National benchmarks for a more ambitious EU 2030 renewables target

National benchmarks for a more ambitious EU 2030 renewables target

By: **Felix von Blücher, Sarah Gül, Dr. Corinna Klessmann (Ecofys)**
Dr. Gustav Resch, Lukas Liebmann (TU Wien)

Date: 08 June 2017

Project number: EPODE17755

Ecofys - A Navigant Company
Ecofys Germany GmbH | Albrechtstraße 10 c | 10117 Berlin | **T** +49 (0)30 29773579-0 | **F** +49 (0)30 29773579-99 | **E** info@ecofys.com | **I** ecofys.com
Geschäftsführer C. Petersdorff | **Handelsregister** Amtsgericht Köln | **Handelsregisternr.** HRB 28527 | **Ust-ID-Nr.** DE 187378615

Summary

The Clean Energy Package presented by the European Commission in November 2016 proposes a binding EU energy efficiency target of at least 30% and a binding EU renewables target of at least 27% by 2030, building on earlier conclusions of the European Council. These EU-level targets shall not be broken down in binding national targets.

The proposed targets have been heavily criticised by multiple stakeholders, including the European Parliament and the European renewable energy associations. They raise two main points of criticism. Firstly, they consider the targets as too low, as they appear not in line with the long-term decarbonisation pathway required to meet the goals of the Paris Climate Agreement. Secondly, they call for binding national targets to ensure that the EU targets are achieved. According to the Commission proposal, the proposed EU-level targets for renewables and energy efficiency are not broken down to national targets, but instead, Member States shall pledge their own contributions. Even under the pledging approach, however, Member States' pledges would need to be measured against national benchmarks to assess whether their contributions are adequate to collectively meet the EU target.

To inform the debate on targets and benchmarks, this report derives national target benchmarks for a more ambitious EU renewables target of 30%, 35% or 45%. It also analyses the positive effect of increased energy efficiency on the effort required to meet the 2030 renewables targets. In doing so it provides relevant indications for the required effort and fair contribution of the Member States to the achievement of the EU-level RES target. The national benchmarks for the achievement of the EU 2030 RES-target are compared to the efforts required to meet national 2020 RES-targets and to the status quo of renewables deployment in 2015.

Higher energy efficiency facilitates more ambitious renewables targets. An increase in the EU energy efficiency target from 30% to 40% would help to achieve any EU renewable energy target more easily as the aggregated RES deployment needed for any RES target would be reduced by nearly 15%.

The calculations show that the **currently proposed 2030-target of 27% for renewables could drastically slow down current levels of renewables expansion in the EU-28.**

Even a RES-target of 30% would result in a lower overall deployment increase of renewables in 2020-2030 compared to 2010-2020, both under a 40% and a 30% energy efficiency scenario**.**

Assuming a 40% energy efficiency target, **a RES-target of at least 35% would need to be set to maintain current deployment increase of renewables in the EU-28.**

A 45% renewables target would imply a strong increase in renewables deployment compared to 2010-2020. On aggregated EU level, the net increase in 2020-2030 would be almost threefold in case of a 30% energy efficiency target and about twofold in case of a 40% energy efficiency target.

Ecofys - A Navigant Company

Ecofys Germany GmbH | Albrechtstraße 10 c | 10117 Berlin | **T** +49 (0)30 29773579-0 | **F** +49 (0)30 29773579-99 | **E** info@ecofys.com | **I** ecofys.com

Geschäftsführer C. Petersdorff | **Handelsregister** Amtsgericht Köln | **Handelsregisternr.** HRB 28527 | **Ust-ID-Nr.** DE 187378615

Figure 1 shows the national benchmarks derived from the effort sharing method that was applied for the allocation of the 2020 EU RES target ("2020 logic").

- For the 30% EU RES target, national RES benchmarks increase between 7.0 percentage points (pp) and 12.2 pp compared to 2020;
- For the 35% EU RES target, national RES benchmarks increase between 10.3 pp and 18.4 pp compared to 2020;
- For the 45% EU RES target, national RES benchmarks increase between 17.0 pp and 30.8 pp compared to 2020.

Different approaches are conceivable to derive national benchmarks. Exemplarily, an alternative effort sharing approach included in the Impact Assessment of the proposed recast of the Renewable Energy Directive is considered ("alternative approach"). The "alternative approach" implicitly takes the potential availability of renewables resources into consideration by including the size of the country as a determining parameter in addition to GDP and equal sharing ("flat rate"). For this alterative approach, the span between lowest and highest national benchmark becomes larger than under the "2020 logic". For an EU RES target of 30%, the increase per Member State would range from 7.8 pp to 17.1 pp. Member States that are relatively sparsely populated have comparatively higher benchmarks. From the perspective of these Member States, the resulting distribution of renewables deployment across the European Union may be seen inequitable and less balanced compared to the "2020 logic".

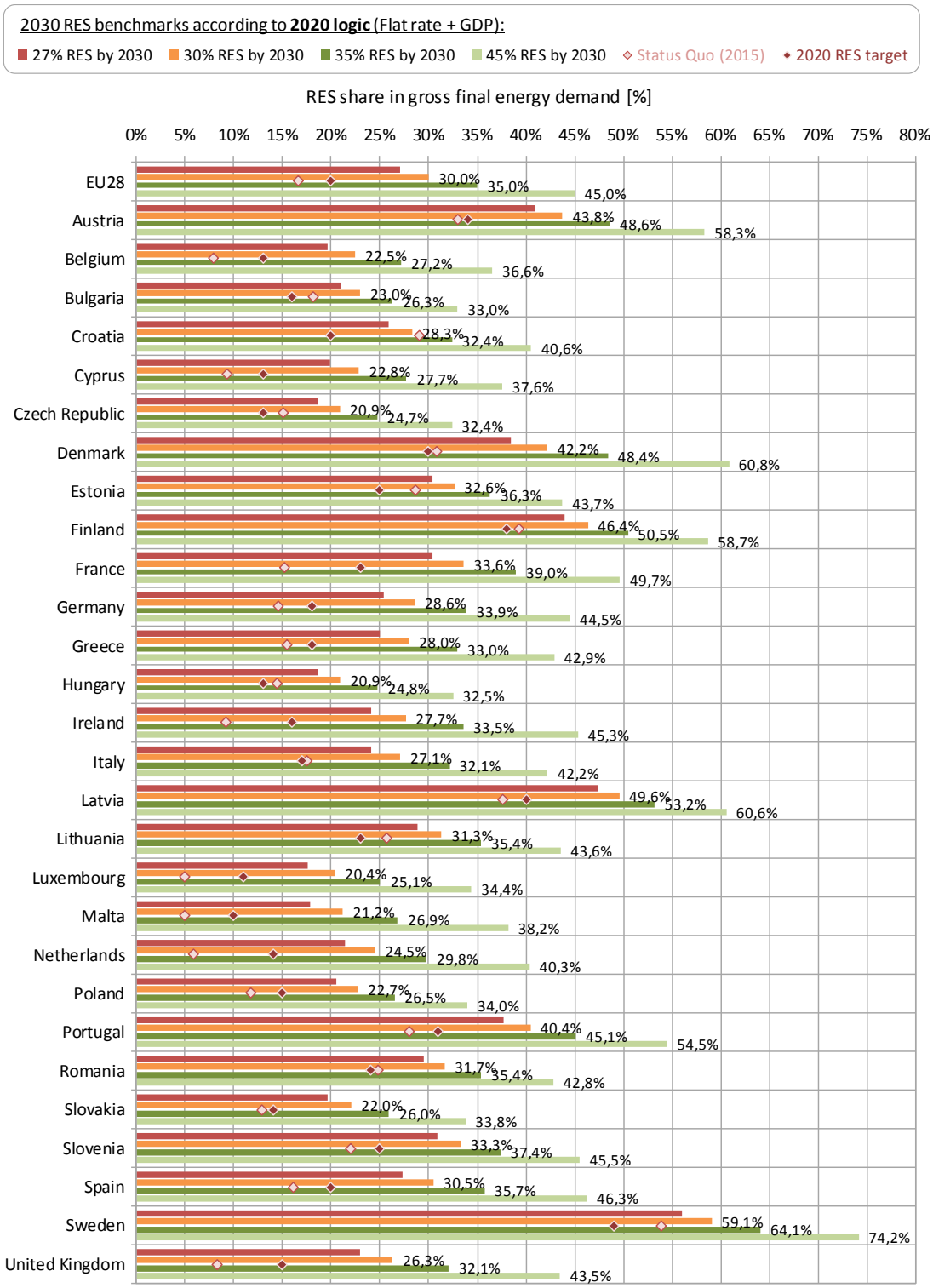

Figure 1: Required RES shares by Member State for different EU 2030 targets, calculated with "2020 logic"

Ecofys - A Navigant Company

Ecofys Germany GmbH | Albrechtstraße 10 c | 10117 Berlin | **T** +49 (0)30 29773579-0 | **F** +49 (0)30 29773579-99 | **E** info@ecofys.com | **I** ecofys.com

Geschäftsführer C. Petersdorff | **Handelsregister** Amtsgericht Köln | **Handelsregisternr.** HRB 28527 | **Ust-ID-Nr.** DE 187378615

Table of contents

1 Introduction: setting European renewables targets for 2030

1.1 Background: the discussion on EU renewables targets for 2030

With the conclusions of the European Council on the 2030 climate and energy framework in October 2014 (EUCO 169/14)[1], the EU Member States have agreed to collectively cut emissions in the EU by at least 40% below 1990 levels by 2030, increase the share of renewables to at least 27% of the EU energy consumption by 2030, and increase energy efficiency by at least 27% by 2030, with the option to increase the energy efficiency target to 30%. In November 2016 the European Commission proposed an update to the Energy Efficiency Directive including a binding EU energy efficiency target of at 30%[2]. The proposed renewables target has not been increased. The 2030-framework is supposed to be the foundation to achieve the EU's longer-term goal of cutting greenhouse gas emissions by 80-95% below 1990 levels by 2050.

The proposed targets for energy efficiency and renewable energy have been heavily criticised by multiple stakeholders, including the European Parliament and the European renewable energy associations. They raise two main points of criticism. Firstly, the targets are considered as too low. In a draft of the European Parliament's report on the energy governance regulation, the rapporteurs have proposed to set higher collective targets of 45% for renewable energy and 40% for energy efficiency to reflect a pathway of achieving the goals of the Paris Climate Agreement[3]. Secondly, it is questioned how the EU-level targets will be governed and achieved. Unlike the 2020 targets, the proposed 2030-targets for renewables and energy efficiency have not been broken down in national targets or benchmarks, but instead, are defined as binding at EU-level only. Yet the achievement of the EU-level targets is dependent on actions taken at Member State level. In the proposal on the governance of the Energy Union (COM(2016) 759 final/2)[4], the European Commission proposes a pledging approach in which Member States set their own contributions. In the draft Parliament's report, the rapporteurs propose translating the EU-level renewables and energy efficiency target into binding national targets. Even under the pledging approach, however, Member States' pledges would need to be measured against national benchmarks to assess whether their contributions are adequate to collectively meeting the EU target.

1.2 Aim of this report

To inform the debate on targets and benchmarks, this report provides national renewables benchmarks for the EU-28 for the various renewables and energy efficiency targets considered. These benchmarks could also be defined as national binding targets.

---

[1] http://data.consilium.europa.eu/doc/document/ST-169-2014-INIT/en/pdf
[2] https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition
[3] http://energyblog.claudeturmes.lu/wp-content/uploads/sites/3/2017/02/COM20160759-Early-draft-Rivasi-Turmes.pdf
[4] http://eur-lex.europa.eu/resource.html?uri=cellar:ac5d97a8-0319-11e7-8a35-01aa75ed71a1.0024.02/DOC_1&format=PDF

The report aims to inform ongoing discussions on the level of ambition and fair distribution of the 2030 RES-target. It shows how higher levels of energy efficiency facilitate more ambitious renewables targets (chapter 2). Benchmarks are derived for national renewables targets to meet a more ambitious EU 2030 renewables target of 30%, 35% or 45%, applying the 2020-target sharing approach of the 2009 renewables directive (RED (2009/28/EC)) (chapter 3.1). The corresponding net increase in renewables deployment in the period of 2020-2030 is calculated considering three levels of energy efficiency (30%, 35% and 40%). This increase is compared to the renewables deployment levels in 2010-2020 that are required to meet the 2020-targets as well as to the status quo of national RES target achievement in 2015 (chapter 3.2). Chapter 3.3 compares the 2020-target sharing approach with an alternative method of calculating national benchmarks that is included in the Impact Assessment of the recast Renewable Energy Directive (RED II)[5]. This alternative method implicitly takes the potential availability of renewables resources into consideration by including the size of the country as determining parameter in addition to GDP and an equal sharing ("flat rate").

1.3 Methodology and data basis

The starting point for our calculations of national targets is the already known and applied method that was used for the allocation of the 2020 RES targets under the RED (2009/28/EC). For our calculations here, it is assumed that the binding national 2020 RES targets are actually met in time by the Member States. These targets then serve as the point of departure for all follow-up calculations. Taking into account the proposals for the common European Union RES target for 2030, the overall required RES deployment in energetic terms is calculated.

To ensure consistency with existing EU works, we made use of recent PRIMES modelling, done on behalf of the EC and presented in the Impact Assessment of the RED II, as a key data source. More precisely, the PRIMES scenarios used for this assessment are the latest publicly available reference scenario (European Commission, 2016) and the climate mitigation scenario "PRIMES euco30" that builds on the targeted use of energy efficiency (i.e. 30% energy efficiency by 2030) and renewables (i.e. 27% RES by 2030) as presented in the EC's Impact assessment (SWD (2016) 410 final). In this context, the PRIMES reference scenario serves as the basis for the calculation of the MS-specific 2030 RES targets in relative terms – i.e. the required percentage points of gross final energy demand that should stem from renewable sources – under both assessed approaches (i.e. the "2020 logic", which is based on a flat rate increase of RES shares per Mermber State, modulated by GDP per capita, and the alternative approach used in the Impact Assessment that includes country size in addition to flat rate and GDP, see section 3.3) and under varying RES ambition at EU level (i.e. 27%, 30%, 35%, 45%). To translate the RES shares into absolute values – i.e. the amounts of renewable energies in Mtoe – in the case of 30% energy efficiency, we made use of the PRIMES euco30 scenario where the corresponding level of energy efficiency is presumed. For more ambitious energy efficiency targets (i.e. a 35% or 40% reduction of energy demand by 2030 compared to baseline) we applied simplified calculations, assuming a similar, relative increase of energy efficiency across all Member States.

[5] "Impact Assessment accompanying the document Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources (recast)" (SWD(2016) 418 final)

2 Higher energy efficiency facilitates more ambitious renewables targets

Energy efficiency has a direct impact on the RES deployment levels that are required to achieve the RES targets, as these are calculated as percentage of RES in gross final energy demand. The more energy efficiency achieved, the lower the required RES deployment levels. The correlation between the proposed EU-level targets for energy efficiency and renewables is shown in Figure 2 below. The 27% energy efficiency target of the Council Conclusions in 2014 is not considered in our calculations since the Commissions' proposed update of the Energy Efficiency Directive in November 2016 already includes a 30% energy efficiency target for 2030[6].

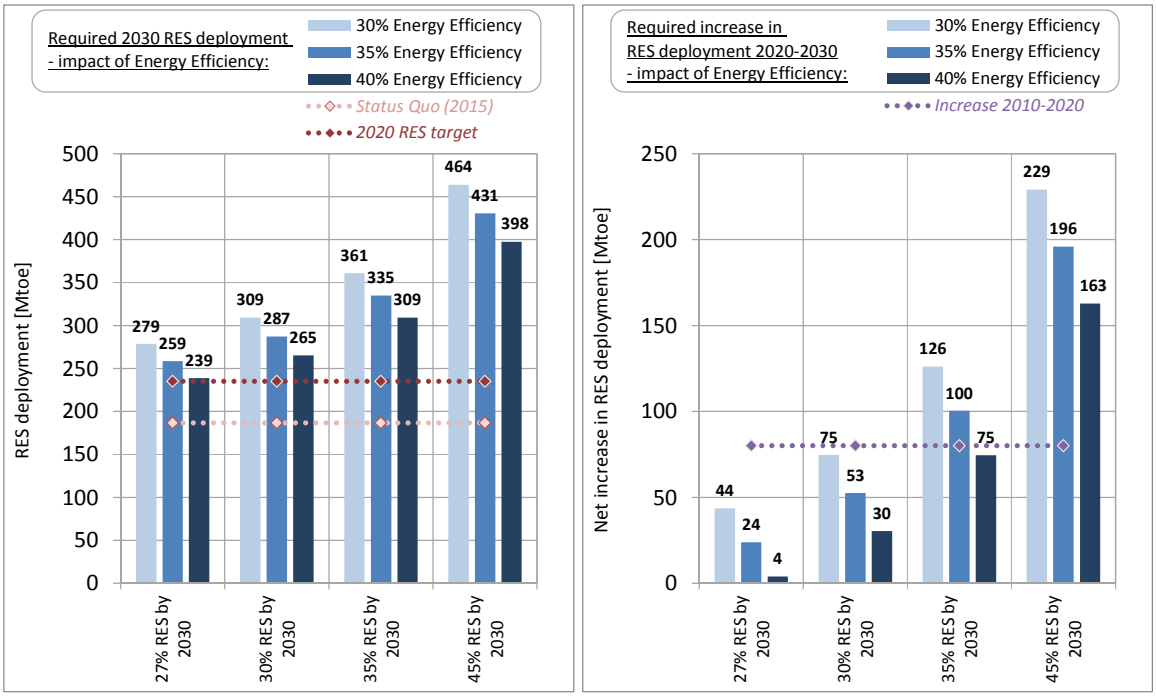

Figure 2:
Left: Required 2030 RES deployment levels per RES target for different levels of energy efficiency ambition

Right: Required net additional RES deployment from 2020 to 2030 per RES target for different levels of energy efficiency ambition

The figure on the left shows the significant impact of energy efficiency (or, more precisely, energy demand reduction) on required RES deployment. Aggregated RES deployment needs for all RES targets would be reduced by nearly 15% if the EU energy efficiency target is raised from 30% to 40%. In case of a 30% RES target this results

[6] http://eur-lex.europa.eu/resource.html?uri=cellar:efad95f3-b7f5-11e6-9e3c-01aa75ed71a1.0009.02/DOC_1&format=PDF

in a decrease from 309.4 to 265.2 Mtoe and in case of a 45% RES target in a decrease from 463.9 to 397.6 Mtoe. Assuming an increase of energy efficiency corresponding to 40% in 2030, the net deployment of renewables required for a 27% RES target in 2030 would be equivalent to the renewables level the EU Member States will already collectively achieve in 2020, as shown by the red line in Figure 2 (left). In other words, **a 40% energy efficiency target combined with a 27% RES target in 2030 would not require any net increase in renewables. To incentivise a net increase in RES deplyoment, the 2030 RES target would need to be increased above 27%**.

The figure on the right depicts the net increase in RES deployment (in Mtoe) in the decade 2020-2030 that is necessary to achieve 2030 targets. This is compared to the net increase of 80 Mtoe during 2010-2020 (purple line). The figure shows that the **currently proposed 2030-targets of 30% for energy efficiency and 27% for renewables could drastically slow down current levels of renewables expansion in the EU-28**, since the required net increase of renewables in 2020-2030 (44 Mtoe) would be 45% lower than the net increase of 2010-2020. **To maintain current levels of renewables growth, the 2030 RES-target must be at least 30%.** Provided that the energy efficiency target is set at 40%, even a RES target of 35% would result in lower aggregate additional RES deployment (74.6 Mtoe) in the period 2020-2030 compared to the net increase of 80 Mtoe during 2010-2020.

Figure 2 (right) also illustrates the strong impact that energy efficiency has on the required net increase of renewables given a certain RES-target. **In the case of a 30% RES target, for example, net increase in RES deployment in the EU-28 would be reduced from 74.6 to 30.4 Mtoe, i.e. by nearly 60%, if energy efficiency ambition is raised from 30% to 40%.** This effect would lower in the case of the 45% RES target, resulting in an overall EU-28-wide reduction from 229.1 to 162.9 Mtoe, i.e. nearly 30%. However, this needs to be weighed against the very ambitious deployment levels required to meet the 45% target.

3 A common approach for defining national renewables benchmarks facilitates the effort sharing among Member States

3.1 The 2020-approach can be applied to derive national targets or benchmarks for 2030

Figure 3 depicts the different renewables shares in gross final energy demand per EU Member State (i.e. national benchmarks) that are necessary to reach EU-wide RES targets of 27%, 30%, 35% or 45% until 2030. The national benchmarks are calculated according to the method adopted to derive Member States' 2020-targets, i.e. a flat rate increase of 2020 RES shares modulated by GDP per capita ("2020-logic"; see section 3.3 for details).

For the different targets, resulting national benchmarks would vary among the countries. **Ranges between minimum and maximum national benchmarks become larger with higher RES targets**:

- 30% EU RES target: national RES share ranges between 20.4 % (Luxembourg) and 59.1 % (Sweden);
- 35% EU RES target: national RES share ranges between 24.7 % (Czech Republic) and 64.1 % (Sweden);
- 45% EU RES target: national RES share ranges between 32.4 % (Czech Republic) and 74.2 % (Sweden).

For all considered EU RES targets, Bulgaria shows the lowest increase in percentage points (pp) compared to its 2020 RES target of 16% and Denmark the highest increase compared to its 2020 RES target of 30%. Differences between countries result from the weighting of national GDP per capita.

- 30% RES target: RES share increases between 7.0 pp (Bulgaria) and 12.2 pp (Denmark);
- 35% RES target: RES share increases between 10.3 pp (Bulgaria) and 18.4 pp (Denmark);
- 45% RES target: RES share increases between 17.0 pp (Bulgaria) and 30.8 pp (Denmark).

Overall, the majority of Member States are on track to reach their 2020 targets. Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, Hungary, Italy, Lithuania, Romania and Sweden already surpassed their 2020 targets in 2015. For them, meeting national benchmarks equivalent to EU 2030 targets of at least 27% and 30% are already in reach today. In the case of Croatia, the national benchmark would even decrease compared to the RES share achieved in 2015. Only a few countries still show larger discrepancies of 5 pp and higher (status quo 2015 in Belgium, France, Ireland, Luxembourg, Malta, Netherlands, UK) with the average EU-28 showing a gap of 3.3 pp.

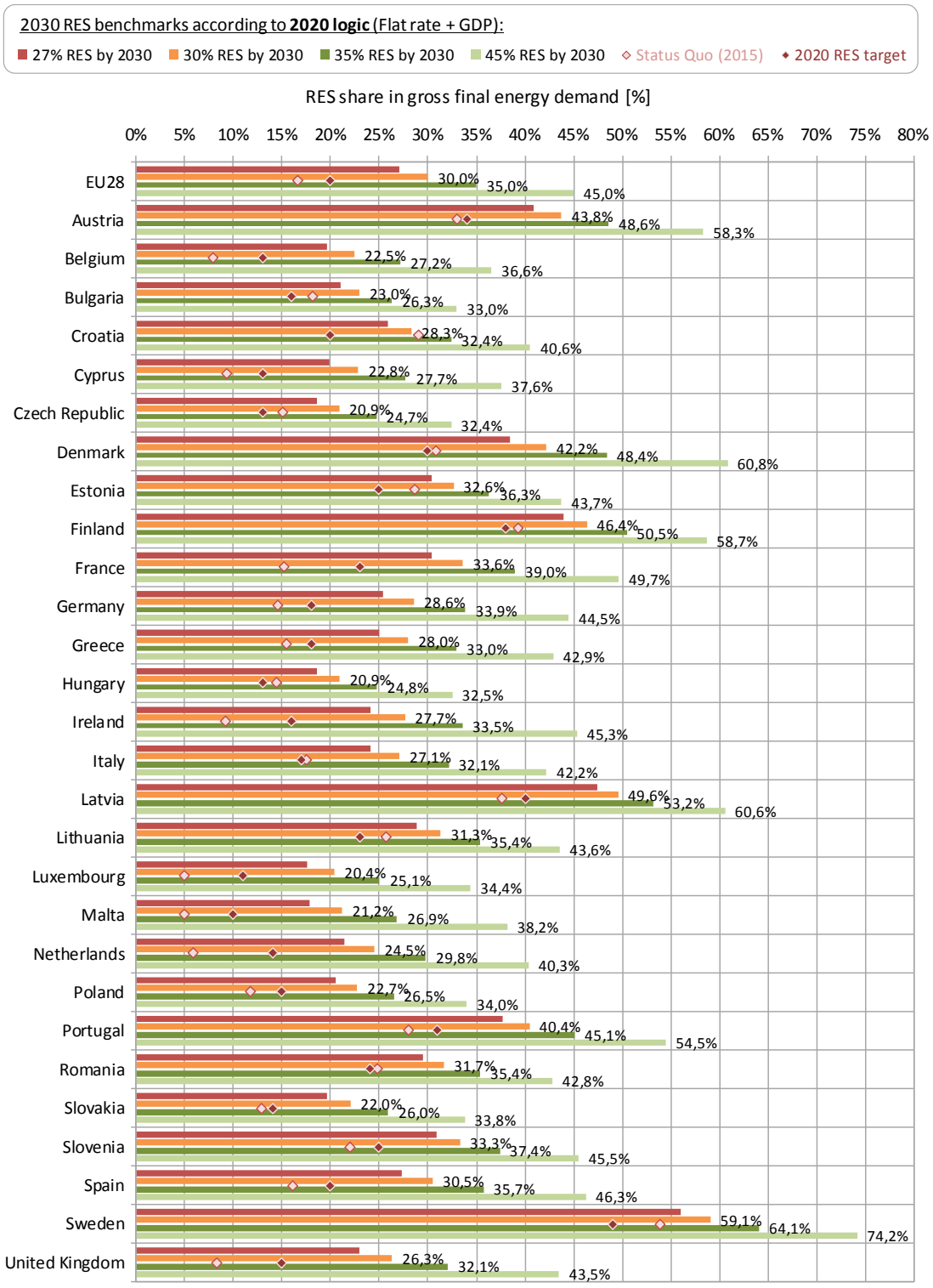

Figure 3: Required RES shares by Member State for different EU 2030 targets, calculated with "2020 logic"

3.2 Impact of energy efficiency on achievement of national targets

As outlined in chapter 2, higher energy efficiency facilitates the achievement of more ambitious RES targets. This effect also becomes evident when looking at absolute figures of RES deployment per Member State, applying the "2020 logic" effort sharing approach.

Figure 4 shows the net additional RES deployment required in 2020-2030 at Member State-level for reaching different EU-level 2030 targets, considering an energy efficiency target of 40%. For most Member States, efforts to reach 2030 RES-targets are not higher compared to an absolute increase RES deployment in 2010-2020, except for the case of a EU RES target of 45%. For 11 Member States[7], a 35% RES-target would result in lower efforts compared to 2010-2020. Especially Finland, France, Latvia, the Netherlands and the United Kingdom would face a much lower net deployment increase in 2020-2030 compared to 2010-2020. At the same time, however, another 11 Member States[8] would face higher efforts compared to 2010-2020. The countries with considerably higher efforts would be Italy and Spain, as well as Croatia, Czech Republic and Hungary, which face a relatively small net increase in RES deployment in 2010-2020. For six Member States[9], additional deployment levels in 2020-2030 would be equivalent to those of the preceding decade. **Provided the energy efficiency target is set at 40%, an EU RES-target of 35% could therefore be set to maintain current deployment increase of renewables in the EU-28. For most countries, this would result in lower or similar efforts in 2020-2030 compared to 2010-2020.** An EU RES-target of 30% would result in a lower net increase in RES deployment for all Member States except Croatia, Czech Republic, Hungary and Italy. On the other hand, an EU RES-target of 45% would result in a higher net RES increase for all Member States except Latvia.

Figure 5 shows that the required increase in net additional RES deployment is significantly higher if we assume an energy efficiency target of 30% instead of 40%. However**, even with 30% energy efficiency, an EU RES-target of 30% would result in lower or comparable net renewables increase in 2020-2030 compared to 2010-2020 for most Member States.**

[7] Austria, Finland, France, Germany, Greece, Latvia, Lithuania, Netherlands, Poland, Portugal, United Kingdom
[8] Belgium, Bulgaria, Croatia, Czech Republic, Hungary, Italy, Malta, Rumania, Slovakia, Spain, Sweden
[9] Cyprus, Denmark, Estonia, Ireland, Luxemburg, Slovenia

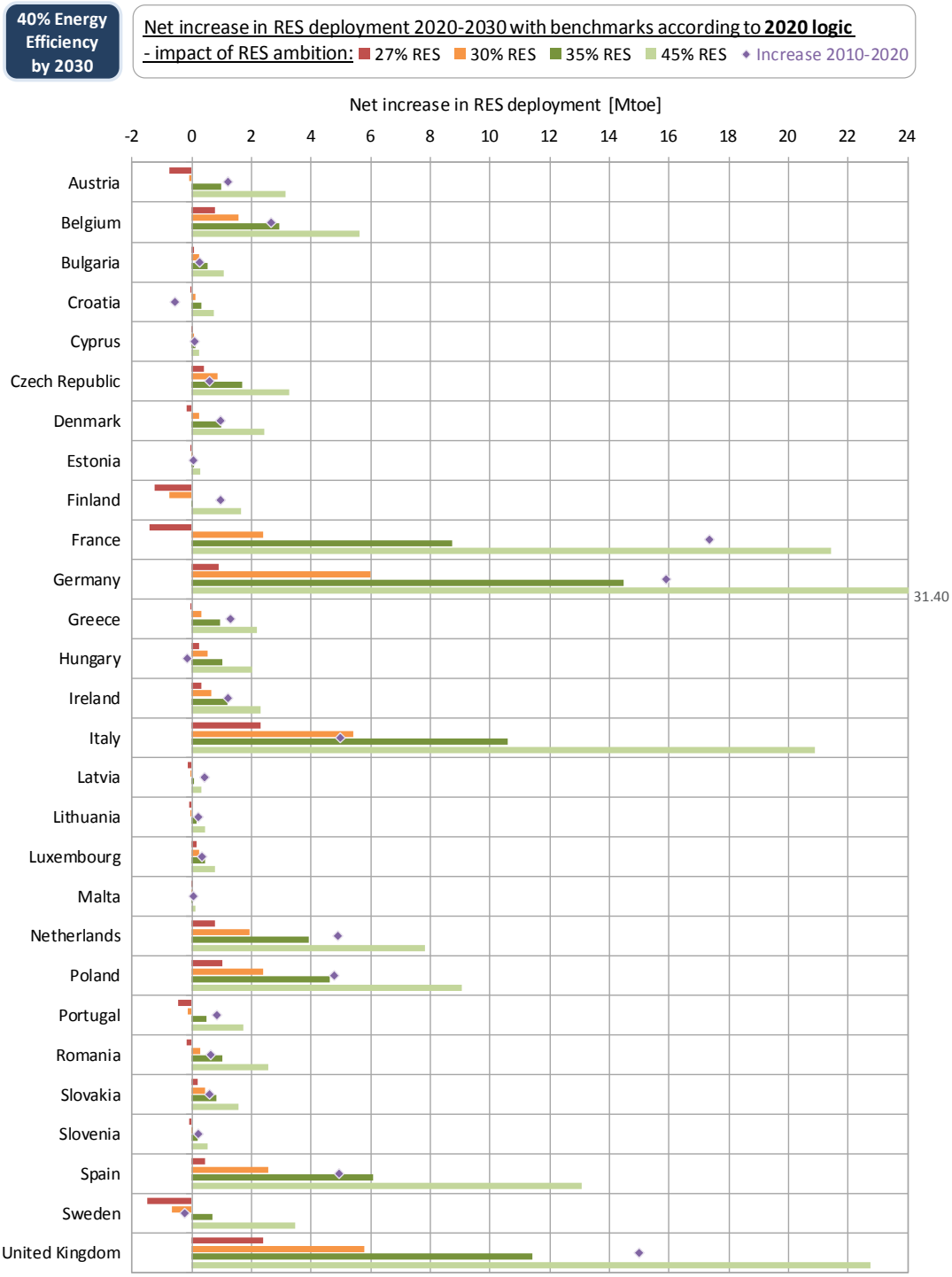

Figure 4: Net additional RES deployment required by Member States between 2020-2030 for different EU RES targets, calculated with the "2020 logic" for the case of 40% energy efficiency by 2030

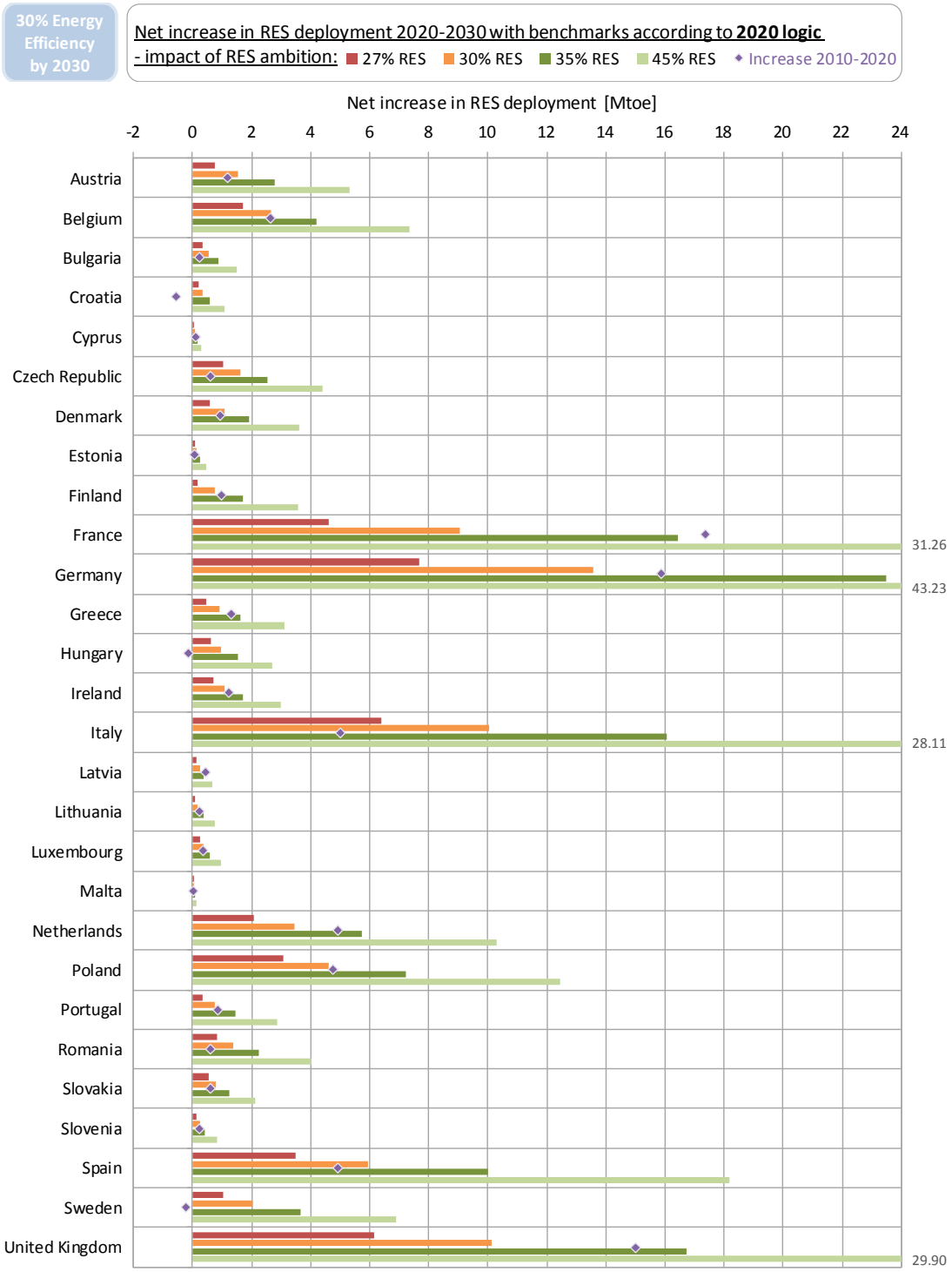

Figure 5: Net additional RES deployment required by Member States between 2020-2030 for different EU RES targets, calculated with the "2020 logic" for the case of 30% energy efficiency by 2030

Both Figure 4 and Figure 5 illustrate that **a 45% EU RES target would imply significantly higher RES ambition levels than in the period 2010-2020**. For most countries, net increase in RES deployment is more than three-fold when the RES target is increased from the 30% to 45%, in case of an energy efficiency target of 40%.

More ambitious energy efficiency targets lower the required renewables growth significantly for all Member States. For example, in case of a 45% RES target, the required additional RES deployment in Germany would be reduced by 27% (from 43.2 Mtoe to 31.4 Mtoe), if the energy efficiency target is increased from 30% to 40%. In case of a 30% RES target, the required additional RES deployment in Germany would even be reduced by a 56% (from 13.6 Mtoe to 6.0 Mtoe) if the energy efficiency target is increased from 30% to 40%.

3.3 Comparison of two approaches for deriving national benchmarks

In the previous sections, national benchmarks have been derived based on the former RED (2009/28/EC) method, the "2020 logic". However, different approaches are conceivable to derive national benchmarks. Those could i.a. include a stronger weighting of GDP, a consideration of the renewables potential of the Member States, or a consideration of grid and other constraints. Article 5 of the Draft Governance Regulation[10] mentions several circumstances affecting RES deployment that shall be taken into account when defining Member States' contribution to the EU 2030 RES target, thus implicitly providing relevant parameters for benchmarking national RES contributions:

(i) equitable distribution of deployment across the European Union;
(ii) economic potential;
(iii) geographical and natural constraints, including those of non-interconnected areas and regions; and
(iv) the level of power interconnection between Member States.

These parameters could be used to calculate national RES benchmarks in the future, but the exact formula has not yet been provided. It is beyond the scope of this report to come up with a calculation method and derive respective benchmarks.

An alternative benchmarking approach is applied in the RED II Impact Assessment: in addition to the flat rate approach and a GDP-based allocation ("2020-logic") it considers the land area per capita, implicitly reflecting the area available for RES deployment ("alternative approach", see section 1.3). This can be interpreted as rough approximation of the available RES potential, even though the actual RES potential might deviate significantly, depending on national resource conditions.

In this section, this "alternative approach" is applied in comparison to the "2020 logic" to identify differences in resulting national benchmarks.

[10] http://eur-lex.europa.eu/resource.html?uri=cellar:ac5d97a8-0319-11e7-8a35-01aa75ed71a1.0024.02/DOC_1&format=PDF

Rationale of the two benchmarking methodologies

A subsection of the "Impact Assessment accompanying the document Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources (recast)" (SWD(2016) 418 final) about the disregarded option to "Introduce binding national targets" includes a table presenting 2030 renewable shares per Member State applying the RED-I method, i.e. the "2020-logic" (50% flat rate, 50% GDP), as well as applying an alternative method, i.e. the "alternative approach" (50% flat rate, 25% GDP, 25% land area).

In case of the "2020 logic", 50% of the additional effort is converted to relative terms on the expected overall gross final energy demand in 2030. A 2030 RES-target of 27% represents an increase of 3.5% for each of the Union Members. The second half is weighted by the expected national GDP per capita of 2020. Finally, both percentage points are added to the target of 2020. The 2020 allocation method thus represents a combination of a flat rate approach and a GDP-based allocation and results in a moderate spread of benchmarks across the different Member States. As such, this approach considers the Member States' economic strength in terms of GDP. On the other hand, the approach ignores other aspects such as the potential availability of renewable resources and related costs.

The "alternative approach" described in the Impact Assessment implicitly takes the potential availability of renewables resources into consideration by including the size of the country as a determining parameter in addition to GDP and equal sharing ("flat rate"). More precisely, these impact factors are weighted differently in the RES target allocation – i.e. the allocation is based on 50% flat-rate, 25% GDP and 25% land area per capita. While no document in the Clean Energy Package presents the actual calculation method for the land area, it appears to be targeted at taking Member State-specific RES potentials (potential based approach) into account, even though the actual RES potential might deviate significantly, depening on natural resources.

Comparison of results

The two effort-sharing methods lead to significant differences in the required additional RES shares per Member States for the 2020-2030 period. Figure 6 demonstrates the differences in applying the "2020 logic" and the alternative approach per Member State with respect to the resulting increase in RES share between 2020 and 2030 for an EU 30% RES target. **The span between the lowest and highest national benchmark would become larger under the alternative approach**: the increase in RES share would range from 7.8 pp for Luxembourg to 17.1 pp for Latvia in the case of the alternative approach (range of "2020 logic" for comparison: 7.0 pp for Bulgaria to 12.2 pp for Denmark). This larger span in ambition levels might be considered less balanced from a Member State perspective.

Overall, several countries that are typically characterised by more sparsely populated lands would face significantly higher national benchmarks than under the "2020 logic". For some Member States the increase in RES share would be nearly twice as high (e.g., Bulgaria, Estonia, Finland, Latvia, Lithuania). Countries that would face lower targets with the alternative approach compared to the "2020 logic" are consequently more densely populated (e.g. Netherlands, Malta, Luxembourg). These lower targets are more levelled-out across the states and do not show significant spikes as has been observed above for the countries with higher targets.

The alternative approach has advantages and disadvantages compared to the “2020 logic”. Considering the land area per capita reflects part of the geographical and natural constraints that are important aspect of the renewables potential and thus a determining factor of the Member States’ ability to increase its renewables shares significantly, even though the country’s actual RES potential is not considered. On the other hand, it disadvantages those Member States that are relatively sparsely populated, forcing them to increase their renewables deployment more than densely populated Member States. As can be seen in Figure 6, this effect is significant for some Member States. From the perspective of these Member States, the resulting distribution of renewables deployment across the European Union may be seen inequitable and less balanced compared to the “2020 logic”.

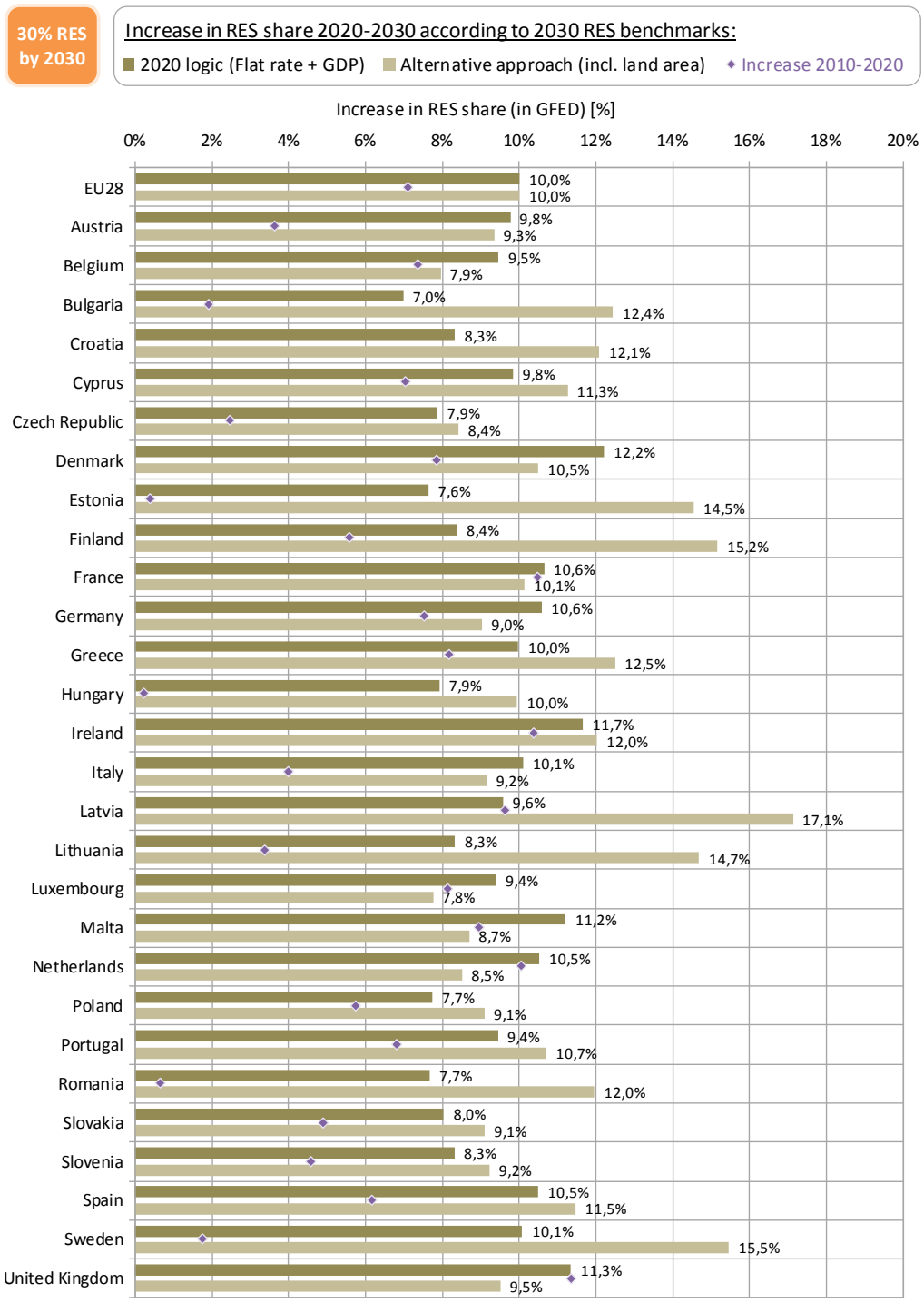

Figure 6: Increase in required RES shares between 2020 and 2030 by Member Stated calculated with two different benchmarking approaches for the case of the overall 30% RES 2030 target

Ecofys - A Navigant Company

Ecofys Germany GmbH | Albrechtstraße 10 c | 10117 Berlin | **T** +49 (0)30 29773579-0 | **F** +49 (0)30 29773579-99 | **E** info@ecofys.com | **I** ecofys.com

Ecofys - A Navigant Company

Ecofys Germany GmbH
Albrechtstraße 10 c
10117 Berlin

T: +49 (0) 30 29773579-0
F: +49 (0) 30 29773579-99

E: info@ecofys.com
I: ecofys.com