurement power could be further used to facilitate demand for renewable energy technologies. These existing demand-side measures should be kept in place in the Directive and where possible further enhanced through e.g. the introduction of specific targets.

*Introduce mechanisms to remove financing barriers/costs*

Optimising the financing of renewable energy projects, through government support, can significantly lower the LCOE therefore the reviewed Directive should get *a new chapter dedicated to the elimination of financing barriers* with the goal of introducing or facilitating national and EU-wide financing mechanisms. This also includes the option of enhancing the role of the EIB, other finance (national) institutions and EU funds in financing renewable energy. Dedicated long-term policy commitments could be linked with access to EU level finance. National energy plans that lack these national (binding) long-term commitments could be excluded from EU financing. This ineligibility for finance can be motivated through the related high policy risk in the country.

*Introduce an investor complaints procedure that can trigger an infringement procedure*

Related to strengthening the existing measures as mentioned above, a reviewed Directive could consider the introduction of an investor complaints procedure. An investor that deems that its investment plans in a Member State are harmed due to incomplete or non-implementation of these measures should be allowed to put forward a formal complaint. The European Commission has to examine this complaint and if deemed to be justified, the Commission can be allowed to start an infringement procedure against the concerned Member State. This complaints procedure could hasten both the enforcement and implementation of the Directive.

*Consider the introduction of binding measures downstream*

In the absence of binding national targets, a reviewed Directive could consider the introduction of binding sub-targets for energy suppliers/distributors (similar to the US renewable energy portfolios) or binding measures for these sectors. However, this option must be treated carefully as to not prevent the deployment of smaller decentralised renewable energy systems.

*Announce another review of the Directive by 2025 (at the latest) with the option to re-introduce binding national targets*

Announcing a review by 2025 as part of the revised Directive is a strategy that could be considered. This review could be used as a corrective mechanism to enhance overall compliance with the EU's 2030 renewable energy target. It could also consider the reintroduction of binding national targets if a significant number of Member States deviates from planned trajectories towards indicative 2030 targets or if the overall under-performance of EU Member States endangers the achievement of the EU 2030 target. Such a compliance mechanism can have a pre-emptive effect if already announced in the reviewed Directive.

*Strengthening and streamlining of national energy plans and reporting*

Combining the National Renewable Energy Action Plans (NREAPs) and the National Energy Efficiency Action Plans (NEEAPs) could help streamline national energy planning. However, a direct integration of NEEAPs and NREAPs might be less straightforward. As indicated in Section 5, there are options through which the conflicting approaches within NEEAPs and NREAPs can be resolved. It is also possible to streamline energy governance further beyond renewable energy and energy efficiency and to add an additional governance and coordination layer by means of an intergovernmental agreement.

## 7. References

- Barradale, M. J., (2008). 'Impact of policy uncertainty on renewable energy investment: wind power and PTC'. *United States Association for Energy Economists WP*, 08-003.
- Bistola, A. and Pause, F., (2012). 'Cooperation Mechanisms Legal Overview and Important Aspects of the EU RES-Directive: 9<sup>th</sup> Workshop of the International Feed-In Cooperaiton (IFIC)', *Stiftung – Umweltenergierecht*.
- Bloomberg, (August 2014). 'Renewable Energy Companies to invest \$7 Billion in Chile Power'. Available at: <http://www.bloomberg.com/news/2014-08-14/renewable-energy-companies-to-invest-7-billion-in-chile-power.html> [accessed 6 November 2014].
- C2ES, (2014). 'Renewable and Alternative Energy Portfolio Standards', *Center for Climate and Energy Solutions*. Available at: <http://www.c2es.org/node/9340> [Accessed 22 December 2014].
- Clean Energy Council (2014a). 'Australia Renewable Energy Target (RET) has driven large amounts of investment in clean energy over the last decade', Available at: <http://www.cleanenergycouncil.org.au/policy-advocacy/renewable-energy-target/why-we-need-the-renewable-energy-target.html> [accessed 6 November 2014].
- Clean Energy Council, (2014b). 'The Impact of Reducing the Renewable Energy Target on investments'. Available at: <http://www.cleanenergycouncil.org.au/policy-advocacy/renewable-energy-target/impact-of-reducing-the-ret.html> [accessed 22 December 2014].
- Clean Technica, (October 2014). 'Chile now (Arguably) World's Top Renewable Energy Market'. Available at: <http://cleantechnica.com/2014/10/11/chile-now-arguably-worlds-top-renewable-energy-market/> [accessed 6 November 2014].
- Climate Control News, (October 2014). 'Investment Plummets in Renewable Energy Sector'. Available at: <http://www.climatecontrolnews.com.au/news/investment-plummets-in-renewable-energy-sector> [accessed 6 November 2014].
- De Jager et al (2011), 'Financing Renewable energy in the EU Energy Market, Final Report', (Brussels: ECOFYS)  
Available at: [http://ec.europa.eu/energy/renewables/studies/doc/renewables/2011\\_financing\\_renewable.pdf](http://ec.europa.eu/energy/renewables/studies/doc/renewables/2011_financing_renewable.pdf) [accessed 22 December 2014].
- DG Energy, (2014). 'Transparency Platform'. Available at: [http://ec.europa.eu/energy/renewables/transparency\\_platform/transparency\\_platform\\_en.htm](http://ec.europa.eu/energy/renewables/transparency_platform/transparency_platform_en.htm) [accessed 22 December 2014].
- Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Directive 96/61/EC (Text with EEA Relevance).

- Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009, *Promotion of the use of energy from renewable sources and amending and subsequently repealing Directive 2001/77/EC and 2003/30/EC. (Text with EEA Relevance).*
- Directive 2012/27/EU of the European Parliament and of the European Council of 25 October 2012, *Energy efficiency amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC. (Text with EEA Relevance).*
- DSIRE, (2014) (Online Database) 'Texas: Incentives/Policies for Renewables & Efficiency', *Database of State Incentives for Renewables and Efficiency.* Available at: [http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=TX03R](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=TX03R) [accessed 22 December 2014].
- The Economist Intelligence Unit, (2011), 'Managing the risk in renewable energy', A report from the Economist Intelligence Unit sponsored by Swiss Re. Available at: [http://www.economistinsights.com/sites/default/files/downloads/EIU-SwissRe\\_ManagingRiskRenewableEnergy\\_Web\\_2.pdf](http://www.economistinsights.com/sites/default/files/downloads/EIU-SwissRe_ManagingRiskRenewableEnergy_Web_2.pdf) [Accessed 22 December 2014].
- EIA, (2012). 'Most States have Renewable Portfolio Standards', *Independent Statistics & Analysis: US Energy Information Administration*, Available at: <http://www.eia.gov/todayinenergy/detail.cfm?id=4850> [accessed 22 December 2014].
- EEA (2014). 'Trends and projections in Europe 2014: Tracking progress towards Europe's climate and energy targets for 2020', *European Environmental Agency (EEA) Report No. 6/2014.*
- EPA, (2014a). 'Renewable Portfolio Standards', *United States Environmental Protection Agency.*
- EPA, (2014b). 'State Funding Resources and Renewable Portfolio Standards (RPS)' *United States Environmental Protection Agency Available at:* <http://www.epa.gov/lmop/publications-tools/funding-guide/state-resources/index.html> [accessed 22 December 2014].
- EREC, (2013). *EU Tracking Roadmap 2013: Keeping Track of Renewable Energy Targets Towards 2020* Brussels: EREC. Available at: [http://keepontrack.eu/contents/publicationseutrackingroadmap/roadmap\\_final\\_version3.pdf](http://keepontrack.eu/contents/publicationseutrackingroadmap/roadmap_final_version3.pdf) [accessed 22 December 2014].
- European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *A policy Framework for Climate and Energy in the Period from 2020 to 2030*, COM(2014) 15 final, Brussels 22 January 2014.
- European Commission, (2006). Communication from the Commission to the Council and to the European Parliament on *The national allocation plans for the allocation of greenhouse gas emission allowances in the period of the EU Emissions Trading Scheme accompanying Commission Decisions of 29*

November on the national allocation plans of Germany, Greece, Ireland, Latvia, Lithuania, Luxembourg, Malta, Slovakia, Sweden and the United Kingdom COM/2006/0725 final.

European Commission, (2012). *EU Law: Commission acts to ensure that European Legislation is fully implemented*, MEMO, Brussels 21 June 2012. Available at: [http://europa.eu/rapid/press-release\\_MEMO-12-464\\_en.htm?locale=en](http://europa.eu/rapid/press-release_MEMO-12-464_en.htm?locale=en) [accessed 22 December 2014].

European Commission, (2013). *Renewable Energy Progress Report*, Brussels, 27 March 2013, COM(2013) 175 final.

European Commission, (2014a). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *A policy Framework for Climate and Energy in the Period from 2020 to 2030*, COM(2014) 15 final, Brussels 22 January 2014.

European Commission, (2014b). Communication from the Commission to the European Parliament, the Council, the European Central Bank, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, *An investment plan for Europe*, Brussels 26 November 2014. COM(2014) 903 final. Available at: [http://ec.europa.eu/priorities/jobs-growth-investment/plan/docs/an-investment-plan-for-europe\\_com\\_2014\\_903\\_en.pdf](http://ec.europa.eu/priorities/jobs-growth-investment/plan/docs/an-investment-plan-for-europe_com_2014_903_en.pdf) [accessed 22 December 2014].

European Commission, (2014d). *Application of EU Law: Infringements of EU Law*, Available at: [http://ec.europa.eu/eu\\_law/infringements/infringements\\_en.htm](http://ec.europa.eu/eu_law/infringements/infringements_en.htm) [accessed 22 December 2014].

European Commission, (2014e). 'Europe 2020 targets', *Europe 2020*. Available at: [http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index\\_en.htm](http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm) [accessed 22 December 2014].

European Commission, (2014f). 'Making it happen: the European Semester', *Europe 2020*. Available at: [http://ec.europa.eu/europe2020/making-it-happen/index\\_en.htm](http://ec.europa.eu/europe2020/making-it-happen/index_en.htm) [accessed 22 December 2014].

European Commission, (2014g). 'Europe 2020 in a nutshell', *Europe 2020*. Available at: [http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/index\\_en.htm](http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/index_en.htm) [accessed 22 December 2014].

European Commission, (2014h). 'Energy Efficiency – Energy Efficiency Directive', *DG Energy*. Available at: [http://ec.europa.eu/energy/efficiency/eed/eed\\_en.htm](http://ec.europa.eu/energy/efficiency/eed/eed_en.htm) [accessed 22 December 2014].

European Commission, (2014i). 'Six-pack? Two-pack? Fiscal compact? A short guide to the new EU fiscal governance', *DG Economic and Financial Affairs*. Available at: [http://ec.europa.eu/economy\\_finance/articles/governance/2012-03-14\\_six\\_pack\\_en.htm](http://ec.europa.eu/economy_finance/articles/governance/2012-03-14_six_pack_en.htm) [accessed 22 December 2014].

European Commission, (2014j). 'Enforcing EU Energy law', *DG Energy*. Available at: [http://ec.europa.eu/energy/infringements/proceedings/renewables\\_en.htm](http://ec.europa.eu/energy/infringements/proceedings/renewables_en.htm) [accessed 22 December 2014].

European Council, (2014). 'Conclusions on 2030 Climate and Energy Policy Framework', Brussels, 23 October 2014, SN 79/14.

European Council, Council Conclusions on 2030 Climate and Energy Policy Framework, Brussels, 23 October 2014, SN 79/14.

Eurostat, (2014). (News Release), 'Share of Renewables in energy consumption up to 14 % in 2012: Bulgaria, Estonia, and Sweden already achieve their 2020 target', No. 37/2014.

Eurostat, (2014). 'Energy from renewable sources' Available at: [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Energy\\_from\\_renewable\\_sources](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_from_renewable_sources) [accessed 22 December 2014].

Harmsen, R., Wesselink, B., Eichhammer, W., & Worrell, E., (2011). 'The unrecognized contribution of renewable energy to Europe's energy savings target.' *Energy Policy*, 39(6), 3425-3433.

Hatzfeldt, Sophie von, (2013). 'Renewable Energy in Chile: Barriers and the role of Public Policy', *Columbia Journal of International Affairs*, 66(2) Spring/Summer. Available at: <http://jia.sipa.columbia.edu/renewable-energy-chile/> [accessed 22 December 2014].

Klessmann, C., Lamers, P., Ragwitz, M., Resch, G., (2010). 'Design options for cooperation mechanisms under the new European Renewable Energy Directive', *Energy Policy*, 38(8), 4679-4691.

Leon, W., (2013). 'The State of State Renewable Portfolio Standards', prepared for the *State-Federal RPS Collaborative*.

Lyon, T., and Yin, H., (2010). 'Why do States adopt renewable portfolio standards? An Empirical Investigation', *The Energy Journal*, 3(3), 131-156.

Peeters, M., (2014). 'Governing towards renewable energy in the EU: Competences, instruments, and procedures', *Maastricht Journal of European and Comparative Law (MJ)*, 21(1) 39.

PVTECH, (2014). 'Funding released to accelerate 740MW of renewable energy development in Chile'.

Available at: [http://www.pv-tech.org/news/chile\\_to\\_fund\\_740mw\\_of\\_renewable\\_energy\\_development](http://www.pv-tech.org/news/chile_to_fund_740mw_of_renewable_energy_development) [accessed 22 December 2014].

Renewable Energy World, (August 2014). 'Chile Attracts \$7 Billion in Renewable Energy Investment'. Available at: <http://www.renewableenergyworld.com/rea/news/article/2014/08/chile-attracts-7-billion-in-renewable-energy-investment> [accessed 6 November 2014].

Resch, G., Liebmann L., Ortner A., Busch S., (2014). '2020 RES Scenarios for Europe – are Member States well on track for achieving 2020 RES targets?', (Work package 2: KeepOnTrack!).

ROAM, (2014). 'RET Policy Analysis', *Roam Consulting Energy Modelling Expertise, Clean Energy Council*.

SolSystems, (2010). 'Which is more efficient – RPS of Feed-In-Tariffs?'. Available at: <http://www.solssystemscopy.com/blog/2010/11/19/which-is-more-efficient-rps-or-feed-in-tariffs/> [accessed 22 December 2014].

The Sydney Morning Herald, (October 2014). 'General Electric boss calls for certainty over renewable energy target'. Available at: <http://www.smh.com.au/business/general-electric-boss-calls-for-certainty-over-renewable-energy-target-20141023-11aoc3.html> [accessed 6 November 2014].

TFEU, (2012), Consolidated Version of the Treaty on the Functioning of the European Union, 2012/C 324/01.

US Department of Energy, (2013). 'Energy Efficiency & Renewable Energy', *2012 Renewable Energy Data Book*. Available at: <http://www.nrel.gov/news/press/2013/5302.html> [accessed 22 December 2014].

Wiser, R., Namovicz, C., Gielecki, M., Smith, R., (2007). 'Renewable Portfolio Standards: A Factual Introduction to Experience from the United States', *Electricity Markets and Policy Group*, 04/2009.