



# EU TRACKING ROADMAP 2015

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**KEEPING TRACK OF RENEWABLE ENERGY  
TARGETS TOWARDS 2020**

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eclareon



**Fraunhofer**  
ISI



TECHNISCHE  
UNIVERSITÄT  
WIEN  
Vienna University of Technology



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## PROJECT DESCRIPTION



Co-funded by the Intelligent Energy Europe  
Programme of the European Union

The Directive 2009/28/EC on the promotion of the use of energy from renewable sources<sup>1</sup> (referred to in this publication as the “RES Directive”) sets the objective of meeting at least 20% of the EU’s final energy consumption with renewable energy sources by 2020. It sets mandatory national targets for the overall share of renewable energy sources (RES) in gross final energy consumption for each Member State. The annex to the Directive also defines an indicative trajectory for RES developments leading to the 2020 objectives. Progress towards reaching the 2020 targets is carefully monitored to ensure that the actual developments are not lagging behind the trajectory outlined in the RES Directive. Building on the experience of the Intelligent Energy Europe (IEE) project REPAP2020, Keep on Track! offers market, legal and political advice and recommendations for EU Member States to stay on track with their objectives set for 2020.

This is done via a platform for discussion among different market actors such as renewable energy industry associations, national and EU parliamentarians and the scientific community. Moreover, the project ensures a close-to-market monitoring of the fulfilment of the RES trajectory for each of the 27 EU Member States and from 2015 onwards also for Croatia.

If a Member State is found to be lagging behind and is failing to overcome identified barriers for RES deployment, Keep-on-Track! will provide early warnings and suggest solutions on how to compensate any possible delay encountered.

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<sup>1</sup> Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC



## WHAT IS EUFORES?

EUFORES, the European Forum for Renewable Energy Sources, is the European cross-party parliamentary network with Members of the European Parliament and the EU national Parliaments. EUFORES is an independent, non-profit organization founded in 1995 by Members of Parliament and other key actors. EUFORES promotes the systemic integration of renewable energy and energy efficiency as key solutions for a sustainable development and supports the transformation of good practice into coherent policies. It facilitates the exchange of views on EU and national legislation and organizes a variety of events such as Inter-Parliamentary Meetings, national parliamentary workshops, MEP roundtables with EU Commissioners and EU Council Presidencies, dinner debates in the European Parliament and Advisory Committee meetings. It also manages a diversity of projects supporting the implementation of EU legislation in the EU Member States.




### **CONTACT DETAILS OF EUFORES:**

European Forum for Renewable Energy Sources  
Renewable Energy House  
Rue d'Arlon 63-65 - B-1040 Brussels, Belgium  
[www.eufores.org](http://www.eufores.org)

### KEEP ON TRACK! PARTNERS:

The European Forum for Renewable Energy Sources (EUFORES) is the project coordinator. Partners in the project are:

 <p>BEE - German Renewable Energy Federation</p>	 <p>EEG - Vienna University of Technology, Energy Economics Group</p>	 <p>Fraunhofer Institute for Systems and Innovation Research</p>	 <p>Eclareon</p>	 <p>BBH - Becker Büttner Held</p>
 <p>APEE - Association of Producers of Ecological Energy</p>	 <p>AssoRinnovabili</p>	 <p>APPA - Asociación de Productores de Energías Renovables</p>	 <p>APREN - Associação Portuguesa de Energias Renováveis</p>	 <p>EEÖ - Bundesverband Erneuerbare Energie Österreich</p>
 <p>EDORA - Fédération de l'Energie d'origine renouvelable et alternative</p>	 <p>GAREP - Greek Association of RES Producers</p>	 <p>PIGEOR - The Polish Economic Chamber of Renewable and Distributed Energy</p>	 <p>REA - Renewable Energy Association</p>	 <p>SERO - Swedish Renewable Energies Organization</p>

Visit the project website to learn more: [WWW.KEEPONTRACK.EU](http://WWW.KEEPONTRACK.EU)

Co-financed by IEE



Co-funded by the Intelligent Energy Europe Programme of the European Union

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# AIM OF THE PUBLICATION

The EU Tracking Roadmap has been released each year from 2013 until 2015. It monitors the progress of renewable energy deployment towards the 2020 target, both at EU and Member State level. It will do so by providing:

- An analysis of deviations of RES development compared to the indicative trajectory defined by the RES Directive. This contribution is provided by the Fraunhofer ISI.
- An analysis of barriers to RES deployment. This analysis is put together by eclareon.
- Policy recommendations on how to keep on track with the indicative trajectory defined by the RES Directive. The national policy recommendations are provided by the national RES industry associations for their respective Member States. For those Member States where no national RES industry association is a member of the Keep-on-track! project consortium, policy recommendations are drafted by Fraunhofer ISI and EEG, based on information from RES-legal.eu, re-frame.eu and expert interviews carried out by eclareon. European policy recommendations are drafted by eclareon.

288 EU Member States are analysed in detail in this 2014 publication.

- Green-X Scenarios on 2020 RES deployment, providing an assessment of the feasible RES developments up to 2020 according to selected policy pathways (i.e. a business-as-usual and a policy recommendations case), indicating RES deployment to be expected in the near future at Member State and at EU-28 level, as well as related impacts on costs and benefits. The scenarios are provided by the Energy Economics Group of the Vienna University of Technology.

This publication summarises the findings of the Keep on Track! Project:

- To access more detailed information on the deviations of each EU Member State from its indicative trajectory, or on national barriers to RES deployment, please visit the Keep on Track! website - [www.keepontrack.eu](http://www.keepontrack.eu) - and read the Analysis of Deviations and Barriers Report.
- Furthermore, the Policy Recommendations Report will provide you with more insights into national policy recommendations.

## ARE EU MEMBER STATES ON TRACK?

- Of 28 Member States, 21 were on track regarding the RES trajectories defined in the NREAPs, and 7 underachieved. Regarding the interim targets defined in the RES Directive, 25 Member States have already met the 2013/2014 milestone. This is not surprising, given the relatively low ambition level of the interim targets in the early years. Trajectories will become steeper just before 2020.
- In the RES-E sector, 15 Member States overachieved on their 2013 target, 13 underachieved. Growth in the RES-E share across the EU-28 in the last two years was sufficient to achieve the 2020 target, if it can be maintained.
- In the RES-H&C sector, 22 Member States were above their 2013 targets. Six Member States underachieved. Growth in the RES-H&C share across the EU-28 was sufficiently high in the last three years to achieve the 2020 target, if it can be maintained.
- The RES-T sector has seen less progress than the former two, with only 6 Member States on or above their NREAP 2013 target, and 22 below.

### Roadblocks to the achievement of the 2020 targets: The political and economic frameworks are the main issues

- Concerning the analysis of existing barriers, the most important ones in all three sectors relate to the political and economic framework. This category mainly refers to the existence and reliability of a general RES support scheme, access to finance and the remuneration level of existing support schemes.
- For the RES-E sector, the second most important categories in terms of number of barriers are “administrative processes” and “grid regulation & infrastructure”, which both gather the same amount of barriers. For the RES-H&C and RES-T sectors, the second most important category in terms of number of barriers is the category “other”, which deals with topics such as public perception of RES, operational issues as well as training or taxation.
- Over all three sectors, the category “market structure” remains the one with the least amount of barriers reported, even though several additional barriers were identified during last year.

### Key conclusions from the Scenario 2020

- The Green-X model was used to assess the feasibility of the achievement of the 2020 RES targets for selected policy pathways (Business-As-Usual (BAU case) vs. Policy Recommendations (PR case))

- Under current RES support frameworks and related parameters (BAU case), only a RES share of 18.4% appears feasible at EU-28 level.
- Improving national RES policies, e.g. according to the recommendations provided within this project, combined with an increase of energy efficiency appears essential for several Member States to bring them back on track. This could increase RES deployment to up to 23.3%.

## HENCE, THE KEEP ON TRACK! CONSORTIUM RECOMMENDS TO:

- 1 STRIVE FOR AN AMBITIOUS AND BINDING 2030 RENEWABLE ENERGY TARGET WHICH IS SIGNIFICANTLY HIGHER THAN 27%, ALONGSIDE ENERGY EFFICIENCY AND GREENHOUSE GAS EMISSIONS TARGETS. ADOPT A STRONG GOVERNANCE FRAMEWORK TO FACILITATE AND ENSURE THE ACHIEVEMENT OF THESE TARGETS.**
- 2 ENSURE A PREDICTABLE AND STABLE LEGISLATIVE FRAMEWORK FOR RES AT THE NATIONAL LEVEL AND IN PARTICULAR TO AVOID ANY RETROACTIVE CHANGES TO EXISTING SUPPORT SCHEMES.**
- 3 ESTABLISH AN ENERGY MARKET DESIGN BASED ON INCREASING SHARES OF RENEWABLE ENERGIES. REMOVE ALL SUBSIDIES FOR FOSSIL FUELS AND NUCLEAR.**
- 4 INCREASE THE FOCUS ON THE RES-H&C AND RES-T SECTORS, WHICH ARE STRONGLY DEPENDENT ON THE EXISTENCE OF A SUPPORTIVE AND COMPREHENSIVE FRAMEWORK.**
- 5 REVISE THE GUIDELINES ON STATE AID FOR ENVIRONMENTAL PROTECTION AND ENERGY 2014-2020 TO MAKE SURE THEY ARE CONSISTENT WITH THE RES DIRECTIVE AND SUPPORT THE ACHIEVEMENT OF ITS OBJECTIVES.**
- 6 ESTABLISH A CLEAR AND SUPPORTIVE FRAMEWORK FOR RES-T AT EUROPEAN LEVEL.**
- 7 RETAIN THE FOCUS ON THE REMOVAL OF ADMINISTRATIVE BARRIERS.**

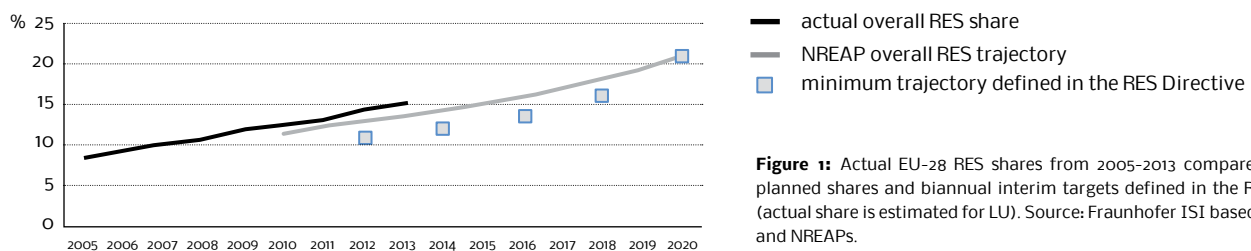


# EU OVERVIEW

## THE EUROPEAN UNION IS CURRENTLY ON TRACK IN TERMS OF ITS INDICATIVE TRAJECTORY.

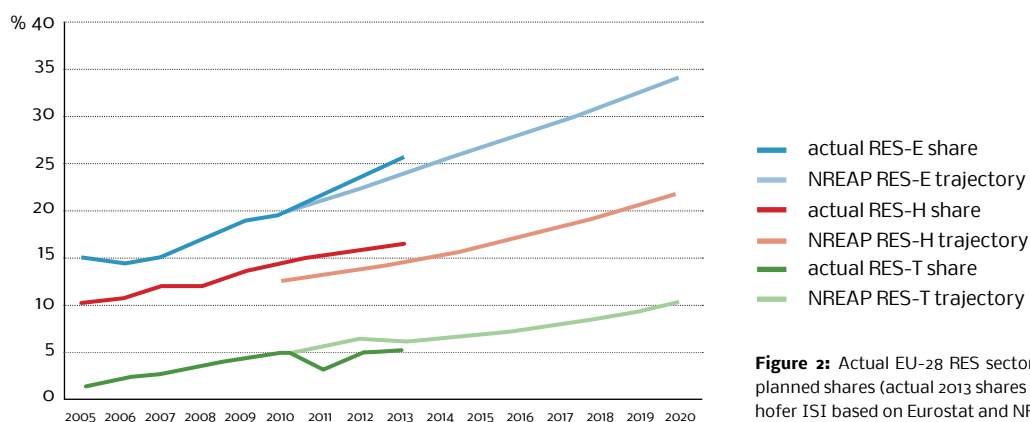
The EU-28 were above track in 2013 regarding the overall RES share planned in their National Renewable Energy Action Plans (NREAPs), and thus also comfortably above the 2013/2014 interim target defined in the RES Directive.

### RES SHARE IN GROSS FINAL ENERGY CONSUMPTION



The EU-28 is on track with an overall RES share of 14.95% in 2013, compared to a planned share of 13.53% according to the NREAPs.

### RES SECTOR SHARE IN FINAL SECTORAL ENERGY CONSUMPTION

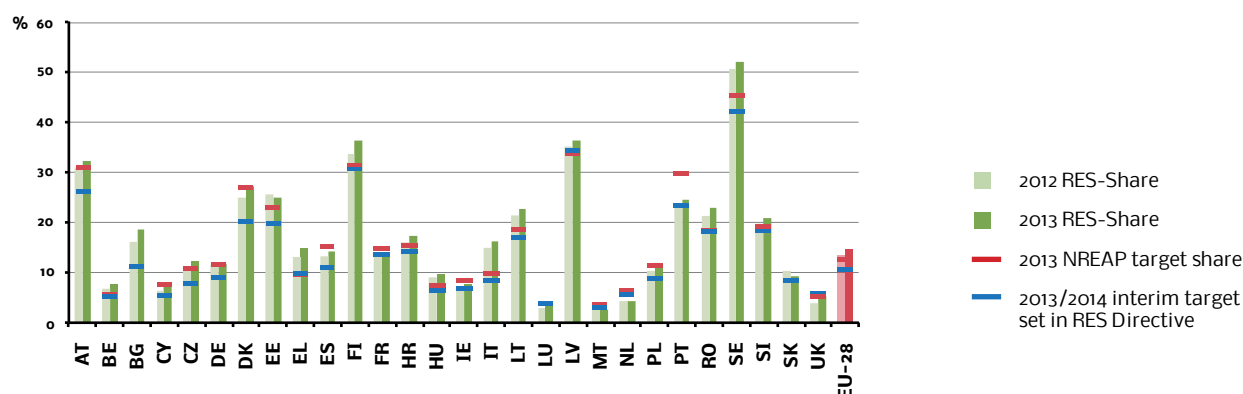


Regarding individual sectors, the shares of renewable electricity (RES-E) and renewable heating and cooling (RES-H&C) were higher than planned, while the share of renewable energy sources in transport (RES-T) was still lagging behind.



There is a sudden decrease in the RES-T share from 2010 to 2011, after which it rises again. This is caused by a statistics issue: To count towards the RES target, biofuels and bioliquids must be compliant with sustainability criteria under Articles 17 and 18 of Directive 2009/28/EC. This legislation was only fully transposed after 2010. Until 2010, all biofuels counted towards the target. As of 2011, Member States report only biofuels and bioliquids compliant with Article 17 as well as Article 18<sup>2</sup>, which led to a drop in the share. As Member States gradually improved the compliance and respective reporting of their biofuels, RES-T shares rose again.

## ACTUAL VERSUS PLANNED RES SHARES



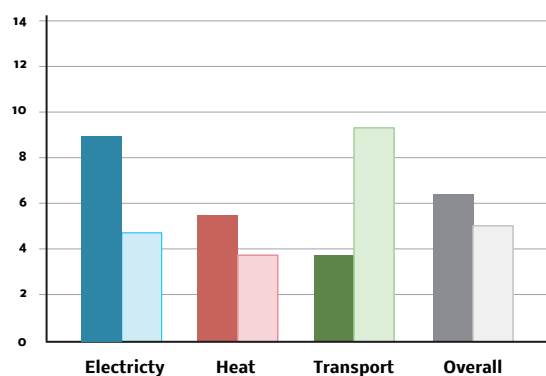
**Figure 3:** Actual overall RES Share in 2012 and 2013 vs. 2013/2014 interim target of RES Directive and 2013 NREAP target (%) (actual 2013 share is estimated for LU). Source: Fraunhofer ISI based on Eurostat and NREAPs.

The NREAP targets for 2013 were met or exceeded by 21 Member States (compared to 22 Member States in 2012 and 16 in 2011), and failed by 7.

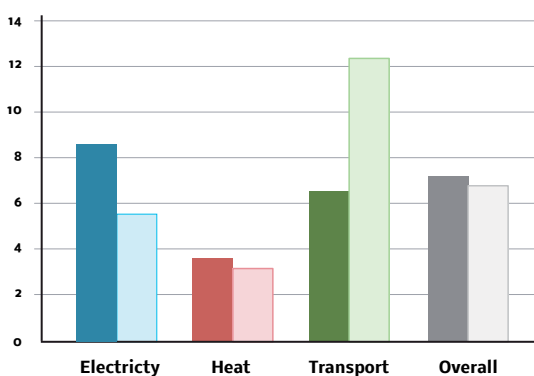
However, 25 Member States have already exceeded their 2013/2014 interim target from the RES Directive. Next years' data will reveal whether the UK, Luxembourg and the Netherlands meet their interim targets.

This good result is not surprising, given that the interim targets are less ambitious in the early years, but the trajectory will become steeper as it gets closer to 2020.

## GROWTH RATE IN RES SHARES



## GROWTH RATE IN RES (ABSOLUTE FIGURES)



Electricity 2010-2013 ■ Heat 2010-2013 ■ Transport 2010-2013 ■ Overall 2010-2013 ■  
Electricity 2013-2020 ■ Heat 2013-2020 ■ Transport 2013-2020 ■ Overall 2013-2020 ■

**Figure 4:** Growth rates of RES 2010-2013 [%/a] versus average annual growth rates [%/a] required from 2013 to 2020 to achieve the 2020 target. Source: Fraunhofer ISI based on Eurostat and other sources.

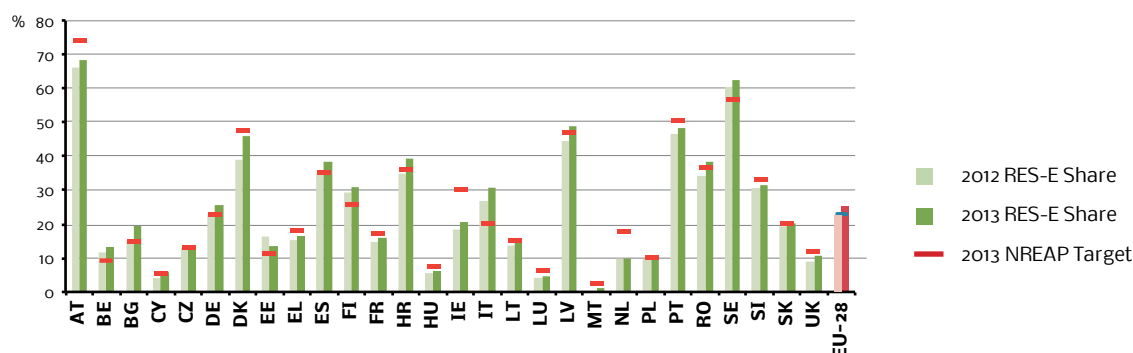
<sup>2</sup> Eurostat Shares Exercise, available at [http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/other\\_documents](http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/other_documents)

The average annual growth in the overall RES share from 2010-2013 was higher than the average growth needed to achieve the 2020 target. The growth in overall RES consumption (absolute figures) over the last three years also exceeded the necessary average growth rate until 2020, but to a lesser extent. This can be explained by the fact that actual overall energy demand was lower than originally projected in the NREAPs. Sufficiently high RES shares could thus be more easily achieved.

The 2010-2013 RES-E growth rate for the EU-28 was high enough - if maintained - to achieve the share planned for 2020. This is true for both the growth in shares as well as in absolute figures. The same applies to the RES-H&C sector.

The provisional growth rate in RES-T over the last three years has been lower than the necessary annual growth rate, both regarding the share as well as absolute values. Note, however, above-mentioned break in the data series for biofuels in 2011. The recent growth rate for RES-T is therefore just a rough indication.

### ACTUAL VERSUS PLANNED RES-E SHARES

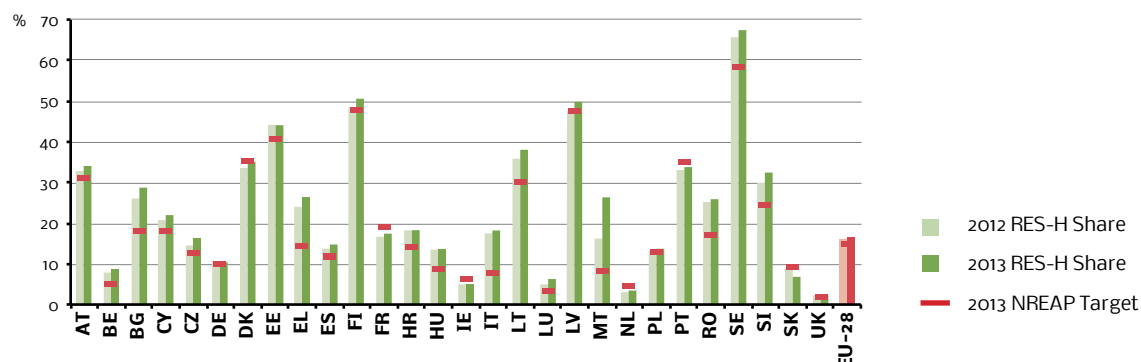


**Figure 5:** RES-E shares vs. NREAP target shares (actual 2013 share is estimated for LU). Source: Fraunhofer ISI based on Eurostat, NREAPs.

Fifteen Member States were above their indicative trajectory in 2013. The most significant overachievement has been displayed by Italy with 49% more RES-E than planned in the NREAP for 2013.

Thirteen MS stayed below their target. The result is thus slightly better than in the previous year, where 12 Member States had exceeded their targets and 16 had missed them.

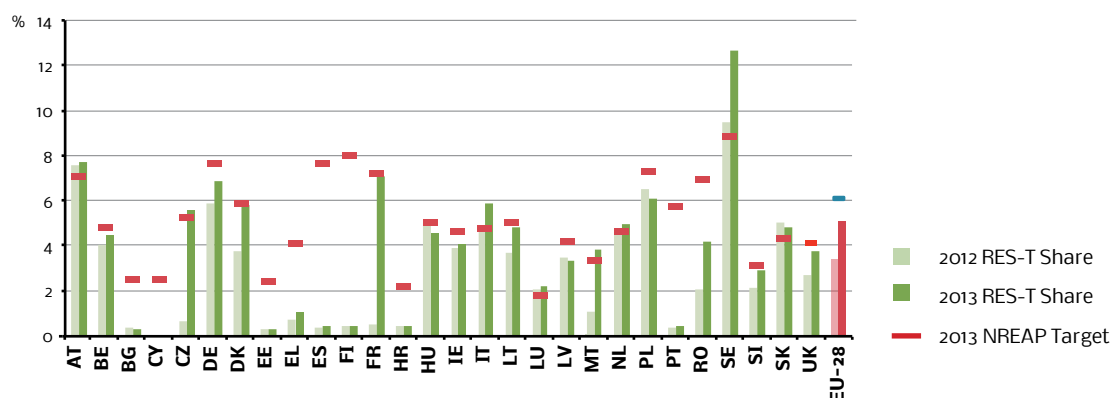
## ACTUAL VERSUS PLANNED RES-H&C SHARES



**Figure 6:** RES-H&C shares vs. NREAP target shares (actual 2013 share is estimated for LU). Source: Fraunhofer ISI based on Eurostat, NREAPs.

In the RES-H&C sector, 23 Member States were above track in 2012. Similarly, in 2013, 22 Member States were on track, and only 6 Member States underachieved (Denmark, Ireland, Portugal, Slovakia, France and the Netherlands)

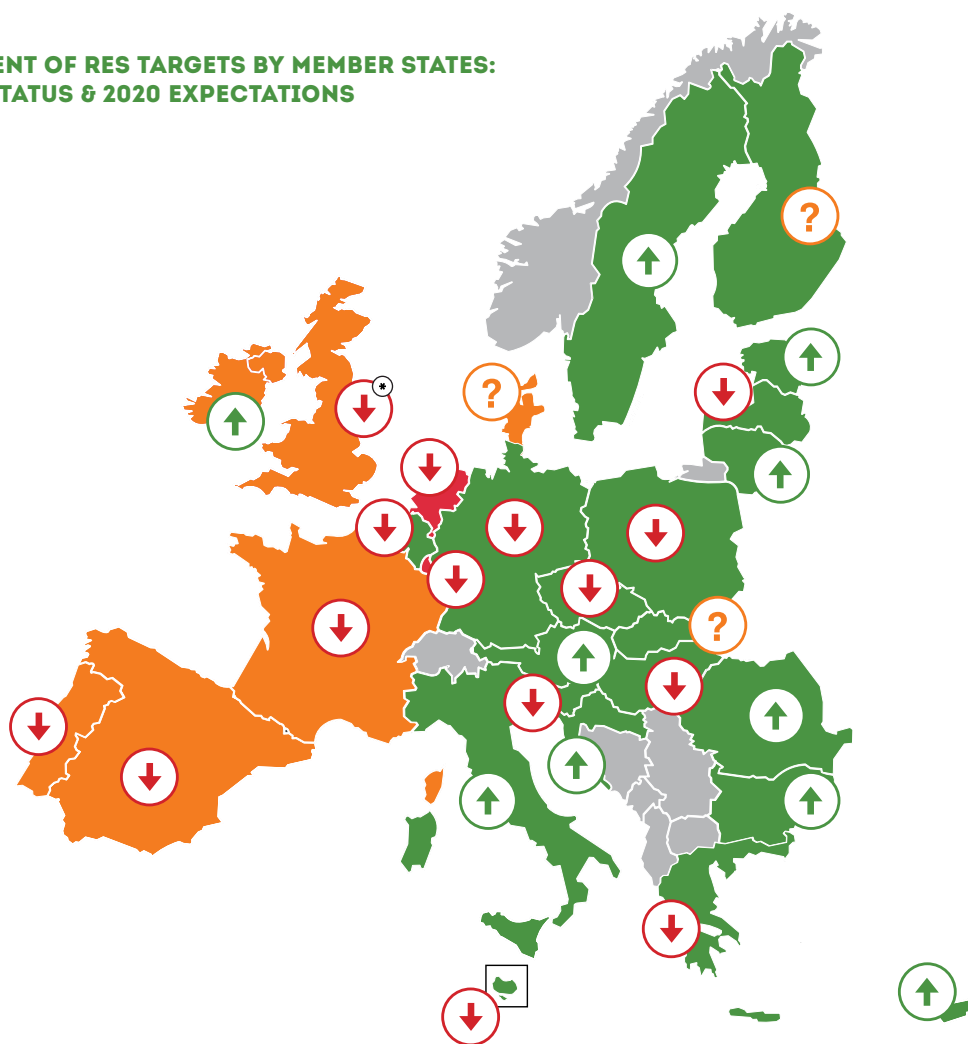
## ACTUAL VERSUS PLANNED RES-T SHARES



**Figure 7:** RES-T shares vs. NREAP target shares (actual 2013 share is estimated for LU). Source: Fraunhofer ISI based on Eurostat, NREAPs.

The RES-T sector has seen less progress than the former two, with only 6 Member States on or above their 2013 NREAP target. Twenty-two Member States stayed below target, 5 of which even achieved less than half their targeted share (Cyprus, Estonia, Greece, Spain, and Portugal). However, this may also be due to above-mentioned data problems regarding compliant biofuels. In 2012, 8 Member States had exceeded their target, but another 8 had achieved less than half of their target share.

## ACHIEVEMENT OF RES TARGETS BY MEMBER STATES: CURRENT STATUS & 2020 EXPECTATIONS



### 2020 EXPECTATIONS

- This MS is expected to reach the 2020 target.
- This MS is NOT expected to reach the 2020 target.
- There are doubts whether this MS will achieve the 2020 target.

### CURRENT STATUS (IN 2013)

- This MS has achieved the NREAP 2013 target and the 2013/2014 interim target set by the RES Directive
- This MS has NOT achieved the NREAP 2013 target but has achieved the 2013/2014 interim target set by the RES Directive
- This MS has NOT achieved the NREAP 2013 target and has NOT YET achieved the 2013/2014 interim target set by the RES Directive
- No data.

\* the UK has achieved its NREAP 2013 target but has NOT YET achieved the 2013/2014 interim target set by the RES Directive.

The 2015 EU Tracking Roadmap is addressing all 28 EU-Member States. The above map provides an overview of the 28 Member States in terms of whether or not they have achieved their 2013 targets (both the 2013/2014 interim targets set in the RES Directive and the NREAP 2013 targets). The map shows also expectations regarding their meeting the 2020 targets. The 2020 expectations are based on a scenario modelling done by EEG TU Vienna, using their Green-X model to assess the feasibility of Member States in meeting their binding 2020 RES targets as set by the RES Directive with currently implemented RES policies (business-as-usual (BAU) scenario).

Out of the 27 Member States analysed in this publication, ten are expected to meet their 2020 targets (Austria, Bulgaria, Croatia, Cyprus, Estonia, Ireland, Italy, Lithuania, Romania, and Sweden).

There are doubts concerning three Member States (Denmark, Finland, Slovakia). It is expected that Belgium, the Czech Republic, France, Germany, Greece, Hungary, Latvia, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovenia, Spain and the UK will not meet their 2020 targets.

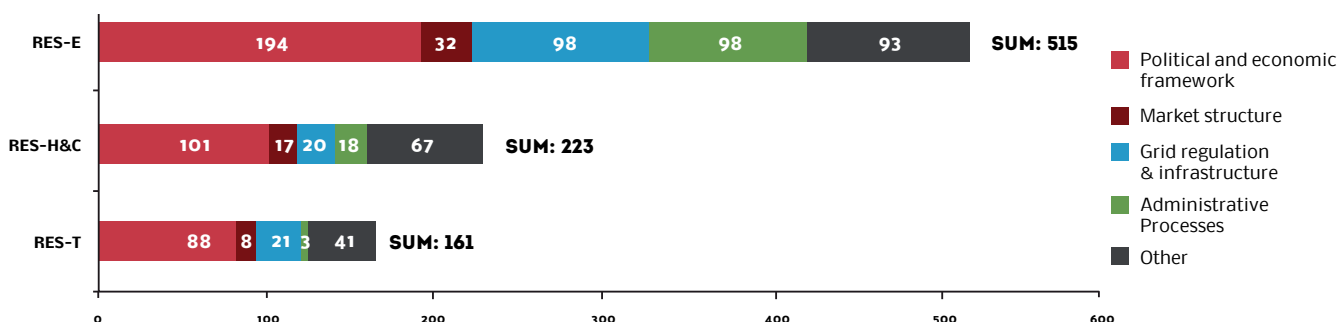
## ON THE WAY TOWARDS THE 2020 TARGETS: POLITICAL AND ECONOMIC FRAMEWORK AS THE MAIN ISSUES

The Keep on Track! project analyses the barriers hindering the development of renewable energy sources across all three energy sectors in the European Union. To this end, a bottom-up approach has been adopted to identify the broadest barriers at a national level. Barriers identified were classified under global categories, allowing for a comparison across Member States.

### AS A CONSEQUENCE OF THE CHOSEN APPROACH:

- The non-identification of a barrier in a certain country does not necessarily mean that it does not exist. Other national barriers may have been perceived as more important or more urgent and were therefore prioritised.
- The identification of a large number of barriers in a specific Member State does not necessarily correlate with the degree of severity of the overall situation of renewables. The identification of a large number of barriers might be the result of high barrier awareness in certain countries, favoured by high transparency or a high level of information availability.
- In addition, the number of barriers per country may depend on the development stage of a certain technology: a high number of barriers would therefore be the result of technology maturity.

In total, 900 single barriers were reported as preventing RES deployment in all sectors in the 28 Member States. These break down into 515 barriers for the electricity sector, 223 for the heating and cooling sector and 161 for the transport sector. For the sake of comparability, the identified barriers were grouped into 5 main categories:



**Figure 8:** Share of barrier categories in the RES-sectors. Source: eclareon based on own research and information of the 11 National Renewable Energy Associations, partners in Keep on Track!

The most important category across all sectors relates to the political and economic framework: it gathers 383 barriers out of 900. This category mainly refers to the existence and reliability of a general RES support scheme, access to finance and the remuneration level of existing support schemes. Sector-specific issues such as the European institutions' position on RES-T are also addressed under this category.

For the RES-E sector, the second most significant category deals with shortcomings of administrative processes, more specifically related to the integration of RES-E in spatial and environmental planning, as well as to the duration and complexity of administrative procedures. Equally ranked as second most significant category is grid regulation and

infrastructure, addressing issues such as the predictability and transparency of the connection procedure, respectively the costs of the RES-E grid access.

As far as the RES-H&C sector is concerned, the second most dominant category groups topics such as the public perception of RES-H&C, operational issues, as well as training and taxation. In the RES-T sector, the residual category "other" is ranked second, followed by the category grid regulation and infrastructure. Beside the topics of public perception and operational issues, in the RES-T sector the category "other" is also referring to issues such as certification and information exchange, respectively the communication between the relevant stakeholders.

# GREEN-X SCENARIOS ON 2020 RES DEPLOYMENT

## MODEL-BASED ASSESSMENT OF 2020 RES DEPLOYMENT

By use of a specialised energy system model (Green-X) a quantitative analysis was conducted to assess feasible RES developments up to 2020 according to selected policy pathways (i.e. a Business-As-Usual and a Policy Recommendations case), indicating RES deployment at Member State and at EU-28 level that can be expected in the near future, as well as related impacts on costs and benefits. Subsequently we present background information and key outcomes in a brief manner. Note that complementary information on methodology and assumptions, combined with a discussion of results and findings at country level is provided in Resch et al. (2015).

## METHODOLOGY AND KEY ASSUMPTIONS

Similar to previous assessments the Green-X model was applied to perform a detailed quantitative assessment of the future deployment of renewable energy on country- and sector 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. For a detailed description we refer to [www.green-x.at](http://www.green-x.at).

In order to ensure consistency with existing EU scenarios and projections data on future developments of demand and of energy/carbon prices are taken from PRIMES modelling - i.e. the PRIMES scenarios used is the most recent reference scenario as of 2013 (EC, 2013). Additionally, the Policy Recommendations (PR) scenario derived indicates the impact of increasing, complementary to RES, energy efficiency (EE) For doing so, the outcomes of a detailed study evaluating the current energy efficiency policy framework in the EU (Braungardt et al., 2014) are incorporated. With respect to the potentials and cost of RES technologies we refer to the Green-X database, respectively. Table 1 shows which parameters are based on PRIMES and which have been defined for this study.

BASED ON PRIMES	DEFINED FOR THIS STUDY
(Default data on) Energy demand by sector	RES policy framework
Primary energy prices	Reference electricity prices
Conventional supply portfolio and conversion efficiencies	RES cost (Green-X database) and future learning rates
CO <sub>2</sub> intensity of sectors	RES potential (Green-X database)
	Biomass trade specification
	Technology diffusion
	Energy efficiency/saving potentials by sector

**Table 1:** Main input sources for scenario parameters

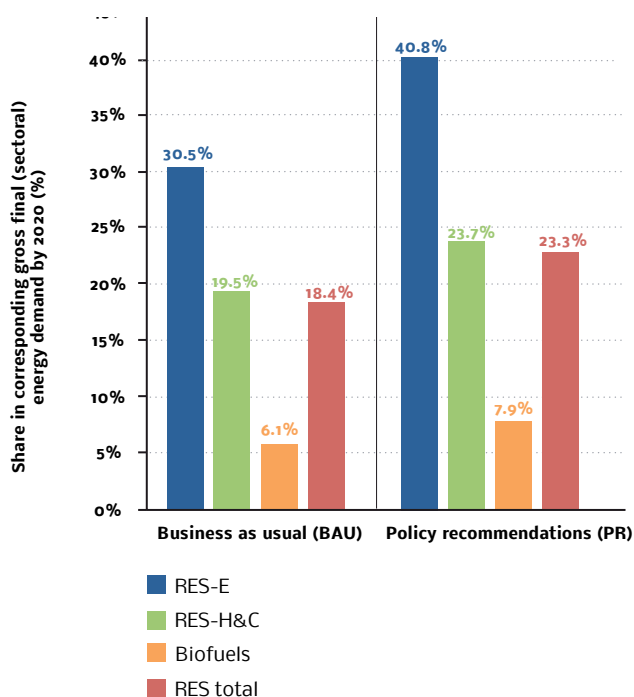


**Figure 8:** Overview on assessed cases

## RESULTS ON 2020 RES DEPLOYMENT AND TARGET ACHIEVEMENT

Next, a closer look is taken on key outcomes on expected future RES deployment and related costs, expenditures and benefits at the aggregated (EU-28) level.

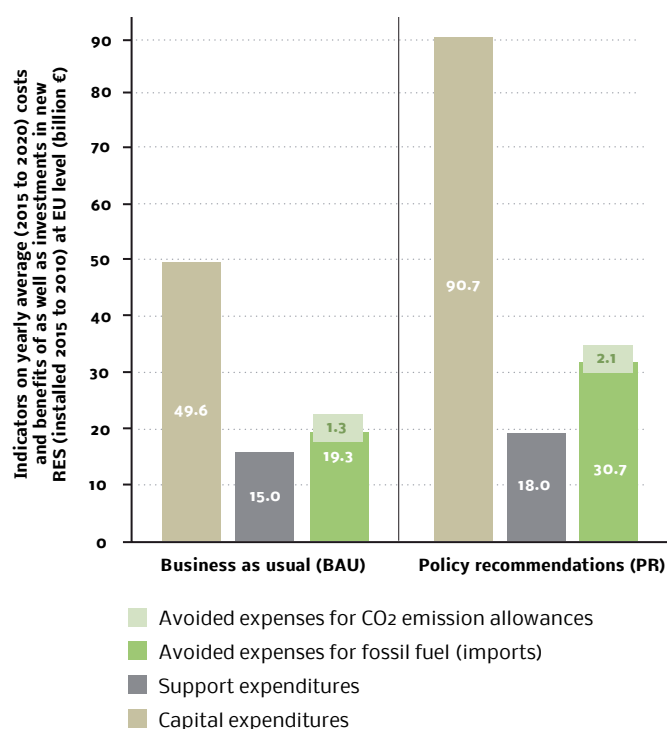
First, Figure 9 shows the contribution of RES to meeting gross final and sector-specific energy demands in 2020 for both assessed cases. It turns out that under current RES support and related framework conditions (BAU case) at EU-28 level only a RES share of 18.4% appears feasible. Thus, improving national RES policies, for example according to the recommendations as provided within this project, appears essential for several Member States to bring them back on track. This is demonstrated by the results on the alternative policy pathway (Policy Recommendations case), where a RES share of 23.3% can be achieved by 2020. For doing so, RES in all energy sectors have to contribute more but possibly the most impressive changes can be identified for RES in the electricity sector, where 40.8% (PR case) instead of 30.5% (BAU case) are reached in 2020, and for RES in the heating and cooling sector (i.e., 23.7% (PR case) instead of 19.5% (BAU case).



**Figure 9:** Sector-specific RES shares by 2020 at EU-28 level according to the assessed cases (BAU vs. PR)

RES deployment and RES target achievement at the national level is discussed next. Thereby, Figure 11 provides a graphical illustration of the outcomes of our model-based assessment of 2020 RES target achievement by Member State, indicating the likeliness by Member State following an “amp approach”. Complementary to that, Figure 12 offers further insights on the expected national RES deployment under BAU conditions. This graph also shows the additional deployment at sector level that would occur according to the Policy Recommendations case. Thus, under BAU conditions ten out of the assessed 28 Member States, e.g. Bulgaria, Croatia or Italy, appear well on track. In another three Member States (i.e. Denmark, Finland and Slovakia) there are doubts whether 2020 targets can

Indicators on the costs and benefits of an accelerated RES deployment in the European Union offer central information for decision makers. In this context, Figure 10 summarises the assessed costs and benefits arising from the future RES deployment in the focal period 2015 to 2020. More precisely, this graph provides for the researched cases throughout the period 2015 to 2020 the on average per year arising investment needs and the resulting costs - i.e. additional generation cost and support expenditures. Moreover, they offer an indication of the accompanying benefits in terms of supply security (avoided fossil fuels expressed in monetary terms - with impact upon a country's trade balance) and climate protection (avoided CO<sub>2</sub> emissions - monetarily expressed as avoided expenses for emission allowances). Other benefits - even of possibly significant magnitude - such as job creation or industrial development were not included in this assessment. Apparently, with improved policy design and mitigated non-cost barriers RES deployment and consequently also related investments increase strongly, by about 83% with respect to the latter. Moreover, a significantly improved balance between costs and benefits can be observed.



**Figure 10:** Investments, selected costs & benefits at EU-28 level according to the assessed cases (BAU vs. PR)

be reached with already implemented measures, while the remainder of fifteen Member States can be classified as “not well on track.” In contrast to that, if recommended policy measures for increasing RES use and energy efficiency are implemented well in time, all Member States still have the possibility to achieve their 2020 RES targets. The majority of countries would even exceed its obligation, and there are good reasons for doing so since, as discussed above, additional RES deployment contributes well to increase supply security and local employment, to name only some additional benefits. Finally, by 2020 three Member States (i.e. Luxembourg, Malta and the Netherlands) make use of RES cooperation mechanisms as a buyer while all others act as (possible) seller.

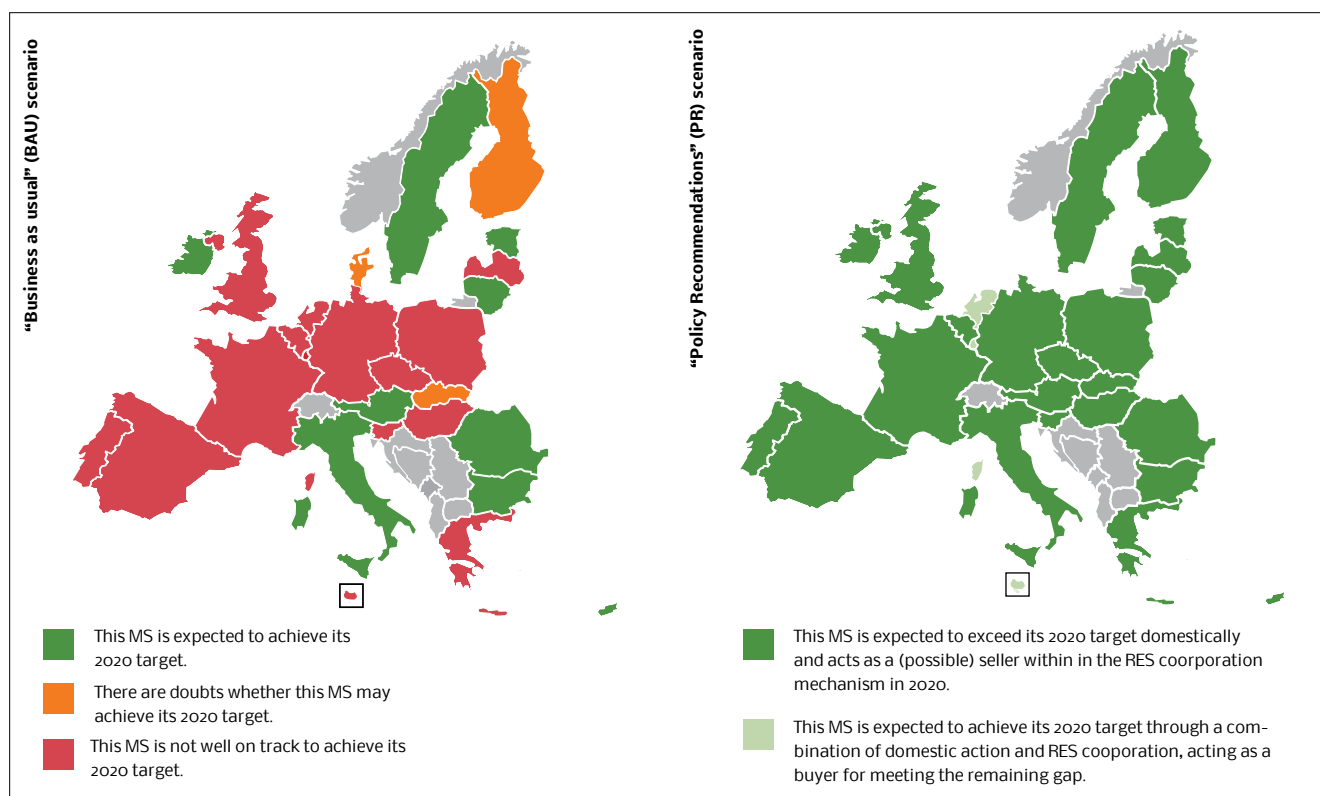


Figure 11: Assessment of 2020 RES target achievement according to the assessed cases (BAU (left) vs. PR (right))

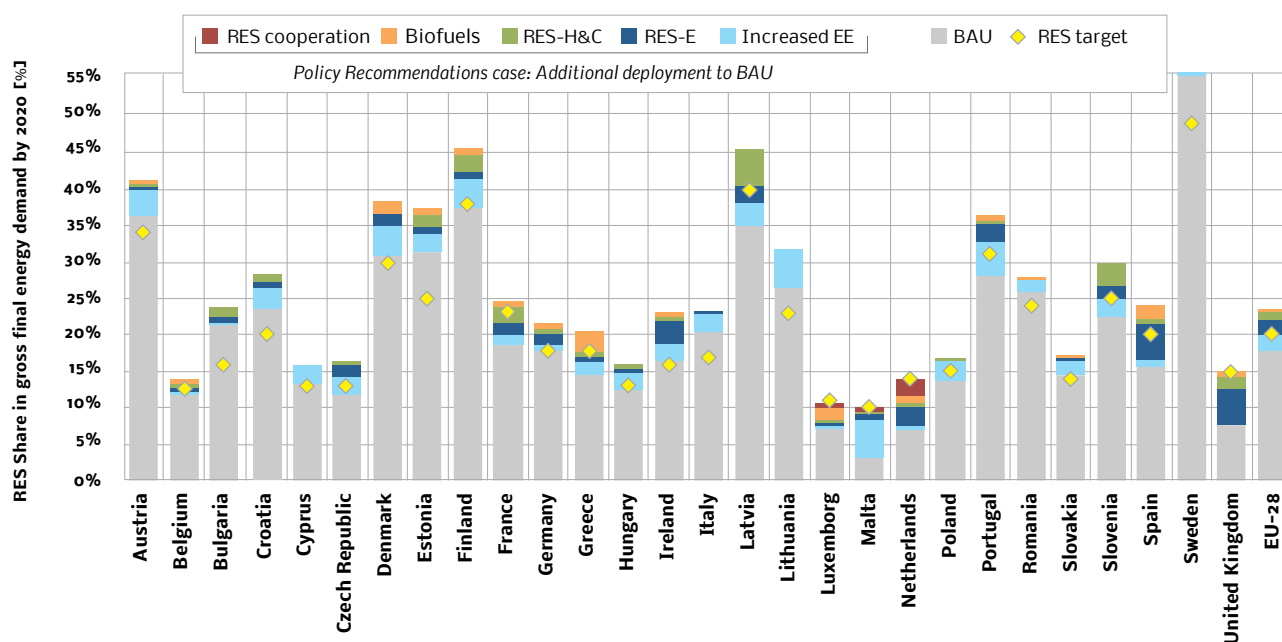


Figure 12: Comparison of 2020 RES targets and RES deployment according to a Business-as-usual (BAU) scenario by Member State, and additional (sector-specific) RES deployment in the Policy recommendations case

#### References:

Braungardt, S., Eichhammer, W., Elsland, R., Fleiter, T., Klobasa, M., Krail, M., Pfluger, Ben, Reuter, M., Schlomann, B., Sensfuss, F., Tariq, S., Kranzl, L., Dovidio, S., Gentili, P., 2014. Study evaluating the current energy efficiency policy framework in the EU and providing orientation on policy options for realising the cost-effective energy-efficiency/saving potential until 2020 and beyond, [http://ec.europa.eu/energy/efficiency/studies/doc/2014\\_report\\_2020-2030\\_eu\\_policy\\_framework.pdf](http://ec.europa.eu/energy/efficiency/studies/doc/2014_report_2020-2030_eu_policy_framework.pdf), accessed on 27 October 2014.

Resch G., L. Liebmann (2015): Green-X scenarios on 2020 RES deployment – a brief assessment if Member States are well on track for 2020 RES target achievement. A report compiled within the Intelligent Energy Europe project Keep-on-Track!, coordinated by Eufores and Eclareon. TU Vienna, Energy Economics Group, Vienna, Austria, 2015 (forthcoming).

European Commission (2013): EU energy, transport and GHG emissions trends to 2050: Reference Scenario 2013. DG Energy, DG Climate Action and DG Mobility and Transport, December 2013.



# 2015 POLICY RECOMMENDATIONS:

The KoT consortium sees the necessity to establish:

- > A more independent and secure energy supply in Europe
- > A sustainable energy use which avoids emissions that trigger climate change and other environmental damages
- > Affordable and stable energy prices for European consumers.

**AS RENEWABLE ENERGY IS THE ONLY ENERGY SOURCE THAT WILL MEET ALL THESE OBJECTIVES, WE RECOMMEND TO:**

**1 STRIVE FOR AN AMBITIOUS AND BINDING 2030 RENEWABLE ENERGY TARGET WHICH IS SIGNIFICANTLY HIGHER THAN 27%, ALONGSIDE ENERGY EFFICIENCY AND GREENHOUSE GAS EMISSIONS TARGETS. ADOPT A STRONG GOVERNANCE FRAMEWORK TO FACILITATE AND ENSURE THE ACHIEVEMENT OF THESE TARGETS.**

The absence of national binding targets calls for Member States to commit themselves to ambitious national policies and objectives.

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**2 ENSURE A PREDICTABLE AND STABLE LEGISLATIVE FRAMEWORK FOR RES AT THE NATIONAL LEVEL AND IN PARTICULAR TO AVOID ANY RETROACTIVE CHANGES TO EXISTING SUPPORT SCHEMES.**

Stop-and-go policies and disruptive changes are currently jeopardising the achievement of the 2020 targets.

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**3 ESTABLISH AN ENERGY MARKET DESIGN BASED ON INCREASING SHARES OF RENEWABLE ENERGIES. REMOVE ALL SUBSIDIES FOR FOSSIL FUELS AND NUCLEAR.**

The market design has to provide a level playing field for all energy sources, in particular to account for the environmental and social costs and benefits

---

**4 INCREASE THE FOCUS ON THE RES-H&C AND RES-T SECTORS, WHICH ARE STRONGLY DEPENDENT ON THE EXISTENCE OF A SUPPORTIVE AND COMPREHENSIVE FRAMEWORK.**

Due to the lack of coherent support, current developments are not in line with the 2020 targets.

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**5 REVISE THE GUIDELINES ON STATE AID FOR ENVIRONMENTAL PROTECTION AND ENERGY 2014-2020 TO MAKE SURE THEY ARE CONSISTENT WITH THE RES DIRECTIVE AND SUPPORT THE ACHIEVEMENT OF ITS OBJECTIVES.**

The State aid guidelines are limiting the Member States' freedom of choice of support schemes that have proven to be effective.

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**6 ESTABLISH A CLEAR AND SUPPORTIVE FRAMEWORK FOR RES-T AT EUROPEAN LEVEL.**

Provide stable support conditions for biofuels. Create a reliable framework for electric mobility.

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**7 RETAIN THE FOCUS ON THE REMOVAL OF ADMINISTRATIVE BARRIERS.**

The duration and complexity of administrative procedures is still a major barrier identified by European stakeholders.

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# OVERVIEW

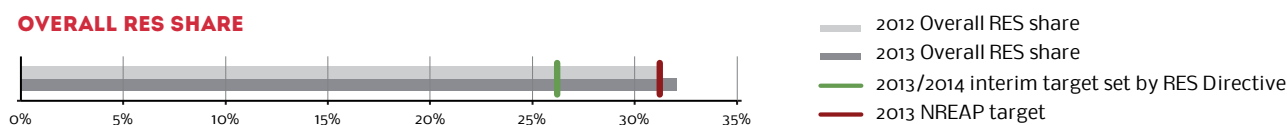
**BY MEMBER STATE**



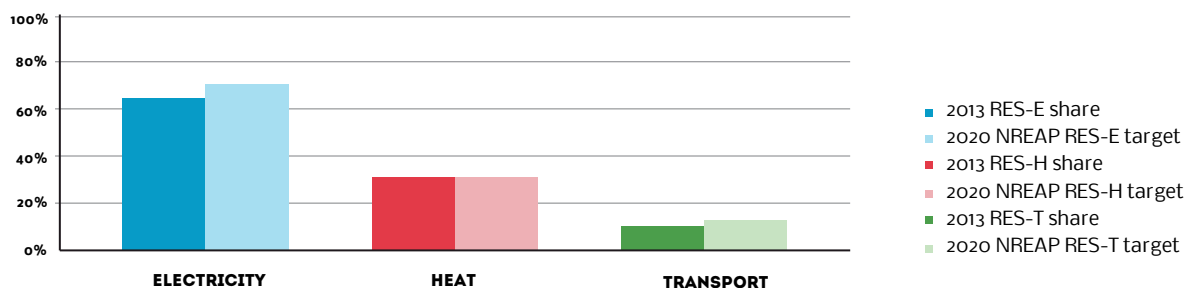
# IS AUSTRIA on track?

- Austria has achieved both its 2013 NREAP target and the interim target 2013/14.
- Growth rates in RES-E and RES-H&C were high enough to achieve the 2020 target if maintained. However, RES-T growth rates have to be increased to achieve the 2020 target.

## OVERALL RES SHARE

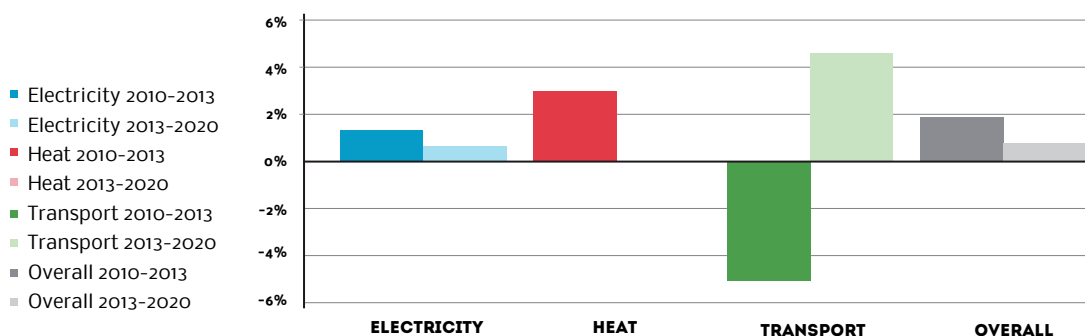


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	68.1%	33.5%	7.5%	32.6%
2013 NREAP target	74.2%	30.6%	7.3%	31.8%
2013/2014 interim target set by RES Directive	-	-	-	27.3%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS to RES deployment

### ELECTRICITY

BARRIER	DESCRIPTION
<b>UNCERTAINTY AS RESULT OF NEW STATE AID GUIDELINES</b>	The decision of the EU commission to change the state aid guidelines means that sooner or later Austria will have to revise its eco-electricity law. It is becoming clear now that conditions will be less favourable, which already leads to uncertainty among investors.
<b>UNAMBITIOUS 2030 TARGETS</b>	The targets agreed by the EU council are very low, which means that investments in renewable energy may drop to approximately half of current investment level.
<b>LOW ELECTRICITY PRICES</b>	The current extremely low electricity prices are a serious threat to generating plants without feed-in tariff, discourage investors, and increase the costs of the feed-in-tariff system.

### HEAT

BARRIER	DESCRIPTION
<b>LOW OIL PRICES</b>	Even if renewable heat is still cheaper than fossil heat, the current low oil prices slow down the replacement ratio of old oil heating systems by modern renewable heating systems.
<b>COMPETITION FROM HEAT PUMPS</b>	Due to low investment costs, heat pumps are becoming increasingly popular. This leads to a higher electricity demand just during winter, with low renewable power generation.
<b>WEAK RENOVATION INCENTIVES</b>	Since many years, investments in saving heating energy are much too low, leading to a thermal renovation ratio less than 1%. Due to low oil and CO <sub>2</sub> prices, current subsidies are as incentive to weak to increase the ratio to the needed 3%.

### TRANSPORT

BARRIER	DESCRIPTION
<b>TOO SLOW TRANSITION FROM ROAD TO RAIL TRANSPORT</b>	Public rail transport is becoming increasingly popular, but investments in commuter railroads and trains are lagging behind. This slows down the transition towards a renewable energy transport system (trains use 95% renewable power).
<b>INCENTIVES FOR E-MOBILITY NOT STRONG ENOUGH</b>	There is a lot of discussion about E-mobility but not many electric cars. This is due to the cars still being too expensive. However, other countries show that tax incentives are an effective way to make E-cars (or plug-in hybrids) more attractive.
<b>LOW BIOFUEL TARGETS</b>	Austria reduced its biofuel target from 10% to 6.75%, after a change in the EU policy. However, overall fuel demand is falling, leading to lower absolute amounts of biofuel, whereas production could be increased when environmental aspects are considered.

## KEY TRENDS IN THE RES SECTOR

- Overall, the share of RE in the different sectors is growing, but nevertheless developments in 2014 gave rise to concerns. The introduction of the Austrian Energieeffizienzgesetz (law on energy efficiency) provides new impulses to the industry, even though the law itself lacks ambitious targets.
- The European Union initiatives concerning the state aid guidelines put pressure on the existing RES-E FIT system. A clear and structured market design with appropriate

incentives is needed to keep Austria on track in terms of RES-E development.

- Concerning RES-H, a carbon tax and cost internalization would have a direct impact on the market situation.
- Positive incentives for a higher RE share in the transport sector would be investments in the public transport and a shift in the modal split.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Continue the FiT system – the FiT system in Austria is working and leading to a steady RES-E development at costs that are widely seen as acceptable.
- Eliminate market distortions on the power imbalance market.
- Set a binding renewable energy target of 100% RES-E for 2020.
- Introduce a carbon tax of 30€/a with an annual increase of 5€/a until reaching a value of 60€/a.
- Introduce a carbon floor price of 50 Euro/T CO<sub>2</sub> for the power sector.

Remove direct and indirect subsidies for nuclear energy and fossil fuels.



### HEATING AND COOLING SECTOR

- Introduce a carbon tax of 30€ with an annual increase of 5€/a until reaching a value of 60€/a
- Change the legislation on the rental of houses and apartments to facilitate investments in thermal insulation and RE heating sources.
- Ban the installation of oil-fueled heating systems (new buildings by 2015, existing buildings by 2016).
- Increase the tax on heating oil and use the revenue to replace old heating systems with modern renewable energy systems.
- Provide incentives for solar thermal energy development in urban areas.



### TRANSPORT SECTOR

- Support EU policies for more efficient cars: 80g CO<sub>2</sub> per km in 2020 and 60g CO<sub>2</sub> per km in 2025.
- Change the car tax system to support e-mobility by lowering taxes for electrical vehicles and increasing taxes for heavy combustion engine cars (NoVA tax)<sup>3</sup>.
- Link the tax support for e-mobility with the use of renewable electricity (through guarantees of origin).
- Introduce an incentive system such as a city toll or a congestion charge to avoid that e-mobility is used in urban traffic and competes with public transport.
- Shift railway investments from large tunnel projects to commuter traffic projects.
- Maintain the current volume of biofuel use, but consider a gradual increase of the share with falling vehicle fuel demand.



### CONTACT DETAILS:

**Jurrien Westerhof**  
Renewable Energy Austria  
Erneuerbare Energie Österreich (EEO)

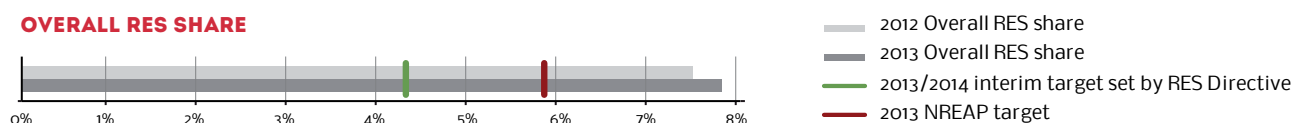
[www.erneuerbare-energie.at](http://www.erneuerbare-energie.at)  
[jurrien.westerhof@erneuerbare-energie.at](mailto:jurrien.westerhof@erneuerbare-energie.at)  
+43 66 46 12 67 01



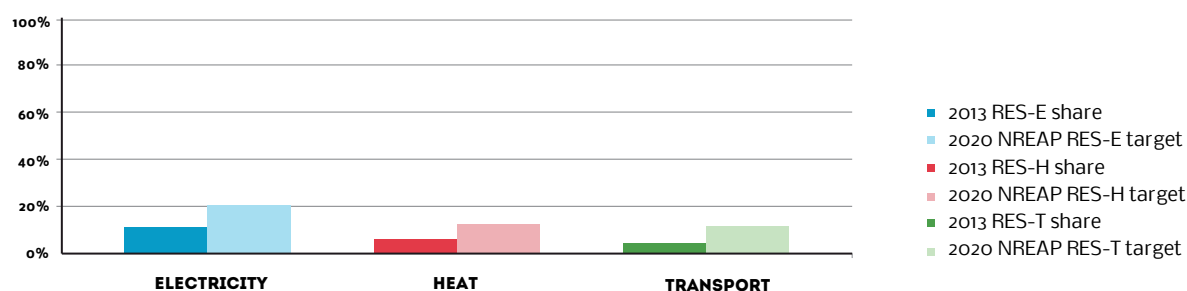
# IS BELGIUM on track?

- Belgium has achieved both its 2013 NREAP target and the interim target 2013/14.
- Growth rates in the shares of RES-E and RES-H&C were high enough to ensure the achievement of the 2020 target if maintained. The RES-T growth rate has to be further increased in order to achieve the 2020 target.

## OVERALL RES SHARE

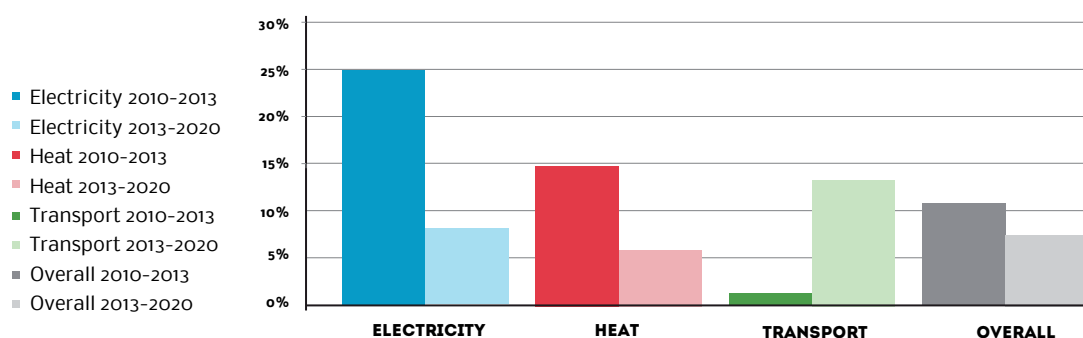


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	12.3%	8.1%	4.3%	7.9%
2013 NREAP target	9.5%	5.1%	4.8%	5.8%
2013/2014 interim target set by RES Directive	-	-	-	5.4%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS to RES deployment

### ELECTRICITY

BARRIER	DESCRIPTION
<b>LACK OF COORDINATION AND COHERENCE BETWEEN DECISION-MAKING LEVELS</b>	Regional authorities competent for RES production are only interested in the lowest cost energy mix without taking care of the energy supply security which is of federal competence. Consequently, no nuclear replacement scenario (federal competence) has been developed which creates major uncertainties for RES middle term development. In addition, Belgium has not reached any agreement yet on a burden sharing of the RES 2020 target between the regions. Finally, local authorities frequently challenge the regional decision on RES installation permits.
<b>UNCERTAINTY OF THE SUPPORT MECHANISM</b>	The system has been adapted but several parameters (e.g. link of GC price with the electricity price) are not known yet, leading to important uncertainties for investors. Several projects can consequently not be financed. There are some discussions to change the support mechanism in some regions without any clarity.
<b>INSTALLATION CONSTRAINTS</b>	The number of constraints dramatically increases impairing RES installation possibilities. The criteria and evaluation methodology related to these constraints are generally not sufficiently objective and don't balance some local interests with the energy security challenge (e.g. environment, spatial planning, aeronautical constraints).

### HEAT

BARRIER	DESCRIPTION
<b>LACK OF FRAMEWORK</b>	A coherent and integrated strategy for the development of renewable energy technologies in the heating sector is lacking. There is no clear middle term vision and targets able to trigger the development of RES-H.
<b>LACK OF A COHERENT SUPPORT MECHANISM</b>	There is a lack of specific support mechanism for the production of heat from renewable energies as well as for the injection of biogas into the gas grid.
<b>LACK OF INFRASTRUCTURE</b>	The district heating network is currently only poorly developed in Belgium, which makes an enhanced production of heat through CHP and biomass rather uncertain.

### TRANSPORT

BARRIER	DESCRIPTION
<b>UNCERTAIN POSITION OF THE EC REGARDING THE FUTURE OF BIOFUELS</b>	The sustainability and efficiency of biofuels are still frequently challenged. In addition, biomass faces numerous competing applications. This leads to poor social acceptance of biofuels
<b>INSUFFICIENT SUPPORT MECHANISM</b>	Support of biofuels, electric vehicle and infrastructure are insufficient to ensure an adequate development
<b>TECHNOLOGICAL BOTTLE-NECKS</b>	Electric vehicles suffer from the limited battery life and the lack of standardisation of electric batteries. Electric batteries are produced by each car manufacturer for his own vehicles without harmonised standards.

## KEY TRENDS IN THE RES SECTOR

- In 2014, previous RES targets commitments were challenged by new governments and new RES scenarios have been analyzed. In addition, there is a lack of coordination between the federal and the regional governments. Both impact investment security.
- The RES-E support system has been amended at the different Belgian political levels and is now linked to the electricity price and a pre-determined IRR. In Wallonia, the precise relationship with the electricity price is not clearly defined, which leads to major investment uncertainty.
- Regarding RES-H&C, there is still a lack of specific support mechanisms for RES heat production and biogas production and grid injection.
- Regarding RES-T, a quota scheme must ensure that biofuels make up a defined percentage of a company's total annual fuel sales.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

#### (Barriers to be tackled: unstable investment climate)

- The federal government and the regional governments must rapidly coordinate and develop a common Belgian strategy in order to ensure energy security based on an increasing RES share.
- A clear legal framework must be implemented for each RES technology in order to improve the legal security of permits.
- Provide more transparency in the support system, especially regarding the precise relationship between the support level and the electricity price.

#### (Barriers to be tackled: difficulties to connect to the grid, competition with non-RES technologies)

- Ensure the necessary grid reinforcements based on the energy strategy. Curtailment must be reduced to the lowest possible level.

#### (Barrier to be tackled: administrative problems)

- Implement a one-stop shop for every permit-granting procedure.

#### (Barrier to be tackled: local opposition)

- Remove some installation constraints to allow RES plants in new places far from houses.
- Launch public promotion campaigns for RES.

- Integrate a support system for RES-H&C with specific regulations for biogas and district heating.
- Develop a spatial planning strategy focusing on district heating development.



### TRANSPORT SECTOR

#### (Barriers to be tackled: lack of transparency and social acceptance of RES-T technologies)

- Clarify the sustainability criteria related to biofuels in order to improve their social acceptance.
- Dedicate biofuels to specific applications in order to gain social acceptance and to improve the security of supply in specific sectors.



#### CONTACT DETAILS:

**Fawaz Al Bitar**  
Renewable Energy Federation  
Fédération des énergies renouvelables

[www.edora.be](http://www.edora.be)  
[fabitar@edora.be](mailto:fabitar@edora.be)  
+ 32 49 61 22 231



### HEATING AND COOLING SECTOR

#### (Barriers to be tackled: lack of coherent RES-H&C strategy and support)

- Elaborate a clear legal framework to promote RES development in the heating sector. A strategy with a balanced approach between the different uses must be finalized.

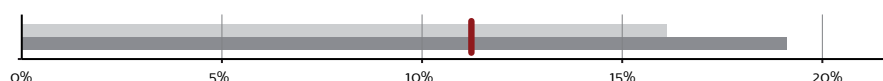




# IS BULGARIA on track?

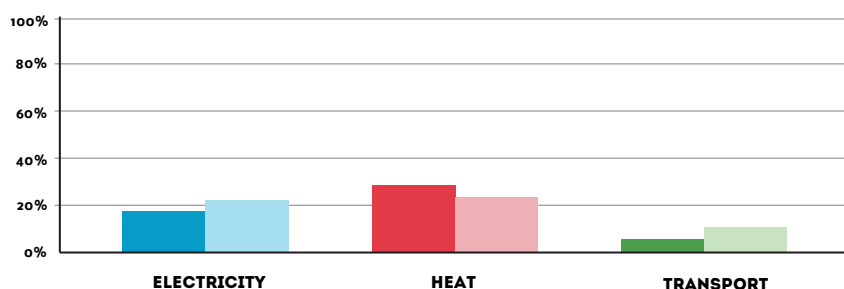
- Bulgaria has achieved its 2013 NREAP target, which is equivalent to its interim target 2013/2014.
- Growth in RES-E and RES-T is more than enough to achieve the 2020 targets. The 2020 target for RES-H&C and RES overall has already been exceeded.

## OVERALL RES SHARE



- 2012 Overall RES share
- 2013 Overall RES share
- 2013/2014 interim target set by RES Directive
- 2013 NREAP target

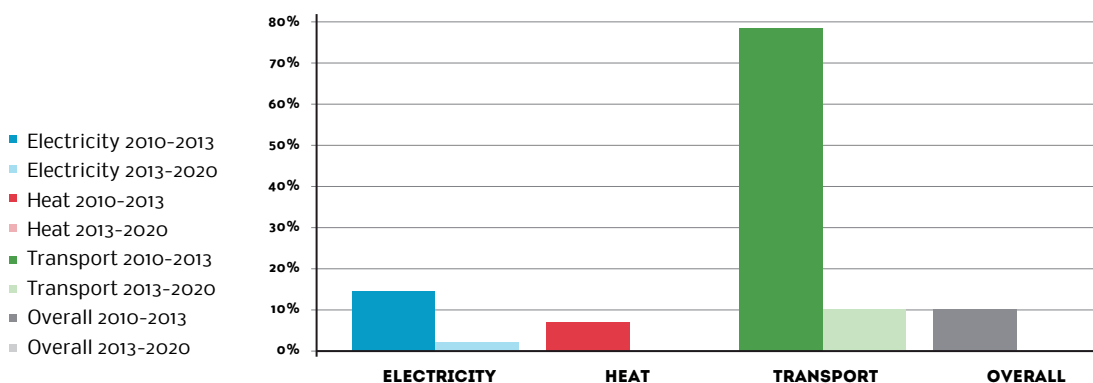
## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



- 2013 RES-E share
- 2020 NREAP RES-E target
- 2013 RES-H share
- 2020 NREAP RES-H target
- 2013 RES-T share
- 2020 NREAP RES-T target

	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	18.9%	29.2%	5.6%	19.0%
2013 NREAP target	15.0%	18.5%	3.3%	11.4%
2013/2014 interim target set by RES Directive	-	-	-	11.4%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020



- Electricity 2010-2013
- Electricity 2013-2020
- Heat 2010-2013
- Heat 2013-2020
- Transport 2010-2013
- Transport 2013-2020
- Overall 2010-2013
- Overall 2013-2020



## BARRIERS to RES deployment

### ELECTRICITY

BARRIER	DESCRIPTION
<b>ABRUPT AND RETROACTIVE MEASURES</b>	Despite the recommendations of abrupt and retroactive measures from the European Commission, sudden steps are still being enforced. This includes but is not limited to cutting off of feed-in-tariffs that have been already adopted (with 20% for PV and wind installations).
<b>LACK OF TRANSPARENCY</b>	There is a lack of transparency in decision taking after the public discussions and/or hearings. Even in cases when a public discussion is made, no statements, opinions, notes of suggestions are taken into account.
<b>ELECTRICITY TRADING RULES AND THE BALANCING MARKET</b>	The Electricity Trading Rules were adopted in May 2014, and the balancing market was launched as of June 1, 2014. The Electricity Trading Rules fail to take account of the specifics of the RES generation which cannot achieve the desired forecasting accuracy in the "day-ahead" time framework set by the Energy Regulator. For wind power producers, the balancing costs for the month of June ranged from 10% up to approximately 30% of the purchase price of the electricity produced.

### HEAT

BARRIER	DESCRIPTION
<b>LACK OF INCENTIVES</b>	As of the moment, the RES heating sector is virtually non-existent as there is a lack of incentives such as tax reliefs and feed-in tariffs or even legislation. Additionally, there is lack of statistical information about the geothermal energy.
<b>BIOMASS NOT FINANCIALLY ATTRACTIVE FOR FARMERS</b>	The figures in the National Renewable Energy Action Plan envisage mass usage of biomass which would lead to clear felling and unsustainable development of the forests.
<b>AVERTEDLY INFLATED FIGURES FOR BIOMASS</b>	The figures in the National Renewable Energy Action Plan envisage mass usage of biomass which would lead to clear felling and unsustainable development of the forests.

### TRANSPORT

BARRIER	DESCRIPTION
<b>EXISTING EXCISE RATES</b>	Before joining to EU in 2007, Bulgaria treated the biofuels as an excise-free product but thereafter a subject to excise tax. Despite the fact that the European Commission has allowed the biofuels to be zero-rated, the Bulgarian authorities do not take any actions to exempt them from this tax burden.
<b>LACK OF INCENTIVES</b>	As of this moment, there are no existing tax reliefs or subventions to support the electric vehicles. Furthermore, the electric vehicles are being treated as same as the motor vehicles.
<b>DELAYING OF THE OBLIGATORY MIXING OF LIQUID OILS WITH BIOFUELS</b>	With the adoption of the Renewable Energy Act, the obligatory mixing of liquid oils with biofuels has been delayed and according to it, must be implemented in phases, starting from 2012. Thus, the government wants to halt the continuously rising prices of gasoline. As a result of this measure, the development of the sector has been obstructed and Bulgaria lags behind in achieving its target set by EU.

## KEY TRENDS IN THE RES SECTOR

- According to the government's progress report, Bulgaria's share of renewable energy in final energy consumption reached 16.4% in 2013.
- Despite the negligible installed capacity of RES, the renewable energy installations were declared to be cost-inducing technologies and were further blamed by the last two Bulgarian governments to be the reason for increasing electricity bills.
- In May 2014, the Electricity Trading Rules entered into force, and the balancing energy market was launched in June 2014. Under the existing provisions of the Electricity Trading Rules, the imbalance costs for wind power producers have reached up to 37% of their income.
- Even though legal actions against the retroactive measures

taken over the last few years have been successful, renewable energy operators will not receive any compensation. Firstly, the Supreme Administrative Court has revoked the provisional grid access fee of September 18th 2012. Then, in August 2014, the Constitutional Court revoked the 20% tax on the income of wind and solar energy producers, but its decisions have no retroactive force, and the collected sums will not be compensated for.

- The existing support for heating and cooling installations is highly insufficient, consisting of only a couple of grant-schemes for the installation of efficient wood-burning boilers.
- RES-T is solely supported by the obligatory mixing of liquid oils with biofuels.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Improve the regulatory framework and its implementation:
  - Fully transpose the Third Package Directives
  - Fully transpose the Energy and Environmental State Aid Guidelines
  - Develop transparent and fair balancing and curtailment rules in line with EU legislation
  - Ensure that the network and balancing charges for renewables are fair and non-discriminatory
- Set up day-ahead, intraday and balancing markets.
- Review the renewable support scheme by shifting to a feed-in premium in line with the Energy and Environmental State Aid Guidelines.
- Ensure that renewables are gradually integrated into the market.



### HEATING AND COOLING SECTOR

- Transpose the Directive on Energy Efficiency in Buildings (2010/31/EU) and on Energy Efficiency (2012/27/EU) completely and as soon as possible.



### TRANSPORT SECTOR

- Elaborate a clear legal framework to promote RES development in the heating sector. The framework should be based on binding targets in some sectors. Introduce a support scheme for RES-H&C with specific measures for biogas and district heating.
- Implement of a national action plan for electric mobility including the following measures:
  - Exemption from automobile taxes/duties, including vignettes
  - Exemption from VAT for the purchasing of an electric vehicle
  - Free parking for electric vehicles
  - Attribution of spaces for charging points



#### CONTACT DETAILS:

**Velizar Kiriakov**

Association of Producers of Ecological Energy APEE  
Асоциация на производителите на екологична енергия (АПЕЕ)

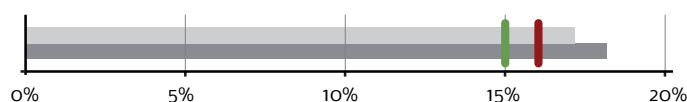
www.apee.bg  
info@apee.bg  
+35 95 27 50 550



# IS CROATIA on track?

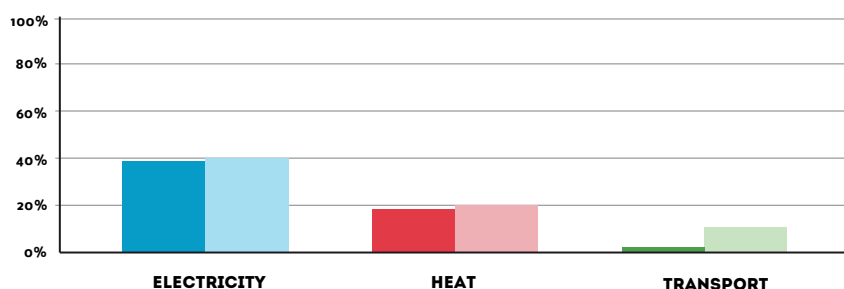
- Croatia has achieved both its 2013 NREAP target and the interim target 2013/14.
- Growth rates in RES-E and RES-H shares have been enough in recent years to achieve the 2020 target, if they can be maintained.

## OVERALL RES SHARE



- 2012 Overall RES share
- 2013 Overall RES share
- 2013/2014 interim target set by RES Directive
- 2013 NREAP target

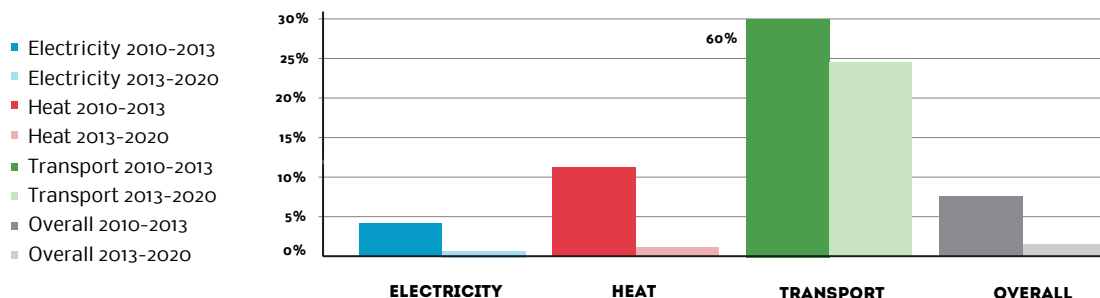
## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



- 2013 RES-E share
- 2020 NREAP RES-E target
- 2013 RES-H share
- 2020 NREAP RES-H target
- 2013 RES-T share
- 2020 NREAP RES-T target

	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	38.7%	18.1%	2.1%	18.0%
2013 NREAP target	36.6%	14.3%	3.0%	15.8%
2013/2014 interim target set by RES Directive	-	-	-	15.0%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020



- Electricity 2010-2013
- Electricity 2013-2020
- Heat 2010-2013
- Heat 2013-2020
- Transport 2010-2013
- Transport 2013-2020
- Overall 2010-2013
- Overall 2013-2020



## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>PPA-S HINDERED BY QUOTA SYSTEM AND IMPENDING TARIFF SYSTEM EXPIRATION</b>	PPA's are very limited for wind and PV projects through hindering quota system, which is closely related to the Croatian NREAP. Also, the existing tariff system expires on 31 December 2014 and new tariff system isn't even proposed which means that after that day there is a realistic possibility that there will be no long term PPA's available for any renewable energy project.
<b>DIFFICULT ACCESS TO FINANCING, DUE TO THE UNWILLINGNESS OF BANKS TO INVEST</b>	Most of the commercial banks constantly claim Croatia as a high risk country, therefore justifying high interest rates even after Croatia became a full EU member state. This makes financing ever harder in order to implement projects. Some good projects are therefore deemed unfeasible or unprofitable for the investors. Only big projects and investors with access to international financial institutions can achieve decent financing conditions. There are also no financing instruments which are specifically targeting small distributed generation.
<b>ABRUPT AND RETROACTIVE MEASURES</b>	Despite the recommendations concerning abrupt and retroactive measures by the European Commission, sudden steps are still being enforced. This includes, but is not limited to, feed-in-tariff cuts that had previously been adopted (with 20% for PV and wind installations).



#### HEAT

BARRIER	DESCRIPTION
<b>MISSING POLICY STRATEGY FOR H&amp;C</b>	So far, Croatia lacks of a comprehensive strategy for the promotion of renewables in H&C, which causes uncertainties about the future development in this field. The NREAP 2013 sets out that by 1 July 2005 a Programme for the Use of the Efficiency Potential in Heating and Cooling for the Period 2016 - 2020 will be adopted.
<b>LACK OF FINANCIAL RESOURCES FOR INVESTMENTS</b>	The financial and economic crisis has hit the country gravely and is still causing an unfavourable investment climate, because citizens and enterprises cannot procure the necessary financial means. Therefore, market players rather abide by inefficient and eventually more expensive H&C systems than to invest in RES H&C.
<b>POOR CONDUCT OF ADMINISTRATIVE PROCESSES</b>	The tender process has proven to be badly conducted by the local authorities and is exertive and complicated for applicants. This is mostly due to untrained and under-qualified staff. Procedural errors have been reported, often leading to a disproportionally short application period, putting the applicants under enormous pressure.



#### TRANSPORT

BARRIER	DESCRIPTION
<b>NO PERMANENT SUPPORT SCHEME FOR HYBRID AND ELECTRIC CARS</b>	Apart from irregular tenders a permanent support scheme for the purchase of electric and hybrid cars, which should ensure and trigger more investments in the (already scarcely existing) innovative industry of electric mobility in Croatia, is still missing.
<b>BAD ALLOCATION AND LACK OF CHARGING STATIONS</b>	A severe barrier for the expansion of e-mobility in Croatia is the lack of a sufficient number of public charging stations. Currently, there are over 400 electric and hybrid cars registered in Croatia. In contrast, there are only about 30 public charging stations for e-vehicles on the whole territory of Croatia. Since Croatia is a transit country, even more strain is expected to be put on the infrastructure by foreign road users.
<b>LOW INCENTIVE PRICE FOR BIODIESEL</b>	The incentive price for biodiesel is too low and constantly dropping. The sale of biodiesel at the current price does not even cover the production costs and it is unclear to producers and distributors, whether the government will be able to pay the full amount of the incentives in the near future, as the current budget supposedly foresees only a lesser part of the sum, which should be provided for support. Given the unprofitable economic circumstances, there is even the risk of a stop of the domestic biodiesel production. In this case, Croatia would need to import biodiesel in order to fulfil the legally binding biofuel quota.

## KEY TRENDS IN THE RES SECTOR

- Croatia applies a feed-in tariff to support RES-E, along with two loan programmes. Hydro power is already well developed in Croatia and is foreseen to dominate RES-E production until 2020 according to the NREAP. To a lesser extent, onshore wind, some solid biomass and biogas are to be developed. Technology-specific capacity caps apply.
- Local and regional governments allocate investment grants to RES-H&C projects through tenders. A support

scheme on national level does not exist but is expected by June 2015. The Croatian NREAP puts the focus on solid biomass, solar thermal installations and heat pumps.

- Croatia applies a biofuels quota, a subsidy scheme for biofuel producers, and an exemption from the excise tax applied to fossil fuels. The NREAP puts a strong focus on biodiesel.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Ensure a stable regulatory framework based on a consistent strategy, and communicate changes early. Some stakeholders claim the NREAP of 2013 to be partly inconsistent with the energy strategy of 2009. Furthermore, while the NREAP foresees a certain focus on wind power, the Minister of Economic Affairs recently proclaimed a government preference for biomass and biogas.
- As Croatia has very good resources for solar power, reconsider the 52 MW cap on PV which has already been reached in 2014. The same applies for the 400 MW cap on wind.
- Consider creating loan programmes or other support custom-tailored to small-scale RES-E.

incorporation of industry stakeholders' knowledge and experience in the design of tenders and administrative processes.



### TRANSPORT SECTOR

- Create a consistent and long-term strategy for the biofuel producing industry. Government incentives to producers have been decreasing and are uncertain in the near future, deterring investors, which will possibly lead to an increase in biodiesel imports in the future.
- Ensure an appropriate development of charging infrastructure to go along with purchase incentives being provided to buyers of electric vehicles.



### HEATING AND COOLING SECTOR

- Put in place a comprehensive and reliable strategy for the development of the RES-H&C sector which coordinates the newly introduced national support scheme with existing regional and municipal initiatives.
- Encourage and support local authorities to improve the training of administrative staff responsible for designing and managing investment grant tenders. Ensure better



#### CONTACT DETAILS:

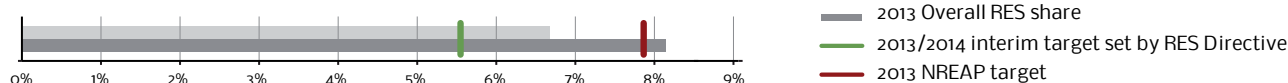
**Simone Steinhilber**  
 Fraunhofer Institute for Systems and Innovation  
 Research ISI  
 Fraunhofer Institut für System- und  
 Innovationsforschung ISI  
 www.isi.fraunhofer.de  
 simone.steinhilber@isi.fraunhofer.de  
 +49 (0)721 6809-281



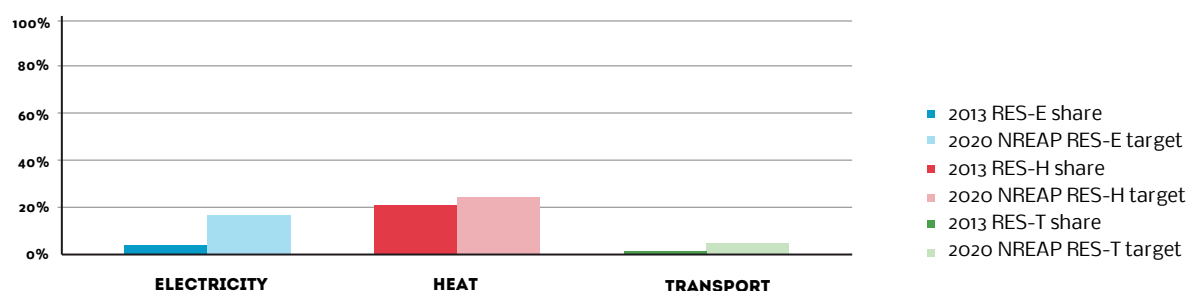
# IS CYPRUS on track?

- In contrast to 2012, Cyprus has achieved both its 2013 NREAP target and the interim target 2013/14.
- Growth rates in the shares of RES-E and RES-H&C were high enough to ensure the achievement of the 2020 target if maintained. The RES-T growth rate has to be significantly increased in order to achieve the 2020 target.

## OVERALL RES SHARE

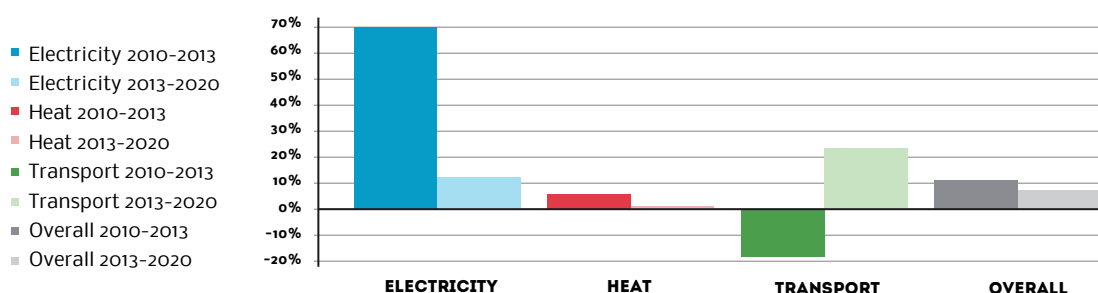


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	6.6%	21.7%	1.1%	8.1%
2013 NREAP target	6.0%	18.5%	2.8%	7.8%
2013/2014 interim target set by RES Directive	-	-	-	5.9%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS to RES deployment

### ELECTRICITY

BARRIER	DESCRIPTION
<b>EXISTENCE AND RELIABILITY OF RES-E SUPPORT SCHEMES</b>	Uncertainty concerning support schemes The Support Scheme for RES for the period 2009- 2013 were issued yearly and considerably late hindering the efficient design of new RES-E investment. Current support schemes are limited as far as their application is concerned
<b>COMPLEXITY AND DURATION OF ADMINISTRATIVE PROCEDURE</b>	The licensing procedure is long, entails many authorities and costs time and money
<b>FAIR &amp; INDEPENDENT REGULATION OF THE RES-E SECTOR</b>	Currently, the Electricity Authority of Cyprus plays a monopolistic role as far as electricity market is concerned. It remains to be seen whether the new arrangement will facilitate the entrance of new producers in the electricity market of Cyprus .

### HEAT

BARRIER	DESCRIPTION
<b>EXISTENCE AND RELIABILITY OF RES-E SUPPORT SCHEMES</b>	"Energy Upgrading of Enterprises" support scheme was finally published and entered into force almost three months after the announcement of the Minister of Energy, Commerce, Industry and Tourism that the H&C support scheme was ready to enter into force. This delay has surely affected potential investors as they were unsure about when the support scheme will be finally initiated
<b>BIOMASS POTENTIAL FROM CERTAIN SOURCES IS FULLY EXPLOITED</b>	Biomass potential from certain sources such as swine farms is fully exploited. As this source of primary material is fully exploited then other sources should look at other sources of primary products such as waste.
<b>DEMAND FOR H/C TECHNOLOGIES IS LOW</b>	Due to the climate of the country, heating needs are not demanding and are covered by the existing infrastructure e.g. solar thermal installations.

### TRANSPORT

BARRIER	
<b>LIMITED SUPPORT FOR BIOFUELS</b>	There is no support for biofuels in Cyprus
<b>LACK OF AGRICULTURAL PLAINS</b>	Cyprus cannot make use of large agricultural plains for biofuel production from water consuming energy crops. Instead it sets the cultivation of food crops as a priority to ensure food security. This prioritization minimizes the prospects of biofuels on the island.



## KEY TRENDS IN THE RES SECTOR

- In Cyprus, PV electricity is currently supported through a combined subsidy and net metering scheme, while renewable energy for heating purposes are eligible for subsidies. Since 2014, a new support scheme for RES H&C measures for SMEs has been in place. Up to 75% of the total investment will be

refunded if a commercial building is upgraded to a Nearly Zero Emission Building. The use of renewable energy in the transport sector (RES-T) is developing slowly in Cyprus. A mandatory quota of biofuel use in transport has been imposed on the fuel suppliers.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR AND HEATING AND COOLING SECTOR

- Improve access to financing: In March 2013, a € 10 billion bailout was agreed between Cyprus, the European Union (EU) and the International Monetary Fund, and a radical restructuring of the banking sector is planned with bank deposits over € 100,000 to support the bailout. Under such adverse conditions, it is not surprising that the development of RES has not remained unaffected.
- Maintain long-term reliability for investors: The whole process of designing new support schemes based on the yearly budget creates uncertainties and unnecessary delays in the implementation of prospective investments.
- Guarantee a fair and independent regulation of the RES-E sector: Currently, the national power company (EAC) plays a dominant role on the island of Cyprus, which currently hinders the market entry of new producers. Currently, plant operators do not have a clear understanding of the charges e.g. for grid stability and use, defined by the Cyprus Regulatory Authority on Energy.
- Decrease the complexity and duration of administrative procedures: E.g., 6 ministries are involved in the licensing procedure of a 100 kW PV plant, and several studies should be submitted to different authorities.



### TRANSPORT SECTOR

- Sharpen the strategy for the RES-T sector and set adequate grant levels: There is only limited support for biofuels in Cyprus, and an excise vehicle duty is imposed on biofuels. Stringent criteria are imposed on the origin of crops used in the production of biofuels. Due to changed climate conditions and the limited availability of agricultural fields, a transparent RES-T strategy should be elaborated, and the support scheme has to be adjusted properly.



### CONTACT DETAILS:

**Lukas Liebmann**

Energy Economics Group (EEG), Institute of energy systems and electric drives, Vienna University of Technology

[www.eeg.tuwien.ac.at](http://www.eeg.tuwien.ac.at)

[liebmann@eeg.tuwien.ac.at](mailto:liebmann@eeg.tuwien.ac.at)

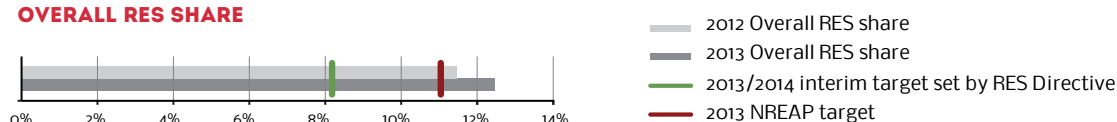
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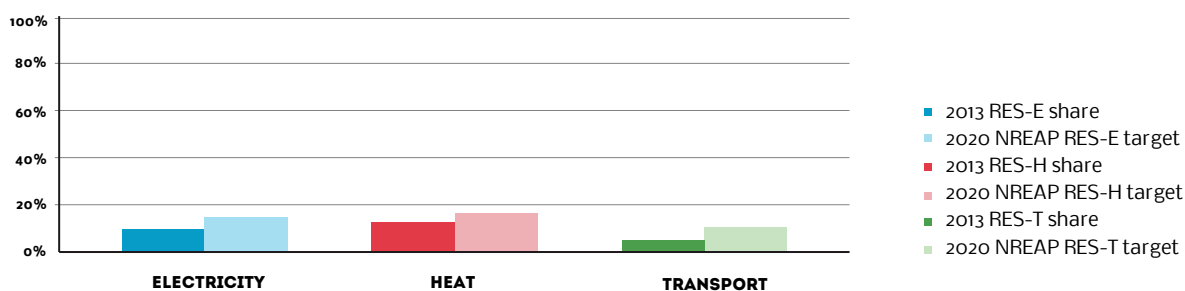
# IS THE CZECH REPUBLIC *on track?*

- The Czech Republic has achieved both its 2013 NREAP target and the interim target 2013/14.
- Past growth rates in RES-E and RES-H&C shares have been more than enough to achieve the 2020 target if they can be maintained.

## OVERALL RES SHARE

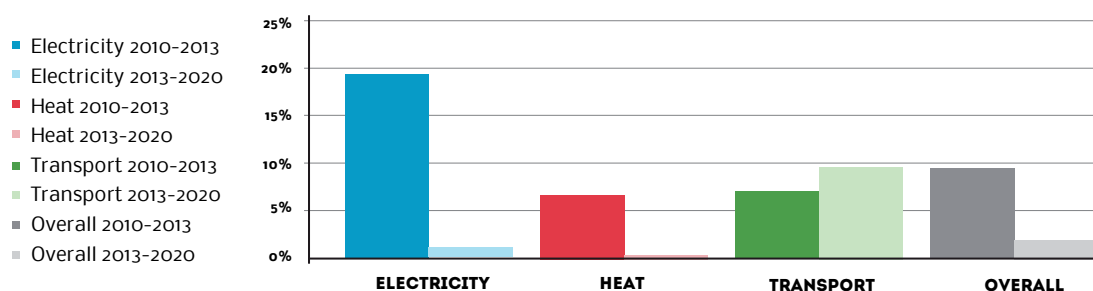


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	12.8%	15.3%	5.7%	12.4%
2013 NREAP target	12.0%	12.7%	5.9%	11.0%
2013/2014 interim target set by RES Directive	-	-	-	8.2%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>SUPPORT SYSTEM ENTIRELY ABOLISHED</b>	The guaranteed support for electricity generated in form of feed-in tariffs or premium tariffs was abolished by the end of 2013. Only new solar energy plants put into operation before 31 December 2013 are eligible to receive the feed-in or premium tariff. Wind, hydro or biomass plants put into operation in 2014 are only eligible for support if the building permit was issued before 2 October 2013.
<b>RETROACTIVE SOLAR TAX</b>	Since January 2011, investors who commissioned PV plants over 30 kWp in 2009-2010 have to pay a retroactive solar tax. Initially, this tax was supposed to be temporary; in August 2013 however, the tax was made permanent and set at 10% of the revenue from feed-in or premium tariffs. Because of the retroactivity of this measure, the Czech Republic could face arbitration proceedings from the side of the European Commission.
<b>REFUSAL OF GRID CONNECTION</b>	Even in case of small-scale photovoltaic systems, there is a risk that the grid operator refuses the connection approval. It is often unclear what the true reasons are, although the operator usually argues they are of purely technical nature. Usually, distributor system operators argue there was insufficient grid capacity in the respective location and thus another electricity generating plant with non-linear production (PV or wind power) could seriously endanger the stability of the distribution grid.

#### HEAT

BARRIER	DESCRIPTION
<b>UNSTABLE AND UNPREDICTABLE LEGISLATIVE CLIMATE</b>	In the past five years, changes and amendments of the support system are happening very often, which notably hampers long-term planning of RES investors.
<b>MANY REGIONS ARE NOT WILLING TO PROMOTE BIOMASS BOILERS</b>	So far, only 5 of the 14 Czech regions have issued calls for tender to promote the exchange of solid fuel boilers for new low-emission biomass boilers in family homes. This can be explained by the fact that the regions have to provide 50% of the total budget.
<b>LIMITED ACCESS TO FINANCE</b>	Due to the fact that the legislative framework regarding the support of renewable energy sources in the Czech Republic has been quite unstable in recent years, the long-term planning in the sector has been hampered. As a result, banks are now experiencing financial straits, which in turn pose a substantial barrier for the cashflow of renewable energy companies.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>LEGISLATIVE UNCERTAINTY FOR BIOFUELS</b>	The fact that the European Council was not able to reach an agreement on biofuel regulations has led to a long-term legislative uncertainty for renewable energy producers in the transport sector in the entire EU.
<b>HIGH COST OF AGRICULTURAL RAW MATERIALS</b>	The use of biofuels in the Czech transport sector is hampered by the high costs of agricultural raw materials
<b>LACK OF FINANCIAL SUPPORT FOR E-MOBILITY</b>	The expansion of electric vehicles in the Czech Republic is hampered by the lacking financial support. Due to this political uncertainty investors are unwilling to take risks. Additionally, there are no support schemes offering financial assistance for those acquiring electric cars

## KEY TRENDS IN THE RES SECTOR

- Since the latest amendments to the Act of Supported Energy Sources, RES-E has not received any serious support anymore, while for RES-H several subsidies are offered, including an exemption from real estate taxes. No support for wind energy is in place since the latest amendment of the Czech Energy Act.
- The main support scheme for renewable energy sources used in transport (RES-T) is a quota system based on the Clean Air Act (Zákon o ochraně ovzduší).
- In the past, the focus was on reducing the country's energy consumption and on mitigating the economic burden for electricity consumers.
- Due to the favorable legal conditions, a large number of new photovoltaic installations applied for grid connection before 2010, which led to a temporary connection moratorium imposed by the transmission grid operator ČEPS.

## POLICY RECOMMENDATIONS

- Mitigate revenue risks under the given support scheme: The guaranteed support for electricity generated by photovoltaic, wind, hydro or biomass plants in the form of feed-in tariffs or premium tariffs was de facto abolished in late 2013, and the government introduced a retroactive tax on the revenues from the feed-in/premium tariff schemes and a recycling fee for solar panels.
- Introduce a support scheme for electricity from wind power: Wind power is currently the cheapest renewable energy source and has the potential of providing electricity for more than 2.5 million Czech households.
- Increase transparency of administrative procedures: In 2013, both the wind and solar sector experienced a sharp decrease in grant authorization on the part of the Energy Regulatory Office. Moreover, it has been reported that the authorities repeatedly requested identical documents justifying this with the alleged termination of their validity.
- Maintain objective provision of information to the general public: The government has declared renewable energy sources to be costly, inefficient, and dangerous to the stability of the electricity grid.
- Sharpen the RES-H strategy and increase the reliability of support schemes: In the past five years, changes and amendments of the support system occurred very often, which notably hampered long-term planning on the part of RES investors.
- Provide access to finance: Due to the instable RES support schemes, banks are now experiencing financial straits, which in turn pose a substantial barrier to the cash flow of renewable energy companies.
- Sharpen the RES-T strategy and adjust the support scheme accordingly: One of the key reasons for the low use of electric vehicles in the Czech Republic is the lack of financial support. Due to this political uncertainty, investors are unwilling to take risks. Additionally, there are no support schemes offering financial assistance for those acquiring electric cars.



### CONTACT DETAILS:

**Lukas Liebmann**

Energy Economics Group (EEG), Institute of energy systems and electric drives, Vienna University of Technology

[www.eeg.tuwien.ac.at](http://www.eeg.tuwien.ac.at)

[liebmann@eeg.tuwien.ac.at](mailto:liebmann@eeg.tuwien.ac.at)

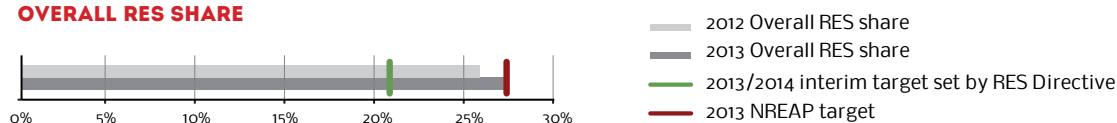
+43 (0)1 58801 370355



# IS DENMARK on track?

- Denmark has very narrowly missed its 2013 NREAP target, but managed to achieve the less ambitious interim target 2013/2014.
- Growth rates in all of the three sectors' shares are enough to achieve the 2020 target, if maintained.

## OVERALL RES SHARE

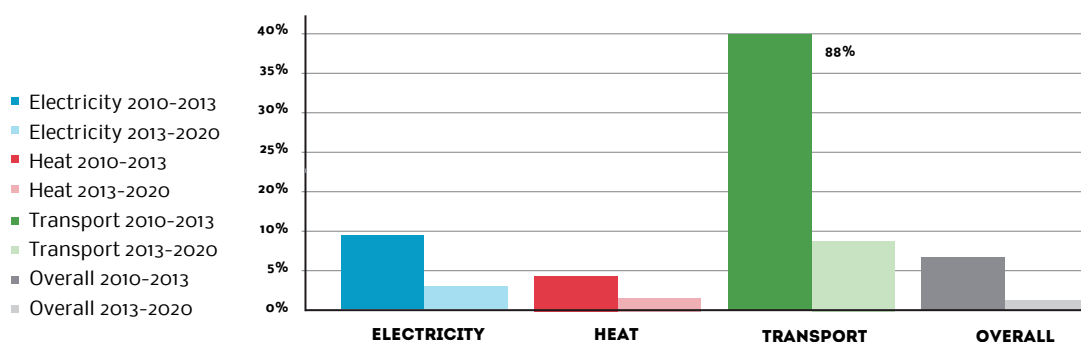


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	43.1%	34.8%	5.7%	27.2%
2013 NREAP target	46.2%	35.2%	6.0%	27.3%
2013/2014 interim target set by RES Directive	-	-	-	20.9%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>EU FRAMEWORK DISCUSSION FOR 2030</b>	The EU 2030 framework for climate and energy policies from October 2014 is hindering further RES development. It sets the European target for renewable energy sources to at least 27%, however, it sets no binding targets for RES for Member States (MS). This sends a message that the EU incentive for RES is not as strong as before. This barrier jeopardises the development of renewable energy sources in the European Union. Thus since it is to expect that some MS will not be so ambitious in their RES development, it might also affect Danish RES industry. Especially the Denmark's companies producing wind energy technologies might face a decline in export opportunities for wind technology.
<b>EUROPEAN GUIDELINES CAUSE INSECURITY</b>	The European guidelines on environmental and energy State Aid for 2014-2020 in the EU (SAG) cause insecurity among wind energy developers regarding the way the support for wind energy in Denmark will be continued. The support design will have to change to be in accordance with the SAG.
<b>CONFLICT BETWEEN ENERGY-CLIMATE POLICY AND TAX POLICY</b>	In Denmark there are a lot of so-called "green taxes", which are levied on electricity, heating and transport from fossil fuels. The conflict is caused by the politicians' expectation on high revenues from these taxes and the environmental targets they want to follow. The more renewable energy sources are used in energy generation and the more effective the energy efficiency measures are, the lower the tax revenues are.



#### HEAT

BARRIER	DESCRIPTION
<b>LACK OF CONSISTENT POLICY</b>	There are very ambitious targets, however, the taxation policy and single regulations are inconsistent with this policy.
<b>CONFLICT BETWEEN ENERGY/CLIMATE POLICY AND TAX POLICY</b>	In Denmark there are a lot of so-called "green taxes", which are levied on electricity, heating and transport from fossil fuels. The conflict is caused by the politicians' expectation on high revenues from these taxes and the environmental targets they want to follow. The more renewable energy sources are used in energy generation and the more effective the energy efficiency measures are, the lower the tax revenues are.
<b>SUSTAINABILITY PROBLEM CONCERNING BIOMASS</b>	The Energy Agreement foresees the transition from fossil fuels towards biomass in big combined heat and power plants. In case of bigger plants with big demand for these sources, they will have to be imported. It is crucial to ensure the sustainability of such solutions.



#### TRANSPORT

BARRIER	DESCRIPTION
<b>UNCERTAINTY ON THE EUROPEAN MARKET</b>	Uncertainty on the European market, due to failure of the European Council to reach an agreement on biofuels regulations, constitutes a very severe barrier for the advanced biofuels. A compromise proposal, introducing a binding target for advanced biofuels as part of the general 10% target for biofuels, has not yet been agreed on. The lack of a target hinders the development of advanced biofuels.
<b>EU FRAMEWORK DISCUSSION FOR 2030</b>	The EU framework discussion for 2030 does not include any target for renewable energy sources in transport sector. This might not only hinder the development of biofuels after 2020 but also already before that period change will bring no growth in the biofuel sector until 2017.
<b>FEW TAX INCENTIVES FOR ELECTRIC CARS</b>	There is no sufficient support scheme for advanced biofuels in Denmark. The tax allowance scheme does not distinguish between a first and second generation of biofuels and are in this way not sufficient for supporting the development of the advanced biofuels.

## KEY TRENDS IN THE RES SECTOR

- Denmark has the long-term goal of building a carbon-free society and is pushing for a binding RES target on the European level for 2030. In March 2012, the Danish parliament decided on an ambitious Energy Agreement<sup>3</sup>. However, adjustments have been made, the latest one in the form of a Growth Package in 2014, which aimed to reduce RES support costs.
- RES-E technologies are mainly supported via a technology-specific feed-in premium scheme. Support levels are set by an administrative process except for offshore wind power, for which tendering procedures are in place. The Danish

support system has proven to be very effective in the past and can provide policy guidance to other Member States.

- Most of Denmark's renewable heat production is from solid biomass. The main instruments to support RES-H&C are exemptions from the various taxes on fossil fuels in the heating sector. There are premium tariff payments for biogas used in heating.
- The main support instrument in the RES-T sector is a quota obligation for biofuels, accompanied by tax reductions. Biogas used in transport is supported with a premium tariff.

## POLICY RECOMMENDATIONS



### OVERALL

- Provide continuity based on the existing framework. The ambitious goals and measures specified in the 2012 Energy Agreement should be implemented.
- Public budgets: "Green taxes", for instance on fossil fuels, generate revenue for the state. This revenue bound to decrease as renewables, exempt from such taxes, replace conventional fuels. Plans for future public budgets need to take this effect into account in order to reduce investor insecurity regarding possible future taxes on renewable fuels.



### ELECTRICITY SECTOR

- Establish an adequate technical and regulatory framework for the integration of wind power into the energy system. One of the proposed solutions is to increase the use wind electricity in the district heating sector by establishing large heat pumps.



### HEATING AND COOLING SECTOR

- Maintain and improve the public's acceptance for RES plants: Finish and publish the study on the relationship between noise from wind turbines and its effects on health. Clarify compensation and local ownership schemes for citizens living in the vicinity of near-shore wind farms.
- High consumption of biomass can cause sustainability issues. This applies to the RES-E sector, too, but much more so to the RES-H sector with its strong focus on solid biomass. Introduce sustainability criteria for biomass either on the national level or push for such criteria on the European level.



#### CONTACT DETAILS:

**Simone Steinhilber**  
Fraunhofer Institute for Systems and Innovation  
Research ISI

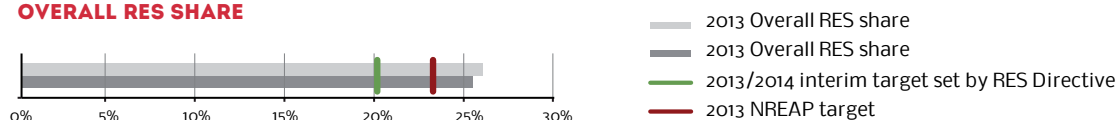
[www.isi.fraunhofer.de](http://www.isi.fraunhofer.de)  
[simone.steinhilber@isi.fraunhofer.de](mailto:simone.steinhilber@isi.fraunhofer.de)  
+49 (0) 721 6809-281



# IS ESTONIA on track?

- Estonia has achieved both its 2013 NREAP target and the interim target 2013/14.
- The growth rate in the RES-E share is more than enough to achieve the 2020 target, if maintained. For RES-H&C, the 2020 target share has already been surpassed. However, the RES-H&C share has again slightly decreased from last year. This should be observed carefully.

## OVERALL RES SHARE

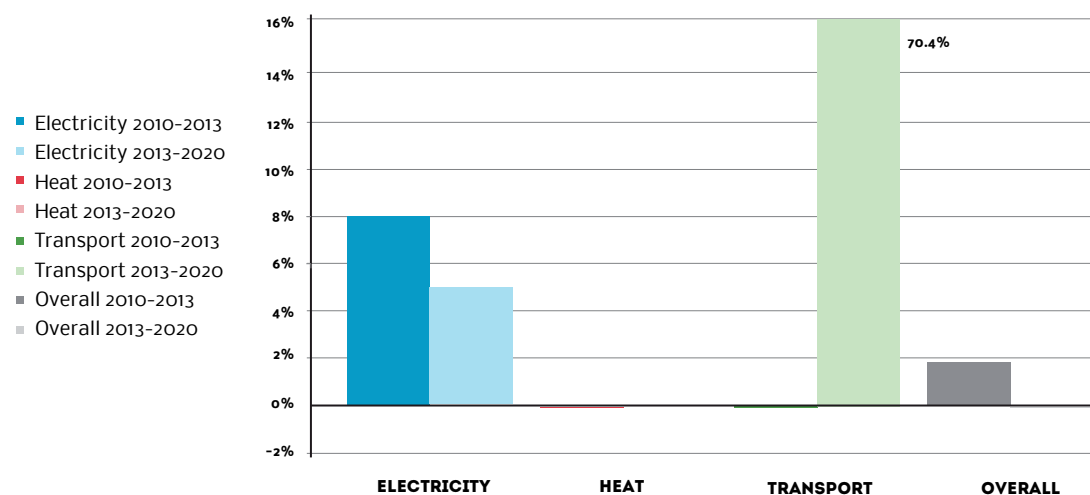


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	13.0%	43.1%	0.2%	25.6%
2013 NREAP target	11.3%	39.7%	4.8%	23.3%
2013/2014 interim target set by RES Directive	-	-	-	20.1%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020







## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>RELIABILITY OF THE RES-E SUPPORT SCHEME</b>	The support scheme is currently being amended. A final decision has not been taken on how exactly the support scheme will be amended. The discussions have been going on for several years and have thus discouraged investors and reduced the investment security in Estonia. Also retroactive changes are planned.
<b>PREDICTABILITY OF THE CONNECTION PROCEDURE</b>	The preparatory work to obtain a grid connection permit and to be eligible for the support scheme is extremely complex. The process foresees several tests that are unique and not required in any other EU member state. Also time of the procedure is not predictable as the procedure is not well regulated.
<b>LACK OF SPATIAL AND ENVIRONMENTAL PLANNING</b>	Estonia still lacks a spatial planning of the maritime area. The planning process has now started. However, in this process the planning of wind power systems have only very little priority and because of environmental reasons and other aspects the process takes very long.

#### HEAT

BARRIER	DESCRIPTION
<b>DOMINANCE OF CONVENTIONAL RETAILERS</b>	Micro-producers are not allowed to sell produced heat to the network. This reduces possibilities to establish energy cooperatives which could be formed for a purpose of energy producing, consuming and sharing communities. Energy cooperatives are not regulated and therefore not developed in Estonia.
<b>ACCESS TO THE DISTRICT HEATING DISTRIBUTION NETWORK</b>	Access to district heating distribution network is based on high bidding system and if consumption is met by production then no extra heating is allowed to the network.
<b>PUBLIC PERCEPTION OF RES-H</b>	The public perception of RES-H is an issue in the sense that the increasing part of renewable energy is heavy burden for the consumers as renewable energy fee is already very high. This applies to private investments also. Consumers are very price sensitive and cannot pay for higher heating prices.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>DOMINANCE OF CONVENTIONAL RETAILERS</b>	Market design favours using conventional fuel. Estonia's domestic legislation does not oblige fuel distributors to mix diesel nor petrol with biofuels. Furthermore there does not exist an obligation to sell biofuels.
<b>LACK OF INFRASTRUCTURE</b>	Biogas has a potential of providing Estonia's transport sector with biofuels. Produced biogas e.g. biomethane is usually produced in rural areas and often not possible to transport via gas pipeline. Therefore biogas must be transported by a truck which is seldom fueled with other than diesel.
<b>LACK OF RAW MATERIAL</b>	The taxing regime does not provide incentives for biofuels. Excise duty on ethanol is the same as on petrol and excise duty on biodiesel is the same as on diesel. Therefore energy content is not taken into consideration. A special taxation system of biomethane is currently non-existent.

## KEY TRENDS IN THE RES SECTOR

- Estonia has already achieved its 2020 RES target share.
- The previous support scheme for RES-E consisted of a technology-neutral feed-in premium. Recently planned amendments in the support scheme include features to make it coherent with the requirements of the new European state aid regulation. A tendering procedure is now foreseen. Details on the tendering mechanism are still unclear, but the amendments will possibly also apply to existing power plants as well as to small plants <100kW.
- Only solid biomass is planned to contribute significantly in the RES-H sector. The sector benefits from investment grants for the reconstruction of boiler plants, heat grids, and CHP plants.
- The recent decrease in oil prices has halted several bioethanol projects. Biomethane is foreseen to provide a major contribution to the 10% RES target share in 2020.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Provide long-term security for investors: Ensure an appropriate transition period after the final decision on support scheme amendments. It is not advisable to apply the new tendering mechanism to existing power plants, as is currently being suggested. Such retrospective changes damage investor confidence and raise support costs in the long run. Consider an exemption from the tender procedure for small-scale installations, for which administratively set support levels may be more appropriate.
- Grid connection procedures can be lengthy and complicated, especially for wind farms. Consider reducing the amount and level of details that the grid operator can ask from wind power developers and to standardise the required tests to a less detailed level similar to other Member States.



### HEATING AND COOLING SECTOR

- Heat grids: Improve access of small heat producers vs. conventional retailers. Consider creating a clear and reliable regulation for energy cooperatives, and simplify procedures for small producers to sell their heat in the grid.
- Heat grids are often old and leaky, so the payback periods from new RES-H installations exceed the expected remaining lifetime of the grid. Consider encouraging investment into grids in order to make investments into grid-connected RES-H plants more attractive. Obliging communities to develop local heat management plans may also be helpful here.

- Payback periods from new RES-H installations often exceed the expected remaining lifetime of old grids. Consider making investments into grid-connected RES-H plants more attractive. Oblige communities to develop local heat management plans.
- Introduce a RES-H building obligation for new and renovated buildings as required by the RES Directive.



### TRANSPORT SECTOR

- If the use of biomethane is to increase in future years, infrastructure and sustainability considerations have to be included into the relevant plans early on. Ensure appropriate transmission infrastructure for biomethane (gas pipelines vs. transportation by conventionally fuelled trucks) and take this into account in sustainability assessments.



#### CONTACT DETAILS:

**Simone Steinhilber**  
Fraunhofer Institute for Systems and Innovation  
Research ISI

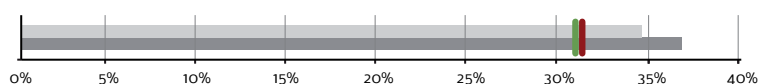
[www.isi.fraunhofer.de](http://www.isi.fraunhofer.de)  
[simone.steinhilber@isi.fraunhofer.de](mailto:simone.steinhilber@isi.fraunhofer.de)  
+49 (0) 721 6809-281



# IS FINLAND on track?

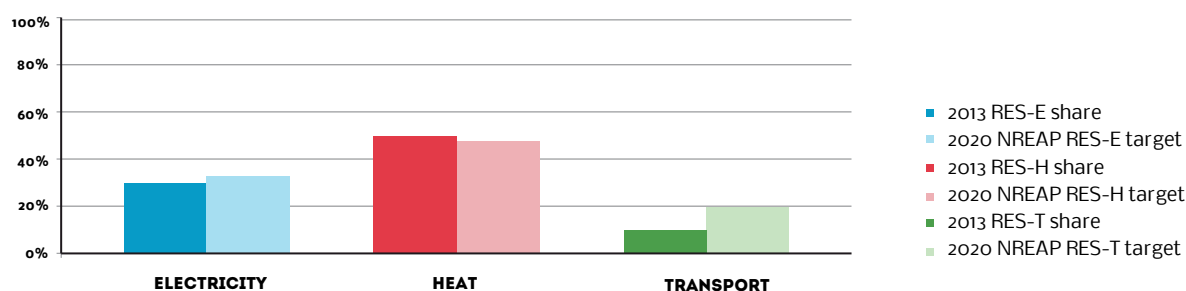
- Finland has achieved both its 2013 NREAP target and the interim target 2013/14.
- Growth in all of the three sectors' shares has been more than enough in the last years to achieve the 2020 targets. For RES-H, the 2020 target share has already been achieved.

## OVERALL RES SHARE



- 2012 Overall RES share
- 2013 Overall RES share
- 2013/2014 interim target set by RES Directive
- 2013 NREAP target

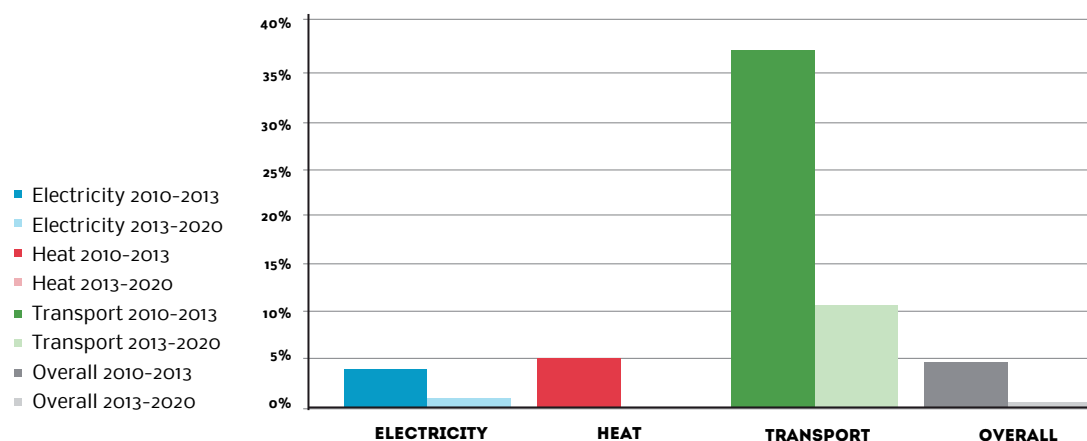
## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



- 2013 RES-E share
- 2020 NREAP RES-E target
- 2013 RES-H share
- 2020 NREAP RES-H target
- 2013 RES-T share
- 2020 NREAP RES-T target

	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	31.1%	50.9%	9.9%	36.8%
2013 NREAP target	27.0%	41.0%	10.0%	31.6%
2013/2014 interim target set by RES Directive	-	-	-	31.4%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020



- Electricity 2010-2013
- Electricity 2013-2020
- Heat 2010-2013
- Heat 2013-2020
- Transport 2010-2013
- Transport 2013-2020
- Overall 2010-2013
- Overall 2013-2020



## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>LACK OF AN ATTRACTIVE SUPPORT SCHEME FOR SMALL AND PV SYSTEMS</b>	The premium feed-in-tariff in Finland is not available to small producers and PV power producers. The alternative energy aid that covers up to 35% of the project costs is open for companies and municipalities only. For that reason owners from residential building and other private persons have no access to funding for small scale RES projects.
<b>REJECTION OF WIND PARKS BY THE FINNISH AIR FORCE DUE TO SECURITY OF RADAR SYSTEMS</b>	Project developers of onshore wind power plants struggle mainly with the rejections of wind parks by Finnish air force due to security of radar systems. Even though sometimes modification of existing radar stations is possible it leads to additional costs and risks for the project.
<b>COMPLEXITY OF THE ADMINISTRATIVE PROCESS</b>	There are no general instructions for municipalities how to deal with small RES systems. Different municipalities have different requirements: Some require a building permission, some do not, others ask for administrative fees and some require full plans in drawing. As a consequence, RES developers have to spend additional time for each project.

#### HEAT

BARRIER	DESCRIPTION
<b>LACK OF A SUPPORT SCHEME</b>	There is a lack of an attractive support scheme. As private persons are usually not eligible for the state-aid, there is practically no support scheme for them.
<b>CONNECTION PROCEDURES ARE NOT TRANSPARENT</b>	Connections to district heating networks constitute a great challenge. As in Finland there is no single regulation on connection to district heating network for solar power every project is considered separately.
<b>CALCULATION OF THE HEAT PRICE VARIES</b>	Calculation of heat prices does not provide fair access for solar power input. For small-scale solar energy producers it is difficult to sell their heat into district heat network. This is because paying for small-producers brings about indirect costs for the heating company. Secondly, heating prices are around the year almost the same and are not very much cost-oriented.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>RELIABILITY OF A GENERAL STRATEGY &amp; A SUPPORT SCHEME</b>	The traditional energy sector (which is partially owned by the state) is quite resistant against new RES technologies (wind power, small biomass, biofuels and so on). As a consequence it is very difficult to introduce new technologies. This lacking interest is further met by a lacking interest by Finnish consumers.
<b>LACK OF INFRASTRUCTURE</b>	First of all, there are not sufficient filling- and charging stations in most parts of the country. Second, stations which charge electric cars do not sell 100% RES electricity but the blended electricity mix that contains electricity from nuclear and other sources as well. This also applies to biodiesel which cannot be bought as 100% biodiesel but which is usually blended into the regular diesel.

## KEY TRENDS IN THE RES SECTOR

- Finland applies a feed-in premium as its main instrument to promote RES-E from wind, solid biomass, and biogas. Capacity caps apply to wind, biogas, and solid biomass. Investment grants are available to companies, municipalities, and communities.
- In the heat sector, biogas and biomass CHP plants can receive a "heat bonus" on their electricity feed-in premium. Investment grants are available to companies, municipalities, and farmers. Permitting procedures for small installations vary across municipalities.
- The use of biofuels in transport is promoted with a quota regulation and reduced tax levels. Finland is planning to achieve its RES-T targets mainly by using biodiesel, followed by bioethanol/-ETBE. Biodiesel consumption in 2012 was much lower than planned.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Improve attractiveness of small-scale RES-E: Installations by private persons currently cannot benefit from the feed-in premium or the investment grant scheme. Consider providing adequate support. Encourage alignment of permitting procedures and grid connection processes.
- Wind farm development: Remove barriers in the planning and permitting stage, i.e. review rules allowing third parties to file complaints and regarding conflicts with the air force radar system. Consider improving the position of smaller wind project developers against dominant market players.



### HEATING AND COOLING SECTOR

- Improve the attractiveness of small-scale RES-H&C: Align permitting procedures. Consider improving the funding for private persons, which is currently very limited and not reliable.
- Adjust heat market regulations in order to make it easier for producers to feed heat into district grids. Especially for solar thermal installations, create a simple and unified procedure for connection to district grids.
- Consider adjusting the formula for calculation of the energy efficiency of buildings to take into account not only heat production units in buildings, but also those next to buildings.



### TRANSPORT SECTOR

- Consumers are reluctant to switch to alternative fuels even if they are cheaper. The reasons for this should be explored and addressed, i.e. through information and awareness campaigns. Coordinate the creation of appropriate infrastructure with the introduction of alternative fuels and drive systems.
- Incentivise municipalities to adjust their procurement procedures for vehicles, and to explore options for synergies, for instance with municipally owned waste processing facilities.



#### CONTACT DETAILS:

**Simone Steinhilber**  
Fraunhofer Institute for Systems and Innovation  
Research ISI

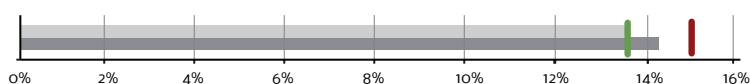
[www.isi.fraunhofer.de](http://www.isi.fraunhofer.de)  
[simone.steinhilber@isi.fraunhofer.de](mailto:simone.steinhilber@isi.fraunhofer.de)  
+49 (0) 721 6809-281



# IS FRANCE on track?

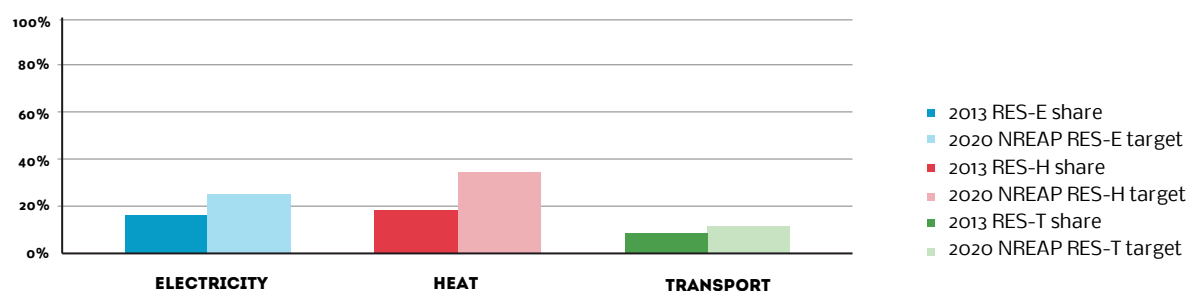
- France has not achieved its 2013 NREAP target, but managed to meet the less ambitious interim target 2013/2014.
- Growth in RES-E and RES-H shares need to accelerate in order to achieve the 2020 targets. The RES-T share's growth rate is enough to achieve the 2020 target, if maintained.

## OVERALL RES SHARE



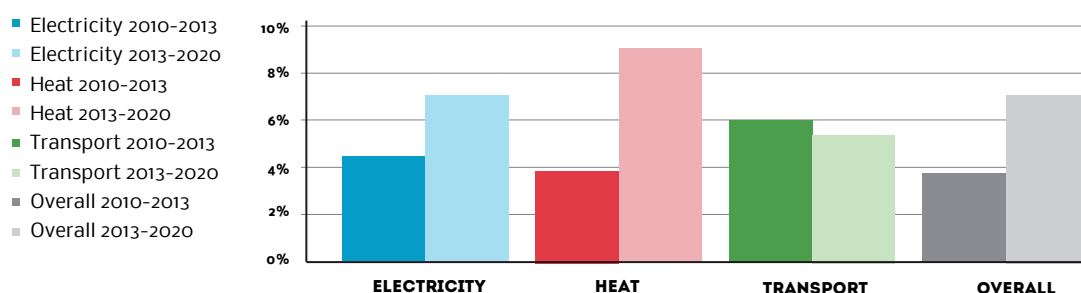
- 2012 Overall RES share
- 2013 Overall RES share
- 2013/2014 interim target set by RES Directive
- 2013 NREAP target

## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	16.9%	18.3%	7.2%	14.2%
2013 NREAP target	18.0%	20.5%	7.5%	15.0%
2013/2014 interim target set by RES Directive	-	-	-	13.5%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>INSTABILITY OF THE LEGAL FRAMEWORK FOR RES</b>	This particularly affects onshore wind and solar energy. The frequency of successive reforms slows the development of the wind energy sector. The government is currently introducing a unique environmental permit for wind turbines to simplify administrative procedures. However, the introduction of a new permit scheme lengthens the time required to obtain permits. Regarding solar energy, the PV sector was subject to retroactive measures undermining the confidence of investors and developers.
<b>LENGTHY ADMINISTRATIVE PROCEDURES</b>	The multi-layered legislation and permits and the lack of coordination between the competent authorities severely impair the efficient carrying out of administrative procedures. The multiplicity of appeal proceedings is also a direct consequence of the high number of permits and contributes to the administrative slowness.
<b>SHORTCOMINGS OF THE REGIONAL GRID CONNECTION PLANS FOR RES</b>	The foreseen allocation of a grid connection point for RES installations is not cost effective, since some assigned connection points can be very far from the RES installation. The developer has to bear the costs of the electricity transmission infrastructure from the installation to the grid connection point. Also, grid connection costs are unequally shared between producers and grid operators, which increases grid connection costs for project developers.

#### HEAT

BARRIER	DESCRIPTION
<b>COMPETITION WITH ELECTRIC HEATING APPLIANCES</b>	Over 30% of the existing individual and collective housing in France are equipped with electric heating systems. The preference for electric heating is explained by the stable price per kWh, the lower initial investment and the convenience of implementation. The thermal regulation "RT 2012" requires the mandatory use of RES. However, this regulation has only been in force since 1 January 2013 and only applies to new buildings.
<b>DESIGN OF EXISTING SUPPORT SCHEMES</b>	In France, the main share of renewable heat consumption comes from low capacity installations. Yet two important support mechanisms, namely the Heat Fund and the tendering processes of the French energy regulatory authority, do not address low capacity installations.
<b>RIVALRY BETWEEN SOLAR THERMAL AND ENERGY EFFICIENCY MEASURES</b>	Since heating is their largest source of energy consumption, households first undertake refurbishment works to reduce their heating bill. Insulation works or the replacement of the heating system will thus be carried out in priority before installing devices for the production of hot water. Moreover, the purchasing cost of solar thermal systems is higher than conventional systems fueled by gas or electricity.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>LACK OF LONG-TERM REGULATORY STABILITY AND VISIBILITY OF SUPPORT POLICIES</b>	While the production of biofuels was originally vigorously encouraged, current debates at European and national level rather discuss their limitation. This lack of visibility is all the more critical since investors of 1st generation biofuels are the same as those of 2nd generation biofuels. Investors who experienced bad consequences from the unstable support policy for 1st generation biofuels may be more reluctant to invest in 2nd generation biofuels.
<b>UNCERTAINTY OF THE BIOFUEL INCORPORATION RATE</b>	Currently, the French regulation limits the blending of biodiesel into conventional diesel to 7%. The European blending target of 10% biofuels is currently being called into question at European level. The debate on lowering the 10% target for 1st generation biofuels in order to promote 2nd generation biofuels is considered particularly premature and confusing, since the latter are still at the stage of R&D.
<b>LACK OF CLARITY OF EXISTING REGULATIONS FOR DOUBLE COUNTING OF BIOFUELS</b>	The application of double counting of biofuels is not sufficiently regulated at European level, since there is no exact definition of the energy products benefiting from double counting. As a result, applications of double counting are very different from one member state to another, thus causing distortions of competition.

## KEY TRENDS IN THE RES SECTOR

- The main instrument to promote RES-E is a technology-specific feed-in tariff. Onshore and offshore wind, PV, geothermal, biogas, hydro, tide/wave, and solid biomass are eligible for support. In the case of PV, the amount of electricity to be remunerated for every power plant is capped at 1500 full load hours annually. In addition, tenders exist for wind, PV, geothermal, hydro, biogas and solid biomass installations.
- RES-H installations are supported by investment grants allocated via tendering (large biomass) and via a support programme to homeowners with modest incomes. A zero-interest loan exists for RES installation during building renovation. Tax incentives are also being applied.
- In the transport sector, support is provided by a quota regulation on biofuel blending.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Avoid legal and regulatory uncertainty caused by frequent reforms in the legal framework, for instance as has recently been the case for environmental permits and even more prominently by the past failure of the French government to notify the feed-in tariff scheme to the European Commission. The predictability of tender calls would improve if they were held at regular intervals.
- Avoid changes in the taxing regime which retrospectively affect RES projects, such as the significant increase of the IFER tax especially for solar and onshore wind installations.
- Improve planning and permitting procedures: Ensure better coordination between involved authorities. Speed up court procedures regarding complaints against planned wind farms. Simplify the adaptation of land use plans for large PV installations.
- Grid connection and access: Provide reliable long-term RES policies so grid operators are able to anticipate RES deployment in their area. Consider simplifying grid connection procedures and reducing the proportion of connection costs borne by RES producers.



### HEATING AND COOLING SECTOR

- Consider encouraging investments into small RES-H installations. The investment grant programme allocated through tenders is targeted mainly at larger installations.
- Improve energy efficiency of CHP plants: Tender design for CHP often focuses on electricity production. Consider the possibilities for including heat production, in connection with heat demand at the site, as a criterion in the tendering process.



### TRANSPORT SECTOR

- Reliability of biofuels policies: France is a big producer of biodiesel. Investors in first generation biofuels experienced unstable support, and are now reluctant to invest in second generation biofuel facilities.



#### CONTACT DETAILS:

**Simone Steinhilber**  
Fraunhofer Institute for Systems and Innovation  
Research ISI

[www.isi.fraunhofer.de](http://www.isi.fraunhofer.de)  
[simone.steinhilber@isi.fraunhofer.de](mailto:simone.steinhilber@isi.fraunhofer.de)  
+49 (0) 721 6809-281

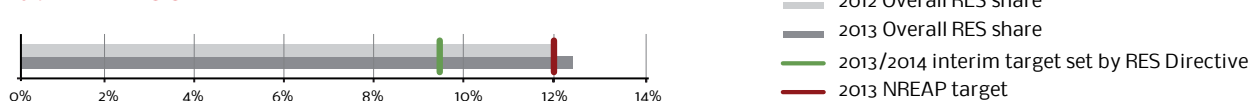




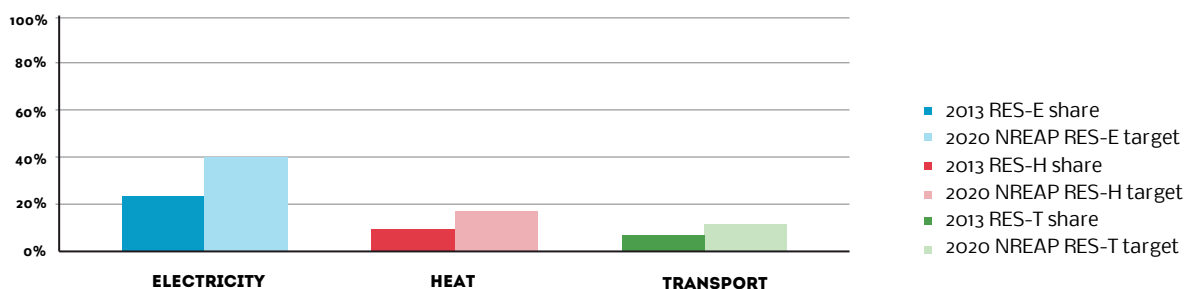
# IS GERMANY on track?

- Germany has achieved both its 2013 NREAP target and the interim target 2013/14.
- Growth in the RES-E share is enough to achieve the 2020 target, if it can be maintained. However, growth rates in the RES-H&C and RES-T shares need to be increased significantly.

## OVERALL RES SHARE

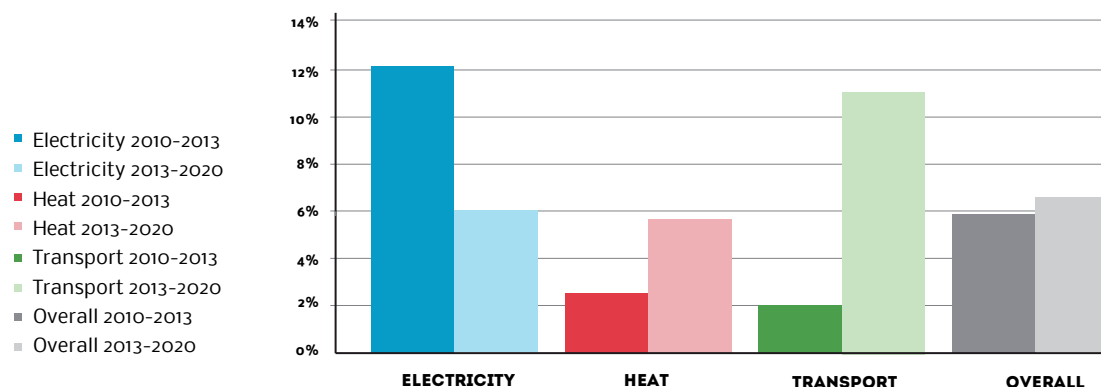


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	25.6%	10.6%	6.3%	12.4%
2013 NREAP target	22.7%	10.5%	7.0%	12.0%
2013/2014 interim target set by RES Directive	-	-	-	9.5%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>CURTAILMENT IN CASE OF NEGATIVE PRICES</b>	The new EEG foresees the curtailment of new installations if electricity market prices are negative for more than six hours in a row. The industry fears severe implications of this regulation.
<b>REMUNERATION REDUCTION AND CAP ON BIOGAS</b>	The amended EEG introduced a cap of 100 MW yearly for new systems. This threshold will not be reached, as the remuneration is too low and projects cannot be financed.
<b>EEG SURCHARGE ON SOLAR ON-SITE CONSUMPTION</b>	By introducing a surcharge on solar self-consumption, while maintaining the privileged treatment of conventional power stations' self-consumption, Germany is massively slowing down the development of PV.

#### HEAT

BARRIER	DESCRIPTION
<b>FOCUS OF THE ENERGIEWENDE ON THE ELECTRICITY MARKET</b>	Public discourse focuses almost exclusively on the power sector when referring to the German Energiewende. The heating market, with its huge potential for financial and GHG emissions savings, is widely ignored.
<b>TOO LOW FUNDING</b>	Oil and gas prices are stagnating or falling, while renewable heating systems imply a high upfront investment with long payback periods. The existing public support does not close the gap between investment in conventional and renewable heating systems.
<b>LACK OF EFFECTIVE POLICY INSTRUMENTS FOR THE BUILDING STOCK</b>	The existing policy focuses on new buildings. The available financing (through the MAP) is not being used, first due to the complexity of the application process (especially for heat pumps), and secondly, because it is currently not financially attractive for customers to install renewable heating systems. For the building stock, the Government is discussing a strategy, but no concrete measures have been taken as of yet.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>LACK OF A EUROPEAN STRATEGY FOR THE TRANSPORT SECTOR BEYOND 2020</b>	The European Commission's 2030 climate and energy package fails to focus on targets for renewables in the transport sector. This lack of perspective for 2030 discourages Member States from focusing on the achievement of the 2020 targets and implies that national policies will be needed after 2020.
<b>EU FRAMEWORK DISCUSSION FOR 2030</b>	The fixed biofuel share of 6.25% of the energy content of all fuels was abolished at the beginning of 2015. The Government introduced a GHG emissions reduction target for the entire fuels market, which can be achieved through the use of biofuels. Unfortunately, this change will bring no growth in the biofuel sector until 2017.
<b>FEW TAX INCENTIVES FOR ELECTRIC CARS</b>	Buying an electric car is significantly more expensive than buying a conventional one. Tax incentives could level the playing field and incentivise consumers to buy more electric cars, thus spurring their widespread introduction.

## KEY TRENDS IN THE RES SECTOR

- High levels of uncertainty in 2014, with the Renewable Energy Sources Act (EEG) undergoing a fundamental change. The European Commission played an important role, due to their investigation into the German support scheme and the publication of new guidelines on state aid for environmental protection and energy.
- The amendments of the EEG - an expansion goal of 100 MW and low tariffs for bioenergy, changes regarding solar self-consumption, the inclusion of competitive bidding starting 2017 and a provision regarding negative market prices and RES - will have a negative impact on the development of the RES sector.
- In the heating sector, the discussions on tax relief for retrofitting the building stock failed, the tariffs of the financing tool for renewable heating (MAP) were raised, and the Government initiated dialogue platforms.
- Little change in the transport sector in 2014. The Government released the first part of a new e-mobility law. As for biofuels, the uncertainty remains high, with the European institutions still discussing and not agreeing on the future of the sector.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Forego the introduction of competitive bidding (26DEE): Competitive bidding increases the support costs and threatens to exclude a large number of small and medium stakeholders from participating in the Energiewende. It increases investment uncertainty and negatively impacts public acceptance.
- Further develop the electricity markets (29DEE): The new challenges of the Energiewende and the growing share of RES at the center of our energy system require increasing the degree of flexibility of both generation and demand. Exploring these new options and introducing a strategic reserve also guarantee the security of supply.
- Strengthen the role of bioenergy (15DEE): Under current conditions, bioenergy and especially biogas cannot play a significant role in providing flexible and reliable electricity. Financial incentives are needed to increase the flexibility of biogas and spur investment.



### HEATING AND COOLING SECTOR

- Develop a concept for retrofitting the building stock (34DEHC): By 2050, the building stock needs to be carbon neutral. There is an acute need for renovation roadmaps in order to achieve this goal. The roadmaps would implement necessary measures in a predetermined order, taking into account the age and the state of the building, the income and the age of the inhabitants, etc.
- Create a level playing field for renewable heating (30DEHC): Falling oil and gas prices do not encourage consumers to replace their heating systems. Further, the total cost of renewable heating systems is not on a par with conventional ones, as the external costs of the latter are not internalized.

Provide better and clearer information (33DEHC): The Government plans to address uncertainty and misinformation among consumers by labeling heating systems. The labeling scheme should be paired with heating system checks, and renewable heating systems should be among the options installers recommend to their customers.



### TRANSPORT SECTOR

- Create a clear and stable framework for biofuels with a clear perspective for after 2020 at both the national and European level (41DET, 44DET): The biofuel sector is grappling with enormous uncertainty about its future in the years to come and after 2020. The ILUC proposal with its planned provisions, such as multiple counting, and the introduction of a GHG quota in Germany, with the possibility of upstream emissions reductions counting towards fulfillment, have to be put on an objective footing to allow the biofuel industry to continue developing.
- Implement and further develop the incentives included in the e-mobility law (59DET): The law grants electric vehicles a number of benefits, such as parking spaces in the city center, use of the bus lane, etc. These provisions should be fully implemented and complemented by further incentives, possibly financial ones.



#### CONTACT DETAILS:

**Corina Bolinteanu**  
German Renewable Energy Federation  
Bundesverband Erneuerbare Energie e.V. (BEE)

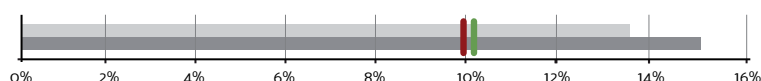
[www.bee-ev.de](http://www.bee-ev.de)  
[corina.bolinteanu@bee-ev.de](mailto:corina.bolinteanu@bee-ev.de)  
+49 30 27 58 17 00



# IS GREECE on track?

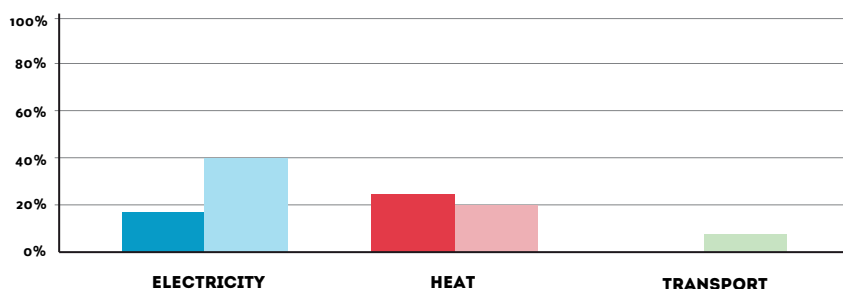
- Greece has achieved both its 2013 NREAP target and the interim target 2013/14.
- The growth rate in the RES-E sector is enough to achieve the 2020 target if it can be maintained. For RES-H&C, the 2020 target share has already been achieved. However, the growth rate in the RES-T share has to be increased significantly to achieve the 2020 target.

## OVERALL RES SHARE



- 2012 Overall RES share
- 2013 Overall RES share
- 2013/2014 interim target set by RES Directive
- 2013 NREAP target

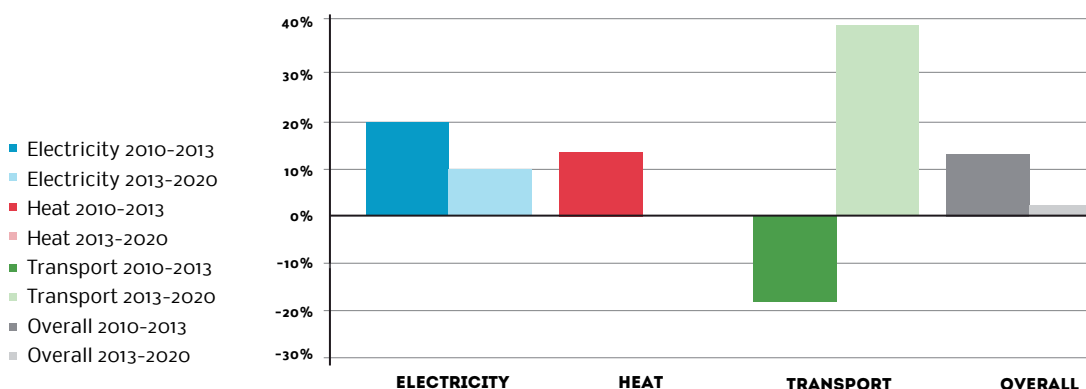
## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



- 2013 RES-E share
- 2020 NREAP RES-E target
- 2013 RES-H share
- 2020 NREAP RES-H target
- 2013 RES-T share
- 2020 NREAP RES-T target

	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	21.2%	26.5%	1.1%	15.0%
2013 NREAP target	21.8%	16.8%	4.8%	9.9%
2013/2014 interim target set by RES Directive	-	-	-	10.2%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020



- Electricity 2010-2013
- Electricity 2013-2020
- Heat 2010-2013
- Heat 2013-2020
- Transport 2010-2013
- Transport 2013-2020
- Overall 2010-2013
- Overall 2013-2020



## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>UNCERTAINTIES CONCERNING THE SUPPORT FRAMEWORK FOR RES IMPLEMENTATION</b>	The so-called "New Deal" on RES provided a viable solution so as the RES-E sector can be stabilized and aimed to put an end to the crisis of the RES sector. The "New Deal" on RES has succeeded in solving the unstable RES-E landscape. However, a coherent RES-E strategy is urgently needed in the context of an updated "Strategic Energy Roadmap". The barrier impacts the technical and operational level of the RES sector. All renewable energy sources technologies are affected by such barrier.
<b>LACK OF LIQUIDITY OF THE GREEK ELECTRICITY MARKET OPERATOR</b>	Though the deficit of the Special Account for RES is starting to decrease since the introduction of the "New Deal" on RES, a four month delay of LAGIE's payment to the RES producers can still be observed. In addition, the Electricity Market Operator's commitment to eliminate its deficit by the end of 2014 cannot be surely achieved until the need of the next year.
<b>REFORM OF THE ELECTRICITY MARKET</b>	Based on the latest reforms of the Greek electricity market, it should be assured that the new electricity market will be competitive, set clear rules concerning its operation and facilitate the entrance of new participants. However, there are concerns due to the insufficient progress of unbundling and the Public Power Corporation's monopolistic role. Moreover, the Greek RES-E sector will probably encounter problems competing in the new electricity market, as the substitution of the current feed-in tariff with the more market based feed-in premium mechanism with auctions does not necessarily allow serious financial margins for RES investors.

#### HEAT

BARRIER	DESCRIPTION
<b>LACK OF A COMPREHENSIVE RELEVANT SUPPORT SCHEME</b>	Only a number of policies were directed to RES-H and were mainly integrated to more general energy efficiency policies and measures. Such a development was necessary for biomass deployment as it was projected that such technologies could follow the development path of the dominant technologies. However, it was interrupted by the crisis of the RES sector in 2012.
<b>LACK OF COORDINATION BETWEEN RELEVANT STAKEHOLDERS</b>	Although individual efforts to promote the use of biomass for heating applications exist, the lack of coordination between the relevant stakeholders (state authorities, project developers, investors, etc) has impeded the design of RES-H projects. For example, no information is made available concerning the exact location of the 290,000 SMEs that could offer their organic residues as raw material and there are conflicting data about the permitting of necessary collection methods and storage facilities for agricultural biomass.
<b>COLLECTION AND STORAGE OF BIOMASS AS PRIMARY PRODUCT</b>	Although there is significant potential and promise for local added value from the exploitation of biomass in Greece, problems with its collection and storage are a big challenge because of the fragmented land use and the scattering of a big number of small plants producing biomass waste. Concerning forest residuals that can be used as input to biomass plants, the existing legislative framework is very restrictive, thus leaving little room for their exploitation.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>COLLECTION AND STORAGE OF PRIMARY PRODUCTS USED FOR BIOFUELS PRODUCTION</b>	As with the biomass technologies for electricity and H&C, the biofuels sector faces serious issues related to the collection and storage of the primary products used for the production of biofuels. Sometimes it has been cheaper for biodiesel producers to import raw materials than to purchase them from the local markets.
<b>BIG NUMBER OF SMALL FARMERS AND BIOFUEL PRODUCERS</b>	There are a great number of small farmers and biofuels producers dispersed in the Greek region. Apart from that, those small dispersed producers are not coordinated with each other. This consequently brings unnecessary constraints concerning the quota distribution process resulting in a vicious circle. More specifically, the lack of coordination delays the yearly quota distribution and this delay creates problems with the planning of biofuel production.
<b>DELAYS CONCERNING THE QUOTA DISTRIBUTION SCHEME</b>	The process of the biofuels quota distribution scheme has been defined in detail since 2012. However, there have been substantial delays in its implementation in comparison to the indicative timeline foreseen by the relevant legislative framework.

## KEY TRENDS IN THE RES SECTOR

- In April 2014, a revised support framework for RES, the “New Deal”, imposed significant retroactive/retrospective reductions in the FITs of all existing RE projects. It set new, reduced FITs for all new RES projects and lifted a previously imposed moratorium on PV projects. The Greek government submitted the revised support framework to the European Commission for approval in December 2014.

- The “New Deal” resulted in a significant reduction of short and medium term revenues of all operating RES projects. It

exacerbated the already serious liquidity problems of RES IPPs. However, it failed to ensure the sought viability of the National Electricity Market Operator, and thus the serious delays in the payments of RES producers persist.

- No changes relevant to the support of RES-H or RES-T projects occurred in 2014.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Improve the liquidity of the PPC: Incentives have to be provided to consumers-debtors in the form of the possibility to pay back their debts to the PPC in flexible monthly installments. Moreover, the PPC must further reduce its operational costs and seek more loans so as to strengthen its financial base and, thus, be able to pay RES IPPs.

- Change the way in which the support for RES in electricity is calculated and collected: The calculation needs to be based on the principle of avoided environmental cost. Furthermore, the existing relevant levy has to be integrated in the suppliers' cost and should not be treated like a separate charge.

- Prepare to respond to the Commission's request to establish a new support framework for RES based on the new EU guidelines for State Aid: The implementation of such a system is expected to face serious barriers in Greece, as there is no representative reference market price and the conditions for the successful organization of auctions for the premium are unfavorable. The government needs to organize consultations with the market stakeholders at the national level to arrive at a viable plan to deal with this.



### HEATING AND COOLING SECTOR

- Establish a coherent and integrated support framework for RES-H: The Ministry of Environment and Energy should delegate this task to the state-supervised Center for Renewable Energy Sources (CRES) and then subject the new plan to public consultation.



### TRANSPORT SECTOR

- Establish a coherent and integrated support framework for RES-T: The Ministry of Environment and Energy should delegate this task to the state-supervised Center for Renewable Energy Sources (CRES) and then subject the new plan to public consultation.



#### CONTACT DETAILS:

**Dr. Savvas Seimanidis**

Greek Association of Renewable Electricity Producers (GAREP)

Ελληνικός Σύνδεσμος Ηλεκτροπαραγωγών ΑΠΕ (ΕΣΗΑΠΕ)

[www.hellasres.gr](http://www.hellasres.gr)

[info@hellasres.gr](mailto:info@hellasres.gr)

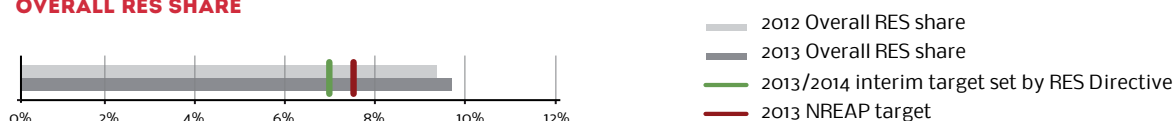
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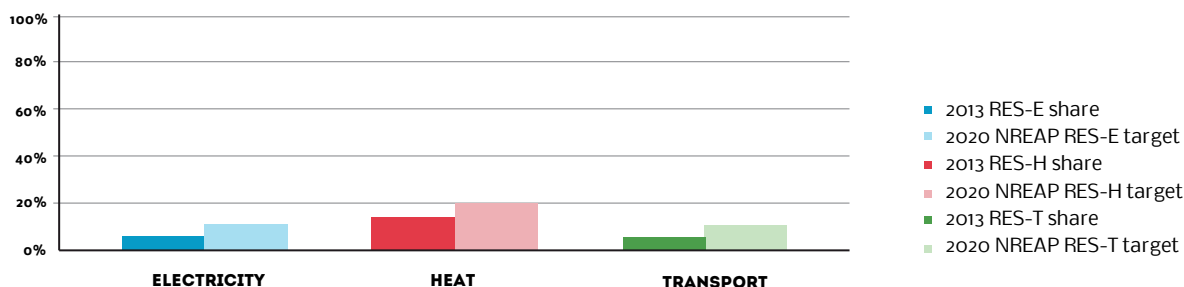
# IS HUNGARY on track?

- Hungary is comfortably above both its 2013 NREAP target and the interim target 2013/2014.
- Growth in the RES-H share is more than enough to achieve the 2020 target. However, average growth in the RES-E share was negative from 2010-2013. The share was on the increase again from 2012 to 2013, but this needs to be closely monitored.

## OVERALL RES SHARE

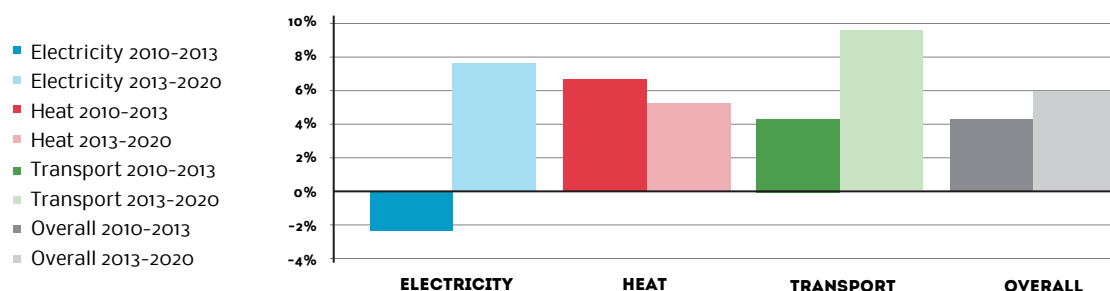


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	6.6%	13.5%	5.3%	9.8%
2013 NREAP target	7.5%	8.5%	5.0%	7.5%
2013/2014 interim target set by RES Directive	-	-	-	6.9%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>POSTPONED AND UNCERTAIN INTRODUCTION DATE OF THE NEW FEED-IN TARIFF SYSTEM (METÁR)</b>	The present feed-in tariff system has been planned to be reformed since 2011 (last public concept of METÁR is from September 2011). The first planned introduction date of the new FiT system (METÁR) was 1 January 2012 and then early 2013 without communicating any new introduction date. This uncertainty about the FiT system reform has had a negative effect on RES investments.
<b>LARGE NUMBER OF COMPETENT AUTHORITIES INVOLVED</b>	The competent authorities within the licensing procedure may include additional, so-called professional authorities, into the licensing procedure. These are, for example, the state chief architect, fire safety agencies, cultural heritage administration, etc. These additional proceedings in addition to the main licensing procedure make the administrative procedure more complex and lengthier.
<b>SOFT REGULATION</b>	No clearly defined rules and only minimal obligations in laws and regulations. Detailed technical and procedural rules are defined in DSO regulations. No sanctions are applied if regulations are breached.



#### HEAT

BARRIER	DESCRIPTION
<b>INSUFFICIENT SUPPORT SCHEMES FOR RES-H&amp;C PROJECTS</b>	Financial support is only allocated through subsidy programmes for which no calls for projects are currently open. Furthermore, the availability of grants did not live up to very high potential for demand of renewable energy installations in the heating sector. This problem was indicated, e.g. when subsidy programmes were closed due to exhausted funds only few days after being launched. Thus, it is a positive development that the budget of available funds under the financing period 2014-2020 of the KEHOP subsidy programmes increased compared to the previous financing period.
<b>NON-TRANSPARENT LICENSING PROCEDURE WITH HIGH NUMBER OF AUTHORITIES INVOLVED</b>	A reliable overview of all necessary steps to be taken and all documents and applications to be handed in is missing. Furthermore, a very high number of authorities are involved in the administrative process. This is also due to overlap of responsibilities of different authorities and insufficient delimitation of responsibilities.
<b>NEGATIVE PUBLIC IMAGE OF DISTRICT HEATING</b>	Public perception of district heating tends to be negative among households, which are not familiar with district heating from own experiences. These households tend to refuse district heating, which constitutes a barrier to the deployment of biomass and geothermal based district heating.



#### TRANSPORT

BARRIER	DESCRIPTION
<b>CONTRADICTIONARY POLITICAL STRATEGY ON BIOFUELS</b>	On the one hand, investments into biofuel generation and biomass cultivation are politically desired and authorities are eager to enable these investments. On the other hand, a consistent strategy for increasing domestic demand for biofuels produced in Hungary is missing. Consequently, approx. 90% of Hungary's bioethanol production is exported.
<b>TRADING BARRIERS FOR EXPORT OF BIOFUELS</b>	Compared to the free movement of other goods within the European Single Market, the trade of fuels is more complex as various taxes apply in different Member States aside from the value added tax. This creates a high administrative burden when exporting biofuels. In addition, some EU Member States apply discriminatory, non-transparent administrative and tendering procedures for biofuels.
<b>BACKLASH FOR BIOFUELS ON CENTRAL EUROPEAN MARKETS BY ILUC DEBATE</b>	In Central-Eastern European countries, markets for first generation biofuels are just starting to develop. Thus, the ILUC factor jeopardises the biofuel sector on a political and a financial level. Amending the legal provisions under the RES Directive by the European level seriously deterred the European biofuel market and the Hungarian market in particular.



## KEY TRENDS IN THE RES SECTOR

- In Hungary, electricity generated from RES is promoted through feed-in tariffs. The key renewable energy source used in Hungary is biomass, followed by wind and hydro power. Solar power has a low share in Hungary. Even though Hungary has a significant geothermal potential, no geothermal power plant has been installed so far.
- The Government stresses its intention to diversify energy supply technologies in the country's future energy mix, whereby a focus is set on nuclear power.
- Hungary supports the use of RES-H&C technologies through various subsidy programmes. Due to the poor energetic condition of buildings, 40% of Hungary's overall energy demand is consumed in buildings, of which a share of two thirds is used for heating purposes alone.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- The support framework for RES-E should be further developed: On the one hand, this regards the adoption of a renewable energy act that has been announced in the NREAP of 2010 and would consolidate all relevant RES-E provisions in one legal act. On the other hand, a further developed and more elaborated support framework for RES-E as discussed under the label METÁR system should be introduced. It will, however, be necessary to align this proposal with recent developments at the EU level; this particularly regards the requirement that changes made to support schemes must be compatible with the state aid guidelines.
- There is no stable, state-financed insurance scheme to cover drilling risks of geothermal projects, which hampers the roll-out of geothermal power generation.
- Regarding grid connection, clearly defined rules are missing, as only minimal obligations are defined by law.
- Regarding administrative procedures a one-stop-scheme should be envisaged, and international best practices should be followed in this respect.



### HEATING AND COOLING SECTOR

- In some cases, the limited availability of funds in relation to the market demand has led to a stop-and-go procedure

caused by the very quick exhaustion of fund. In order to put industry on a steadier track, better alignment is required..

The high number of authorities involved in the authorization of RES-H installations and partly overlapping competencies imposes high administrative costs on project developers. First steps have been taken to streamline this process through the introduction of the so-called “green authority”, and further steps should be taken to achieve the benchmark of “one-stop-shopping”.



### TRANSPORT SECTOR

- A consistent strategy to increase domestic demand for biofuels produced in Hungary is missing. As a result, Hungary's well established bioethanol production is mostly exported.



#### CONTACT DETAILS:

**Lukas Liebmann**  
Energy Economics Group (EEG), Institute of  
energy systems and electric drives, Vienna  
University of Technology

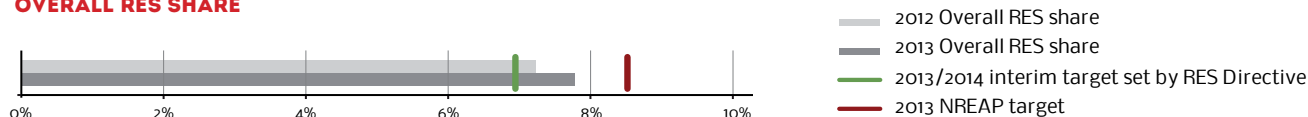
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+43 (0)1 58801 370355



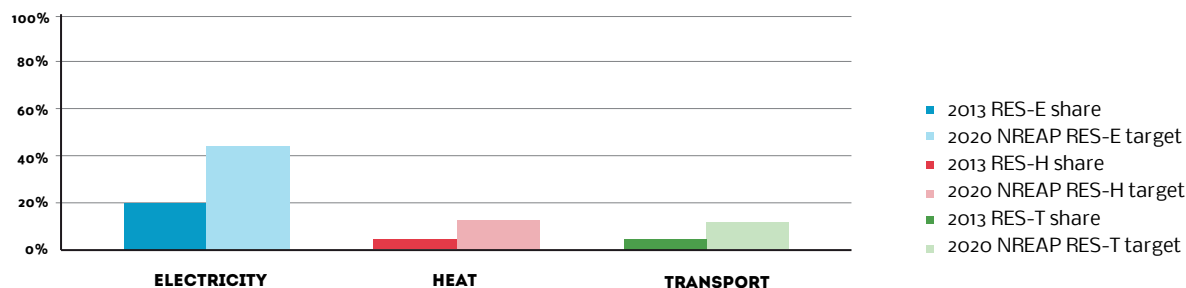
# IS IRELAND on track?

- Ireland has not achieved its 2013 NREAP target, but is on track regarding the less ambitious interim target 2013/2014.
- Growth in the RES-E share is enough to achieve the 2020 target. Growth in the RES-H&C share needs to accelerate, however.

## OVERALL RES SHARE

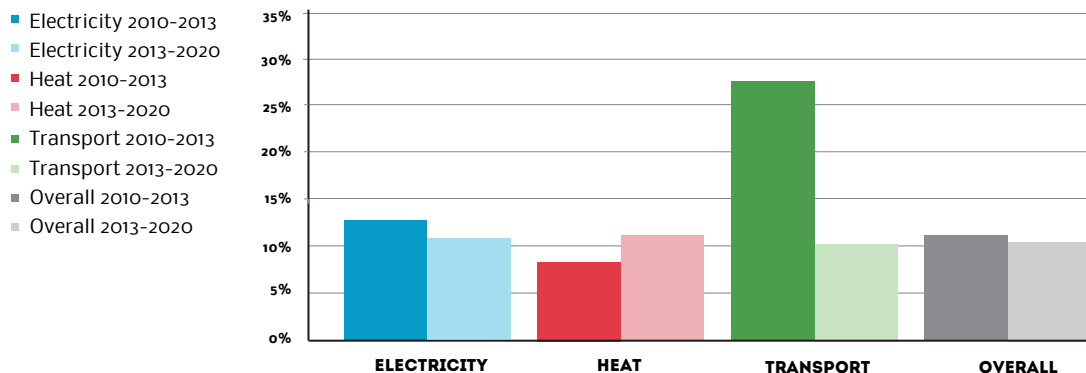


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	20.9%	5.7%	5.0%	7.8%
2013 NREAP target	30.5%	6.9%	5.1%	8.6%
2013/2014 interim target set by RES Directive	-	-	-	7.0%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
REMUNERATION LEVEL OF RES-E	Remuneration level of RES-E and more specifically the way this is calculated continues to be seen as a problem. In addition, there seems to be further uncertainty concerning the future of RES-E support with the design of the Integrated Single Electricity Market (I-SEM). One of the basic points of criticism was the proposal concerning the Integrated Single Electricity Market (i-SEM) that Day Ahead Market (DAM) price is used as the reference for renewable supports.
TREATMENT OF PRIORITY DISPATCH CURTAILMENT	Despite the fact that it is foreseen that renewable energy technologies are granted priority access to the grid over fossil fuels, it has been observed that with the initiation of the East-West Interconnector between the Republic of Ireland and the UK, interconnectors were prioritized over renewables, as during imports from the interconnector, when there has been wind curtailment. Apart from that, the new Integrated Single Electricity Market Model (I-SEM) foresees that curtailment compensations should be removed, something that has been heavily criticised by stakeholders
PLEXITY OF THE ADMINISTRATIVE PROCESSES	Lengthy delays for grid connection along with the problems with the expiration of the planning permission are still apparent, lowering the effectiveness of wind energy projects.



#### HEAT

BARRIER	DESCRIPTION
LACK OF A COHERENT H/C SUPPORT SCHEME	Since 2011, there have been no specific support schemes that were aiming at the development of the biomass H/C sector. This is in contrast with the realisation of two successful H/C programmes that were realised until 2011. Nevertheless, the Department of Communication, Energy and Natural Resources has published in October 2014 a draft "Bioenergy Plan" for Ireland, where the introduction of a Renewable Heat Incentive (RHI) in 2016 is foreseen



#### TRANSPORT

BARRIER	DESCRIPTION
TAXING REGIME	The tax relief support, in place until 2010, has been one of the main causes for the development of biofuels in Ireland. Its replacement by the biofuels obligation scheme (BOS) created a crisis in the local biofuel sector and hindered its further development.

## KEY TRENDS IN THE RES SECTOR

- Ireland operates a feed-in tariff scheme (called REFIT) which in effect operates as a floor price to commercially negotiated Power Purchase Agreements. In addition, corporate RES-E investments (solar, wind, biomass, hydro) benefit from a tax relief scheme. Ireland's RES strategy focuses on wind, around 12,000 GWh of wind (onshore and offshore) electricity production are planned for 2020.
- An investment grant scheme for homeowners is in place for solar thermal installations. A tax regulation mechanism for companies, mainly aimed at energy efficiency measures, also covers solar thermal and heat pumps.
- RES in transport are supported by the Biofuels Obligation Scheme (BOS), a quota scheme requiring fuel suppliers to include a certain percentage of biofuels in their annual fuel sales.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Minimise insecurities for investors regarding grid access: For wind energy, payments under the feed-in tariff scheme are based on metered output. Consider introducing clear provisions such as compensation payments for forced curtailment due to local grid congestion.
- Simplify and streamline planning and permitting procedures, especially for wind parks: For instance, planning permissions have sometimes already expired by the time a RES project developer has obtained a grid connection offer. The procedures should be shortened, and ideally, a one-stop-shop should be created which handles all relevant procedures.



### HEATING AND COOLING SECTOR

- Create a reliable RES-H&C strategy and appropriate support schemes: Ensure the timely introduction of support

instruments as foreseen in the draft Bioenergy Plan. Ireland is currently experiencing less deployment of biogas and solid biomass than planned. Previous support programmes have expired and were not replaced. Drafting of the Bioenergy Plan has been subject to delays, and there is doubt among stakeholders about whether measures will be introduced by 2016 as planned.



#### CONTACT DETAILS:

**Simone Steinhilber**  
Fraunhofer Institute for Systems and Innovation  
Research ISI

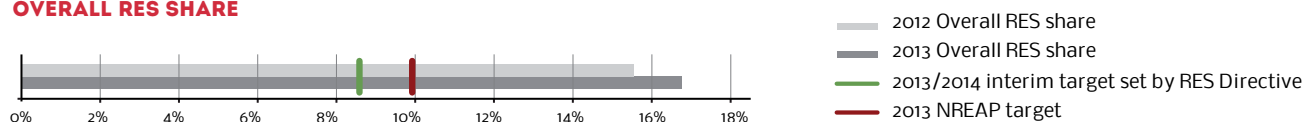
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[simone.steinhilber@isi.fraunhofer.de](mailto:simone.steinhilber@isi.fraunhofer.de)  
+49 (0) 721 6809-281



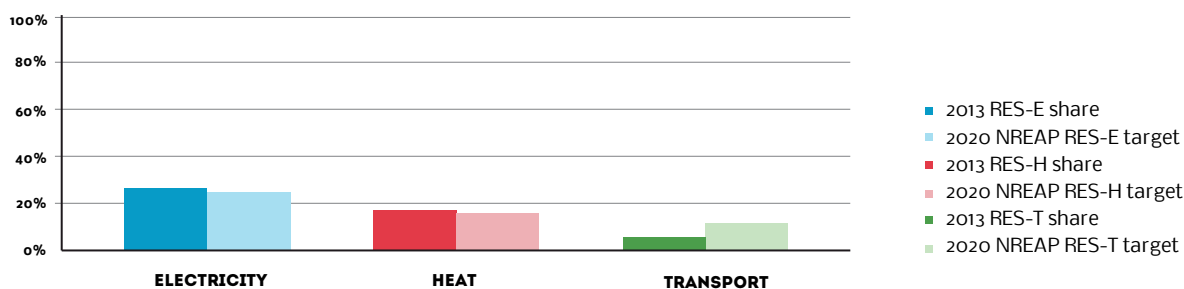
# IS ITALY on track?

- Italy is comfortably above both its 2013 NREAP target and the interim target 2013/2014.
- The target RES-E and RES-H&C shares for 2020 have already been achieved, and growth is still strong. On the other hand, growth needs to accelerate regarding the RES-T share.

## OVERALL RES SHARE

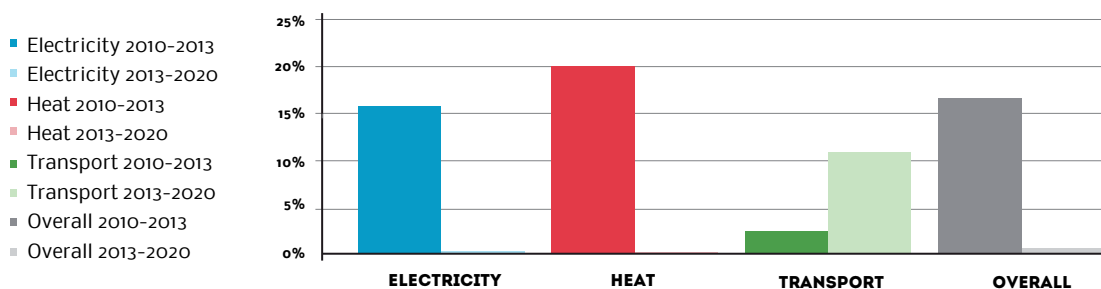


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	31.3%	18.0%	5.0%	16.7%
2013 NREAP target	21.0%	8.4%	5.4%	9.9%
2013/2014 interim target set by RES Directive	-	-	-	8.7%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>UNRELIABILITY OF THE LEGISLATIVE FRAMEWORK AND THE SUPPORT SCHEME</b>	The endless modification of normative framework and the inadequacy of support schemes do not allow for long term investment planning. Retroactive impacts of specific measures (e.g. "Spalmaincentivi") are undermining the reliability of the sector.
<b>DIFFICULTIES IN THE ACCESS TO FINANCE</b>	The uncertainty about the obtainment of the incentive, its amount and what will happen after 2015 (DM 06/07/2012) are creating problems for the access to finance. Moreover, the quotas of incentivized energy of the new support scheme have revealed inadequate and wrongly distributed among the different RES technologies and sizes.
<b>UNCLEAR FISCAL LEGISLATIVE FRAMEWORK</b>	Tax structure is quite complex and many bureaucratic fulfilments are necessary. In addition, local tax agencies often provide different interpretations for the rules, thus leading to different treatments among operators. Bioenergy sector is especially affected since many different fuels are used.

#### HEAT

BARRIER	DESCRIPTION
<b>COMPLEXITY OF THE LEGAL FRAMEWORK</b>	Several laws regulate the RES-H sector and different provisions are set up at regional level. There is also a lack of implementation of primary measures and inconsistency between measures of different nature, which causes difficulties in the access to finance. Finally there is a general lack of know-how of involved actors.
<b>INSUFFICIENT DEVELOPMENT OF THE BIOMASS SUPPLY CHAIN</b>	The underdevelopment of the supply chain implies higher risks and a tendency to use imported biomass. From April 2015 a new draft of Ministerial Decree is under discussion, in order to allow the utilization of the urban, industrial, and agricultural biomass residues and pruning (so far treated as wastes) be used as fuels a competitive price. There is the need to set up a modern logistics infrastructure: forest management, system automation, transports.
<b>INCOMPLETE LEGISLATIVE FRAMEWORK FOR SPECIFIC SECTORS</b>	The lack/delay in the completion of the legislative framework is discouraging the development of new projects. Incentives due for the realization of new DH networks are provided by the law (D.Lgs. 28/2011), but still not implemented. The possibility to inject biogas into natural gas network is still not operational, since the legislative framework should be completed with all the necessary technical rules.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>LACK OF INFORMATION</b>	There is a general lack of knowledge and experts: only very poor and unofficial data are available.
<b>LACK OF A COMPREHENSIVE STRATEGY</b>	The unavailability of information, the absence of competent stakeholders and the lack of communication channels between the involved parties do not allow to elaborate a comprehensive strategy (legislative framework+support scheme) for a sustainable transport system.

## KEY TRENDS IN THE RES SECTOR

- In 2014, the number connection requests decreased, due to administrative barriers, a sharp reduction of incentives and retroactive effects of new laws as well as due to lengthy authorization procedures and grid connection.

- Currently (May 2015) the Ministry of Economic Development published a new draft of Ministerial Decree to establish a new support scheme for RES other than PV.

The draft is now under discussion and is expected to be finalized before mid-June. The new support scheme will last until 1st December 2016, or when the threshold of the financial

amount (5 billion and 800 million euro) already established will be spent.

- “Conto Termico” (Ministerial Decree 28/12/2012), continues to be in force: it provides subsidies for thermal energy from RES and energy efficiency in buildings through conversion projects.

- A ministerial decree, published on 17 December 2013, set up an incentive system for the injection of biomethane into the gas grid and for its use in the transport sector.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Guarantee clear and stable incentives over time: frequent modifications of support schemes and retroactive measures decrease the likelihood of obtaining bank loans. Investors need a clear and long-lasting support framework (3ITE, 4 ITE, 10ITE, 16ITE, 17ITE, 19ITE, 24ITE, 25ITE).

- Simplify administrative procedures through the centralization of energy competences: The distribution of competences among different public bodies (national, regional, local) causes an inhomogeneous implementation of the legislative framework at the local level. Decisional power should be kept at the national level as much as possible (5ITE, 11 ITE, 12ITE, 18ITE).



### HEATING AND COOLING SECTOR

- Improve incentives and access to financing: As RES-H&C are considered as relatively costly. These technologies require financial incentives over an adequate period of time. Moreover, banks need more information and training on/in financing RES-H&C solutions, especially if linked to an ESCO (17ITHC).

- Simplify the of rules and implement a support scheme for district heating networks: regulation is complex (is not clear if DH networks should be considered a public service or not) and the incentives originally provided (D.Lgs. 28/2011) are still available (21ITHC).



### TRANSPORT SECTOR

- Improve the public perception of the RES-H&C sector: RES-H&C are still little known among citizens and installers. There is a need to increase the public awareness of different possible applications offered by the sector: domestic installations, industrial plants, public buildings (10ITHC, 25ITHC).

- Elaborate a comprehensive strategy for the development of a sustainable transport system by designing a targeted legislative framework and a suitable support scheme, by improving training and creating an official statistics database (Ref: 17ITT).



#### CONTACT DETAILS:

**Costanza Boggiano Pico**

assoRinnovabili (National Association of Producers, Industry and Services of the Renewable Energy Sector)

assoRinnovabili (Associazione dei produttori, dell'industria e dei servizi per le energie rinnovabili)

[www.assorinnovabili.it](http://www.assorinnovabili.it)

[c.boggiano@assorinnovabili.it](mailto:c.boggiano@assorinnovabili.it)

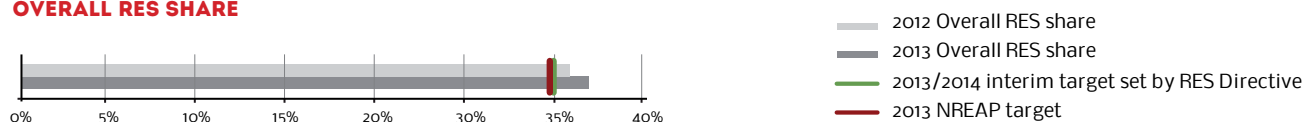
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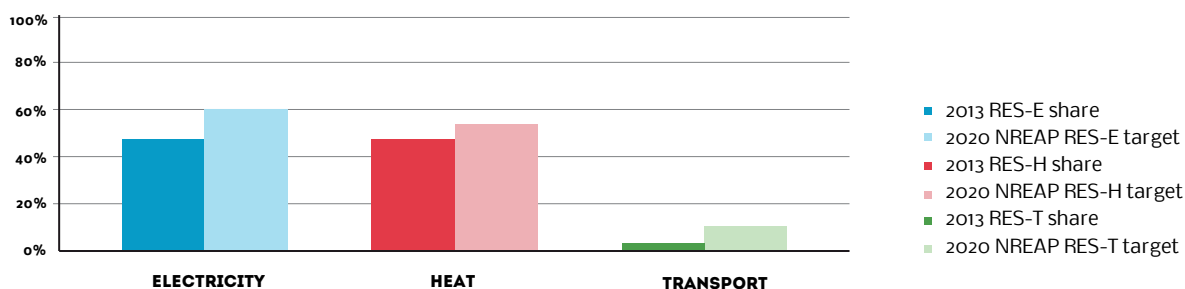
# IS LATVIA on track?

- Latvia has achieved both its 2013 NREAP target and the interim target 2013/2014.
- The growth rates in both the RES-E and RES-H&C shares are more than enough to achieve the 2020 target, if they can be maintained.

## OVERALL RES SHARE

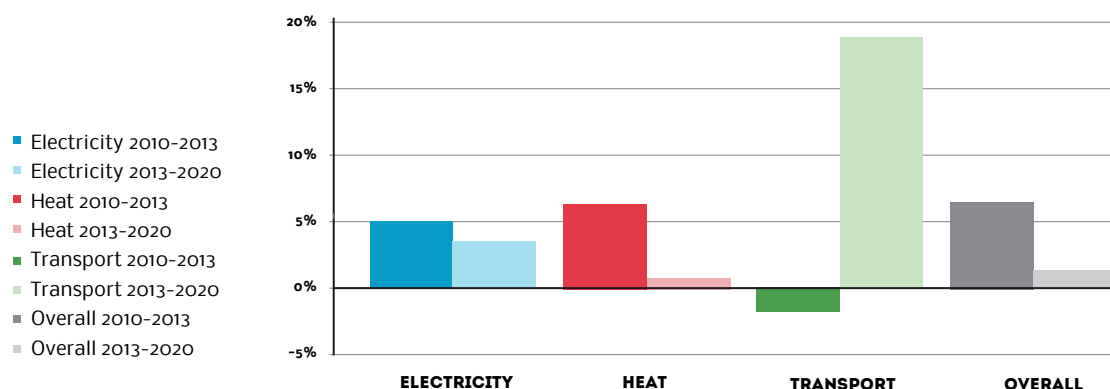


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	48.8%	49.7%	3.1%	37.1%
2013 NREAP target	47.2%	48.2%	4.4%	34.7%
2013/2014 interim target set by RES Directive	-	-	-	34.8%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020







## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>POLICY RISK AND UNCERTAINTY IN THE MARKET</b>	The current support system is under revision since 2011 without certainty on the future project support and with possible retroactive effect for existing production plants. However new amendments to the laws foreseen stricter supervision of subsidized electricity producers, more stringent controls and limited timeframe for the implementation of RES projects (within 10 years latest). Legislative disorder and lack of long-term predictability repels the investors, increases costs and perplexes the project development.
<b>TAX ON SUBSIDIZED ELECTRICITY</b>	In January 2014 a new tax (tax rates 5 to 10 %) on subsidized electricity was introduced. The tax should be paid by companies receiving financial support for power generation from renewable energy sources or from Combined Heat and Power (CHP) plants. According to the stakeholders, the tax is going to have adverse impact on the economic case for renewables deployment in Latvia. The tax is not only hindering the development of new RES-E projects in Latvia, but could also be crucial for survival of the existing companies.
<b>UNDERDEVELOPED TRANSMISSION GRID FOR RES AND DISTRIBUTION OF THE COSTS</b>	As reported by the stakeholders, the grid in Latvia is currently underdeveloped for renewable energy, resulting in too little capacity to transmit and distribute RES-E at the required scales and in some locations. The costs of grid connection shall be borne by the plant operators, including the costs for the grid reinforcement. Several stakeholders reported especially the costs for the development of the grid as one of the key barriers for the deployment and integration of RES-E in Latvia. The Latvian wind power association has reported that distribution is one of the main problems further aggravated by unclear calculation and allocation of costs.

#### HEAT

BARRIER	DESCRIPTION
<b>HIGH SHARE OF FOSSIL ENERGY</b>	The overarching barrier affecting RES-H in Latvia is the high share of fossil energy. In last years, Latvenergo invested more than 400 000 Mil. € in modernisation of two biggest CHP Plants "Riga TEC 1" and "Riga TEC 2". After modernisation still gas and oil is used for the electricity and heat generation.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>ABSENCE OF POLICY INSTRUMENTS AND LONG-TERM STRATEGY FOR BIOFUELS SINCE 2011</b>	Already for two years there is no clear information on policy instruments for biofuels. This hampers investments in new facilities producing biofuels. As for now investments in producing biofuels are not economically feasible any more.
<b>NO LONG-TERM MECHANISM FOR E-MOBILITY</b>	Although there exist tax reliefs to support electric vehicles in Latvia, the development of the sector is extremely slow.

## KEY TRENDS IN THE RES SECTOR

- Latvia's main RES-E support instrument (feed-in tariff with tenders) has been put on hold, no new tendering rounds are expected until 2016. The scheme is currently under revision. Previous support levels for biomass and biogas were rather high, leading to target overachievement. A retrospective tax of 5-10% has been applied to existing installations.
- RES-H&C is supported by preferential tax treatment of

biofuels. As the country already started off with a very high RES-H&C share, only a small increase is foreseen. The consumption of renewable heat in households was below planned levels in 2012.

- Transport biofuels are promoted through preferential tax treatment on fuel blends. In 2012, Latvia was lagging behind its plans on the use of biodiesel, bioethanol/-ETBE, and other biofuels.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- The future support scheme must adhere to current state aid regulation. Future tender designs must take into account local conditions and ensure competitiveness in the bidding process. Support levels can be set administratively for small-scale installations. Plan for regular and transparent adjustments. Consider introducing an automatic adjustment mechanism. Technology-specific capacity caps can be applied if there is strong concern about support costs getting too high.
- Avoid retrospective changes such as the new tax on RES. Such changes increase the necessary risk margins for investors, which in turn leads to higher support costs.



### HEATING AND COOLING SECTOR

- Tax benefits may be considered unreliable by investors. A long-term strategy for RES- H&C would create more security for investors.
- Incentives to efficient installations: As Latvia focuses very much on biomass until 2020, it is advisable to ensure efficient use of biomass in heating. The incentives could comprise, for instance, investment grants or a CHP bonus included in the above-mentioned RES-E support scheme.



### TRANSPORT SECTOR

- Reduce upfront costs for private households: They often react better to support which reduces the high upfront costs of installing a RES-H&C plant instead of fuel costs. Suitable instruments include investment grants or tax deductions on the investment instead of on the fuel.
- Increasing support: Biofuels consumption has decreased between 2011 and 2012, suggesting that the support level is too low to incentivise biofuel use. Consider increasing support through further tax instruments or through a quota scheme.



#### CONTACT DETAILS:

**Simone Steinhilber**  
Fraunhofer Institute for Systems and Innovation  
Research ISI

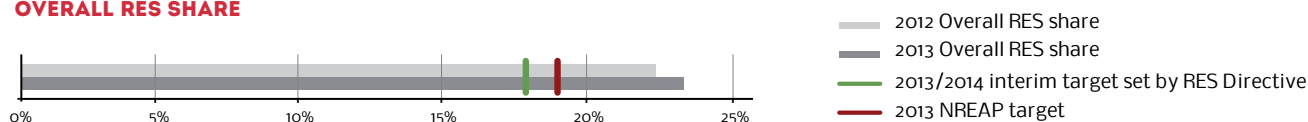
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[simone.steinhilber@isi.fraunhofer.de](mailto:simone.steinhilber@isi.fraunhofer.de)  
+49 (0) 721 6809-281



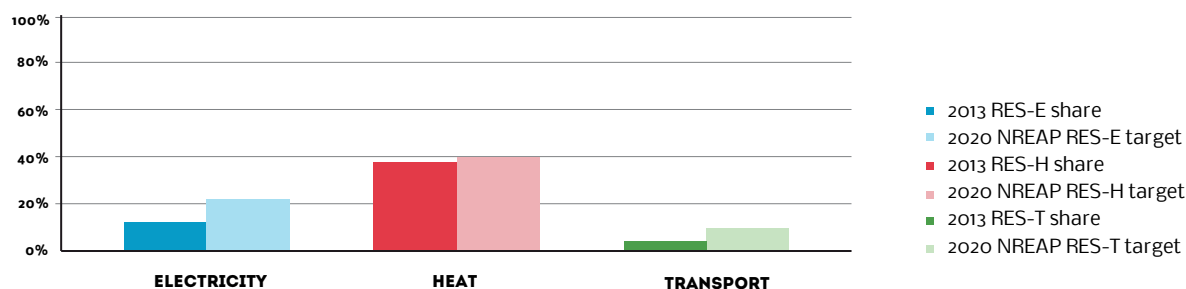
# IS LITHUANIA on track?

- Lithuania has achieved both its 2013 NREAP target and the interim target 2013/2014.
- Growth rates in both the RES-E and the RES-H&C share are more than enough to achieve the 2020 target, if they can be maintained.

## OVERALL RES SHARE

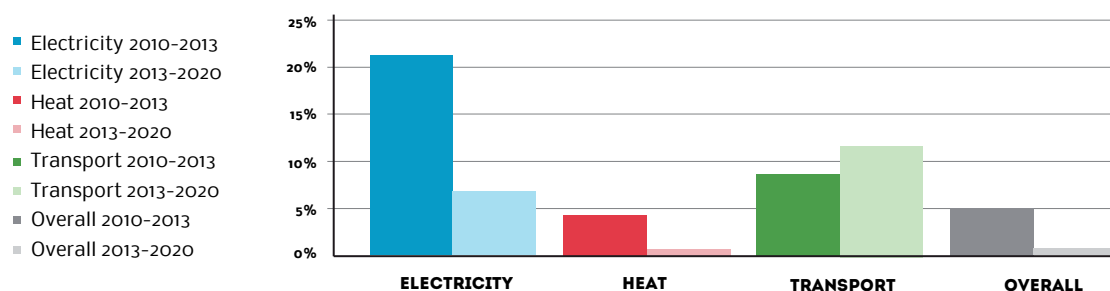


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	13.1%	37.7%	4.6%	23.0%
2013 NREAP target	13.0%	32.0%	6.0%	19.0%
2013/2014 interim target set by RES Directive	-	-	-	17.4%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>LACK OF A POLITICAL WILL</b>	Lack of a political will to create attractive and stable conditions for the investment in renewable technologies is one of the key barriers in the RES-E sector. As a result, development of renewable energy sources is currently at virtual standstill in Lithuania.
<b>LACK OF A LONG-TERM VISION FOR RES</b>	A number of strategic documents envisaged in the Law on RES are not yet adopted. These include for example the National Renewable Energy Development Programme that would set out policy directions for renewable energy sources in the electricity, heating and transport sector and would cover the period from 2011 to 2020, the Inter-institutional Action Plan implementing National Renewable Energy Development Programme which is due to be implemented by national and local institutions and organizations, and the National Special Plan for the Use of Biodegradable Industrial and Municipal Waste for Energy Production, etc.
<b>INCOMPLETE LEGISLATIVE FRAMEWORK FOR OFFSHORE WIND</b>	Despite the fact that the RES Law entered into force in May 2011 all the necessary secondary legislation for offshore wind is still missing. Drafting of these legal acts cannot be initiated until the Lithuanian General Plan including marine solutions is in place. The General Plan was expected to be approved by the Parliament in Spring 2014. However, by the end of 2014 the General Plan was still not in place. According to the Lithuanian Wind Power Association, further amendments to the RES Law are not excluded, because it might be impossible to implement certain articles regarding offshore wind.



#### HEAT

BARRIER	DESCRIPTION
<b>LACK OF A POLITICAL WILL</b>	Lack of a political will to create attractive and stable conditions for the investment in renewable technologies is one of the key barriers in the heating sector. As a result, development of renewable energy sources is currently at virtual standstill in Lithuania.
<b>INCOMPLETE LEGISLATIVE FRAMEWORK</b>	Due to the incomplete legislative framework biogas purification is at standstill in Lithuania. The industry for more than two years is waiting for a legal act that would regulate certain aspects of biogas (e.g. how gas grid operator "Lietuvos dujos" has to deal with the green gas injected into the gas grid or how it will regain the price difference between the more expensive tariff rate and the retail price). Moreover, the gas counting and quality control system is unclear so far.
<b>COSTLY GRID CONNECTION</b>	RES-H producers have two options of connecting to the gas network - connecting to the gas transmission network or gas distribution network. If connecting to the transmission network, the total heat produced is purchased by the gas network operator "Lietuvos dujos", however connection to the transmission grid is much more expensive (LTL 2 million/1 km instead of LTL 200.000 /1 km in case of connection to the distribution grid). Connection to the distribution grid is cheaper however renewable heat supply may not exceed consumer demand for heat, which makes biogas production during warm season economically not viable.



#### TRANSPORT

BARRIER	DESCRIPTION
<b>LACK OF A LONG-TERM VISION FOR RES</b>	A number of strategic documents envisaged in the Law on RES are not yet adopted. These include for example the National Renewable Energy Development Programme that would set out policy directions for renewable energy sources in the electricity, heating and transport sector and would cover the period from 2011 to 2020 or the Inter-institutional Action Plan implementing National Renewable Energy Development Programme which is due to be implemented by national and local institutions and organizations, etc.
<b>TOO SMALL NATIONAL BIOFUEL MARKET</b>	According to the industry, Lithuanian biofuel market is simply too small. One Lithuanian company producing bioethanol and biogas stated that it is capable of producing 60 m <sup>3</sup> of bioethanol and dehydrated ethyl alcohol a day however this amount is too large for the domestic biofuels market. In Lithuania, there are just few cars powered by bioethanol so far.
<b>LACK OF A LEGAL FRAMEWORK AND A LONG TERM STRATEGIC PERSPECTIVE</b>	In Lithuania, the deployment and the use of electric vehicles and charging infrastructure is hindered because electric vehicles are not regulated in the existing national legislation. Moreover, the long term perspective is also not clear as to electric cars because they are not covered in the national strategic documents. Without regulatory framework and clear strategic long run perspective in place, deployment of electric vehicles and development of infrastructure proceed very slowly in Lithuania.

## KEY TRENDS IN THE RES SECTOR

- The main instrument to promote RES-E in Lithuania is a feed-in tariff, for which the level is set administratively for plants below 10kW and through a tendering mechanism for plants exceeding 10kW. There are technology-specific capacity caps. This scheme is accompanied by investment grants, a loan programme, and an exemption from excise tax.
- RES-H is promoted through investment grants and exemptions from environmental pollution taxes. For

district heat, independent RES-H producers enjoy a purchase guarantee if they produce more cheaply than the main supplier.

- RES-T is promoted via an excise tax relief and an exemption from environmental pollution tax for biofuels. Furthermore, biofuel producers are partly reimbursed for their expenses for raw materials such as rape seed and cereals. Farmers who produce raw materials for biofuel production.

## POLICY RECOMMENDATIONS



### OVERALL

- Decrease investor insecurity by completing delayed elements of the regulatory framework for renewables, including secondary legislation for offshore wind and regulation regarding purified biogas injected into the gas grid.



### ELECTRICITY SECTOR

- The capacity caps will be hit before 2020, but are currently under revision. Consider increasing the capacity caps especially for low-cost technologies such as onshore wind. Announce cap extensions early to minimize stop-and-go effects.
- Explore possibilities to let local populations benefit financially from wind farms built in their vicinity. This has helped improve public acceptance in other countries.



### HEATING AND COOLING SECTOR

- Biomass supply traded on the energy exchange Baltpool is currently dominated by few large suppliers. Consider improving access to the market by small players and take measures to limit large incumbents' ability to influence prices.



### TRANSPORT SECTOR

- Some deployment of heat pumps is foreseen in the NREAP, but there is virtually no support. Consider improving support: Provide more investment grants, or make operational the legal provisions ensuring reduced electricity prices for electricity consumed in heat pumps.

- Domestically produced biofuels are mostly 1st generation. Policies favouring 2nd generation biofuels in the EU will thus have negative effects on domestic biofuel producers and farmers. Take early action to help the industry adapt to the changing circumstances, and anticipate those changes in agricultural policy.

- Create a better strategy and regulative framework for electric vehicles. Along with existing efforts to improve the charging infrastructure, this might include financial support to electric vehicle buyers through an investment grant or tax exemptions.



### CONTACT DETAILS:

**Simone Steinhilber**  
Fraunhofer Institute for Systems and Innovation  
Research ISI

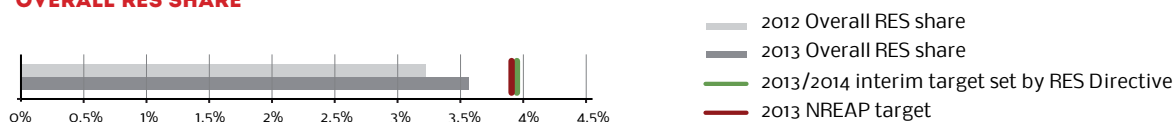
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[simone.steinhilber@isi.fraunhofer.de](mailto:simone.steinhilber@isi.fraunhofer.de)  
+49 (0) 721 6809-281



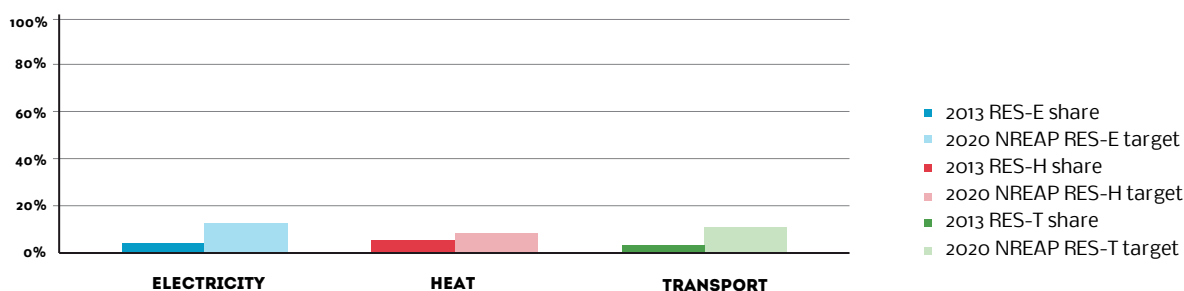
# IS LUXEMBURG on track?

- Luxembourg has neither achieved its 2013 NREAP target, nor the interim target 2013/2014.
- The growth rate in the RES-E share is enough to achieve the 2020 target, if it can be maintained. Growth in the RES-H&C share needs to accelerate.

## OVERALL RES SHARE

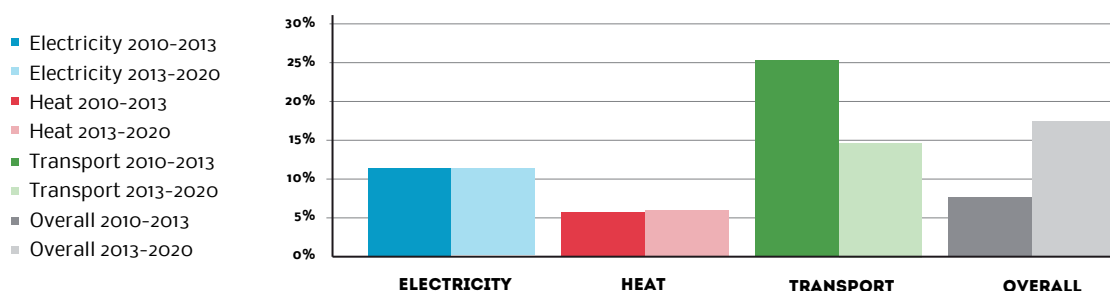


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	5.3%	5.6%	3.9%	3.6%
2013 NREAP target	6.5%	3.4%	2.4%	3.9%
2013/2014 interim target set by RES Directive	-	-	-	3.9%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>LACK OF A CLEAR STRATEGY TO ACHIEVE RES TARGETS</b>	Within the framework of the 2020 Climate and Energy Package, Luxembourg was assigned a target of 11% RES in energy consumption. The national strategy to achieve this objective primarily consists in focussing on the share of biofuels in fuel consumption, since the transport sector currently represents more than half of the country's final energy consumption. In order to cover the remaining share of RES needed to reach the target, the government relies on electricity imports rather than on indigenous production of RES-E.
<b>STOP-AND-GO SUPPORT POLICY FOR SOLAR ENERGY</b>	Between 2002 and 2004, the RES-E support policy allowed for a boom of PV installations. In response, the government stopped in 2004 the allocation of FiT for PV. From 2008 to 2012, the FiT system was reintroduced. In parallel, the price of solar panels dropped significantly, without the level of FiT being adjusted gradually. This windfall for PV producers led to a new boom in the PV sector. Consequently, the allocation of FiT was suspended again from 01.01.2013, this time however only for electricity installations over 30 kW.
<b>SPATIAL PLANNING CONSTRAINTS FOR WIND ENERGY</b>	Luxembourg developers of wind energy projects face several challenges, such as the constraints imposed by the military and civil aviation due to the presence of radars, as well as constraints related to environmental protection.

#### HEAT

BARRIER	DESCRIPTION
<b>LACK OF COMMUNICATION ON THE MOST ADAPTED RES TECHNOLOGIES</b>	Not all types of RES are adapted to Luxembourg. Solar energy is deemed too expensive compared to the low insolation rates in the country. People are not enough informed about its poor profitability and the installation of solar water heaters is still regularly suggested. On the contrary, the use of wood burning systems is fairly limited, when Luxembourg conditions would allow a good profitability of such facilities.
<b>COMPLEXITY OF APPLICATIONS FOR SUBSIDIES</b>	Applicants are often not technically qualified to fill-in all the files properly. As a result, application files are frequently sent back to applicants after having been checked by the administration. This process lengthens the lead time for administrative procedures. Although a certification system of energy advisors was established to support applicants in their submission of applications for subsidies, the problem still persists.
<b>LACK OF CERTIFICATION OF INSTALLERS FOR RES</b>	Solar thermal systems are often badly installed, which leads to energy losses and higher maintenance costs, thus affecting the acceptance of such technologies. Regarding wood heating, the presence on the market of low quality wood-burning boilers as well as of less technologically advanced installations, both requiring frequent maintenance, generates a bad image as well.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>INSUFFICIENT SUPPORT SCHEMES FOR BIOFUELS</b>	Although the official national strategy aims at concentrating on biofuels, the support policy implemented by the government of Luxembourg towards biofuels is rather limited. The existing support scheme solely consists in the definition of biofuel quota. On the other hand, the new government of Luxembourg, which came to office in December 2013, has pronounced itself against 1st generation biofuels and plans not only to limit their maximum incorporation rate, but also to condition their support upon social and ecological criteria.
<b>LACKING PUBLIC ACCEPTANCE OF BIOFUELS BY CIVIL SOCIETY ACTORS</b>	Numerous advocates of renewable energies in Luxembourg criticize the strategy of the government to focus on the development of biofuels in the transport sector. Their main arguments are that biofuels are dangerous for global food security and impede biodiversity. Moreover, they are too expensive and their effects on the reduction of CO <sub>2</sub> emissions are unsatisfactory. This position of civil society actors hinders the further development of biofuels in the country.

## KEY TRENDS IN THE RES SECTOR

- Luxembourg's strategy to achieve its renewable targets primarily consists in focussing on the transport sector and electricity imports, whereas a possible reduction of the share of first-generation biofuels from 10% to 5% calls this strategy in question.
- At the moment, there is a lack of sectoral plans for the development of renewables.
- The use of gas for heating purposes is quite common in the country, which limits the potential of RES-H. The challenge lies in meeting the heating demand of the country's historic districts, where it is necessary to develop suitable heat generation systems, e.g. cogeneration systems partly fuelled by RES.
- The use of renewable energy in the transport sector is promoted through a biofuel quota, currently set at 4.75%.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Create a stable support scheme for RES-E: For example, in the period from 2002 to 2013 feed-in-tariffs for solar PV were introduced and abolished a number of times.
- Integrate RES-E projects into spatial and environmental planning: The creation of a national solar cadastral plan could inform citizens about the insulation efficiency of their roofs and therefore stimulate the employment of PV.
- Need for governmental communication of the available support schemes and the profitability of certain technologies in order to stimulate the employment of the most efficient technologies.



### HEATING AND COOLING SECTOR

- Run a governmental campaign to raise public awareness on the existence of available support schemes: the support system in place in Luxembourg provides financial support of up to 50% for heat production systems from solar energy. However, this funding is still too little known among households.
- Reduce complexity and bureaucracy of support applications: Applications have to be perfect in order to be eligible, yet applicants are often not technically qualified to fill in all the forms properly. As a result, application files are frequently sent back to applicants after having been checked by administrative staff for a while.
- Maintain quality standards of RES installations: There is a lack of certification of installers regarding several renewable energy technologies. As an example, solar thermal systems

are often badly installed, which leads to energy loss and higher maintenance costs, thus affecting the acceptance of such technologies.



### TRANSPORT SECTOR

- Revise the strategy for RES development in the transport sector (including general public): There is a lack of public acceptance of biofuels in the country. Numerous advocates of renewable energies in Luxembourg criticize the strategy of the government hitherto for focusing on the development of biofuels in the transport sector. In this regard, a communication platform including several non-governmental organisations has been created to protest against the further production and use of biofuels.
- Consistency in biofuel strategy and governmental communication: The government of Luxembourg, which came to office in December 2013, has pronounced itself against first-generation biofuels and plans not only to limit their maximum share in the fuel mix, but also to condition their support on social and ecological criteria. This is inconsistent with the existing biofuel quota.



#### CONTACT DETAILS:

**Lukas Liebmann**  
Energy Economics Group (EEG), Institute of energy  
systems and electric drives, Vienna University of  
Technology

[www.eeg.tuwien.ac.at](http://www.eeg.tuwien.ac.at)  
[liebmann@eeg.tuwien.ac.at](mailto:liebmann@eeg.tuwien.ac.at)  
+43 (0)1 58801 370355

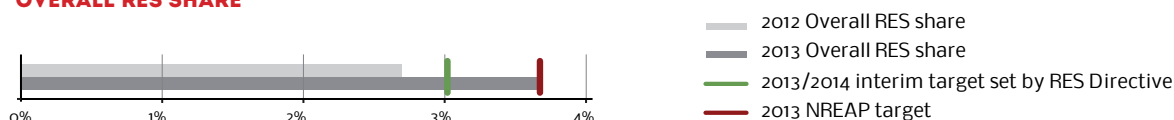




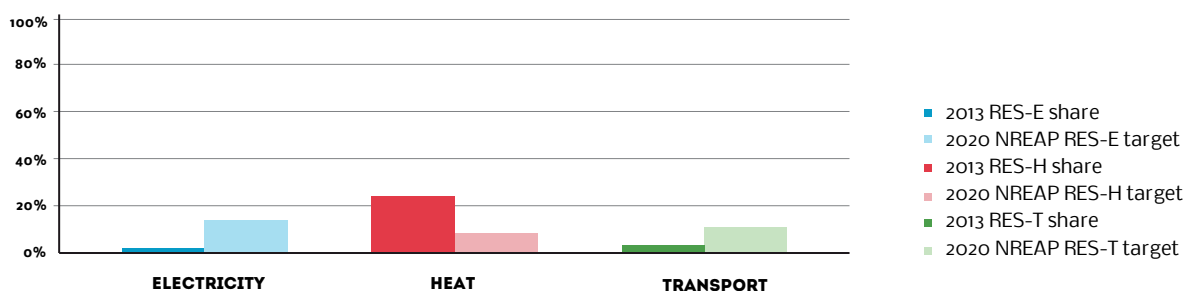
# IS MALTA on track?

- Malta has achieved both its 2013 NREAP target and the interim target 2013/2014.
- The targeted 2020 RES-H&C share has already been achieved. The RES-E share is below planned values in 2013, but if the high growth rate can be maintained, the 2020 target can still be achieved.

## OVERALL RES SHARE

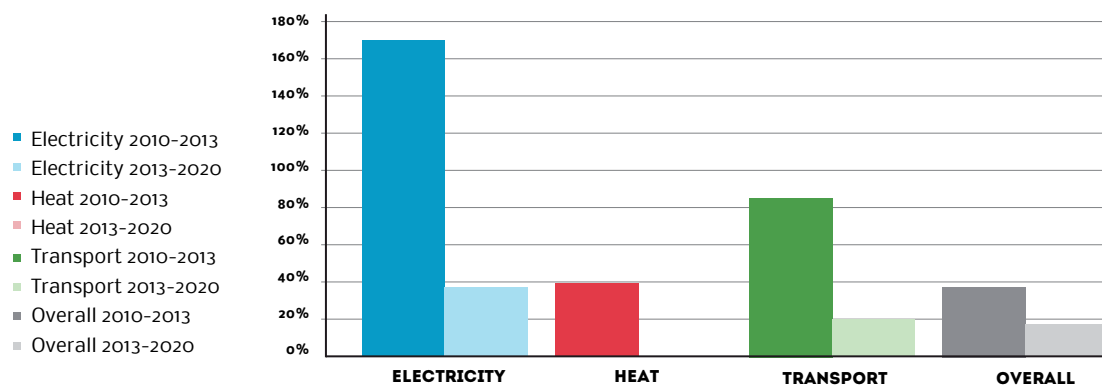


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	1.6%	23.7%	3.3%	3.8%
2013 NREAP target	3.7%	8.5%	3.6%	3.8%
2013/2014 interim target set by RES Directive	-	-	-	3.0%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020







## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
 <b>INEFFICIENT GENERAL ADMINISTRATIVE PROCEDURES</b>	Micro-wind turbines are being somewhat limited in the built environment by MEPA because of the requirements, which pose a large burden on the applicant. As for large-scale projects, a clear sharing of responsibilities is lacking, as MRA, MEPA and Enemalta refer to three different ministries and the responsibilities of each one are not clear to the other two.
<b>INEXISTENT OR INSUFFICIENT SPATIAL PLANNING, COMPETING PUBLIC INTEREST</b>	Large-scale RES installations are not possible in Malta. Furthermore, spatial planning is not done at a long-term level.
<b>LACK OF TECHNICAL KNOWLEDGE IN THE GOVERNMENT</b>	The Government, and politicians in general, lack technical knowledge, as there is only one engineer involved in politics, the rest being architects, economists and lawyers. Technical know-how is given by external advisors, which makes energetic and environmental policy dependent on them and which therefore lacks continuity.

#### HEAT

BARRIER	DESCRIPTION
 <b>NO GUARANTEED LONG-TERM SECURITY OF SUPPORT MEASURES</b>	There is only the Solar Water Heaters scheme in place for the promotion of domestic SWH. No more than one grant is currently available per technology. Hence the long-term security of the support measures is not guaranteed.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>NO LONG-TERM SECURITY OF THE SUPPORT MEASURES</b>	There is no long-term security of the support measures mentioned in the NREAP. Regarding the supervision and non-fulfillment of the obligation, a pro-rata penalty is considered for importers/wholesalers. Furthermore, there are no specific support measures for 2nd generation biofuels.

## KEY TRENDS IN THE RES SECTOR

- The planned offshore wind farm will not be considered further because of environmental and economic reasons. Instead, the majority of renewable electricity shall be generated from a high number of small-scale installations.
- Malta's energy policy aims at stabilizing its energy supply with an interconnector project to Sicily, which is expected to be operative by June 2015.
- The key policy instrument for RES-H&C is a subsidy scheme for solar water heating systems, funded only from the national budget.
- Biodiesel in Malta is retailed either directly from the manufacturers or from a number of petroleum filling stations. Biodiesel, though, has a separate pump at the filling station, forcing drivers to create the mix themselves by taking fuel from two separate pumps.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Reduce the complexity of administrative procedures: Guidelines for RES installations exist only at micro level. As for large-scale project, there are no rules or guidelines or a clear sharing of responsibilities. Private investors have come to Malta to develop renewable energy projects. However, most of them have backed out because of administrative reasons (time costliness, unclear procedures...).
- An integration of RES-E in spatial and environmental planning is needed: The demographic and geographic characteristics of the country alone create issues for spatial planning, as Malta is a very small and densely populated state. Large-scale RES installations are not possible in Malta, for this reason.
- Reduce the duration of administrative procedures: The lead-time needed to establish grid connection, including the collection of all permits, may be several years.



### HEATING AND COOLING SECTOR

- The implementation of a reliable RES-H&C strategy and support scheme is needed: The only support scheme in place is the promotion scheme for domestic solar water heaters.
- Raise the remuneration level for RES-H&C installations: Only solar thermal applications receive adequate remuneration.



### TRANSPORT SECTOR

- Implement regulations for a suitable installation of solar H&C technologies: Approx. 50% of the Maltese population live in apartment buildings. This means that they might not have access to the roof. In order to solve this problem facade instalments may be an option. However, the Malta Environment and Planning Authority does not easily issue permits, for aesthetic reasons or for lack of knowledge.
- Establish technical regulations to mitigate barriers for biofuel blending: Biodiesel has a separate pump at the filling station, forcing drivers to create the mix themselves by taking fuel from two separate pumps.



### CONTACT DETAILS:

**Lukas Liebmann**

Energy Economics Group (EEG), Institute of energy systems and electric drives, Vienna University of Technology

[www.eeg.tuwien.ac.at](http://www.eeg.tuwien.ac.at)

[liebmann@eeg.tuwien.ac.at](mailto:liebmann@eeg.tuwien.ac.at)

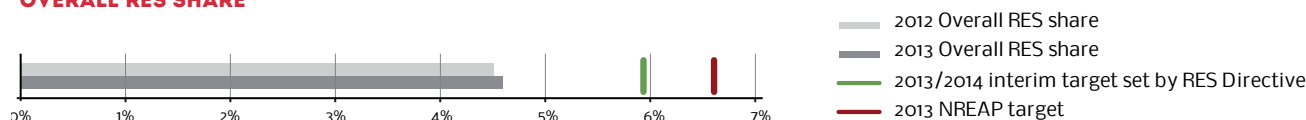
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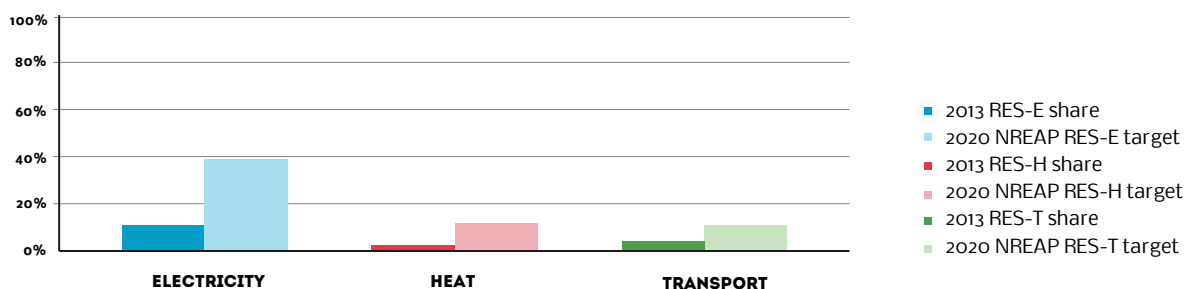
# ARE THE NETHERLANDS on track?

- The Netherlands have missed their 2013 NREAP target and not yet achieved their interim target 2013/2014. The Netherlands had already failed the 2011/2012 interim target.
- Growth in RES-E and RES-H&C shares needs to be increased significantly if the 2020 targets are to be achieved.

## OVERALL RES SHARE

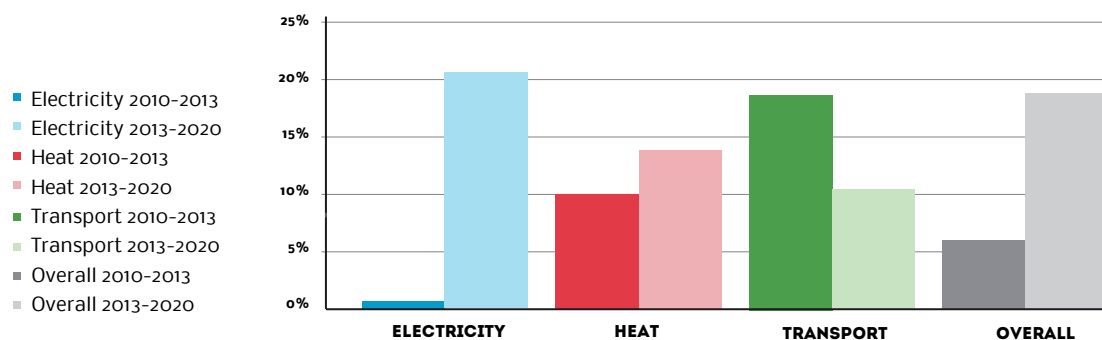


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	10.1%	3.6%	5.0%	4.5%
2013 NREAP target	15.3%	4.8%	5.1%	6.6%
2013/2014 interim target set by RES Directive	-	-	-	5.9%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>RELIABILITY OF THE GENERAL RES-E STRATEGY AND SUPPORT SCHEME</b>	In the past, every new cabinet in the Netherlands introduced its own strategy and support scheme and adapted or stopped previous ones, making a long term planning for investors and developers difficult. Even though the government has concluded the Energy Agreement of Sustainable Growth with a broad range of stakeholders from the energy sector, the upcoming municipal and provincial elections could bring political parties to force, which are challenging the current renewable strategy once more.
<b>ACCESS TO FINANCE</b>	Developers of large scale commercial PV systems, wind developers, biogas & biomass operators as well as geothermal developers have flagged their issues concerning the realisation of financial closures with commercial banks. Credit institutions remain reluctant to finance renewable projects and show a high risk aversion towards new technologies and projects. This behaviour is also due to the experiences of the financial crisis.
<b>NIMBY RESISTANCE</b>	The resistance of local citizens against onshore wind projects, but also against biomass/biogas projects is a very dominant and growing barrier. The NIMBY resistance is making the realisation of projects extremely challenging; especially considering the high population density of the Netherlands, resulting in severe delays and substantial extra costs for developers and investors.



#### HEAT

BARRIER	DESCRIPTION
<b>RISK OF FAILING RENEWABLE HEATING PROJECTS</b>	During the last years, there was a strong focus of the general renewable strategy on bioenergy and the heating sector. In 2012, 95% of projects supported under the SDE+ scheme came from the renewable heating sector. A high number of developers applied for an early support stage of the SDE+ scheme, to avoid a rejection of support due to insufficient funds. For a lot of projects, the allocated tariff level was too low, resulting eventually in an underfinancing of the project; leading ultimately to a stop of project realisation or the project failure.
<b>ACCESS TO FINANCE</b>	Developers of renewable heating projects have flagged their issues concerning the realisation of financial closures with commercial banks. Credit institutions remain reluctant to finance renewable projects and show a high risk aversion towards new technologies and projects. This behaviour is not at least based the experiences of the financial crisis.
<b>RELIABILITY OF THE GENERAL RES-H&amp;C STRATEGY AND SUPPORT SCHEME</b>	In the past, every new cabinet in the Netherlands introduced its own strategy and support scheme and adapted or stopped previous ones, making a long term planning for investors and developers difficult. Even though the government has concluded the Energy Agreement of Sustainable Growth with a broad range of stakeholders from the energy sector, the upcoming municipal and provincial elections could bring political parties to force, which are challenging the current renewable strategy once more.



#### TRANSPORT

BARRIER	DESCRIPTION
<b>RELIABILITY OF THE GENERAL RES-T STRATEGY AND SUPPORT SCHEME</b>	In the past, every new cabinet in the Netherlands introduced its own strategy and support scheme and adapted or stopped previous ones, making a long term planning for investors and developers difficult. Even though the government has concluded the Energy Agreement of Sustainable Growth with a broad range of stakeholders from the energy sector, the upcoming municipal and provincial elections could bring political parties to force, which are challenging the current renewable strategy once more.
<b>ACCESS TO FINANCE</b>	Developers of renewable transport projects have flagged their issues concerning the realisation of financial closures with commercial banks. Credit institutions remain reluctant to finance renewable projects and show a high risk aversion towards new technologies and projects. This behaviour is also due to the experiences of the financial crisis.
<b>NIMBY RESISTANCE</b>	There is an ongoing public discourse about the conflict between 1st generation biofuels and food production, with regard to the use of agricultural land for the cultivation of energy crops for biofuels purposes. 1st generation biofuels are using parts of plants, which could also be used for nutrition purposes, such as maize, rye sugar cane or sugar beets, while parts of the world are suffering of hunger.

## KEY TRENDS IN THE RES SECTOR

- The main support instrument in the Netherlands is the SDE+, a combined support scheme for RES-E, biogas, and heating technologies. The SDE+ is a feed-in premium allocated via tenders. Low-cost technologies are served first, with higher-cost technologies gradually being included until the annual budget limit is reached. Loans and tax benefits are secondary instruments. The Dutch support scheme was frequently adapted in the past. The national

Energy Agreement on Sustainable Growth of 2012 shall provide for a more long-term view, improving reliability.

- Biofuels in transport are promoted through a quota scheme. Transport biofuel production and low-emission vehicles are supported via tax benefits.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR AND HEATING AND COOLING SECTOR

- Maintain long-term reliability for investors: Frequent changes in the combined RES-E and RES-H support scheme (SDE+) have damaged investor confidence. The Energy Agreement of 2012 was a good step to increase transparency and reliability of national RES strategies. The objectives and measures in the Agreement should now be realised.
- Improve spatial planning for onshore wind farm development: Development zones designated to wind by provincial administrations are often not actually suitable for wind farms.
- Redesign the SDE + allocation cycles to ensure that stakeholders can apply more often for support: The SDE+ allocates subsidies to new applicants once a year. This cycle is too long especially for RES-H&C projects in the building sector with much shorter development cycles, causing delay or non-realisation of such projects.
- Improve access to finance: The Green Deal is a first step in helping RES projects access banks' resources. The scheme should be closely monitored and reviewed when necessary.
- Develop strategies to address the lack of public acceptance: Developers of RES projects often face significant public opposition. This especially affects wind farms, but also biogas and solid biomass installations. Develop strategies to address the lack of public acceptance, for instance by

ensuring that local communities benefit financially from wind parks in their vicinity. Include the public at an early stage in the planning process to integrate their views. wind parks in their vicinity. Include the public in the planning process at an early stage to integrate their views.



### TRANSPORT SECTOR

- Infrastructure for biogas-fuelled vehicles: For operators of filling stations, installing the necessary pumps is often not a lucrative investment, as the payback times can be longer than the duration of their lease contracts. If the further development of CNG-powered vehicles is desired, the provision of infrastructure needs to be made more attractive, for instance by way of investment grants.



### CONTACT DETAILS:

**Simone Steinhilber**  
Fraunhofer Institute for Systems and Innovation  
Research ISI

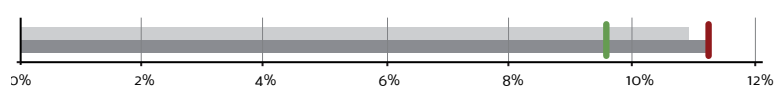
[www.isi.fraunhofer.de](http://www.isi.fraunhofer.de)  
[simone.steinhilber@isi.fraunhofer.de](mailto:simone.steinhilber@isi.fraunhofer.de)  
+49 (0)721 6809-281



# IS POLAND on track?

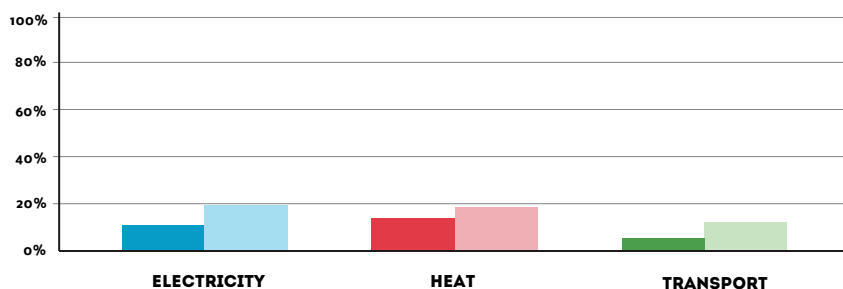
- Poland has achieved both its 2013 NREAP target and the interim target 2013/2014.
- The growth rate in the RES-E and RES-H&C shares has been more than enough to achieve the 2020 target, while growth in the RES-T share needs to be increased.

## OVERALL RES SHARE



- 2012 Overall RES share
- 2013 Overall RES share
- 2013/2014 interim target set by RES Directive
- 2013 NREAP target

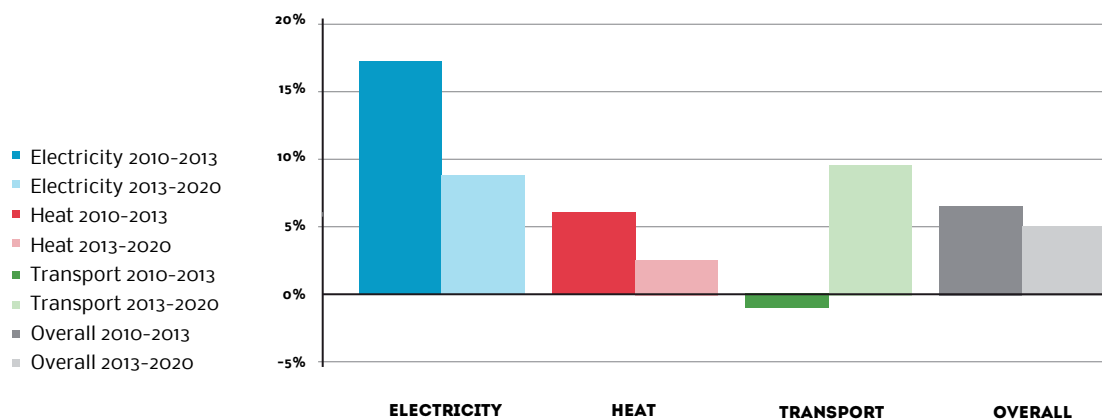
## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



- 2013 RES-E share
- 2020 NREAP RES-E target
- 2013 RES-H share
- 2020 NREAP RES-H target
- 2013 RES-T share
- 2020 NREAP RES-T target

	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	49.2%	34.5%	0.7%	25.7%
2013 NREAP target	50.4%	35.3%	5.7%	29.4%
2013/2014 interim target set by RES Directive	-	-	-	23.7%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020



- Electricity 2010-2013
- Electricity 2013-2020
- Heat 2010-2013
- Heat 2013-2020
- Transport 2010-2013
- Transport 2013-2020
- Overall 2010-2013
- Overall 2013-2020



## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>LACK OF LONG-TERM POLICY BEYOND 2020</b>	The draft Energy Policy till 2050 treats RES development only in terms of complying with CEP 2020; there is no vision for RES development in Poland beyond 2020. Lack of national targets for 2030 on the EU level increases feeling of instability and unpredictability in the sector.
<b>THE INSECURITY REGARDING NEW RES-LAW</b>	The new RES Law introduces technology neutral auctioning system favouring the cheapest technologies, estimated support values are low and there is a risk of underbidding or there will be no interest in auctioning. Additionally the adopted system is very complicated from the administrative point of view, it includes very complicated procedures and not clear provisions, raising interpretation questions.
<b>UNSTABLE -GREEN CERTIFICATE- SYSTEM</b>	Existing support system is not effective. Value of so called "green certificate" is very low because of oversupply of the certificates given mainly to the co-firing installations and old water power plants. The existing installations (in particular wind farms) face significant financial problems and are threatened by bankruptcy.

#### HEAT

BARRIER	DESCRIPTION
<b>LACK OF SUPPORTING SCHEMES AND NO CLEAR VISION OF STRATEGY IN FUTURE</b>	Support system covers only generation of electricity and CHP to certain extent, in the new RES Law. Lack of support system for thermal energy based on RES, and no obligation to use this energy, block the development of this branch. Additionally there is no obligation to use RES energy for
<b>LACK OF INCENTIVES FOR PURCHASING RES EQUIPMENT</b>	The law does not include any suitable mechanism supporting installation of units generating heat using renewable energy sources, as for example heat pumps, solar collectors and biomass boilers in residential buildings.
<b>GRID ACCESS</b>	Poor infrastructure in the distribution and transmission grids. No priority and guaranteed connection to the grid. Closed access to electricity grid.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>NO ACTIONS TAKEN TO SUPPORT DEVELOPMENT OF ELECTRICITY USE IN TRANSPORT</b>	Directive 2009/28/EC showed two indicative goals to be achieved over a time horizon by 2020: percentage of energy from renewable sources in the balance of overall final gross consumption and percentage of energy from renewable sources in transport in the balance of consumption of final energy in transport. There no mechanisms in Poland that promote and support initiatives that lead to development of transport operated by electricity generated from renewable sources.
<b>UNAWARENESS OF AND LACK OF INTEREST FOR ADVANCED BIOFUEL TECHNOLOGY</b>	This barrier mostly concerns advanced biofuels. In Poland a lot of farmers invested in rape-seed crops, which are used for the production of first generation biofuels. Since the European Union currently wants to promote the second generation of biofuels, the relatively strong rape-seed farmers lobby is protesting against the advanced biofuels. Additionally there is no incentive system to increase producers' willingness to switch to advanced products nor a clear trajectory for renewable transport to and beyond 2020 on the EU and national levels.
<b>TOO STRONG QUALITY REQUIREMENTS TOWARDS BIOFUELS</b>	This obstacle concerns both first and second generation of biofuels, in particular the parameter of resistance to oxidation measured by so-called Rancimat method for first generation biofuels and plan to introduce new quality requirements and test methods for the so-called bio components for the advanced biofuels. For both types of fuels these additional requirements and their values are not supported by research and the justification cited in regulation is extremely vague.



## KEY TRENDS IN THE RES SECTOR

• The lack of full implementation of the 2009/28/EC Directive into the Polish RES Act is a major issue, which impacted the development of the RES sector (in particular regarding heating and cooling sector) for several years. The new law provides a sufficient legal basis for exploiting existing projects as well as developing new investments, (however sufficiency of financial incentives is questionable). But

the lack of a long-term strategy for RES in Poland leads to uncertainty and unpredictability for the future RES market.

• In the electricity sector: A new technology neutral tendering system will be introduced in 2016. For small scale projects (< 10kW) there will be feed-in tariffs introduced from 2016.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

• Set-up a long-term policy on RES development beyond 2020 as well as a strategy for developing specific technologies (the technology-neutral scheme introduced in the RES Act favors the cheapest and more mature technologies, which hampers development of more advanced ones). The draft Energy Policy till 2050 treats RES development only in terms of compliance with CEP 2020; it is necessary to adopt national targets for 2030 on the EU level (12, 25 PLE).

• Revise the RES Act in order to simplify and shorten administrative procedures and eliminate unclear provisions, and introduce auction quotas for specific technologies. The Act already needs amendment, even in the opinion of the government, regarding definitions and procedures. It is perceived that the new RES Act creates more obstacles than incentives (10, 17, 26, 27, 6, 18 PLE).

• Increase the green certificate market price, which is very low because of the excess of certificates (10 PLE).

• Secure guaranteed access of RES to the grid, improve the infrastructure of the transmission and distribution grids (20, 7, 1 PLE).

• Raise awareness among the public and the authorities (11, 19, 22 PLE).

• Facilitate RES location procedures in spatial planning (4, 18 PLE).



### HEATING AND COOLING SECTOR

• Set-up a support scheme for the development of the sector (20 PLHC).

• Introduce tax reliefs for the purchase of renewable energy equipment (18 PLHC).



### TRANSPORT SECTOR

• Revise the strict quality requirements towards biofuels (31 PLT).

• Raise awareness on the benefits of the use of biofuels (in particular related to advanced biofuels) among users and producers (32 PLT).

• Introduce an incentive system for advanced biofuels or define a trajectory for RES transport until and beyond 2020 on the EU and national levels (33 PLT).



#### CONTACT DETAILS:

**Beata Wiszniewska**

The Polish Economic Chamber of Renewable and Distributed Energy  
Polska Izba Gospodarcza Energii Odnawialnej i Rozproszonej (PIGEOR)

[www.pigeor.pl](http://www.pigeor.pl)

[beata.Wiszniewska@pigeor.pl](mailto:beata.Wiszniewska@pigeor.pl)

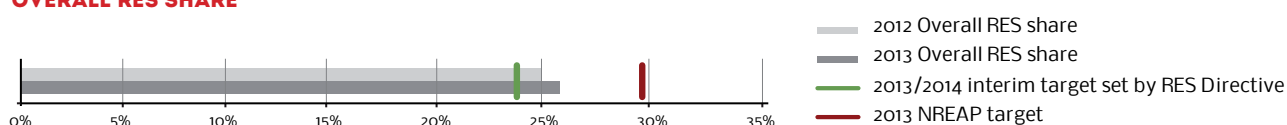
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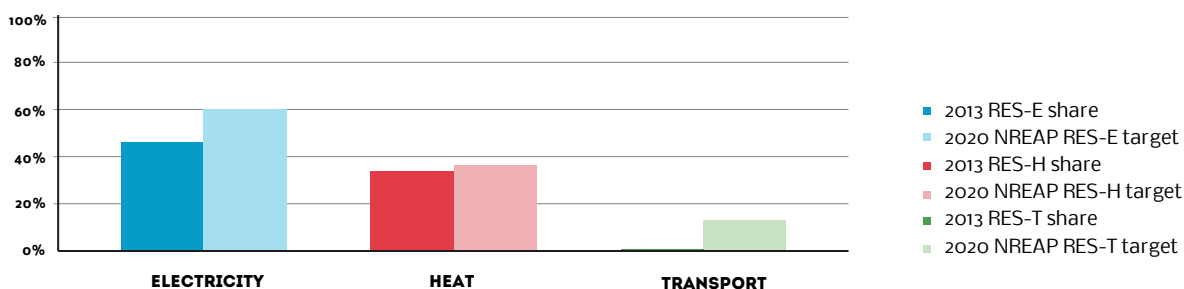
# IS PORTUGAL on track?

- Portugal has missed its 2013 NREAP target, but has met the less ambitious interim target 2013/2014.
- Growth in the RES-E share and the RES-H&C share is enough to achieve the 2020 target share. However, growth in the RES-T share has been negative. This trend needs to be reversed.

## OVERALL RES SHARE

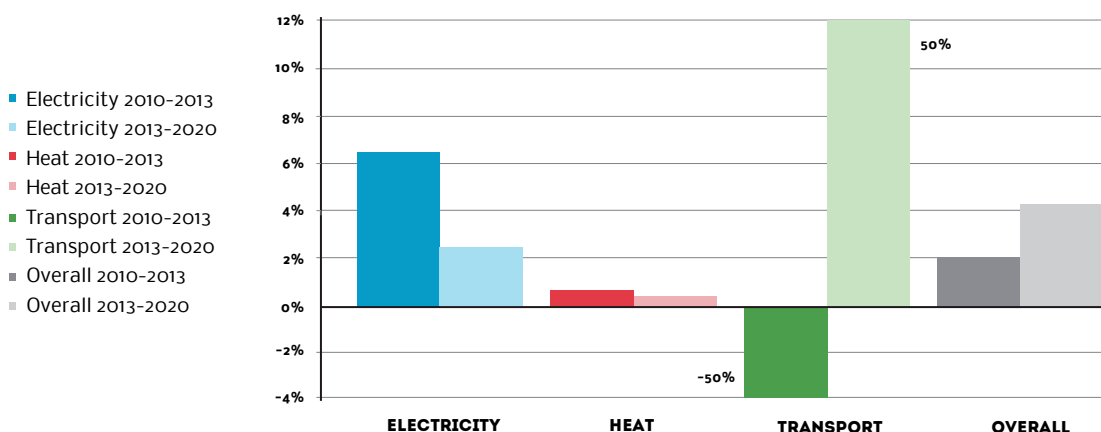


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	49.2%	34.5%	0.7%	25.7%
2013 NREAP target	50.4%	35.3%	5.7%	29.4%
2013/2014 interim target set by RES Directive	-	-	-	23.7%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS to RES deployment

### ELECTRICITY

BARRIER	DESCRIPTION
<b>REGULATORY INSTABILITY</b>	Support schemes have been extinguished in 2014 and new projects are to be paid according to market prices, which might push RES-E project developers into a market that has not been completely defined yet.
<b>COMMUNICATION OF THE REAL COSTS OF RES</b>	There is no transparent information on the real costs and benefits of RES support. Moreover, some interest groups have spread incorrect information that hasn't been corrected by the Government and competent authorities. In addition, policy changes and declarations from members of the Government have supported the idea that RES are expensive and have excessive rents, which has affected public opinion.
<b>ELECTRICAL INTERCONNECTIONS CAPACITY</b>	There is a limited interconnection capacity between Portugal and Spain, as well as between Spain and France, which actually prevents the export of renewable electricity out of the Iberian Market and limits the development of RES-E projects in Portugal.

### HEAT

BARRIER	DESCRIPTION
<b>INEXISTENT RES-H&amp;C STRATEGY</b>	The operationalisation of a long term RES-H&C strategy is necessary in order to avoid the reduction in RES-H&C shares and reverse the decreasing tendency in the solar thermal market.
<b>ABSENCE OF CERTIFICATION SCHEMES</b>	There is a lack of certification schemes to installers and equipment in case of biomass technologies and for solar thermal; the certification of installers is inactive.
<b>INSUFFICIENT INFORMATION ON RES-H&amp;C TECHNOLOGIES</b>	The lack of awareness about RES-H&C technologies and its benefits by policy makers, the general public, urban planners and installers results in a resistance to widely implement these technologies.

### TRANSPORT

BARRIER	DESCRIPTION
<b>LACK OF PRODUCTION STRATEGY</b>	There is a lack of a national industry to fulfill the 10% share of biofuels in parallel with no support schemes promoting the use of abandoned arable land for this purpose.
<b>NON-SPECIFIC TARGETS FOR ELECTRIC MOBILITY</b>	There is an absence of a national goal regarding the share of electric vehicles within the national fleet.
<b>LACK OF PLANNING OF THE CHARGING ELECTRIC INFRASTRUCTURE</b>	The MOBI.E program (Programa para a Mobilidade Elétrica) enabled Portugal to deploy the charging infrastructure to electric vehicles. A review of the program planned a revaluation of the target group and network planning, as well as a review of the geographical scope of the pilot network and the feasibility of including new municipalities; however, no further details nor the results of the revaluation are available (as of November 2014).

## KEY TRENDS IN THE RES SECTOR

Since 2013, all new RES-E plants have been integrated in the liberalized electricity market (except small units).

- The new RES-E licensing regime makes the process more difficult.
- An over-taxation has been established for wind farms and, as compensation, the FIT scheme has been extended. The government has established an over-taxation for wind farms as well as an extension of the validity period of FITs.
- The overpowering scheme allows wind farms to install an additional capacity of up to 20%.

- The new self-consumption and small production unit's regulation has been issued.
- There are only indirect support schemes for RES-H&C.
- The green tax reform has imposed new taxes on fossil fuel consumption and CO<sub>2</sub> emissions in transport.
- With the implementation of a biofuels certification system, a share of 5.5% will be reached.
- The 31% RES target for 2020 may be at stake if the national RES action plan is not followed.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Review existing support schemes with emphasis on the market competition rules, redirect subsidies to meet the binding targets and reduce fossil energy dependency.
- Reduce the regulatory instability introduced by the new licensing schemes.
- Speed-up and create the conditions for the implementation of the National Hydroelectric Power Plant Plan.
- Improve public awareness regarding RES-E, including the clarification of the actual costs and benefits and the coordination of energy statistics.
- Set a clear strategy with binding targets for RESE in 2030.
- Promote cross-border interconnections capacity between the Iberian Peninsula and its neighboring countries.
- Promote R&D projects to encourage public and private investment into less mature technologies such as solar, bioenergy, ocean energy and offshore wind technologies.
- Create a green tariff option for final electricity consumers.
- To reach the 60% target of RES-E by 2020, new approaches to promote private investment into large-scale projects must be implemented.



### HEATING AND COOLING SECTOR

- Open a certification program for installers, equipment as well as a life cycle assessment for pellets and biomass.

- Introduce obligatory maintenance contracts for RES-H&C systems.
- Create a monitoring program for solar thermal, and biomass and pellets consumption.
- Set targets for RES-H&C technologies installed by 2020 and by 2030.



### TRANSPORT SECTOR

- Review the energy management regulations of fleets.
- Plan the future infrastructure model of charging points.
- Set a national goal for 2030 regarding the share of electric vehicles within the national fleet.



#### CONTACT DETAILS:

**Susana Serôdio**

Portuguese Renewable Energy Association  
Associação Portuguesa de Energias Renováveis  
(APREN)

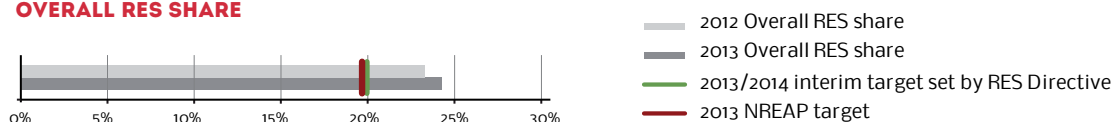
www.apren.pt  
susana.serodio@apren.pt  
+351 21 31 51 621



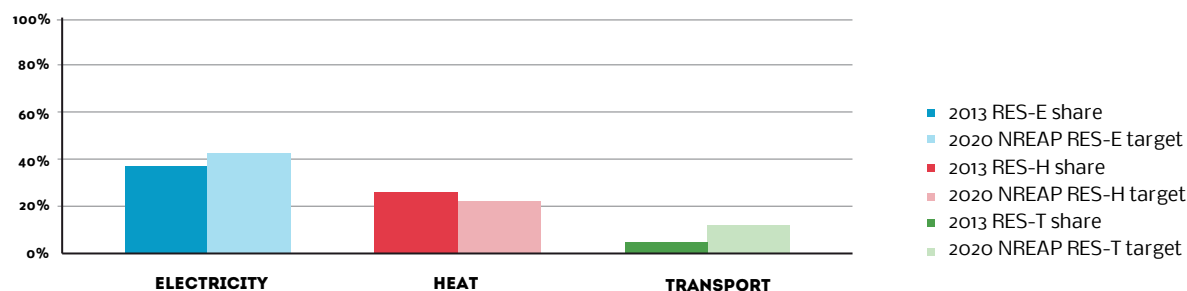
# IS ROMANIA on track?

- Romania has achieved both its 2013 NREAP target and the interim target 2013/2014.
- Growth rates in the RES-E and RES-T shares are enough to achieve the 2020 target if maintained. The 2020 target for RES-H&C has already been achieved. However, growth in RES-H&C shares has been negative in recent years. This development needs to be closely monitored.

## OVERALL RES SHARE

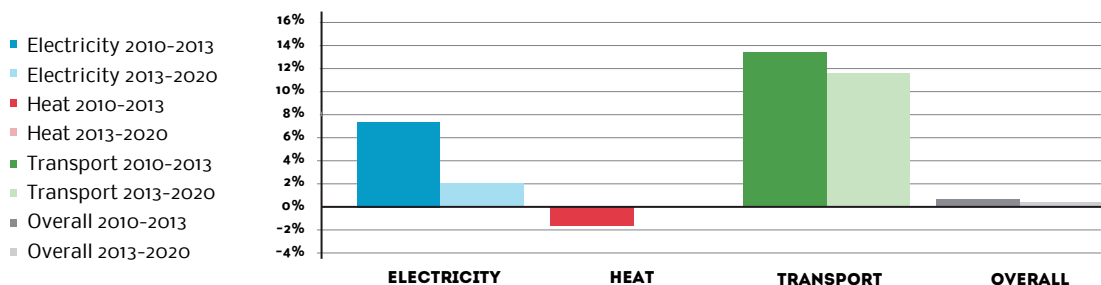


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	37.5%	26.2%	4.6%	23.9%
2013 NREAP target	36.7%	17.6%	7.3%	19.4%
2013/2014 interim target set by RES Directive	-	-	-	19.7%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS to RES deployment

### ELECTRICITY

BARRIER	DESCRIPTION
<b>LACK OF A NATIONAL STRATEGY</b>	The RES-E sector faces a large number of legal amendments giving rise to a high degree of political instability. A coherent political strategy or an action plan with an adequate allocation of financial means is missing. This barrier especially affects PV-installations, small hydro power and wind power.
<b>UNSOLD GREEN CERTIFICATES</b>	For the first time since starting the GC system there have been unsold GCs on the GC market. In 2014, the number of unsold GCs was expected to amount to at least 3 million out of 14-15 million GCs issued. As a consequence, as of March 2014, the price of GCs reached the minimum price of RON 130.69 (approx. EUR 29.22) for 2014.
<b>LACK OF A RELIABLE PPA'S</b>	The amendment of Law No. 123/2012 on Electricity and natural gases banned PPAs outside a centralized market managed by the market operator OPCOM. In addition, as of June 2013, Emergency Ordinance No. 57/2013 stipulated that the trade of GCs is only allowed on the centralized market for bilateral contracts for Green Certificates operated by OPCOM.



### HEAT

BARRIER	DESCRIPTION
<b>SUBSIDY PROGRAMMES FOR RES-H&amp;C ARE LACKING FUNDING</b>	Even though the "Casa Verde" subsidy programmes, administered by the Administration of the Environmental Fund, is supposed to be launched annually, there have been no calls for projects since 2011 due to lacking funds. However, the the Minister of the Environment and Climate Change, Attila Korodoi, announced that a new call for projects can be expected for 2015 at the latest.
<b>LACKING SUPPORT FOR INFRASTRUCTURE DEVELOPMENT OF THE NATURAL GAS NETWORK</b>	The natural gas network is poorly maintained and is characterised by high energy losses. Investment support for maintaining the natural gas transport network by the subsidy programme "Investment support for interconnection of national electricity and natural gas transport networks of electricity with European networks" has been phased out in June 2013.
<b>POORLY MAINTAINED DISTRICT HEATING NETWORK</b>	The district heat network is poorly maintained and is characterised by high energy losses. The existing incentives for developing the district heat infrastructure are not sufficient. Though, some positive steps have been made, such as reforming and restarting the subsidy programme "District Heating, Heat and Comfort 2006-2015" in 2012.



### TRANSPORT

BARRIER	DESCRIPTION
<b>INSUFFICIENT SUPPORT SCHEMES FOR RES-T</b>	The support schemes on RES-T are not sufficient for a significant development in Romania's biofuel market. There are no financial incentives for fuel retailers to purchase biofuels. Support schemes for other renewable energy sources in transport are also insufficient.
<b>LACKING INFRASTRUCTURE FOR PROCESSING VEGETABLE OILS</b>	There is no functioning infrastructure and proceedings for collecting and processing vegetable oils in a systematic way.
<b>PURCHASING DECISION MAINLY BASED ON PRICE LEVEL COMPARED TO PETROL AND DIESEL</b>	The general public focuses on the price of biofuels compared to petrol and diesel. This determines the purchasing decision of the general public to a large extent. When financial incentives for biofuels are reduced, consequently the demand for biofuels diminishes.

## KEY TRENDS IN THE RES SECTOR

- The Green Certificate Scheme has undergone some major revisions in 2014. The number of certificates issued per MWh has been cut throughout technologies due to observed overcompensation in the past. In addition, the validity period of the green certificates has been reduced from 16 to 12 months. Moreover, energy-intensive industries have been partly exempt from the levy introduced with the

Green Certificate Scheme. Small-scale RES heating and cooling projects are mainly promoted through subsidies. However, the last call for applications was in 2011.

- Renewable energy sources in the transport sector are promoted by a quota system, with a current quota of 6% and an annually launched subsidy program for e-mobility.

## POLICY RECOMMENDATIONS

### ALL SECTORS

- Recent developments in the Romanian RES-E sector legislation have negatively impacted investor confidence: The unpredictability of the annual RES-E quota should be eliminated, as it has caused unnecessary price volatility. Most importantly, however, there should be more political commitment to support RES-E support in order to restore long-term investor confidence.

- The current banding factor of one green certificate per MWh is not sufficient to trigger new deployments in the wind power sector. If this was desired, the factor would have to be increased. In general, the drop in certificate prices is only bordered by the minimum price, and the situation may not improve in the future, as even then an excess supply of certificates is expected. An appropriate measure could be to take these out of the market.

- Create stable conditions in order to provide access to financing: The unstable legal situation makes the proper estimation for the amortisation period of RES-E installations even more difficult and additionally impedes access to financing. Therefore, it is also necessary to ensure a fair and independent regulation of the RES-E sector.

- Redesign grid-access regulation: Just a small number of all project requests for connection to the grid have actually

been implemented, and therefore a virtual saturation can be observed, increasing the costs and duration of the process.

- Reduce the complexity and duration of administrative procedures: A one-stop-scheme has already been envisaged, and international best practices should be followed in this respect.

- Increase the reliability of the RES-H&C and RES-T support scheme: The Romanian RES-H&C sector faces unreliability of the existing subsidy programmes, and, in addition, the RES-T support is not sufficient for a significant development in Romania's biofuel market.



#### CONTACT DETAILS:

**Lukas Liebmann**

Energy Economics Group (EEG), Institute of energy systems and electric drives, Vienna University of Technology

[www.eeg.tuwien.ac.at](http://www.eeg.tuwien.ac.at)

[liebmann@eeg.tuwien.ac.at](mailto:liebmann@eeg.tuwien.ac.at)

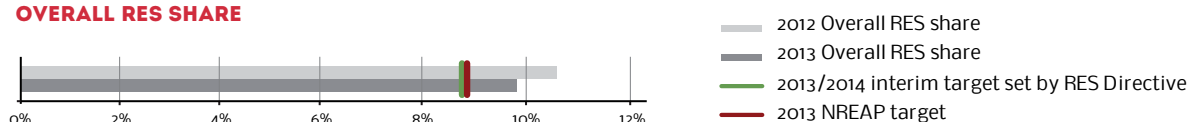
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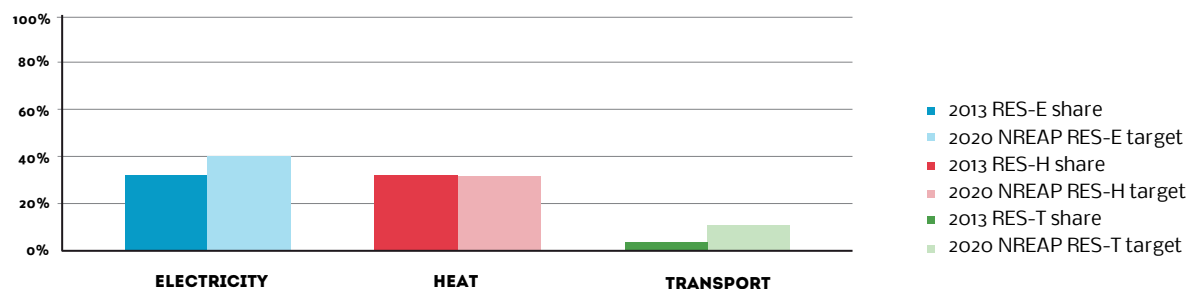
# IS SLOVAKIA on track?

- Slovakia has achieved both its 2013 NREAP target and the equivalent interim target 2013/2014.
- Growth in the RES-E share has been high enough to achieve the 2020 target, if maintained. Average growth in the RES-H&C share was negative between 2010 and 2013. This trend needs to be reversed in order to achieve the 2020 target.

## OVERALL RES SHARE

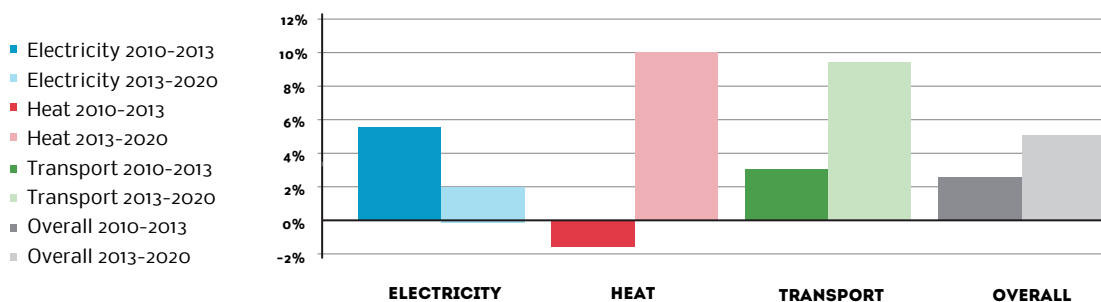


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	20.8%	7.5%	5.3%	9.8%
2013 NREAP target	21.0%	9.2%	4.4%	8.9%
2013/2014 interim target set by RES Directive	-	-	-	8.8%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020







## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>CONNECTION MORATORIUM</b>	All three DSOs have announced a full or at least partial connection moratorium for all renewable energy installations. The distributors argue that the capacity limit for volatile electricity generating sources had been reached in their area of responsibility.
<b>RESERVATION CHARGE FOR ELECTRICITY TRANSMISSION AND DISTRIBUTION ("G-COMPONENT")</b>	The new reservation charge for electricity transmission and distribution takes two forms: If the plant was connected to the transmission grid, the plant operator is obliged to pay a fixed amount of € 0.50 per MWh of transferred electricity. If connected to the distribution grid, the plant operator pays a certain charge ranging between € 2.20 and € 20 per MWh of distributed electricity. Operators of PV and wind power plants are therefore obliged to pay around € 17,000 to 20,000 per MW per year.
<b>ONLY PV INSTALLATIONS UP TO 30 KWP ELIGIBLE FOR THE FEED-IN TARIFF</b>	According to an amendment to the Renewable Energy Act from 1 July 2013, the feed-in tariff only applies to PV installations on buildings with a maximum capacity of 30 kWp. Subsequently, feed-in tariffs for all technologies were reduced on 1 July 2013 and were subject to another reduction on 1 January 2014.

#### HEAT

BARRIER	DESCRIPTION
<b>LACK OF SUBSIDIES FOR THE BIOMASS SECTOR</b>	The Slovak Republic has so far failed to allocate a sufficient amount of subsidies to provide an incentive for the renewable heating sector. Under the current conditions, the initial investment for the installation of a biomass boiler is far too high for a Slovak household. A sustainable subsidy programme is therefore desperately needed to provide incentives for renewable energy investors
<b>LACK OF POLITICAL SUPPORT FOR RENEWABLE HEATING</b>	Even though the Slovak Republic has officially declared to further develop its renewable energy capacities in the heating sector in order to meet the 2020 targets, the Slovak Energy Policy rather focuses on developing the country's nuclear energy facilities. In reality, renewable energy in the heating sector receives therefore very little attention by the decision makers. Currently, only CHP plants are entitled to receive state support in the form of feed-in tariffs.
<b>UNNECESSARY BUREAUCRACY</b>	According to stakeholders, the existing subsidy programmes are furthermore hampered by unnecessary bureaucracy. RES investors applying for subsidies are obliged to provide many legal documents which, according to the Slovak biomass association, were not needed in other EU Member States and thus only posed an unnecessary administrative barrier.

#### TRANSPORT

BARRIER	DESCRIPTION
<b>LEGISLATIVE UNCERTAINTY FOR BIOFUELS</b>	The fact that the European Council was not able to reach an agreement on biofuel regulations has led to a long-term legislative uncertainty for renewable energy producers in the transport sector in the entire EU.
<b>LACK OF FINANCIAL SUPPORT FOR E-MOBILITY</b>	The expansion of electric vehicles in Slovakia is hampered by the lacking financial support. Due to this political uncertainty investors are unwilling to take risks. Additionally, there are no support schemes offering financial assistance for those acquiring electric cars.

## KEY TRENDS IN THE RES SECTOR

- In December 2013, all three DSOs and the TSO declared a connection moratorium for new renewable energy plants with a generating capacity of more than 10 kW. The distributors argued that the capacity limit for volatile electricity generating sources had been reached. According to Slovak legislation, the DSO is only obliged to connect new generating sources if there is free capacity in the distribution grid.
- According to an amendment to the Renewable Energy Act, the feed-in tariff for PV only applies to installations on buildings with a maximum capacity of 30 kW. All larger installations are no longer covered by the support mechanism. Furthermore, feed-in tariffs for all technologies were reduced on 1 July 2013 and were cut again on 1 January 2014.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Provide a reliable RES-E strategy: The legal amendment of 1 July 2013 limited the feed-in tariff for PV to installations on buildings with a maximum capacity of 30 kW. A new reservation charge for electricity transmission and distribution has to be paid by all producers of renewable and non-renewable electricity since 1 January 2014. The calculation of this fee is rather complicated and depends on the type of generating source.
- Provide clear rules for grid connection and remove related bottlenecks: The DSOs are obliged to disclose on request the capacity data for any individual connection point. Unfortunately, none of the DSOs has fulfilled this obligation completely.
- The connection procedure has to be predictable and transparent: According to stakeholders, the regulatory authority ÚRSO requires the installer to provide a lot of unnecessary documentation. These complexities have to be minimized and the requirements must be clearly specified.



### HEATING AND COOLING SECTOR

- Renewable energy in the heating sector receives very little attention by the decision makers. Currently, only CHP plants may receive state support in the form of feed-in tariffs.

- Despite its potential, the biomass sector is not able to provide added value for the Slovak economy. A sustainable subsidy programme in the RES-H&C sector is needed to provide incentives for renewable energy investors.



### TRANSPORT SECTOR

The existing subsidy programs for biofuels are hampered by unnecessary bureaucracy. RES investors applying for subsidies are obliged to provide many legal documents which, according to the Slovak biomass association, are not needed in other EU Member States and thus pose an unnecessary administrative barrier.



#### CONTACT DETAILS:

**Lukas Liebmann**

Vienna University of Technology (TU Wien),  
Institute of Energy Systems and Electrical Drives,  
Energy Economics Group

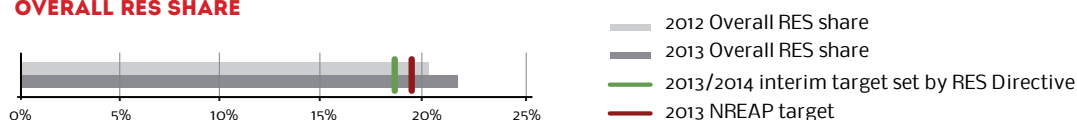
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[liebmann@eeg.tuwien.ac.at](mailto:liebmann@eeg.tuwien.ac.at)  
+43 (0)1 58801 370355



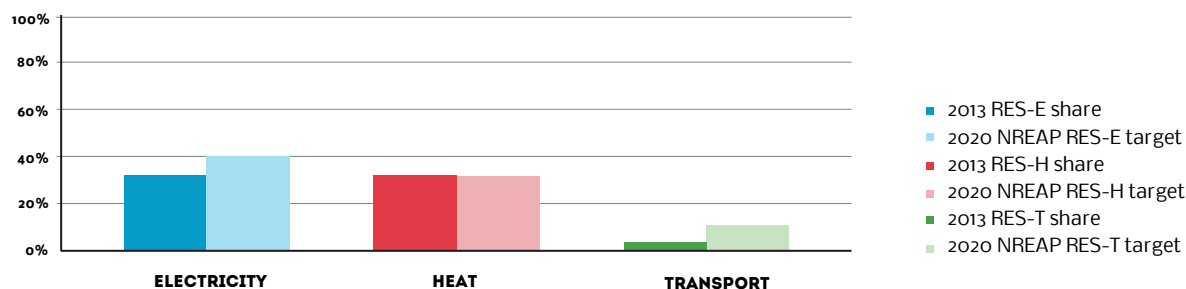
# IS SLOVENIA on track?

- Slovenia has achieved both its 2013 NREAP target and the interim target 2013/2014.
- Growth in the RES-H&C share has also been more than enough, as the 2020 target share has already been achieved. Growth in the RES-E and RES-T shares needs to increase to achieve the 2020 target.

## OVERALL RES SHARE

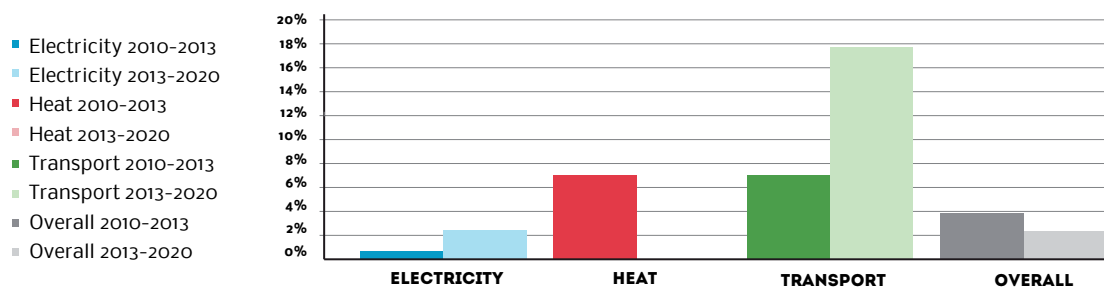


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	32.8%	31.7%	3.4%	21.5%
2013 NREAP target	33.7%	25.4%	3.5%	19.5%
2013/2014 interim target set by RES Directive	-	-	-	18.7%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS to RES deployment

### ELECTRICITY

BARRIER	DESCRIPTION
<b>LACK OF LONG-TERM POLITICAL GOALS</b>	This barrier refers to the lack of political support from the Government (regardless of what term) that would clearly define the mid-term and long-term goals in terms of RES technologies. According to some stakeholders the full potential and the full spectrum of RES-E technologies is not being used (for instance the research potential of RES technologies, the employment potential, economic growth potential etc.).
<b>DIFFICULT INTEGRATION PROCESS</b>	Under the aspect of environment protection certain landscapes (ex. Natura 2000) or landscapes with a "special environmental value" are deemed not fit for building. Even if a suitable site is selected an assessment of the environmental impact needs to be done. These assessments can lead to considerable delays since many authorities are usually involved on various levels.
<b>LENGTHY ADMINISTRATIVE PROCEDURES</b>	The realization of wind power plant projects in Slovenia is confronted with very long waiting times for permit approval (building permit, operation permit, environmental permit etc.). Even if a positive decision has been reached it may be revoked or contested by an appeal - further delaying the entire process.

### HEAT

BARRIER	DESCRIPTION
<b>NO LONG-TERM STRATEGIC PLANS</b>	While certain incentives are provided by the state the interest mostly comes from end consumers who simply wish to use a cheaper energy source. The State has not yet identified the RES sector as a good export sector as well as an economic opportunity which it could be - given the potential that Slovenia has (esp. In wood biomass).
<b>LOW SUPPORT</b>	Smaller investors on the local level usually do not have the necessary yield to carry out a project that would otherwise be deemed appropriate even within the scope of the current support scheme(s). It also requires extreme willpower and good management to execute an investment in this sector as it usually depends on the will of the entire local community that would want to use a district heating system. The financial support should also extend to pre-investment costs such as project assessments, planning etc.
<b>PUBLIC DEBATE</b>	There is not enough public discourse in place which would promote RES-H&C technologies. The general public is not aware of the potential RES technologies have or could have for ex. In their households.

### TRANSPORT

BARRIER	DESCRIPTION
<b>LACK OF INTEREST</b>	Although Slovenia has a yearly goal and obligations to follow in terms of biofuels these figures are simply not met and there is no real consequence from this obligation. Biofuel production is slowly coming to a halt with some production capacities stopping production due to economic non-rentability. There is also no public discourse in this matter other than some minor projects on the local level with a few pilot projects (usually including promotional electric cars and public transportation buses using gas instead of diesel).
<b>EU'S POSITION ON RES-T</b>	Although not really identified as barrier the lack of national interest may be backtracked to the position that the EU institutions (or rather the lack thereof) have on RES-T technologies.

## KEY TRENDS IN THE RES SECTOR

- In 2014, the support scheme for RES-E was changed to a tendering system, where the tender document should be prepared by the Energy Agency, but in October 2014 the Energy Agency announced that no projects will be put out for a tender in 2015 due to insufficient funds.
- RES-E technologies are limited through a lack of integration into spatial and environmental planning and the consequent duration of administrative procedure.
- Financial incentives for the replacement of old and inefficient boiler systems as well as the increased energy refurbishment of buildings are intended to further raise the RES share in the H&C sector. Since 2014, heat providers are obliged to ensure that a certain percentage of their heat is generated from RES.
- The main support mechanism for RES in transport is a quota system.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- A transparent and reliable regulation of the RES-E sector through the support scheme mechanism set out under the new Energy Act is needed to access the potential of wind and hydropower.
- Sufficient funds for the applied support schemes are needed.
- Barriers in the administrative processes to the integration of RES-E in spatial and environmental planning and the consequent duration of administrative procedures have to be mitigated.



### HEATING AND COOLING SECTOR

- Introduce a clear and long-term strategy for the RES-H&C sector, on which potential investors can rely on.
- Provide cheap loans or provide access to financing for small investors. Smaller investors on the local level usually do not have the necessary financial resources to carry out a project that would otherwise be deemed appropriate even within the scope of the current support schemes.



### TRANSPORT SECTOR

- Implement incentives for domestic biofuel production to achieve the annual biofuel targets: A key barrier for RES-T is the non-existence of a general RES-T strategy and a related support scheme. While Slovenia has had certain biofuel production facilities, most of them have either stopped their production or are thinking of doing because of poor profitability.



#### CONTACT DETAILS:

**Lukas Liebmann**  
Vienna University of Technology (TU Wien),  
Institute of Energy Systems and Electrical Drives,  
Energy Economics Group

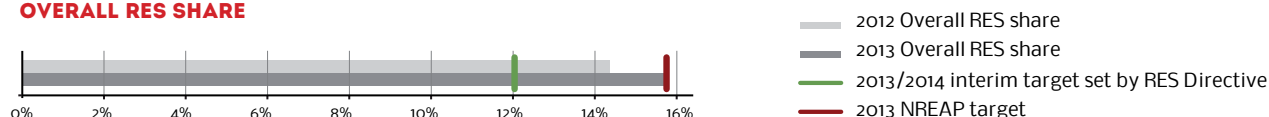
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+43 (0)1 58801 370355



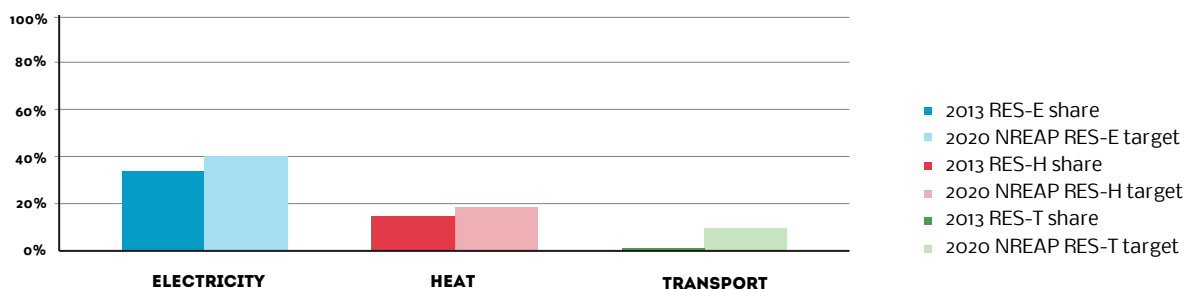
# IS SPAIN on track?

- Spain did not meet its 2013 NREAP target, but achieved the less ambitious interim target 2013/2014.
- The growth rates in the RES-E and RES-H&C shares are enough to achieve the 2020 target if maintained. Growth in the RES-T share needs to be increased significantly.

## OVERALL RES SHARE

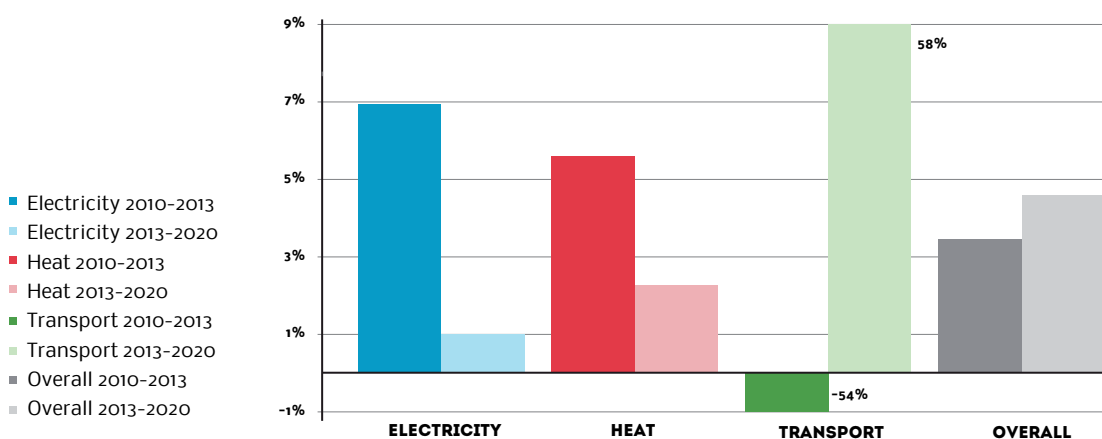


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	36.4%	14.9%	0.4%	15.4%
2013 NREAP target	32.7%	12.1%	7.8%	15.6%
2013/2014 interim target set by RES Directive	-	-	-	12.1%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>RETROACTIVE CHANGES</b>	The new electricity sector law (24/ 2013) and the RD 413/2014 with the Ministerial Order IET 1045/2014 confirm the retroactive changes in the support schemes started in 2010, and fix regulatory period of 6 years for the concept "Reasonable Profitability". This is creating unstable economic environments for ongoing investments. As a consequence, there is a tangible risk that the progress towards the 2020 goals for Spain will be altered or blocked, as producers may find difficult access to finance new plants.
<b>PRIORITY ACCESS AND DISPATCH</b>	The new Electricity Sector Law includes a formulation that restricts priority access and dispatch for RES-E to "equality of economic conditions in the market", which means that such priority would be granted only when RES-E producers would offer their electricity in the market at lower or equal prices as conventional players. This would signify a clear breach of article 16 of the European RES Directive (2009/28/CE).
<b>ATTITUDE OF THE GOVERNMENT</b>	The law types and the process used to approve recent changes in Spain are a very strong topic of debate. Most of these acts, in fact, are "Royal Decree-laws", approved directly by the Government in case urgent intervention is necessary. They are not debated in the Parliament and are difficult to appeal. Because of this, producers lament a strong lack of investment security. Spain still retained a renewable moratorium which was the first law enacted by this government.



#### HEAT

BARRIER	DESCRIPTION
<b>EUROPEAN DIRECTIVES NOT PROPERLY TRANSPOSED</b>	Surprisingly, the principal justification given for the recent update of the CTE (Technical Building Code) and RITE (Regulation for Thermal Installations in Buildings) has been the need of transposing the European Directives related. However, neither the Renewable Energy Directive nor the Energy Performance in Buildings Directive have been accurately transposed yet in these Spanish legal frameworks.
<b>LACK OF EFFECTIVE MEASURES IN CTE AND RITE</b>	Apart from the absence of contents from both Directives; the regulations, requirements and standards established in both frameworks aren't able to promote a broad implementation of renewables for heating and cooling in Spain. Most of them are anachronistic, do not recognize the real suitability and the 'long way to go' of these renewable technologies for heating and cooling.
<b>ABSENCE OF AN OFFICIAL RECORD OF RENEWABLE HEATING AND COOLING FACILITIES</b>	An official record of renewable heating and cooling facilities has not yet been created in Spain. This fact implies many negatives consequences for the Spanish renewable heating and cooling sector: there aren't official data, the targets set aren't realistic (in some cases are below the actual capacity installed in others are above), complicates the official energy planning, between others.



#### TRANSPORT

BARRIER	DESCRIPTION
<b>INSUFFICIENT BIOFUELS TARGETS AT NATIONAL LEVEL</b>	The Spanish Government approved in February 2013 a severe reduction in the biofuels consumption mandates from the year 2013 onwards: global biofuels mandate was axed to 4,1% from 6,5%, whereas biodiesel and bioethanol targets were reduced to 4,1% (from 7%) and 3,9% (from 4,1%), respectively. This Spanish u-turn policy on biofuels has been devastating, bringing uncertainty to the sector and preventing Spain from approximating towards the 10% goal of renewables in transport by 2020.
<b>BIOETHANOL BLENDING RESTRICTIONS DUE TO THE PROTECTION GRADE PETROL</b>	The obligation of all petrol stations to offer until 31 December 2016 "protection grade petrol" - with max. 5% bioethanol (V/V) and max. 2.7% oxygen (m/m) - with the lower octane index petrol (95 OI) is preventing the introduction in the Spanish market of E10 - petrol with max. 10% bioethanol (V/V) and max. 3.7% oxygen (m/m). Given that around 90% of the petrol consumed in Spain is 95 OI, in the practice such an obligation undermines the development of E10 and its consumption.
<b>LACK OF INCENTIVES FOR THE CONSUMPTION OF DOUBLE COUNTING BIOFUELS AND HIGHER BLENDS</b>	The double counting mechanism established by the RED for biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material was formally transposed into the Spanish legislation in 2011, but it has not been implemented in practice and therefore the consumption of this kind of biofuels is not being incentivized in Spain as expected by the EU legislation. Moreover, the lack of regulation to incentivize the biofuels in higher blends (B10, B20, B100 and E85) makes the consumption of these products in Spain negligible.

## KEY TRENDS IN THE RES SECTOR

- The strong impact of the economic crisis as well as the government's criticism of the RES sector due to the accumulated tariff deficit at the end of 2012 led to the implementation of an electricity reform in 2013 focusing mainly on a cost reduction of RES, cogeneration and waste.
- The new electricity reform package (retroactive establishment of a new economic regime) has radically and negatively changed the support system for RES. The support scheme for generated energy (feed in tariff) was replaced by a support per installed capacity, based on economic parameters, standardized installations and a reasonable return on investment".
- The general H&C strategy and measures, mainly focusing on the residential sector, incompletely transpose the European RES and EE directives.
- The severe retroactive reduction of the biofuels blending obligation from 6.5% to 4.1% as well as the blending restrictions on the bioethanol industry and the lack of further regulatory developments in the management and control of the double counting mechanism for biofuels radically change and undermine the development of consumption, thus endangering the achievement of the 10% RES-T target by 2020.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Show political willingness to recover and guarantee a clear and stable political framework for promoting RES, with no retroactive changes (21ESE).
- Undertake deep political interventions for a truly liberalized and transparent electricity market, so prices can be democratically discussed. Establish new rules that do not allow for the current oligopoly on the electricity market (38ESE).
- Thoroughly revise the national electricity planning (5ESE) for a democratic national model without the hidden influence of electricity companies and increase interconnection capacities with the EU transmission grid (29ESE, 7ESE).
- Simplify the administrative procedures and allow for transversal coordination between involved administrations (14ESE, 31ESE, 8ESE).
- Unblock the approval of the Self-Consumption & Net Metering law and establish positive measures to promote it (6ESE).



### HEATING AND COOLING SECTOR

- Transpose the EU Directives (RES-Directive, Energy Efficiency in Buildings (2010/31/EU) and on Energy efficiency (2012/27/EU)) completely and as soon as possible into Spanish law, in coherence with the EC targets for RES integration and energy saving (34ESHC).

- Show real political willingness to make the RES H&C sector visible and functional. Despite the huge potential market, there is a lack of demand due to the high costs (32ESHC, 34ESHC, 35ESHC, 21ESHC, 23ESHC).



### TRANSPORT SECTOR

- Increase the biofuels targets for the following years up to levels that will ensure the fulfillment of the 10% RES-T target in 2020 (37EST).
- Change the "protection of grade gasoline" restriction so as to allow for the introduction of E10 in the Spanish market (32EST).
- Develop the necessary regulations to implement the double counting mechanism for biofuels (35EST).
- Reintroduce the tax incentive for biofuels contained in the higher blends (33EST).



#### CONTACT DETAILS:

**Maria Prado**  
Spanish Renewable Energy Association  
Asociación de Productores de Energías  
Renovables (APPA)

www.appa.es  
mariaprado@appa.es  
+34 914 00 96 91

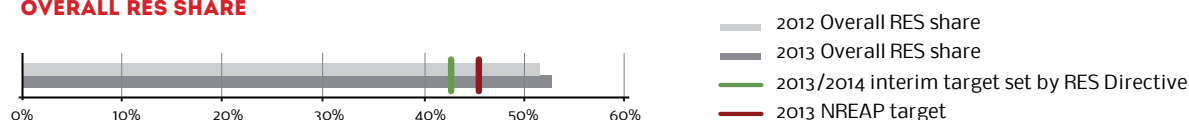




# IS SWEDEN on track?

- Sweden has achieved both its 2013 NREAP target and the interim target 2013/2014.
- Growth in the RES-H&C and RES-T shares has been more than enough, as the 2020 target shares have already been reached. Sweden has also already surpassed its 2013 target share for RES-E and is close to the 2020 target share.

## OVERALL RES SHARE

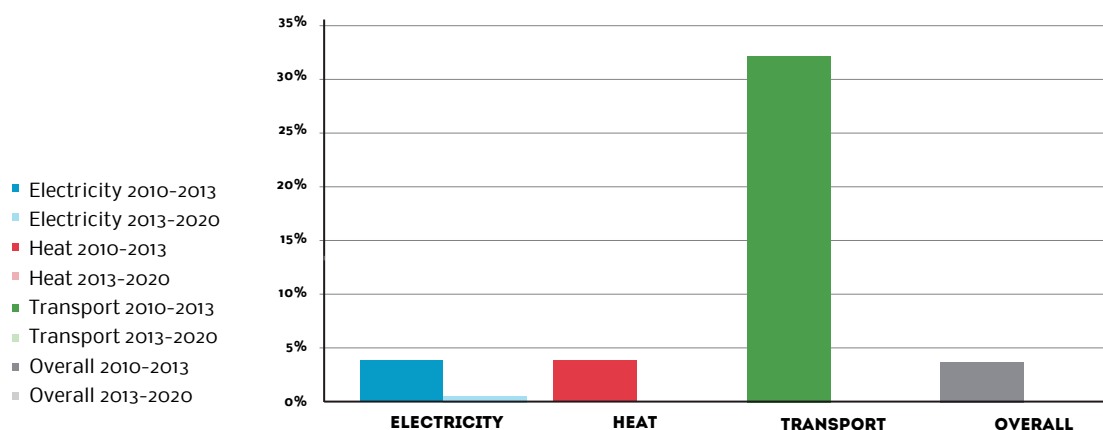


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	61.8%	67.2%	16.7%	52.1%
2013 NREAP target	57.3%	58.2%	9.4%	45.6%
2013/2014 interim target set by RES Directive	-	-	-	42.6%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2012 TO 2020





## BARRIERS

### to RES deployment

#### ELECTRICITY

BARRIER	DESCRIPTION
<b>LOW PRICE OF ELECTRICITY FROM RES</b>	The low prices for RES electricity and electricity certificates are affecting all technologies, but mainly wind, solar and wave energy, leading to a high risk of hampering technological development. The low electricity prices result from the Government decision to allow old nuclear power plants to produce an electricity surplus. Moreover, the Swedish electricity certificate system is not as effective as feed-in systems e.g. in Germany or Finland.
<b>MILITARY RESISTANCE TO WIND TURBINES</b>	The Swedish Armed Forces are questioning the installation of wind turbines in Southern Sweden (50% of Sweden's land area is affected) by arguing that the systems may interfere with important radio communications during major accidents (e.g., a serious nuclear accident).
<b>INSUFFICIENT TRANSMISSION CAPACITY TO NEIGHBOURING COUNTRIES</b>	The transmission capacity to neighbouring countries, such as Poland, Germany and the Baltic countries, is insufficient when there is surplus electricity. When the supply of hydropower due to abundant rainfall is good and while the weather is windy, Sweden needs the transmission capacity to export large amounts of electricity to neighbouring countries. This problem will become much more severe with the further development of RES.



#### HEAT

BARRIER	DESCRIPTION
<b>THE ENERGY REQUIREMENTS FOR NEW BUILDINGS ARE TOO LOW</b>	In Boverket's (Swedish National Board of Housing, Building and Planning) Building Regulations, energy requirements are too low leading to an unnecessarily high energy use of newly built houses. The construction requirements for "nearly zero houses" are also too low resulting in conditions, where construction companies are reluctant to invest in training for energy-efficient construction and new building systems for low energy houses.
<b>LARGE PROPORTION OF SMALL HOUSES WITH DIRECT ELECTRIC HEATING</b>	Single-family homes in Sweden are mostly provided with direct electric heating. These houses were mainly built during the 1980s and 1990s when nuclear energy was being expanded. Houses built before 1975 used to be heated with oil or firewood and have waterborne heating. In the latter case, the refurbishment with new systems is fairly easy, while conditions are entirely different for houses with an electric heating system. Here, a complete new piping system would need to be installed requiring for major refurbishments.
<b>INCENTIVES TO SAVE HEAT AND ELECTRICITY THROUGHOUT BUILDING AND INDUSTRIAL SYSTEMS IS LACKING</b>	There is a substantial saving potential for electricity and heat that could be realised through an optimisation of building and industry systems. The same applies to many production processes in the industry. Systems would need a configuration to operate in low heat and power mode. The use of the "most efficient" equipment should be incentivised to encourage end users more.



#### TRANSPORT

BARRIER	DESCRIPTION
<b>OBSCURE POLICY INSTRUMENTS FOR BIOFUELS</b>	Bio-energy is the largest source of energy in terms of final energy use. But at present there is no clear information about policy instruments for biofuels leading to uncertainty for investors. For high-admixture and pure biofuels continued tax exemption is applied. It has not been declared how long the tax exemption will apply, which means that there is continued uncertainty.
<b>EU STATE AID RULES FORCE HEAVIER TAXATION OF BIOFUELS</b>	EU state aid rules on overcompensation force a heavier taxation of FAME and maybe even E85, due to the fact that these fuels received a tax exemption making them cheaper than corresponding fossil fuels. This is not allowed under EU state aid rules. Not to force the producers to repay this tax with interest, the state must now reduce or remove this tax exemption or even taxing these fuels harder. These fuels are therefore at risk of a significantly reduced use. Also other biofuels such as biogas can be affected.
<b>RESISTANCE IN THE EU TOWARDS AGRICULTURAL LAND IS USED FOR OR BIOFUEL PRODUCTION</b>	Within the EU there is reluctance to arable land used to produce biofuels. In some developing countries rainforests have been cut down for the production of biofuels, which has led to large amounts of greenhouse gases released. The EU intends to put ILUC factors against all fuels from agricultural crops. However, this reasoning is incorrect because in the EU there is an overproduction of food, and in addition there is a surplus of about 10 million hectares of agricultural land that lays fallow.

## KEY TRENDS IN THE RES SECTOR

- The government has appointed a parliamentary commission to design proposals for new policies to ensure long-term energy supply.
- Renewable electricity is supported by an inefficient system of green certificates. The system has led to a rapid expansion for some years, but the risk is now high that the technological development in the industry is hampered by the low price of electricity and green certificates for the producers.
- The Swedish armed forces are questioning the use of wind turbines and believe that they could interfere with important radio communications during major accidents.
- Due to relatively lenient energy requirements in the construction sector, the energy usage of newly built buildings is still above desired levels. The construction requirements for “near zero houses” are also not strict enough, which leads to low investments in skills development in energy-efficient constructions.
- Bio-energy is the largest source of energy in terms of final energy use. However, the current lack of clear information about policy instruments for biofuels presents a relevant hurdle for further investments. The government has taxed all FAMES, both low- and high-blend, while HVO (hydrogenated vegetable oil) is entirely tax-exempt.

## POLICY RECOMMENDATIONS

The government should urgently raise the target for renewable energy to a level corresponding to Sweden’s real potential, i.e. 70% or higher.



### ELECTRICITY SECTOR

- The government should:
  - Increase the quota levels in the electricity certificate system, more than was recently done, to increase the demand for certificates.
  - Provide electricity intensive industries a certain quota, which they currently lack, to graze the huge surplus of certificates.
  - Introduce feed-in tariffs as in most other European countries, with a guaranteed minimum price.
- Clearly define the areas in which wind power is permitted and in which it is not, e.g. due to military requirements, habitat or landscape views.
- Introduce EU legislation that forces network operators to expand transmission capacity between the countries of Europe.



### HEATING AND COOLING SECTOR

- Government and the parliament must tighten the energy requirements of the building regulations and clearly show which requirements will apply in the long term.



### TRANSPORT SECTOR

- Introduce some form of grants for the optimization (for repair, maintenance, refurbishment and extension) of energy-using systems, in buildings and in industries, that depend on the result achieved.
- It is of greatest importance that the government immediately encourages a debate with all parliamentary parties and creates a broad agreement on how to achieve the target of a fossil-free fleet of vehicles.
- The recently implemented unilateral removal of the tax credit for FFAME (transesterified vegetable oil) and E85 ethanol should be abolished. EU state aid rules on overcompensation should be revised to clearly allow support for biofuels.



#### CONTACT DETAILS:

**Sven Bernesson**  
 Swedish Renewable Energies Association  
 Sveriges Energiföreningars RiksOrganisation  
 (SERO)

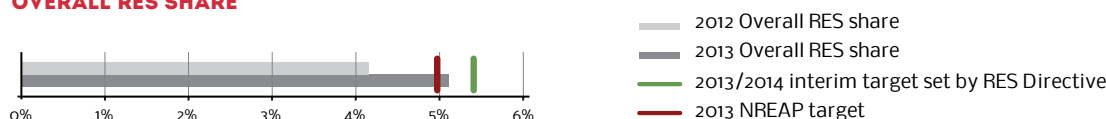
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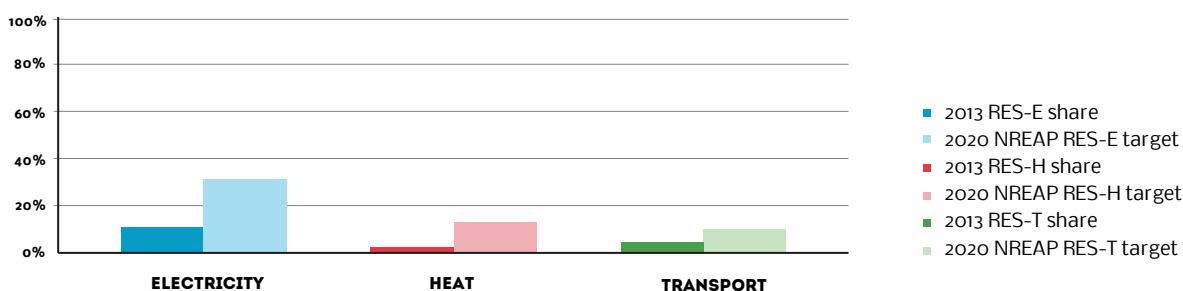
# IS THE UNITED KINGDOM *on track?*

- The UK has not yet achieved its interim target 2013/2014. The 2013 NREAP target was achieved. However, the UK NREAP foresees its NREAP trajectory to be slightly lower than the interim target trajectory, which contradicts its original purpose.
- Growth in the RES-E share is enough to achieve the 2020 target. The RES-H&C target share for 2013 has been exceeded, but the growth rate still has to be increased in order to achieve the 2020 target.

## OVERALL RES SHARE

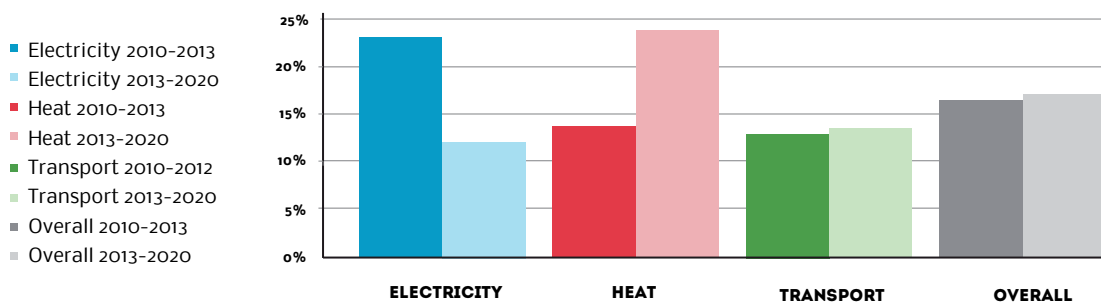


## 2013 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2013 actual share of RES in sectoral gross final energy demand	13.9%	2.6%	4.4%	5.1%
2013 NREAP target	13.0%	2.0%	4.5%	5.0%
2013/2014 interim target set by RES Directive	-	-	-	5.4%

## AVERAGE ANNUAL GROWTH RATES OF RES SHARES FROM 2010 TO 2013 COMPARED TO GROWTH RATES REQUIRED FROM 2013 TO 2020





## BARRIERS to RES deployment

### ELECTRICITY

BARRIER	DESCRIPTION
<b>SHORTAGE OF BANKABLE COMMERCIAL OFFTAKERS IN THE PPA MARKET AND LIMITED ACCESS TO FINANCE</b>	Allow the UK Green Investment Bank to borrow in the market to fund more projects and change the Bank's policy to permit funding of more technologies, especially emerging technologies. Implement proposed standardised Power Purchase Agreements (PPAs) and encourage more market entrants.
<b>DELAYED CONNECTIONS TO GRID AND HIGH GRID CONNECTION CHARGES.</b>	Effectively incentivise the DSOs to offer timely grid connections at a fair, transparent cost. This could be achieved through an effective incentive regime and coherent, national strategy.
<b>BIOMASS GENERATORS FACING INCREASING NUMBERS OF BARRIERS TO COMMERCIAL DEPLOYMENT</b>	Address a number of barriers to the deployment of biomass power. These include confirming a workable system for regulating sustainability, supporting new stand-alone dedicated biomass generation and enabling biomass CHP projects to access the market by allowing such projects flexibility in heat offtaker requirements.

### HEAT

BARRIER	DESCRIPTION
<b>IMPLEMENTATION OF SUSTAINABILITY REQUIREMENTS TOO FAST, WHICH MAY LIMIT THE DEPLOYMENT OF BIOMASS HEAT</b>	Sustainability regulation is a key concern; flexible implementation is needed.
<b>DEPLOYMENT LIMITED TO FEW TECHNOLOGIES</b>	The RHI has supported large uptake of biomass boilers and biomethane plants, but have failed to support large deployment of heat pumps and projects with long lead time
<b>INDUSTRY LACK OF CONFIDENCE IN GOVERNMENT'S COMMITMENT TO RHI LONG-TERM FUNDING</b>	The scheme currently has funding agreed only to end of March 2016. This timeframe is already too short for projects that take longer to deploy and is likely to become more acute as this deadline gets closer.

### TRANSPORT

BARRIER	DESCRIPTION
<b>LACK OF A CLEAR TRAJECTORY IS SEVERELY UNDERMINING INDUSTRY CONFIDENCE AND PREVENTING NEW INVESTMENT</b>	As a matter of urgency the UK Government must set a trajectory for renewable transport to progress from the current UK target of 4.75% by volume in 2014 to the Renewable Energy Directive target of 10% by energy in 2020. This is essential for all sectors in renewable transport, be they conventional or advanced biofuels or electrification.
<b>LACK OF A CLEAR UK STRATEGY AND PLAN FOR ADVANCED BIOFUELS</b>	As a matter of urgency set out support policy to encourage advanced biofuels in addition to setting a trajectory to 2020.
<b>THE 5% CAP ON FIRST GENERATION BIOFUELS IMPACTS ON VIRTUALLY ALL CURRENT PRODUCERS AND INVESTORS AND SEVERELY DAMAGES MARKET STABILITY</b>	The Government should cease to support ILUC factors and a 5% cap on conventional biofuels in order to safeguard current UK investment and jobs (£1 billion investment and 3,500 jobs). A realistic re-appraisal of the benefits of conventional biofuels should be undertaken with a view to ensuring appropriate support post-2020.

## KEY TRENDS IN THE RES SECTOR

- Policy risk and uncertainty in the market remain the key barriers affecting all renewable technologies across all sectors.
- The electricity sector has mostly been preparing itself for the first auction based allocation round in Q1 2015. Large depressions in the Feed-in Tariffs and an impending solar FiT review have created uncertainty.
- The Renewable Heat Incentive has supported a large uptake of installations. The sustainability criteria have

caused the industry grievances. The lack of RHI budget after 2016 created uncertainty.

- Support for transport has made very little progress, because of the absence of a final decision to amend the RED following the Commission's proposals of October 2012 on ILUC. Hopefully, ministerial decisions will allow the RES-T policy to move forward in 2015.

## POLICY RECOMMENDATIONS



### ELECTRICITY SECTOR

- Fix the problems with allocating and administrating Contracts for Difference.
- Allow the UK Green Investment Bank to borrow in the market and permit funding of more technologies, especially emerging technologies.
- Confirm a workable system for regulating biomass power sustainability, support new stand-alone dedicated biomass generation and allow biomass CHP projects flexibility in heat offtaker requirements.
- Ensure 'minima' budget for emerging technologies in the proposed new allocation policy.
- Fix problems with FiT cost control mechanism for small-scale AD.



### HEATING AND COOLING SECTOR

- Maintain and expand the RHI to at least 2020, confirming budgets from 2016-2020.
- Review the RHI biomass banding structure.
- Provide sufficient tariff certainty for project with long lead-in times (i.e. large biomass heat, CHP and geothermal)
- Introduce framework and incentive to build crucial district heating.
- Ensure careful implementation of sustainability regulation to avoid disrupting the market.



### TRANSPORT SECTOR

- Sets a 2020 trajectory to reach the 10% RED transport target from the current target of 4.75% (Cap on the development of the RES-T market).
- Implement the final decisions taken by the EU institutions on the ILUC proposals, including a cap on crop-based biofuels at no less than 7%. (Officials talked about setting cap at 1.38%).
- Support the roll-out of B7 and E10 to enable fuels suppliers to meet their obligations under the RTFO.
- Make an early announcement on measures to support the commercialization of advanced biofuels. (The market cap of 4.75% by volume has depressed investment)
- Set out its plan for RES-T post 2020 as soon as possible to give investor confidence. (Without post-2020 renewable transport policy, sector is unlikely contribute much).



### CONTACT DETAILS:

**Frank Aaskov**  
Renewable Energy Association (REA)

[www.r-e-a.net](http://www.r-e-a.net)  
[faaskov@r-e-a.net](mailto:faaskov@r-e-a.net)  
+44 (0)20 7925 3573

## METHODOLOGY AND DATA SOURCES

The trajectories planned for each RES technology until 2020 are publicly available in the National Renewable Energy Action Plans (NREAPs) submitted to the European Commission by every Member State in 2010.

The main source of data for actual deployment until 2013 is the official RES shares document<sup>3</sup> in which EUROSTAT publishes RES overall shares and sector shares calculated according to the methodology stipulated in Directive 2009/28/EC. For this calculation, EUROSTAT takes into account additional information from Member States which is not publicly available. These shares were used in the RES overall and RES sector analysis. This data is complemented by EUROSTAT energy balances, official national statistics, and data provided by national Renewable Energy Industry Associations. Where Progress Report data and EUROSTAT shares data deviates strongly for individual Member States, this is indicated in footnotes.

### DATA PROVIDED ON THE MEMBER STATE PAGES

Growth rates on the Member State page refer to growth in shares.

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<sup>3</sup> Available at <http://ec.europa.eu/eurostat/web/energy/data/shares>



## ABBREVIATIONS

<b>CHP</b>	Combined Heat and Power
<b>CTE</b>	Technical Building Code
<b>DH</b>	District Heating
<b>DSO</b>	Distribution System Operator
<b>EC</b>	European Commission
<b>EE</b>	Energy Efficiency
<b>EEA</b>	European Environment Agency
<b>EGS</b>	Enhanced Geothermal Systems
<b>EPBD</b>	Energy Performance of Building's Directive
<b>ERDF</b>	European Regional Development Fund
<b>ESCO</b>	Energy Service Company
<b>FiT</b>	Feed-in Tariff
<b>FQD</b>	Fuel Quality Directive
<b>GC</b>	Green Certificate
<b>GDH</b>	Geothermal District Heating
<b>GHP</b>	Geothermal Heat Pump
<b>GW</b>	Gigawatts
<b>GWp</b>	Gigawatts peak
<b>GWh</b>	Gigawatt hours
<b>GWth</b>	Gigawatts thermal
<b>H&amp;C</b>	Heating & Cooling
<b>HP</b>	Heat Pump
<b>kW</b>	Kilowatts
<b>Mtoe</b>	Million ton oil equivalent
<b>MW</b>	Megawatts
<b>NREAP</b>	National Renewable Energy Action Plan
<b>PV</b>	Photovoltaics
<b>RD&amp;D</b>	Research, Development and Demonstration
<b>Refit</b>	Renewable Energy Feed-in Tariff
<b>RES</b>	Renewable Energy Sources
<b>RES-E</b>	Renewable Electricity
<b>RES-H&amp;C</b>	Renewable Heating & Cooling
<b>RES-T</b>	Renewable Transport
<b>RES Directive</b>	Renewable Energy Directive (2009/28/EC)
<b>RHI</b>	Renewable Heat Incentive
<b>ROCs</b>	Renewables Obligation Certificates
<b>RTFO</b>	Renewable Transport Fuels Obligation
<b>SHP</b>	Small Hydro Power
<b>TGC</b>	Tradable Green Certificates
<b>TPF</b>	Third Party Financing
<b>TSO</b>	Transmission System Operator
<b>TWh</b>	Terawatt hours



## **TEXT AND ANALYSIS**

Jan-Benjamin Spitzley, Céline Najdawi (eclareon), Simone Steinhilber (Fraunhofer ISI), Gustav Resch, Lukas Liebmann (TU Wien EEG), Jurrien Westerhof (EEÖ), Fawaz Al Bitar (EDORA), Velizar Kiriakov (APEE), Corina Bolintineanu (BEE), Savvas Seimanidis (GAREP), Costanza Boggiano Pico (assoRinnovabili), Beata Wiszniewska (PIGEOR), Susana Serôdio (APREN), Maria Prado (APPA), Sven Bernesson (SERO), Frank Aaskov (REA)

## **CONTRIBUTORS**

Jan-Benjamin Spitzley, Céline Najdawi (eclareon),  
Tessa Schmedding (EUFORES), Dirk Hendricks (EREF)

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