



Pre-assessment of potentials and benefits of intensified RES cooperation

(Task 2.2, WP2)

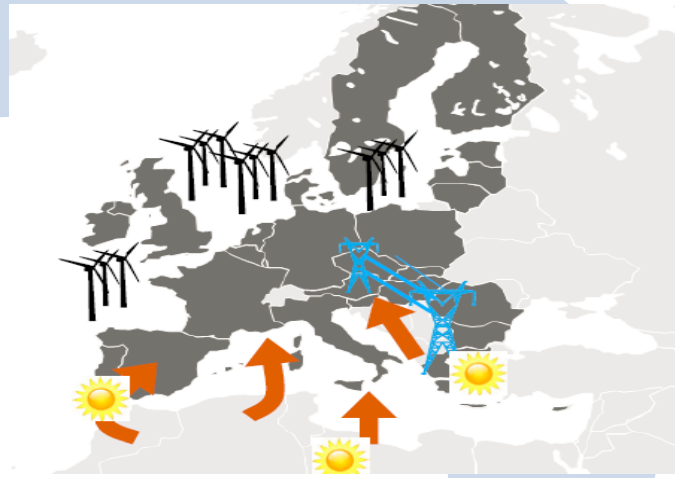
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22nd of February 2013, Madrid

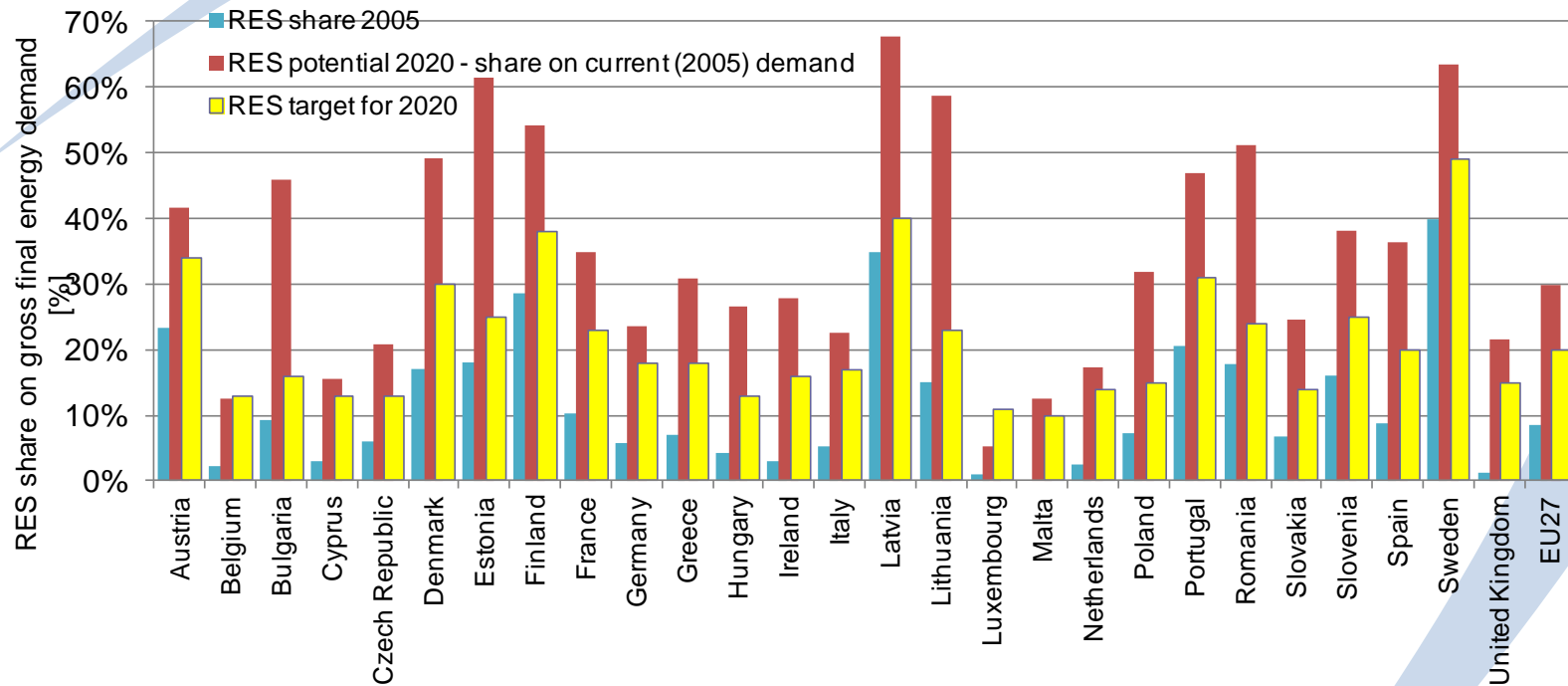


Why aiming for RES cooperation?

- The RES Directive (2009/28/EC) sets **binding national 2020 RES targets** for all EU member states
- These targets **do not explicitly reflect the national resource availability.**



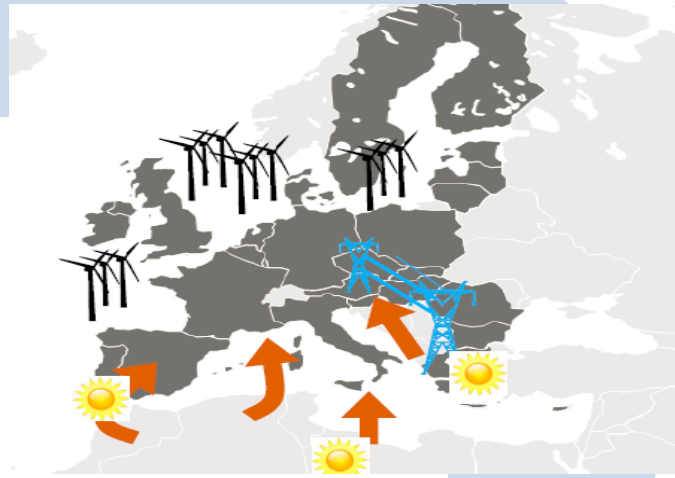
Source: DG Ener



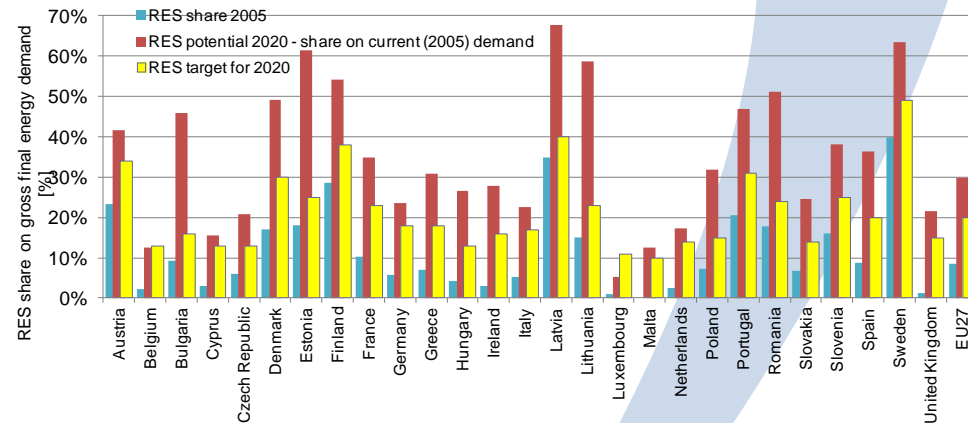
Source: Green-X database / Re-Shaping study

Why aiming for RES cooperation?

- The RES Directive (2009/28/EC) sets **binding national 2020 RES targets** for all EU member states
- These targets **do not explicitly reflect the national resource availability.**
- In order to allow for **cross-border support of renewable energy in a most cost-efficient manner**, articles 6 to 11 of that Directive introduce **cooperation mechanisms**, providing member states as well as third countries with an option to agree on cross-border support of RES.
- By joining forces, **countries may explore potentials which otherwise would have remained untapped.**



Source: DG Ener



Source: Green-X database / Re-Shaping study



BETTER report D2.2 – Pre-assessment of prospects for RES cooperation

Aim of this assessment

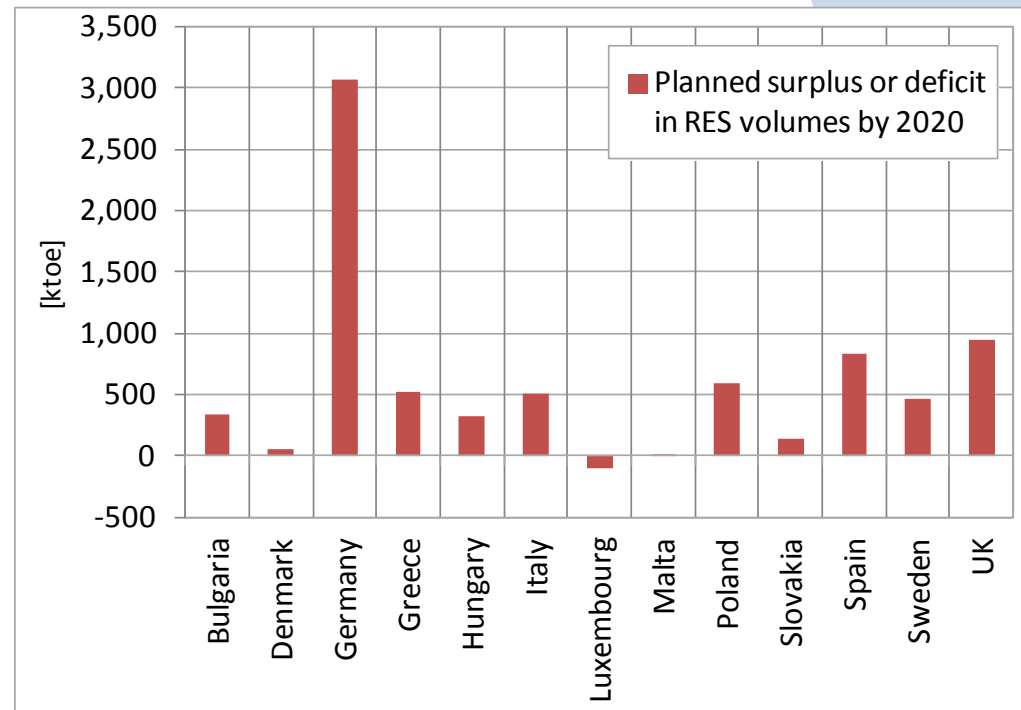
- Indication of the potential and benefits of intensified RES cooperation between member states, focussing on the 2020 perspective.
 - Starting point for the comprehensive set of follow-up assessments of RES cooperation with third countries as (WP3-5 ... bottom-up analysis by target region & WP6 ... integrated view).
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- **Bottom-up view from the member states (MSs)' perspective:** RES progress reports (as of 2012) have been analyzed and relevant information compiled
→ a good indication of the **intended use of cooperation mechanisms.**
 - To put into perspective, these findings are **compared to and contrasted** with **results of analytical and quantitative assessments** of the potential use of cooperation mechanisms across the EU
(i.e. IEE projects *Re-Shaping* and *RES4LESS*)

What has been done
in Task 2.2?



Outcomes of the bottom-up assessment: Planned RES cooperation from a MS perspective

- Several (12) countries express their aim to achieve a surplus in RES generation by 2020
- Luxembourg (previously also Italy) indicates that there will have a gap by 2020
- Despite a possible surplus there is **uncertainty / unclearness on the detailed use of cooperation mechanisms ...**
- Thus, **Member States remain reluctant in expressing their intentions**





Complementary “top-down” assessment: RES cooperation from a modelling perspective (Part 1)

Potential for RES cooperation according
to the **RES4LESS** project

Aim of this
work

- Provide a more **detailed analysis of the surplus potentials** (that is, the remaining RES potential over and above a country’s target) **that could be available for trade** under the cooperation mechanisms
- **Identify the readily exploitable part of this potential**, which we refer to as **Valleys of Opportunity (VoO)**.



Complementary “top-down” assessment: RES cooperation from a modelling perspective (Part 1)

Method of approach

Potential for RES cooperation
according to the RES4LESS project

- Production of cost supply curves for RES-E in each using the ECN model RESolve-E.
- NREAP targets (abstracted for RES-E) have been plotted against these curves, thereby highlighting eventual surpluses and deficits.
- Satellite model RES4Less to compare the cost supply curves, identifying User (buying energy) and Host Country (selling energy)
- Conducting a demand-supply analysis that yields in economic indicators characterizing the VoO: equilibrium price, size of the VoO, User Country cost savings and Host Country gain.

Two sets of analysis have been carried out:

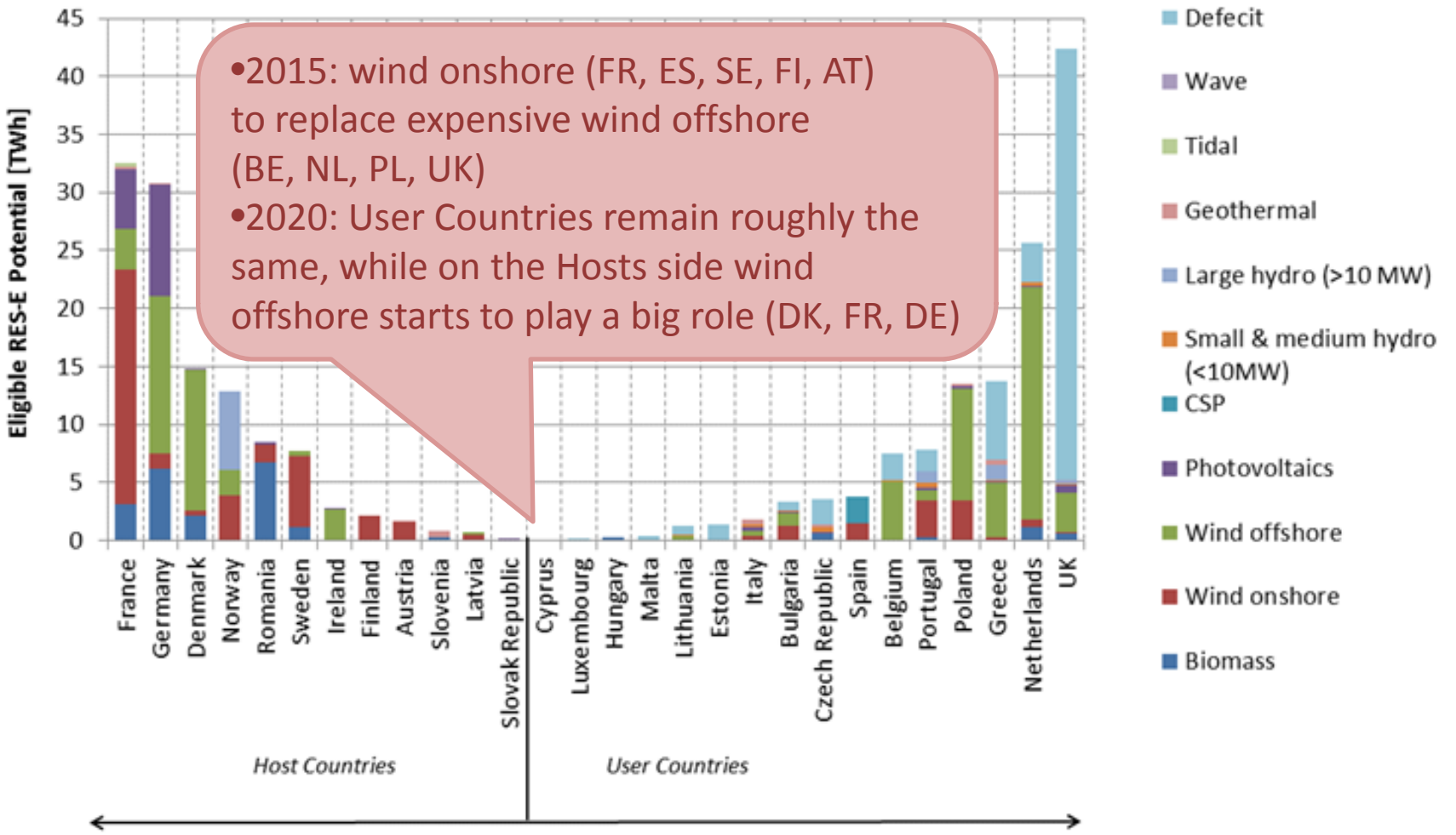
- A pair-wise analysis for each and every possible pair of MS's
- A global analyses, constructing EU-wide RES-E demand and supply curves, and analyzing a European optimum.

Complementary “top-down” assessment: RES cooperation from a modelling perspective (Part 1)

Potential for RES cooperation
according to the RES4LESS project

Results (global analysis)

Global Analysis 2020: Eligible RES-E Potential - Technology Breakdown





Complementary “top-down” assessment: RES cooperation from a modelling perspective (Part 2)

The need for and impact of RES cooperation
according to the **Re-Shaping** project

Method of
approach

- TU Wien’s **Green-X** model was applied to perform a detailed quantitative assessment of the future deployment of renewable energies on country-, sector- as well as technology level.
- The core strength of this tool lies on the detailed RES resource and technology representation, accompanied by a thorough energy policy description, which allows assessing various policy options with respect to resulting costs and benefits.
- A RES-policy assessment was conducted by means of conducting scenarios on RES deployment assuming different RES policy pathways (*i.e. from BAU to strengthened national policies up to harmonised support schemes...*)



Complementary “top-down” assessment: RES cooperation from a modelling perspective (Part 2)

The need for & impact of RES
cooperation according to the
Re-Shaping project

The related modelling exercise builds on **three distinct case with respect to RES cooperation** (between MSs):

In the **default scenario** of “strengthened national policies” (in line with 20% RES by 2020) an efficient and effective resource exploitation is assessed **assuming moderate level of cooperation between Member States.**

Thus, this reference case of “moderate (RES) cooperation” can be classified as a compromise between:

- a “**national perspective**” where Member States primarily aim for a pure domestic RES target fulfilment and, consequently, only “**limited cooperation**” arising from that,
- and a “**European perspective**” that can be classified as “**strong cooperation**”, where an efficient and effective RES target achievement is envisaged at EU level rather than the fulfilment of each national RES target using domestic resources.

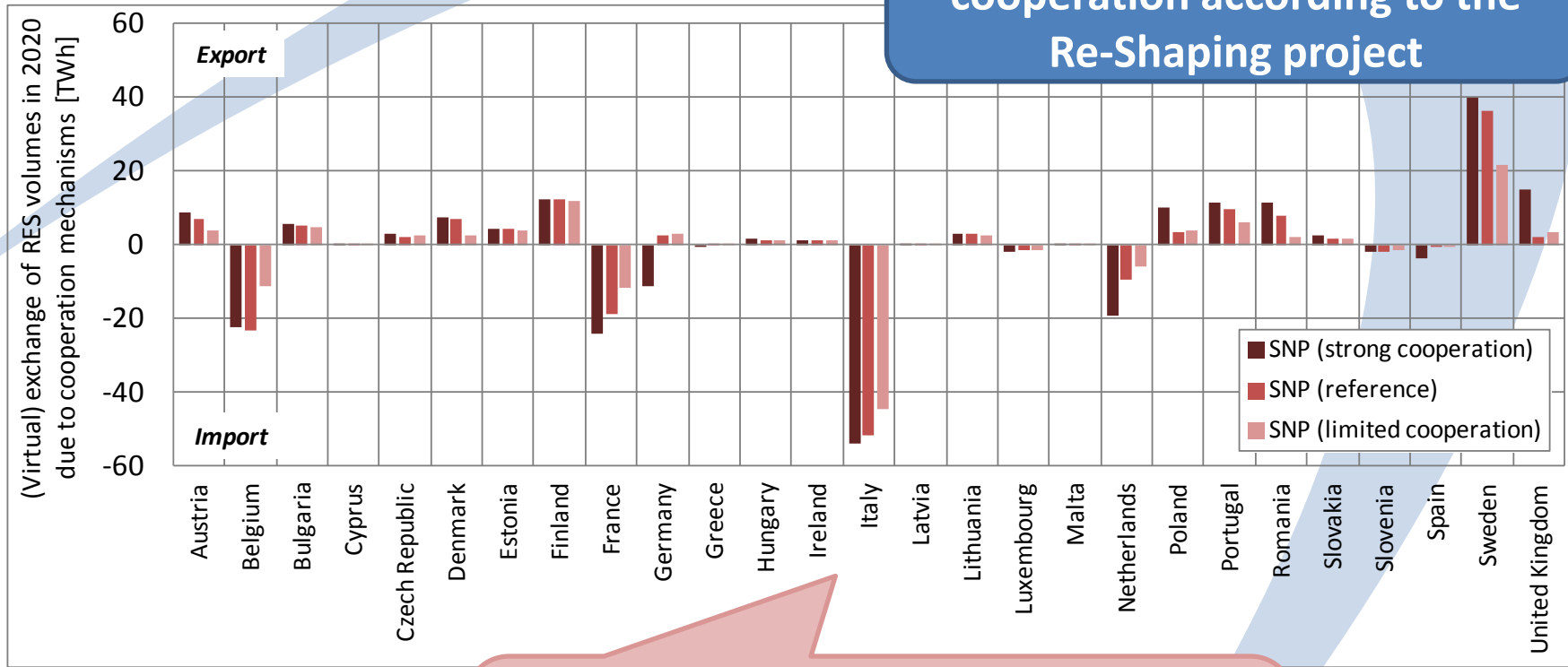
Assessed cases



Complementary “top-down” assessment: RES cooperation from a modelling perspective (Part 2)

The need for & impact of RES cooperation according to the Re-Shaping project

Results (virtual exchange by 2020)



- BE, FR, IT, LU, NL, SI as user countries (importer) within all assessed cases
- DE and ES become an importer specifically in the case of stronger RES cooperation

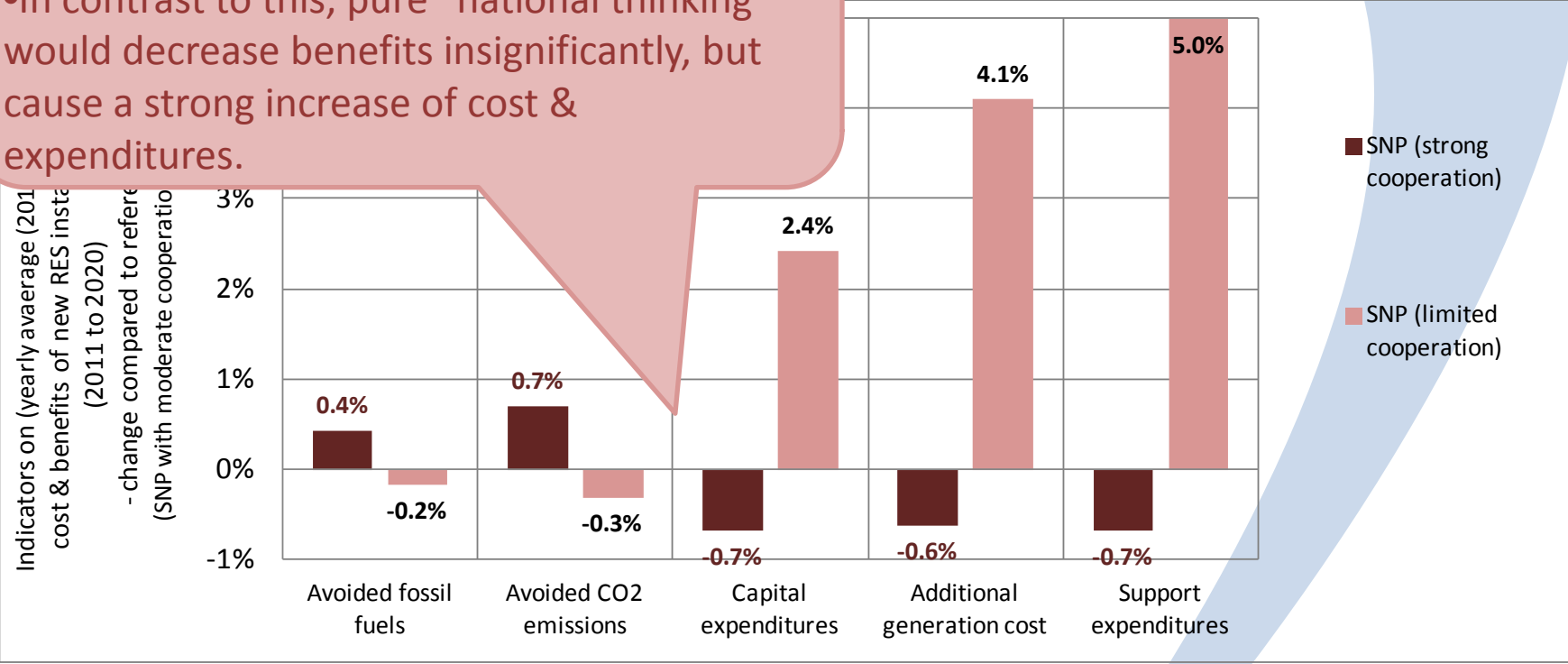


Complementary “top-down” assessment: RES cooperation from a modelling perspective (Part 2)

The need for & impact of RES cooperation according to the Re-Shaping project

- Cooperation appears beneficial at the aggregated (EU) level...
- In contrast to this, pure “national thinking” would decrease benefits insignificantly, but cause a strong increase of cost & expenditures.

Results (impact of cooperation)

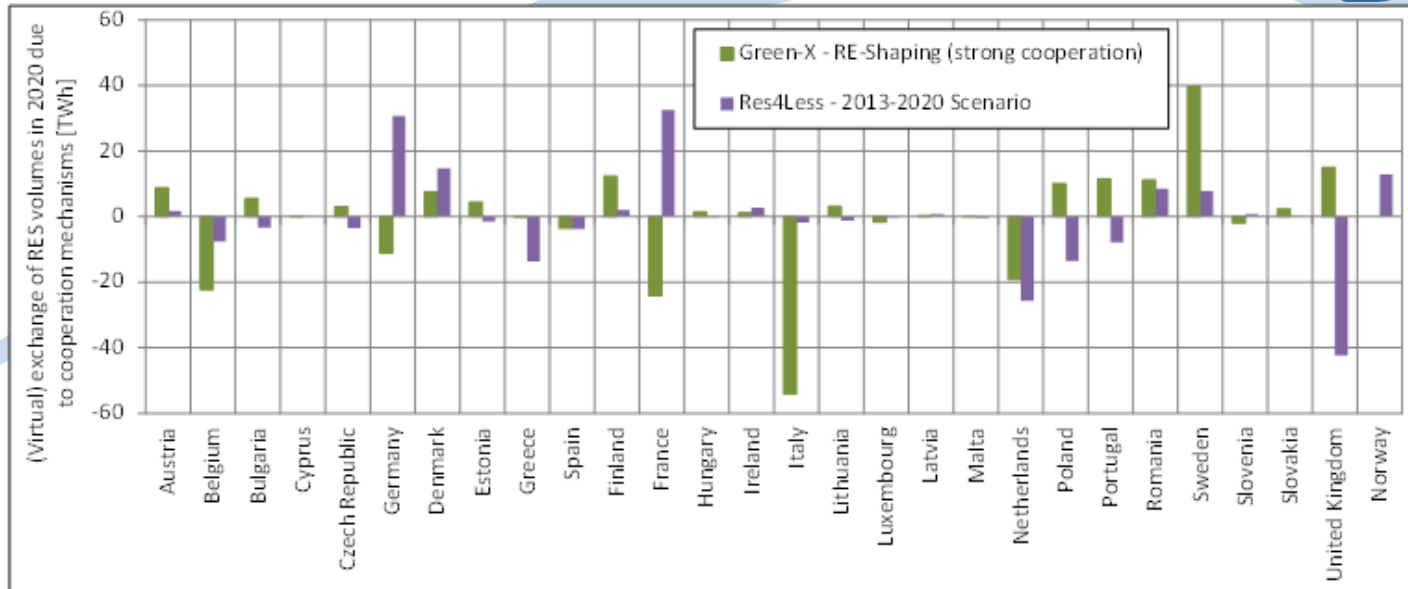


Comparison of expectations on prospects for RES cooperation

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Comparison (RES cooperation by 2020)



- For all of the large MSs (Germany, France, Italy, Poland, UK) except Spain the two models deliver different, mostly strongly contrary results.
- Also for other member states with lower absolute volumes the trend is often contrary.
- Overall only Spain, Ireland, Latvia, Malta the Netherlands, Romania and to a lesser extend Belgium, Denmark, Slovenia or Slovakia show a more or less homogeneous trend.

Comparison of expectations on prospects for RES cooperation

Comparison (RES cooperation by 2020)

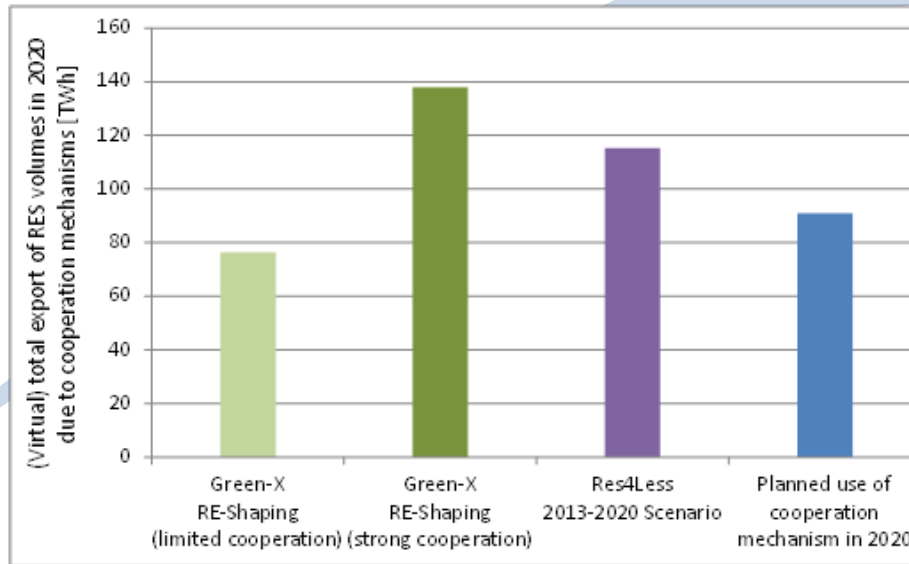


Figure: (Virtual) total export of RES volumes in 2020 due to cooperation mechanisms

- This graph indicates the amount of projected aggregate (virtual) RES export volumes (i.e. aggregate surpluses at EU level) according to the different sources assessed.
- This could principally be used by MSs being not able to fulfil their targets purely domestically.
- The different sources project (virtual) total RES export volumes at EU level between **76 and 138 TWh** by 2020, indicating an overall high level of accordance.



Conclusions

More cooperation can help to reach the 2020 RES targets at lower cost!

- The **cooperation mechanisms** introduced in the RES Directive provide **new options for an improved resource allocation** across Europe (including third countries) as well as **for further convergence of RES support schemes**.
- **Intensifying cooperation** allows for a **more cost-efficient RES target fulfilment** at EU level, leading to lower costs and expenditures.
- The plans of individual Member States show that **there is an aim to provide RES volumes for a possible cooperation in the 2020 context**. Thus, in practice countries are however reluctant to actually make use of the cooperation mechanisms introduced by the RES Directive for the time being (*since there remains uncertainty related to their practical use as well as with respect to actual future RES deployment*).



**Thank you
for your attention!**

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