20-20
KEEPONTRACK!

EU TRACKING ROADMAP 2014

KEEPING TRACK OF RENEWABLE ENERGY TARGETS TOWARDS 2020

eufores
eclareon
Fraunhofer ISI
TU WIEN 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[1] (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.

1 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

KEEP ON TRACK! PARTNERS:

The European Renewable Energy Council (EREC) was the project coordinator until 11th April 2014. As of 12th April 2014 the European Forum for Renewable Energy Sources (EUFORES) has taken over the project coordination.
The other project partners are:

APEE - Association of Producers of Ecological Energy

assoRinnovabili

APPA - Asociación de Productores de Energías Renovables

APREN - Associação Portuguesa de Energias Renováveis

BBH - Becker Büttner Held

BEE - Bundesverband Erneuerbare Energie

Eclareon

EDORA - Fédération de l'Energie d'origine renouvelable et alternative

EEÖ - Renewable Energy Association Austria.

EEG - Vienna University of Technology, Energy Economics Group Fraunhofer Institute Systems and Innovation Research

GAREP - Greek Association of RES Producers

PIGEO - Polish Economic Chamber of Renewable Energy

REA - Renewable Energy Association

SERO - Swedish Renewable Energies Organization

Visit the project website to learn more: **WWW.KEEPONTRACK.EU**

Co-financed by IEE

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

AIM OF THE PUBLICATION

The EU Tracking Roadmap is an annual publication which will be 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 EREC.

27 EU Member States are analysed in detail in this 2014 publication (Croatia will be added to the 2015 EU tracking Roadmap).
• 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-27 level, as well as related impacts on costs and benefits. The scenarios are provided by the Energy Economics Group of the Technical University of Vienna.

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 - and read the Analysis of Deviations and Barriers Report.
• Furthermore, the Policy Recommendations Report will provide you with more insights into national policy recommendations.

EXECUTIVE SUMMARY

ARE EU MEMBER STATES ON TRACK?

• Of 28 Member States, 22 were on track regarding the RES trajectories defined in the NREAPs, and 6 underachieved. Regarding the interim targets defined in the RES Directive, 26 Member State met the 2011/2012 milestone. This is not surprising, given the relatively low ambition level of the interim targets in the early years. The targets will become more ambitious in the run-up to 2020.
• In the RES-E sector, 12 Member States overachieved on their 2011 target, 16 underachieved. If the growth in the RES-E share across the EU-28 in the last two years can be maintained, it will be sufficient to achieve the 2020 target.
• In the RES-H&C sector, similar to the previous year, 23 Member States were above their 2011 targets. Five Member States underachieved. However, growth in the RES-H&C share across the EU-28 has been too low during the last two years to achieve the 2020 target and thus needs to accelerate.
• The RES-T sector has seen less progress than the former two, with only 8 Member States in line with or above their NREAP 2011 target, and 20 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 category with the second most barriers includes shortcomings of administrative processes, whereas for the RES-H&C and RES-T sector the residual category "other" is ranked second ("Other" groups topics such as public perception of RES-H&C, operational issues, as well as training and taxation).
• Over all three sectors, only a few barriers were reported within the category market structure.

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 17.9% appears feasible at EU-27 level.
• Improving national RES policies, e.g. according to the recommendations provided within this project, appears essential for several Member States to bring them back on track. This could increase RES deployment to up to 21.0%.

HENCE, THE KEEP ON TRACK! CONSORTIUM RECOMMENDS TO:

1. **ADOPT AN AMBITIOUS BINDING RENEWABLE ENERGY TARGET FOR 2030, INCLUDING BINDING NATIONAL TARGETS, ALONGSIDE ENERGY EFFICIENCY AND GREENHOUSE GAS EMISSIONS 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. **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.**
4. **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.**
5. **RE-ESTABLISH A CLEAR SUPPORTIVE FRAMEWORK FOR RES-T AT EUROPEAN LEVEL IN ORDER TO REMOVE THE CURRENT POLICY VACUUM.**
6. **RETAIN THE FOCUS ON THE REMOVAL OF ADMINISTRATIVE BARRIERS.**

EU OVERVIEW

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

In 2011, the EU-28 were slightly above track regarding the overall RES share planned in their National Renewable Energy Action Plans (NREAPs), and thus also comfortably above the 2011/2012 interim target defined in the RES Directive.

RES SHARE IN GROSS FINAL ENERGY CONSUMPTION

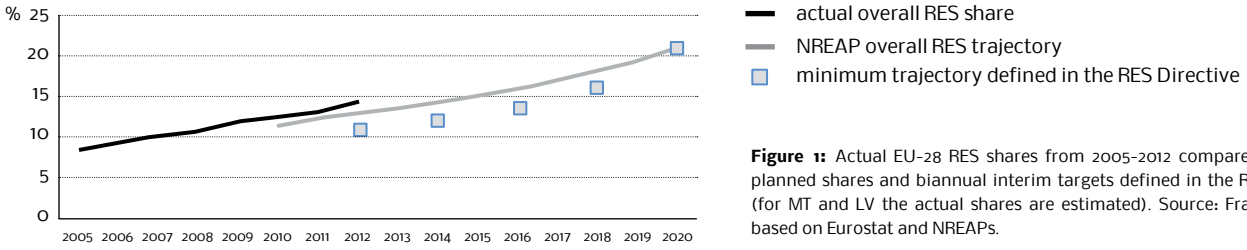


Figure 1: Actual EU-28 RES shares from 2005-2012 compared to NREAP planned shares and biannual interim targets defined in the RES Directive (for MT and LV the actual shares are estimated). Source: Fraunhofer ISI based on Eurostat and NREAPs.

The EU-28 are on track with an overall RES share of 14.07% in 2012, compared to a planned share of 12.87% according to the NREAPs.

RES SECTOR SHARE IN FINAL SECTORAL ENERGY CONSUMPTION

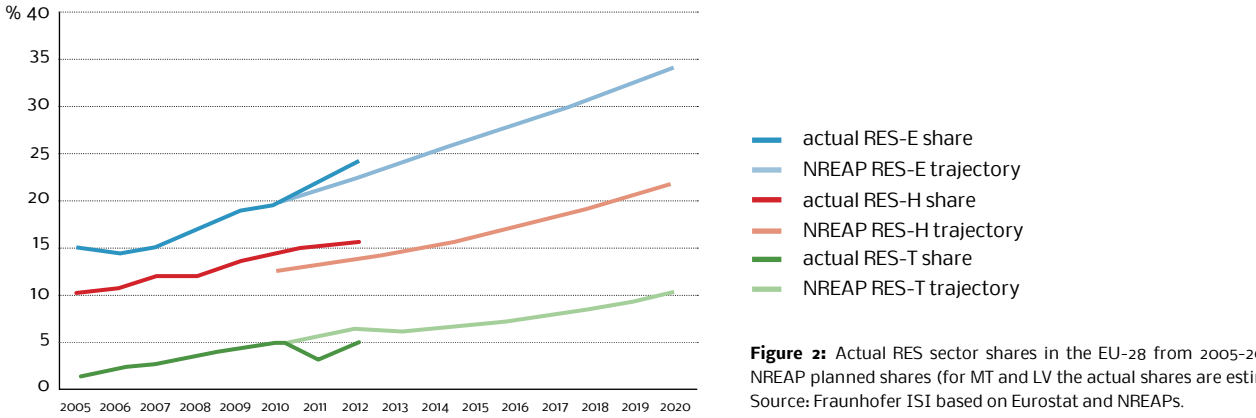


Figure 2: Actual RES sector shares in the EU-28 from 2005-2012 and NREAP planned shares (for MT and LV the actual shares are estimated). Source: Fraunhofer ISI based on Eurostat and NREAPs.

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

From 2010 to 2011, the RES-T share suddenly decreased and rose again thereafter. This has been caused by a statistical issue: to count towards the RES target, biofuels and bioliquids must be compliant with sustainability criteria under Articles 17 and 18 of the Directive 2009/28/EC. This legislation was supposed to be fully transposed by 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[2], which led to a drop in the share. As Member States gradually improve the compliance and the respective reporting of their biofuels, the RES-T share can be expected to rise again.

ACTUAL VERSUS PLANNED RES SHARES

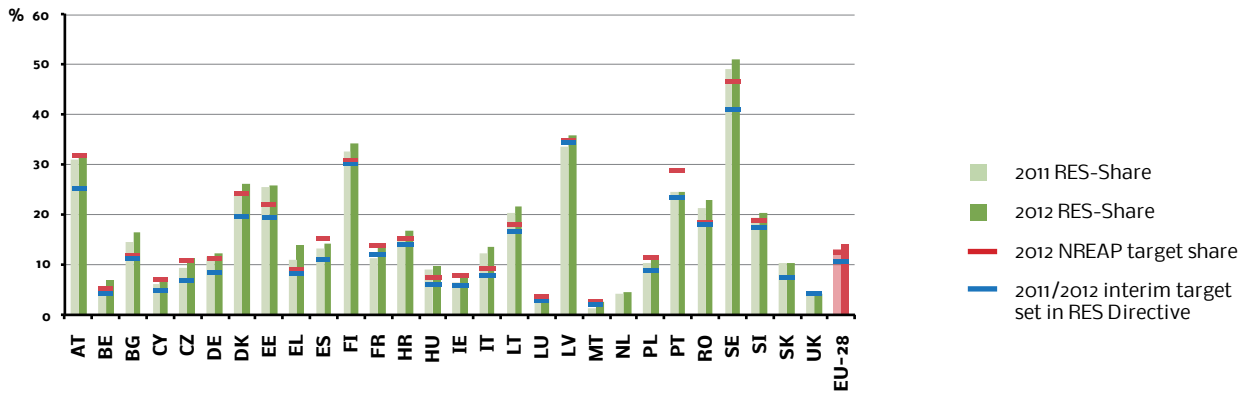


Figure 3: Actual overall RES Share in 2011 and 2012 vs. 2011/2012 interim target of RES Directive and 2012 NREAP target (%) (Eurostat actual share is tentative for LV. For MT the Progress Report share has been used.). Source: Fraunhofer ISI based on Eurostat, NREAPs, and Progress Reports.

The NREAP targets for 2012 were met or exceeded by 22 Member States (compared to 16 Member States in 2011 and 20 in 2010), and failed by 6. However, 26 Member States are still on track regarding their 2011/2012 interim target from the RES Directive. Only France and the Netherlands did not meet their targets[3].
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.

[2] Eurostat Shares Exercise, available at http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/other_documents

[3] According to the EUROSTAT shares exercise, Malta had a share of 1.39% and therefore would have missed the 2011/2012 target. However, in its own Progress Report, Malta reports a share of 2.7% and is thus on track. As in the case of Malta the EUROSTAT figure relies on estimates, the Progress Report figure is used here. The UK missed its interim target by a very slight margin of 0.04%, which is considered negligible by the European Commission.

RES GROWTH RATE 2010-2012 VERSUS AVERAGE ANNUAL GROWTH RATES REQUIRED

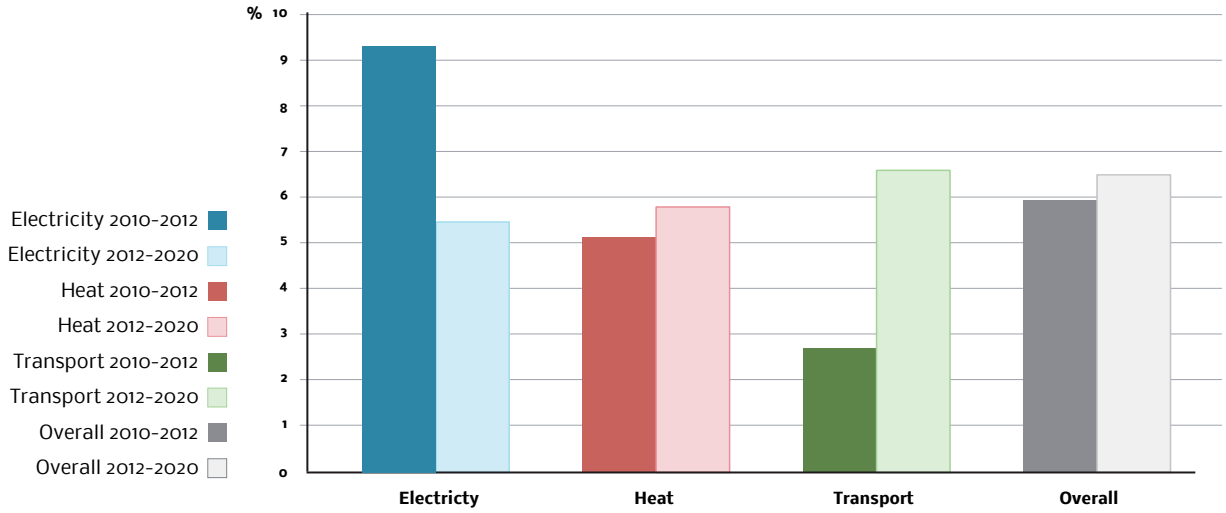


Figure 4: Growth rates of RES sector shares 2011-2012 [%/a] [4] and average annual growth rates [%/a] required from 2012 to 2020 to achieve the 2020 target. Source: Fraunhofer ISI based on Eurostat and other sources.

The growth in the overall RES share over the last two years has been slightly lower than the necessary average annual growth rate needed to achieve the 2020 target. If maintained, the 2011-2012 RES-E growth rate for the EU-28 is high enough to achieve the share planned for 2020. In contrast, the growth rate for the RES-H&C share has been slightly too low. The provisional growth rate in the RES-T share over the last two years has been lower than the necessary annual growth rate. Note, however, the 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

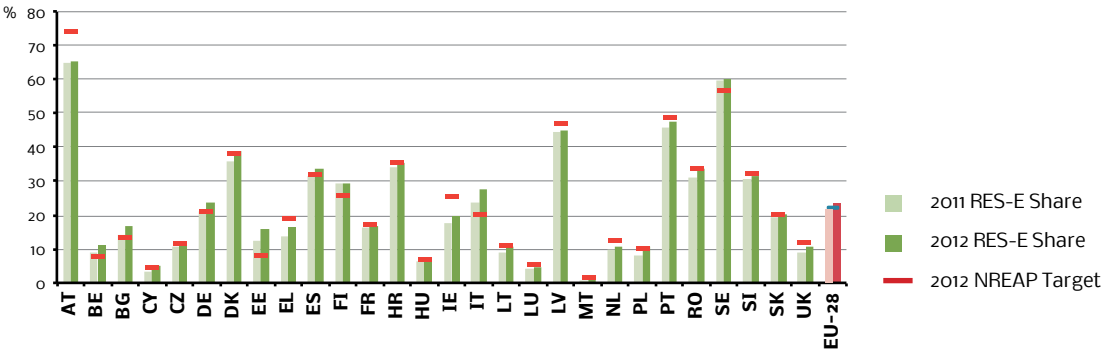


Figure 5: RES-E shares vs. NREAP target shares (Eurostat actual share 2012 is tentative for LV. Progress Report share has been used for MT). Source: Fraunhofer ISI based on Eurostat, NREAPs, and Progress Reports.

Twelve Member States were above their indicative trajectory in 2012. The most significant overachievement has been recorded in Estonia, with 95% more RES-E than planned in the NREAP for 2012.
Sixteen MS stayed below their target. The result is thus slightly worse than in the previous year, where 13 Member States had exceeded their targets and 14 had missed them.

4 Due to the above-mentioned data problems regarding biofuels in 2011, the growth rate for RES-T from 2011-2012 would be very high and not reflect reality. As an alternative indicator, the average annual growth rate from 2010-2012 is used for RES-T. However, note that this is an interim solution. The values for 2010 do not take biofuel compliance into account, while the values for 2012 do.

ACTUAL VERSUS PLANNED RES-H&C SHARES

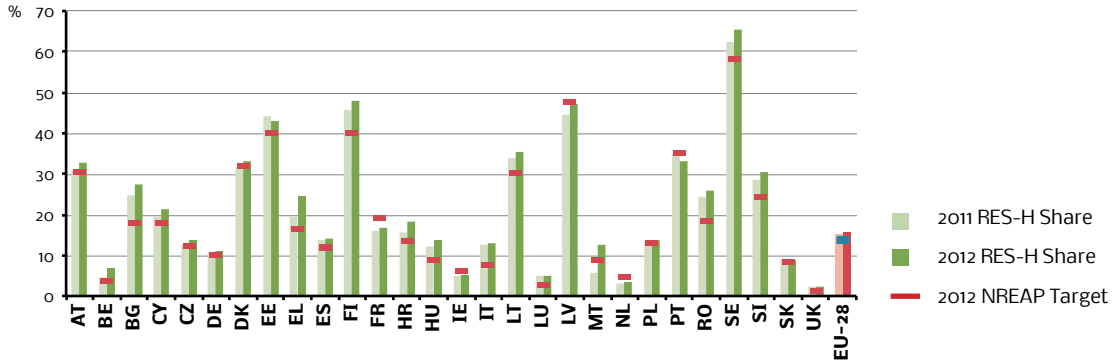


Figure 6: RES-H&C shares vs. NREAP target shares (Eurostat actual share 2012 is tentative for LV. Progress Report share has been used for MT). Source: Fraunhofer ISI based on Eurostat, NREAPs, and Progress Reports.

In the RES-H&C sector, 23 Member States were above track in 2011. Similarly, in 2012, 23 Member States were on track[5] , and only 5 Member States underachieved (Ireland, Portugal, Latvia, France, and the Netherlands).

ACTUAL VERSUS PLANNED RES-T SHARES

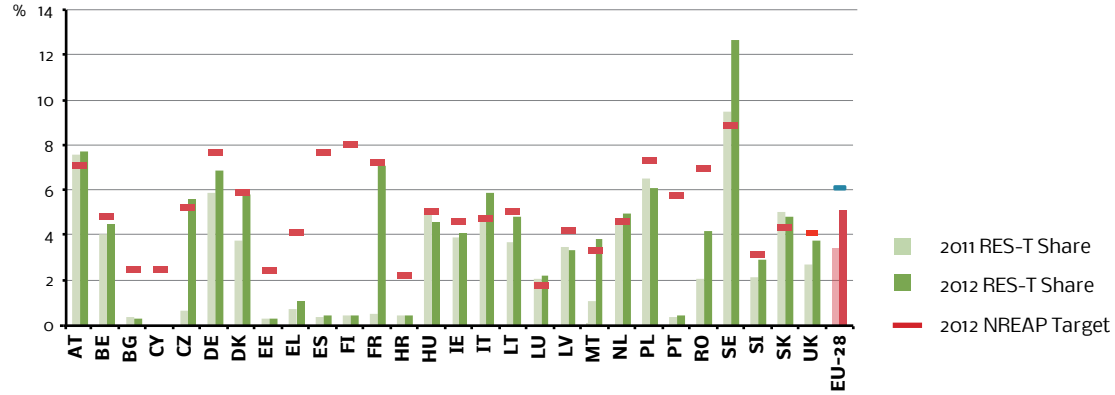
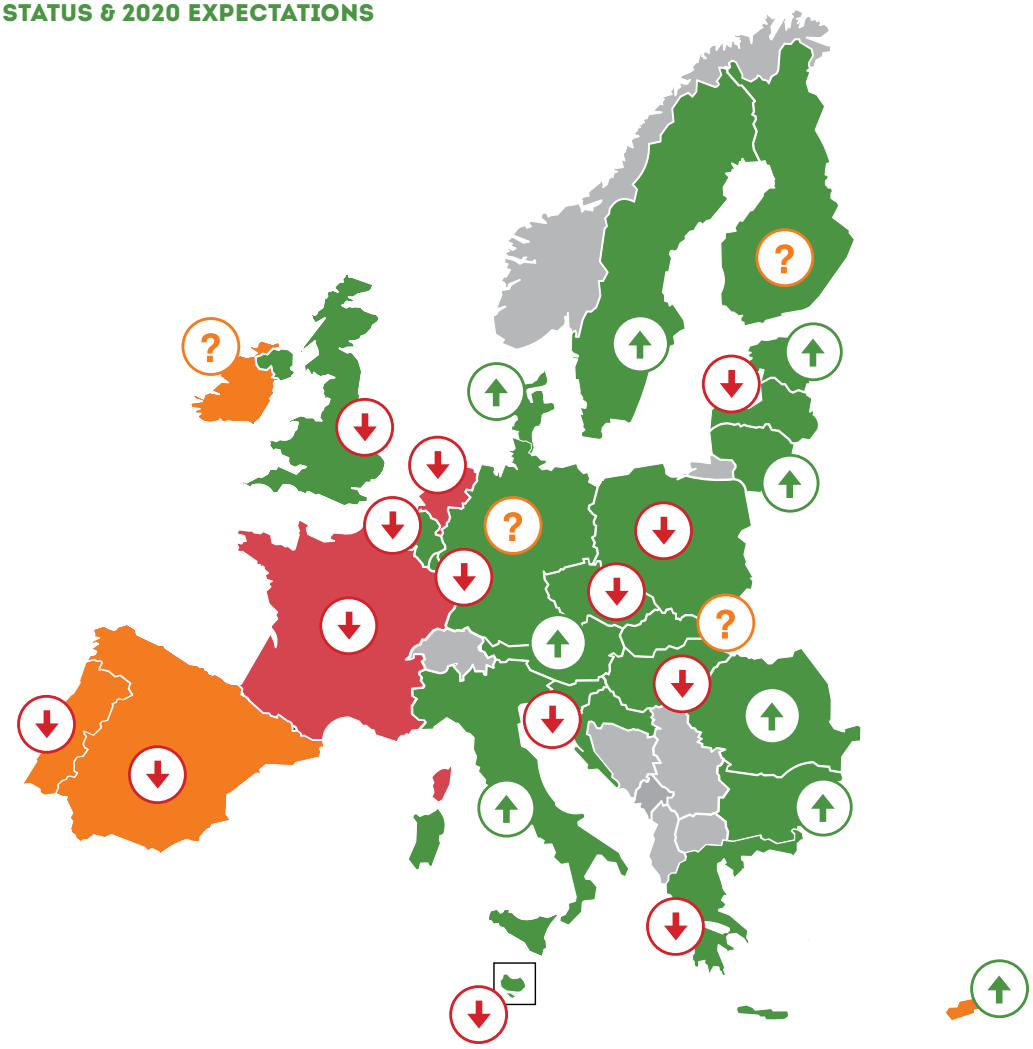


Figure 7: RES-T shares vs. NREAP target shares (Eurostat actual share 2012 is tentative for LV. Progress Report share has been used for MT). Source: Fraunhofer ISI based on Eurostat, NREAPs, and Progress Reports.

The RES-T sector has seen less progress than the former two, with only 8 Member States in line with or above their NREAP 2012 target. Twenty Member States stayed below target, 8 of which even achieved less than half their targeted share (Portugal, Malta, Croatia, Finland, Spain, Estonia, Cyprus, and Bulgaria). However, this may also be due to the above-mentioned transposition problems regarding compliant biofuels. In 2011, 9 Member States had exceeded their target, one had been just on track, and 18 had missed their targets.

5 According to the EUROSTAT shares exercise, Austria had a RES-H&C share of 32.8% in 2012. This share is used here. The Austrian Progress Report, in contrast, claims a very high RES-H&C share of 45%.

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 2012)

- This MS has achieved the NREAP 2012 target and the 2011/2012 interim target set by the RES Directive.
- This MS has NOT achieved the NREAP 2012 target but has achieved the 2011/2012 interim target set by the RES Directive.
- This MS has NOT achieved the NREAP 2012 target and has NOT YET achieved the 2011/2012 interim target set by the RES Directive.
- No data.

The 2014 EU Tracking Roadmap is focusing on 27 EU-Member States (Croatia will only be added to the EU Tracking Roadmap in 2015).

The above map provides an overview of the 27 Member States in terms of whether or not they have achieved their 2012 targets (both the 2011/2012 interim targets set in the RES Directive and the NREAP 2012 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, nine are expected to meet their 2020 targets (Austria, Bulgaria, Cyprus, Denmark, Estonia, Italy, Latvia, Romania and Sweden). There are doubts concerning four Member States (Germany, Finland, Ireland and Slovakia). It is expected that Belgium, the Czech Republic, Spain, France, Greece, Hungary, Luxembourg, Latvia, Malta, the Netherlands, Poland, Portugal, Slovenia 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, 780 single barriers were reported as preventing RES deployment in all sectors in the 27 Member States. These break down into 419 barriers for the electricity sector, 201 for the heating and cooling sector and 160 for the transport sector.

For the sake of comparability, the identified barriers were grouped into 5 main categories:

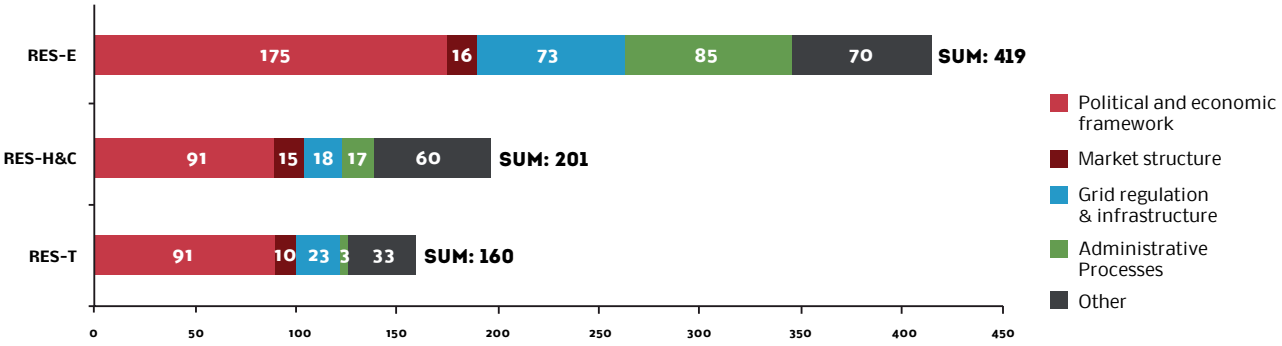


Figure 8: Share of barrier categories in the RES-sectors. Source: eclareon based on own research and information of the 11 National Renewable Energy Associations, partners in Keep on Track!

The most important category across all sectors relates to the political and economic framework: it gathers 357 barriers out of 780. 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. The category of grid regulation and infrastructure is ranked as the third most important category of barriers for the RES-E sector.

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 has been conducted. The aim of the analysis was 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 to be expected in the near future at Member State and at EU-27 level, as well as related impacts on costs and benefits. Subsequently we present background information and key outcomes in a brief manner. Note that Resch et al. (2014)[6] provides a detailed description of the methodology and the assumptions taken for this analysis, and a discussion of results and findings gained.

METHODOLOGY AND KEY ASSUMPTIONS

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.

In order to ensure consistency with existing EU scenarios and projections data on future developments of de- mand 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 (NTUA, 2013)[7]. With respect to the potentials and cost of RES tech- nologies 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
Energy demand by sector	RES policy framework
Primary energy prices	Reference electricity prices
Conventional supply portfolio and conversion efficiencies	RES cost (*Green-X* database, incl. biomass)
CO_2 intensity of sectors	RES potential (*Green-X* database)
	Biomass trade specification
	Technology diffusion
	Learning rates

Table 1: Main input sources for scenario parameters

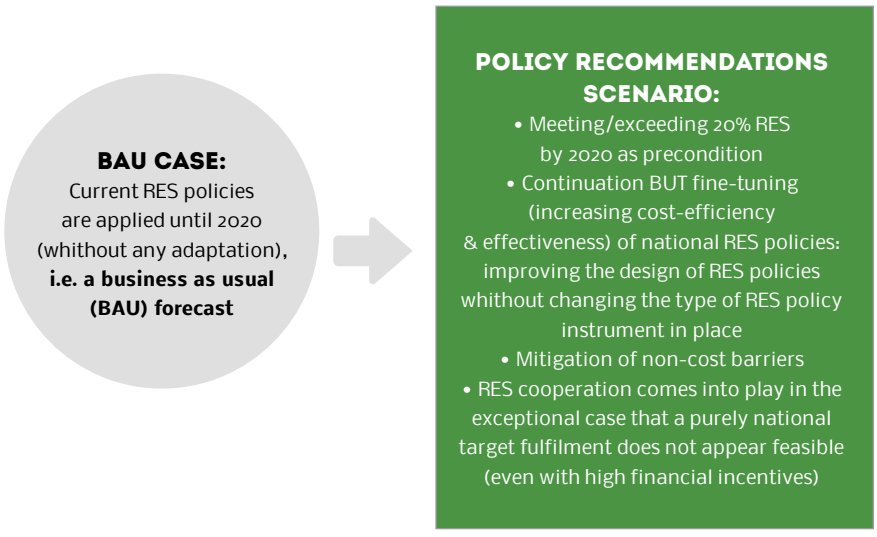


Figure 8: Overview on assessed cases

The RES policy framework is a key input to this analysis. The focus has been put on two scenarios (see Figure 1): a business-as-usual (BAU) case, following the assumption that current RES policies are applied until 2020 (without any adaptation), and a policy recommendations (PR) scenario, indicating a pathway for meeting (or even exceeding) the 2020 RES targets. The PR scenario builds on the policy recommendations derived within this project (and as discussed in the next section on Member States).

6 Resch G., A. Ortner, S. Busch, L. Liebmann (2014): 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, 2014 (forthcoming).

7 NTUA (2013): PRIMES Reference case - conducted by National Technical University of Athens (NTUA), 2013.

RESULTS ON 2020 RES DEPLOYMENT AND TARGET ACHIEVEMENT

In a next step, a closer look on the key outcomes of the expected future RES deployment and the related costs, expenditures and benefits is taken at the aggregated (EU-27) 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) only a RES share of 17.9% appears feasible at EU-27 level. Thus, improving national RES policies, for example following the recommendations provided within this project, appears essential for several Member States to bring them back on track. This is demonstrated by the results of the alternative policy pathway (Policy Recommendations case), where a RES share of 21.0% can be achieved by 2020. To achieve this, RES in all energy sectors have to contribute more. Possibly the most impressive changes can be identified for RES in the electricity sector, where 37.2% (PR case) instead of 30.9% (BAU case) are reached in 2020, and for biofuels in transport, i.e. 7.9% (PR case) instead of 5.5% (BAU case).

Indicators on the costs and benefits of an accelerated RES deployment in the European Union offer important 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 2011 to 2020. More precisely, this graph provides the average annual investment needs and the resulting costs - i.e. additional generation cost and support expenditures for the cases researched throughout the period 2011 to 2020. Moreover, they offer an indication of the accompanying benefits in terms of security of supply (avoided fossil fuels expressed in monetary terms - with impact on a country's trade balance) and climate protection (avoided CO_2 emissions - monetarily expressed as avoided expenses for emission allowances). Other benefits - even of possibly significant magnitude - such as job creation or industrial development have not been included in this assessment. Apparently, with improved policy design and mitigated non-cost barriers, RES deployment and consequently also related investments increase strongly. The scenario shows an increase in investments of about 35%.

Moreover, a significantly improved balance between costs and benefits can be observed.

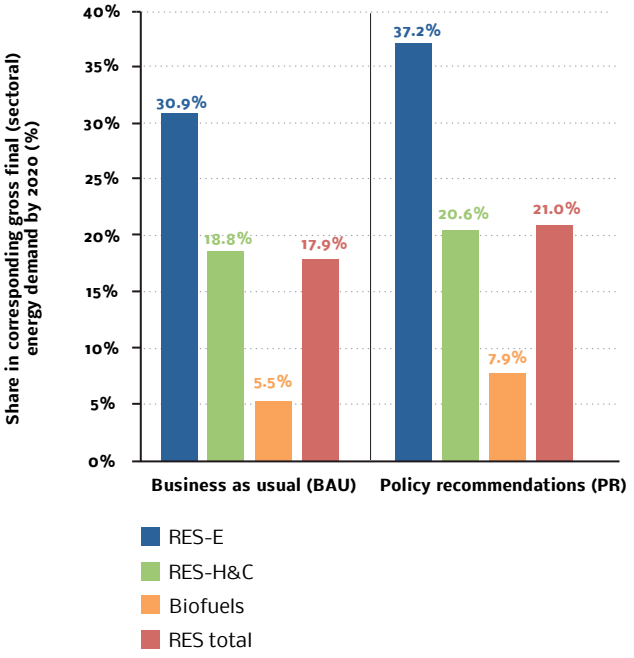


Figure 9: Sector-specific RES shares by 2020 at EU-27 level according to the assessed cases (BAU vs. PR)

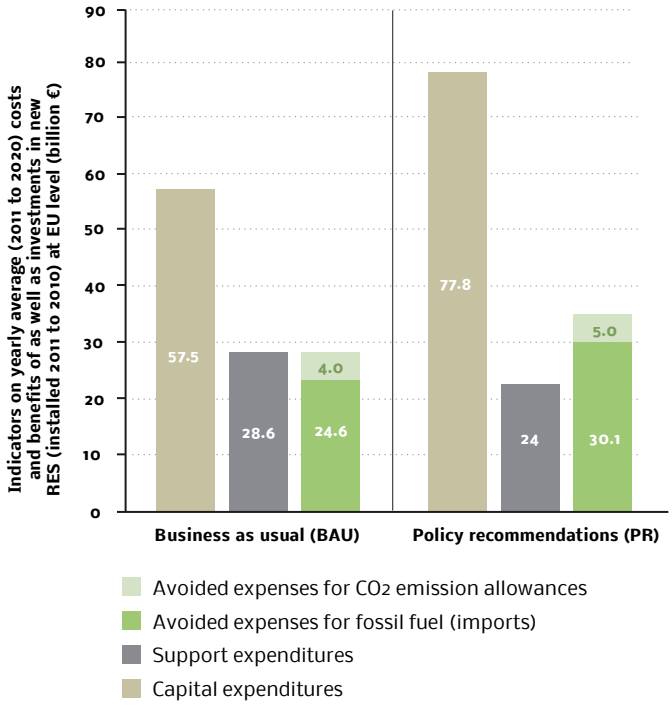


Figure 10: Investments, selected costs & benefits at EU-27 level according to the assessed cases (BAU vs. PR)

RES deployment and RES target achievement at the national level is discussed next. Figure 4 provides a graphical illustration of the outcomes of our model-based assessment of 2020 RES target achievement, indicating the likeliness of target achievement by Member State following an "traffic light approach" [8]. Complementary to that, Figure 5 offers further insights in 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. Under BAU conditions, nine out of the assessed 27 Member States, including Austria, Denmark and Italy, appear well on track. In another four Member States (i.e. Germany, Finland, Ireland and Slovakia) there are doubts whether the 2020 targets can be reached with the already

8 Following the traffic light approach a green colour is used to show that a MS is expected to achieve its 2020 target while an orange colour indicates that there are doubts whether this MS may achieve its given RES target. Finally, red highlights that a MS is not well on track with respect to target achievement.

implemented measures, while the remaining fourteen Member States can be classified as "not well on track." In contrast to that, if the recommended policy measures 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 their obligation. There are good reasons for doing so since, as discussed above, additional RES deployment contributes to increased supply security and local employment, to name only some additional benefits. Finally, by 2020, five Member States (i.e. France, Luxembourg, Malta, the Netherlands and the UK) could make use of RES cooperation mechanisms as a buyer while all others act as (possible) sellers.

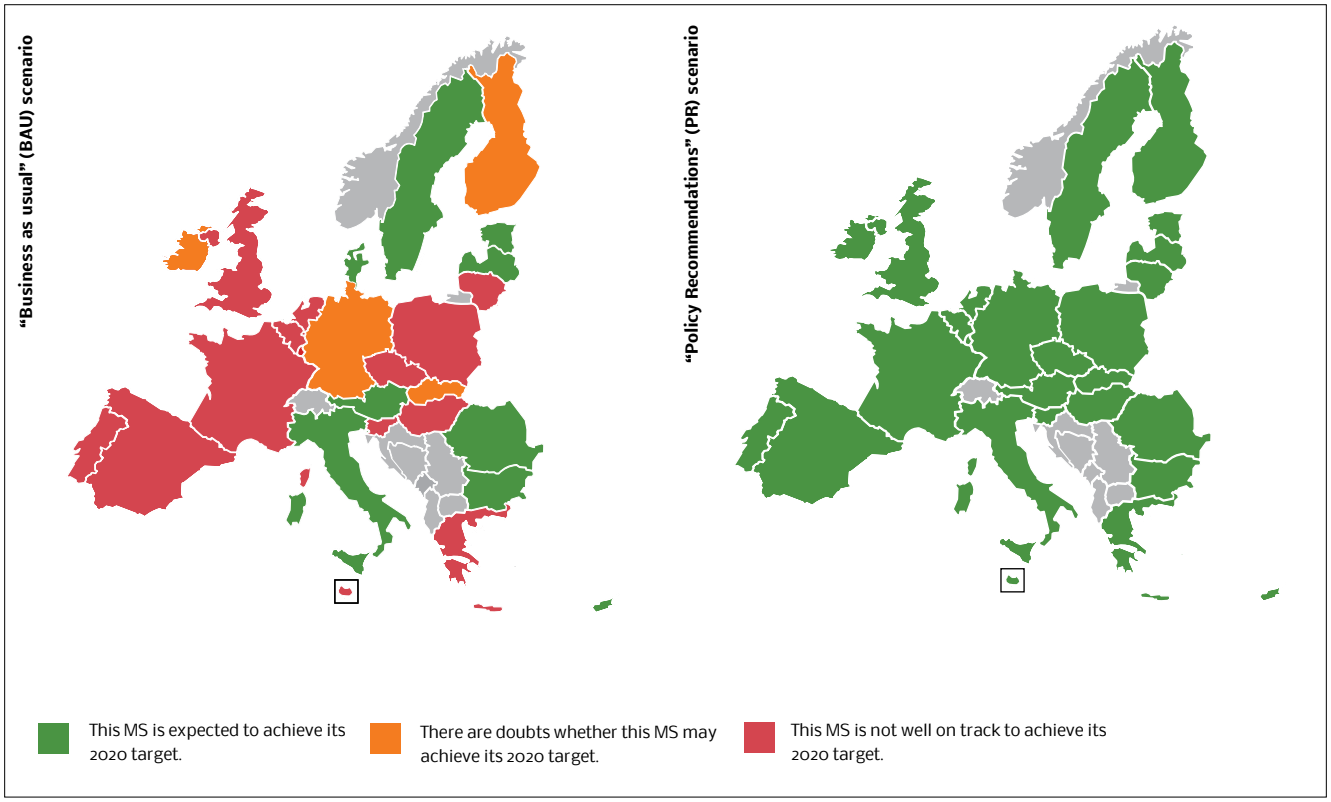


Figure 11: Assessment of 2020 RES target achievement according to the assessed cases: BAU (left) vs. PR (right)

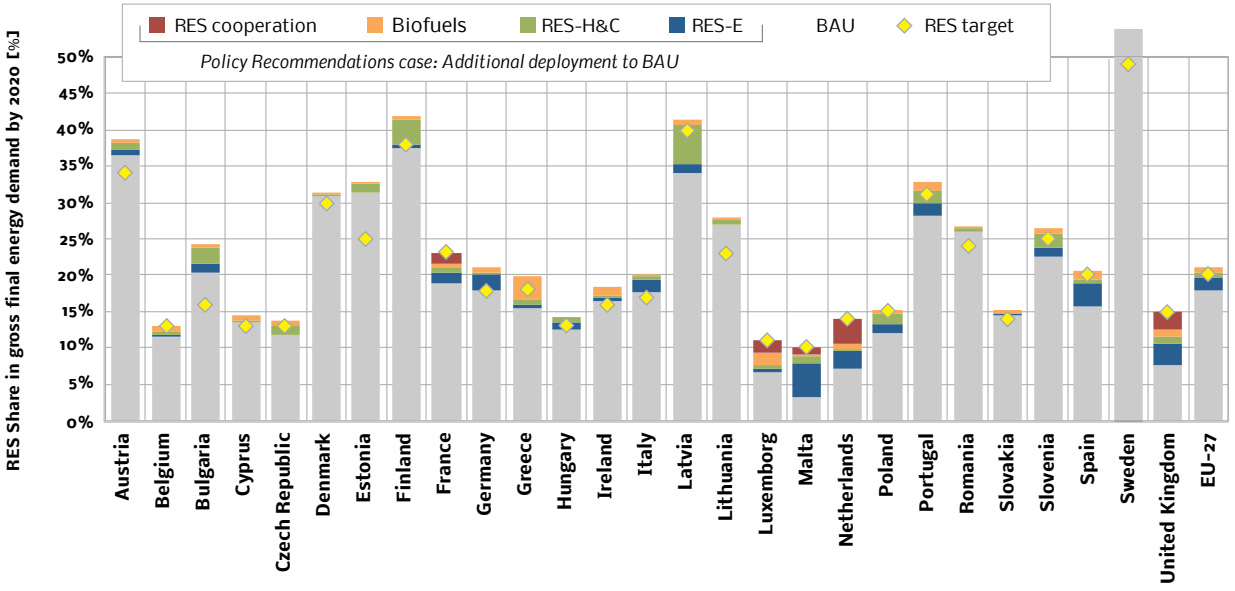


Figure 12: Comparison of 2020 RES targets and RES deployment according to a Business-as-usual (BAU) scenario by Member State, and additional (sector-specific) RES deployment in the Policy Recommendations case

THE KEEP ON TRACK CONSORTIUM RECOMMENDS TO:

1 ADOPT AN AMBITIOUS BINDING RENEWABLE ENERGY TARGET FOR 2030, INCLUDING BINDING NATIONAL TARGETS, ALONGSIDE ENERGY EFFICIENCY AND GREENHOUSE GAS EMISSIONS TARGETS.

The 2030 outlook needs to be reliable and support the achievement of the binding 2020 renewable energy target.

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.

3 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 growth rates are too low to reach the 2020 targets.

4 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 newly adopted State aid guidelines are limiting the member states' freedom of choice of support schemes that have proven to be effective.

5 RE-ESTABLISH A CLEAR SUPPORTIVE FRAMEWORK FOR RES-T AT EUROPEAN LEVEL IN ORDER TO REMOVE THE CURRENT POLICY VACUUM.

In addition, there is scope to increase renewables-driven electric mobility.

6 RETAIN THE FOCUS ON THE REMOVAL OF ADMINISTRATIVE BARRIERS.

The duration and complexity of administrative procedures is still one of the main barriers identified by European stakeholders, together with the integration of RES in spatial and environmental planning.

2013 KEY FACTS:

The EU renewable energy sector employed more than 1.2 [9] million people directly and indirectly.

The EU economic activity stemming from renewable energy is valued at more than €130 billion [10].

According to the European Commission, the EU net import bill for fossil fuels amounted to €545 billion.

9 EurObserv'ER: The State of Renewable Energies in Europe. 2013

10 EurObserv'ER: The State of Renewable Energies in Europe. 2013

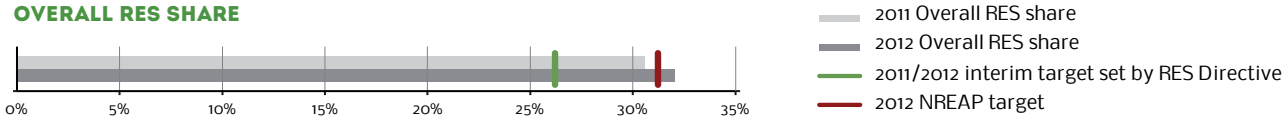
OVERVIEW

BY MEMBER STATE

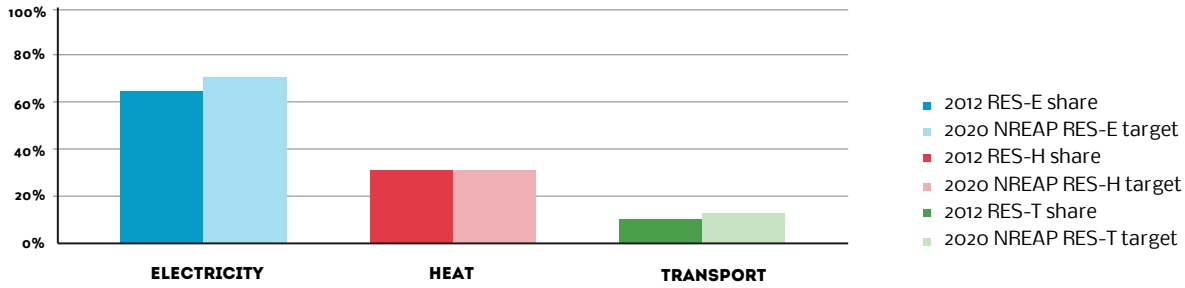
Is Austria
ON TRACK?

- Austria has achieved both its NREAP 2012 target and the interim target 2011/2012.
- The growth rate in the RES-E share needs to accelerate to achieve the 2020 target. The RES-H&C sector in Austria developed well during the last few years, but still efforts to support the RES-H&C sector should be taken into account.

OVERALL RES SHARE

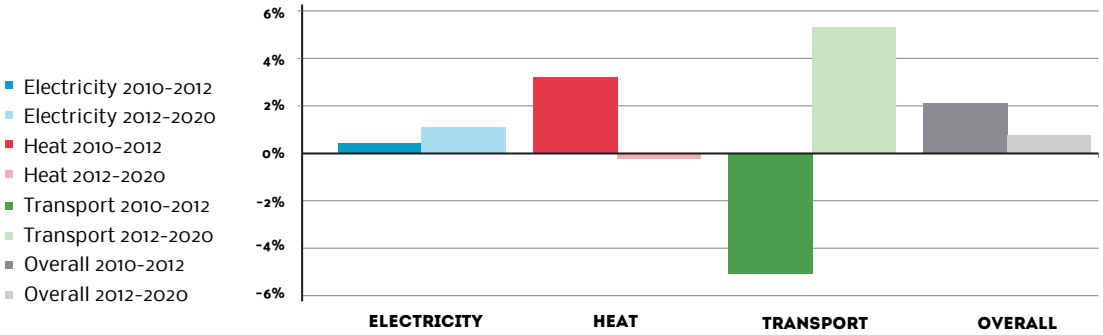


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	65.5%	32.8%	7.7%	32.1%
2012 NREAP target	74.1%	30.4%	7.1%	31.6%
2011/2012 interim target set by RES Directive	-	-	-	25.4%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
NEW EU STATE AID GUIDELINES	Since the announcement of new state aid guidelines, many potential investors fear less stable conditions. In case the guidelines are implemented as announced, investments will drop to a much lower level.
UNAMBITIOUS 2030 TARGETS	If the EU agrees on a renewables target of 27%, this will lead to fewer efforts at the national level to increase the share of renewable energy.
LOW ELECTRICITY PRICES	The current extremely low electricity prices discourage potential investors from investing in new renewable capacity or in renovating existing capacity. Apart from that, they increase the costs of the feed-in-tariff system.

HEAT

BARRIER	DESCRIPTION
LACK OF FUNDS	Since many years, the annual subsidy budget for house renovation amounts to 100 million €, whereas estimations say that at least 300 million € per year would be needed.
COMPETITION FOR ROOF SURFACE	Since a few years, there is a competition for roof surface between PV and solar thermal collectors. Currently PV is winning and collectors are losing.
COMPETITION FROM HEAT PUMPS	Currently, heat pumps offer cheaper heat than biomass or solar heating systems. Despite the disadvantage of the electricity demand and the origin of the electricity, house owners often choose a heat pump as heating system.

TRANSPORT

BARRIER	DESCRIPTION
TOO SLOW TRANSITION FROM ROAD TO RAIL TRANSPORT	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).
INCENTIVES FOR E-VEHICLES NOT EFFECTIVE ENOUGH	There is a lot of discussion about E-mobility but not many electric cars. This is due to the cars being too expensive. However, other countries show that tax incentives are an effective way to make E-cars (or plug-in hybrids) more attractive.
REDUCED BIOFUEL TARGETS	After strong pressure from environmental groups and after the EU lowered its targets, Austria reduced its biofuel target from 10 to 6.75%.

KEY TRENDS IN THE RES SECTOR

• There is a general support for RES, partly driven by the refusal of nuclear power. The RES industry is steadily growing. However, there is a strong pressure from the energy-intensive industry to reduce climate and energy ambitions, claiming that energy costs force them to reduce investments. It is crucial to keep a strong EU climate and energy policy, including an ambitious RES target.

• A new FiT system is in place since 2012. This led to strong investments in RES electricity and a growing share of renewable electricity. However, PV investments would profit from a more stable support scheme with higher subsidies in the short term.

• In recent years, there have been positive developments in the renewable heat sector, both in district heating and in buildings. This is due to the RES support for heat, to high oil prices, and to Austria's will to be independent from fossil fuels. The Austrian biomass industry has become a global player.

• RES in transport are supported through biofuel targets, through investments in railways and policies to change the modal split. Biofuels contribute approximately 6.75% to the total fuel demand. 93% of the railway electricity demand is renewable.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Do not change the current FiT system - it is working. Thanks to the FiT system, we are experiencing a steady increase of the renewable electricity share at costs that are widely seen as acceptable.

• Set a binding 100% target for the share of RES-E for 2020.

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

• Introduce a carbon tax of 30€ per ton with annual increases of 5€/t until reaching a value of 60 €/t. Use the revenues to support renewable energy and energy efficiency.

HEATING AND COOLING SECTOR

• Introduce a carbon tax of 30€ per ton with annual increases of 5€/t until reaching a value of 60 €/t. Use the revenues to support renewable energy and energy efficiency.

• Ban the installation of oil heating systems in new buildings in 2015 and in existing houses in 2016.

• Increase the tax for heating oil. Use the revenues to replace old heating systems depending on fossil fuels with modern renewable energy systems.

• Increase the financial support for thermal insulation to at least 300 Million € annually.

TRANSPORT SECTOR

• Support EU policies for more efficient cars: 80g CO_2 per km in 2020 and 60g CO_2 per km in 2025.

• Change the car tax system to support e-mobility by lowering taxes for electric vehicles and increasing taxes for heavy combustion engine cars (NoVA tax12).

• Link the tax support for e-mobility with the use of renewable electricity (through guarantees of origin).

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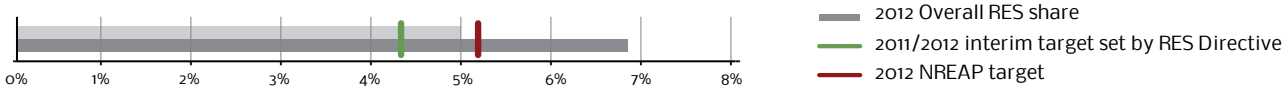
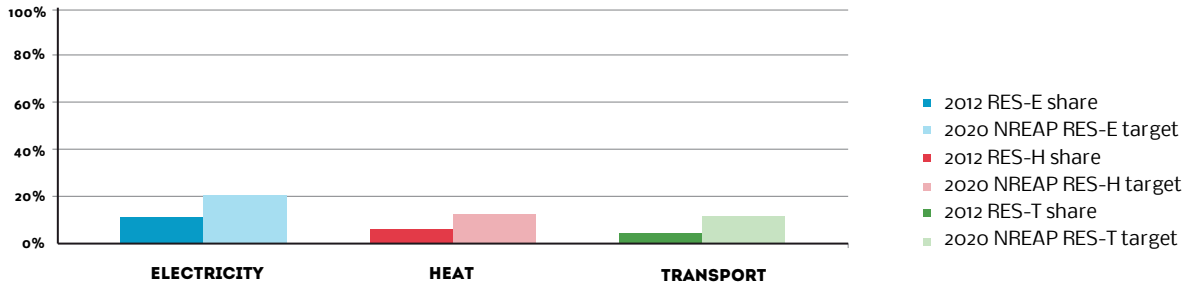
Is Belgium
ON TRACK?

- Belgium has achieved both its NREAP 2012 target and the interim target 2011/2012.
- 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.

OVERALL RES SHARE

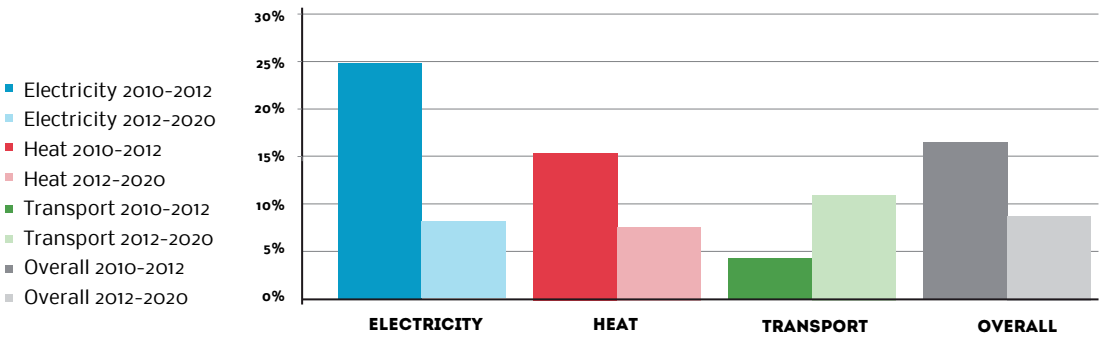


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	11.1%	6.6%	4.5%	6.8%
2012 NREAP target	7.8%	4.7%	4.8%	5.2%
2011/2012 interim target set by RES Directive	-	-	-	4.4%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
UNCERTAINTY OF THE SUPPORT MECHANISM	The current system is under revision without certainty about the future project support and with possible retroactive effects. This uncertainty is linked to a green certificate price collapse. Consequently, several authorised projects cannot be built for lack of profitability.
INSUFFICIENT GRID REGULATION AND REINFORCEMENT	The development of decentralised RES production plants has led to insufficient grid connection capacity. In addition, the modalities of the connection contracts are sometimes vague and uncertain which leads to significant curtailment without consequent and necessary compensation.
INSTALLATION CONSTRAINTS	There is a general lack of objectivity in the evaluation criteria of the impact of RES installations on the environment and aeronautical activity, leading to excessive exclusion zones. The current installation criteria do not take into account technological innovations (mitigation measures), allowing installations in the vicinity of radars, airports, military training zones, forests etc. They are not scientifically relevant and do not take into account the necessary balance between the national energy, environment and air traffic management.

HEAT

BARRIER	DESCRIPTION
LACK OF POLITICAL AND ECONOMIC FRAMEWORK	Compared to the RES-E approach, a coherent and integrated strategy for the development of renewable energy technologies in the heating sector is lacking. For instance, there is a lack of clear mid-term targets able to trigger the development of RES-H. RES-H are also not considered enough as an integrated solution for the building and the industrial sector.
LACK OF A COHERENT SUPPORT MECHANISM	There is a dramatic lack of a specific support mechanism for the production of heat from renewable energies, as well as for the injection of biogas into the gas grid. The current projects involving renewable energies for heat production suffer from insufficient profitability and investment uncertainty.
LACK OF INFRASTRUCTURE	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
LACK OF EU CLARITY ON BIOFUELS	The uncertain EC position regarding biofuels contributes to erode their image. Several EU-reports question their sustainability and their efficiency, particularly with regard to their impact on carbon dioxide emissions and their use of arable lands. This leads to a poor social acceptance of biofuels.
LACK OF A COHERENT AND TARGETED SUPPORT MECHANISM	Policy makers still abstain from launching targeted incentives for e-mobility, electric vehicle technologies being under development and remaining too expensive. Some incentives are offered in form of tax reliefs and premiums. However, no investments are made in order to adapt the electricity grid to the use of electric vehicle networks.
TECHNOLOGICAL BOTTLE-NECKS	Electric vehicles suffer from a limited battery life and the lack of standardisation of electric batteries. Electric batteries are produced by each car manufacturer for its own vehicles without harmonised standards.

KEY TRENDS IN THE RES SECTOR

• In 2013, some RES technologies have been frequently and negatively mentioned in the media. This has contributed to an erosion of the image of the whole sector, considered as cost-inducing.

• Regarding RES-E, the increase in development and operation costs, combined with uncertainty regarding the future support system, as well as the GC price collapse, block most of the current investments or challenge the realisation of projects for which a permit has already been delivered.

• Regarding RES-H&C, there is still a lack of specific support mechanism for RES heat production as well as biogas production and injection. This leads to insufficient profitability and uncertainty of investment.

• Regarding RES-T, there is a lack of efficient support for the development of electric vehicles.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Agree on a long-term energy strategy and finalise a stable support system: the comprehensive strategy must be based on an annual target for each RES technology. The support system must be based on the required profitability, taking every cost into account. It should also allow for the realisation of projects in the pipeline and prevent retroactive changes.

• A clear framework for each RES technology must be implemented, based on legally secured and scientific criteria and relevant legislative initiatives.

• Make sure grid reinforcements are in line with the timing of RES spatial planning to guarantee priority access and dispatch for RES power plants. Curtailment must be systematically compensated.

• Implement a one-stop shop for each procedure of delivering permits. Improve the coordination and coherence between decision-making bodies.

• Remove some installation constraints taking into account mitigation and technical solutions.

HEATING AND COOLING SECTOR

• Elaborate a clear legal framework to promote RES-H&C development. The framework should be based on binding targets in some sectors and clear, objective and reasonable criteria with a balanced approach for different uses.

• Introduce a support scheme for RES-H&C with specific measures for biogas and district heating.

• Develop a spatial planning strategy focused on district heating development. This strategy must be linked to a specific support system for the development of this network.

TRANSPORT SECTOR

• Clarify the sustainability criteria for biofuels in order to improve their social acceptance.

• Dedicate biofuels to specific applications in order to ensure social acceptance and improve the security of supply of specific sectors.

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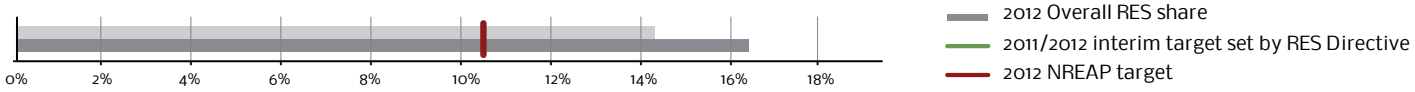
Is Bulgaria

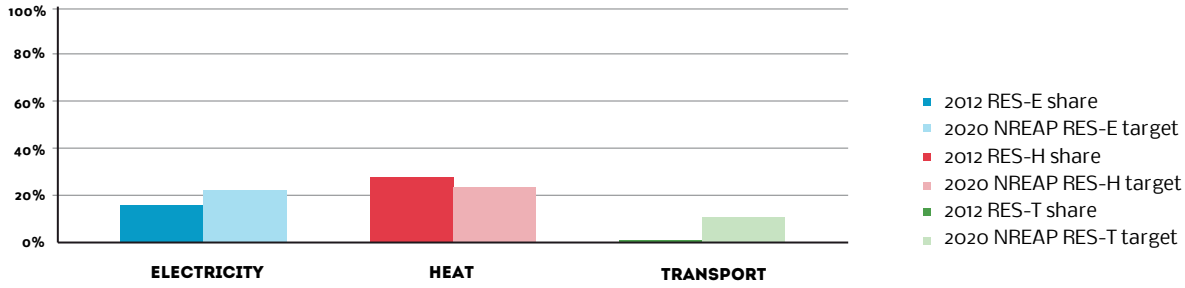
ON TRACK?

- Bulgaria has achieved its NREAP 2012 target, which is equal to its interim target 2011/2012.
- Growth in the RES-E share has been more than enough to achieve the 2020 target share if maintained. In RES-H&C, the 2020 target share has already been achieved and no further growth is necessary. Growth in RES-T has been negative, possibly due to statistical issues.

OVERALL RES SHARE

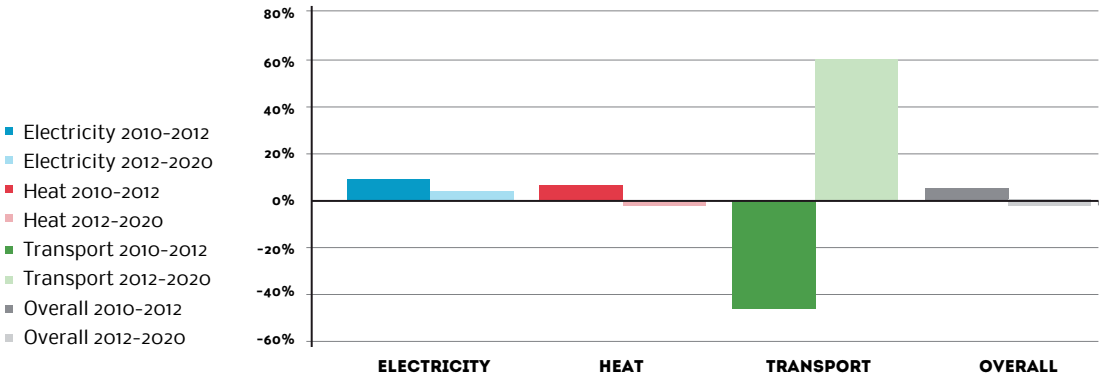


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	17.0%	27.5%	0.3%	16.3%
2012 NREAP target	13.4%	17.9%	2.5%	10.7%
2011/2012 interim target set by RES Directive	-	-	-	10.7%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
BREACHING OF LAWS BY THE GOVERNMEN	Bulgarian Government officials (including ministries and public authorities) have a tendency to not follow the already existing regulations and legislation in the country. Not only do the Government and other entities disregard the rules and provisions of the procedures but the stakeholders change the requirements of laws, regulations, etc. that have been previously adopted and enforced by the National Assembly with an isolated decision, statement or a mere official letter.
LACK OF TRANSPARENCY	There is a lack of transparency in decision making after public discussions and/or hearings. Even in cases when a public discussion is made, no statements, opinions or notes of suggestions are taken into account.
ABRUPT AND RETROACTIVE MEASURES	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
LACK OF INCENTIVES	At the moment, the RES heating sector is virtually non-existent which can be explained by a lack of incentives such as tax reliefs and feed-in tariffs or even legislation. Additionally, there is lack of statistical information about geothermal energy.
INFLATED FIGURES FOR BIOMASS	The figures in the National Renewable Energy Action Plan envisage a mass usage of biomass which would lead to clear-felling and unsustainable forest development.

TRANSPORT

BARRIER	DESCRIPTION
EXISTING EXCISE RATES	Before joining the EU in 2007, Bulgaria treated biofuels as an excise-free product. Thereafter, they have become subject to excise tax. Despite the fact that the European Commission has allowed biofuels to be exempt from tax, the Bulgarian authorities do not take any actions into this direction.
LACK OF INCENTIVES	Currently no tax reliefs or subventions to support electric vehicles exist. Furthermore, electric vehicles are being treated the same as motor vehicles.

Severity: 1 - almost negligible effects, 2 - minor effects, 3 - moderate effects, 4 - substantial effects, 5 - severe effects
Spread: 1 - impacts sporadic installations, 2 - affects a small fraction, 3 - affects a moderate share, 4 - affects a predominant share, 5 - concerns almost all installations

KEY TRENDS IN THE RES SECTOR

• In Bulgaria, the development of newly installed RES capacity gained a rapid momentum in 2012, as a result of the higher feed-in tariffs for PV. However, in June 2012, the State Energy and Water Regulatory Commission introduced a moratorium on all new large-scale RES-E installations. Additional retrospective changes have been introduced recently. In December 2013, the Government passed a 20% tax on the income of renewable energy producers. The tax only applies to wind and PV installations.

• The existing support for heating and cooling installations is highly insufficient, consisting of only a couple of grant-schemes for the installation of efficient firewood boilers.

• RES-T are solely supported by the obligatory blending of liquid oils with biofuels.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Remove the RES-E moratorium.

• Abolish the retrospective 20% tax.

• Create a true energy market (liquid day-ahead, intraday, balancing and ancillary services markets).

• Set fair and predictable rules for the participation of RES on electricity markets.

• Remove the newly introduced grid access fee targeting wind and solar energy.

HEATING AND COOLING SECTOR

• Introduce tax concessions and financial incentives for investments in energy generation from RES in households.

• Introduce a support scheme for RES-H&C in residential and public buildings.

TRANSPORT SECTOR

• Implement a national action plan for electro-mobility.

• Exempt biofuels from excise duties to stimulate the market.

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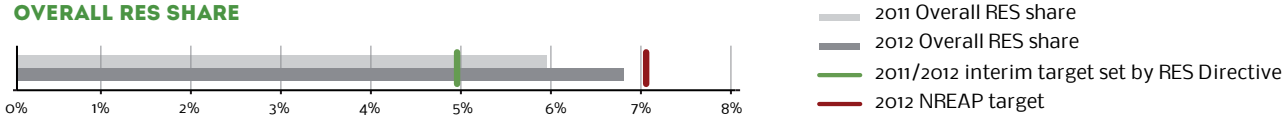
Is Cyprus

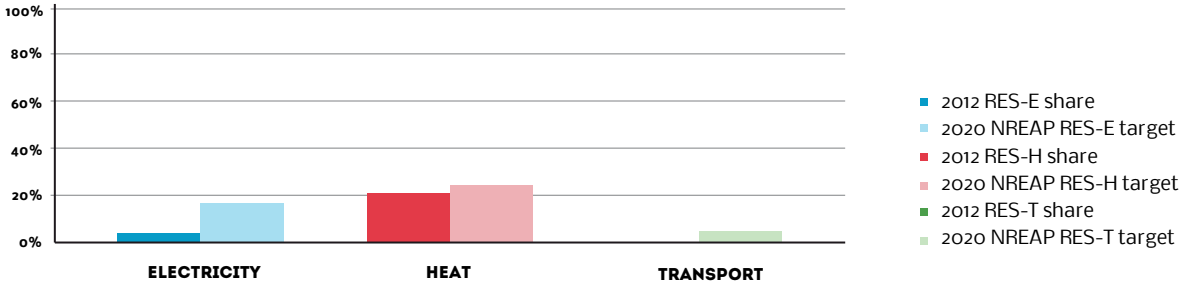
ON TRACK?

- Cyprus did not meet its NREAP 2012 target but managed to achieve the less ambitious interim target for 2011/2012.
- However, growth rates in RES-E and RES-H&C shares seem high enough to catch up and achieve the 2020 target. The RES-T share has moved from 2% in 2010 to 0% in 2012, possibly due to statistical issues.

OVERALL RES SHARE

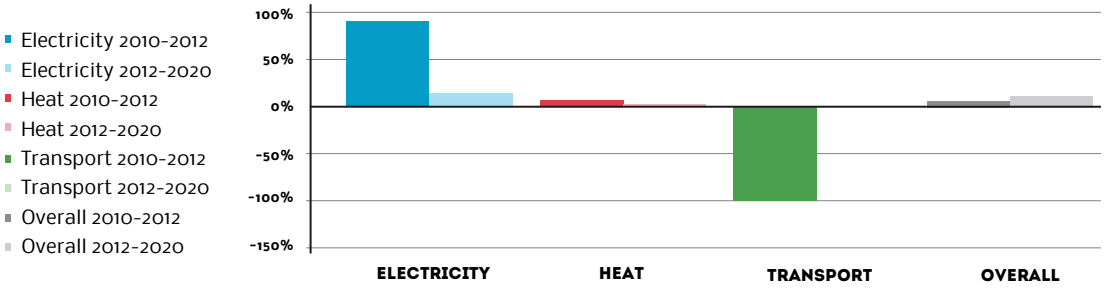


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	4.9%	21.2%	0.0%	6.8%
2012 NREAP target	4.4%	17.8%	2.5%	7.1%
2011/2012 interim target set by RES Directive	-	-	-	4.9%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
LIMITED ACCESS TO FINANCE	The current financial crisis in Cyprus affects the financing of RES-E investments, mainly smaller ones.
EXISTENCE AND RELIABILITY OF RES-E SUPPORT SCHEMES	The whole process of designing annual support schemes, based on the yearly budget, creates uncertainties and unnecessary delays in the realisation of prospective investments.
COMPLEXITY AND DURATION OF THE ADMINISTRATIVE PROCEDURE	This remains one of the long-lasting problems of the RES-E sector. 6 ministries are involved in the licensing procedure of a 100 kW PV plant.

HEAT

BARRIER	DESCRIPTION
NO NEED FOR HEATING	Heating needs are very low in Cyprus. This is why new RES-H&C installations are not realised.

TRANSPORT

BARRIER	
LIMITED SUPPORT FOR BIOFUELS	There is only limited support for biofuels in Cyprus, which is directed exclusively to the installation of biofuel plants.
LACK OF AGRICULTURAL PLAINS	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 prioritisation minimises the prospects of biofuels on the island.

KEY TRENDS IN THE RES SECTOR

• In Cyprus, electricity from renewable sources is generally supported through a combination of a subsidy scheme, a premium tariff, as well as a net metering scheme and tenders for PV installations. RES-H plants are eligible for a subsidy and the same applies for the transport sector, mainly through the funding of relevant infrastructure.

• The prospects for the further deployment of RES-H&C technologies cannot be considered optimistic. Even in the field of solar thermal installations, the sector shows a decline of 0.8% on the annual evolution of total installed capacity after a decade of continuous growth.

• The use of renewable energy in the transport sector (RES-T) is slowly developing in Cyprus. A mandatory quota of biofuel use in transport is imposed on the fuel suppliers.

POLICY RECOMMENDATIONS

• Improve the access to finance: In March 2013, a €10 billion bailout has been agreed between Cyprus, the European Union (EU) and the International Monetary Fund. A radical restructuring of the banking sector is foreseen, with bank deposits over €100,000 to be used to support the bailout. Under such negative circumstances, it is clear that the development of RES cannot remain unaffected.

• Maintain a long-term reliability for investors: The whole process of designing new support schemes based on the annual budget creates uncertainties and unnecessary delays in the realisation 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 hinders the entry of new producers in the electricity market. Plant operators do not have a clear overview of the charges e.g. for grid stability and grid 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.

TRANSPORT SECTOR

• Sharpen the strategy for the RES-T sector and develop an adequate support scheme: There is only limited support for biofuels in Cyprus and an excise vehicle duty is imposed on biofuels, as well as stringent criteria on the origin of crops used for producing biofuels. Due to changed climate conditions, in correlation with the limited availability of agricultural fields, a clear RES-T strategy should be elaborated and the support scheme has to be adjusted properly.

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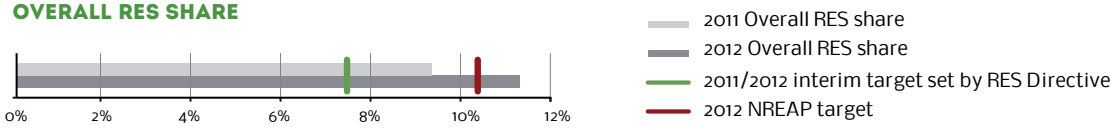
Is the Czech Republic

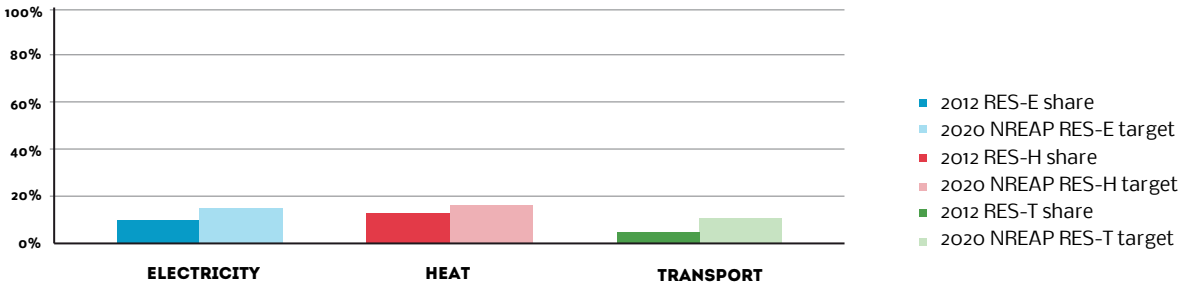
ON TRACK?

- The Czech Republic has achieved both its NREAP 2012 target and the interim target 2011/2012.
- Growth rates in RES-E and RES-H&C shares are more than enough to achieve the 2020 target if can be maintained.

OVERALL RES SHARE

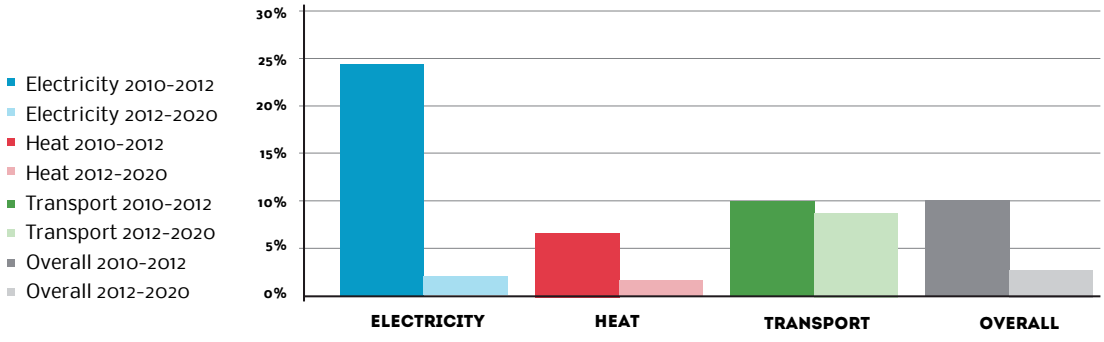


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	11.6%	13.6%	5.6%	11.2%
2012 NREAP target	11.5%	12.2%	5.2%	10.5%
2011/2012 interim target set by RES Directive	-	-	-	7.5%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
SUPPORT SYSTEM ENTIRELY ABOLISHED	By the end of 2013, the guaranteed support for electricity generated by PV, wind, hydro or biomass plants in the form of feed-in tariffs or premium tariffs, has been de facto entirely abolished. Only newly constructed PV plants put into operation before the 31st December 2013 are eligible to receive the feed-in or premium tariff. Wind, hydro or biomass plants put into operation in 2014 will only be eligible for support if the building permit has been issued before the 2nd October 2013.
RETROACTIVE SOLAR TAX	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.
REFUSAL OF GRID CONNECTION	Even in the case of small-scale photovoltaic systems, there is a risk that the grid operator refuses the connection approval. The true reasons often remain unclear, although the operator usually argues that they are of purely technical nature. Usually, distribution system operators argue that the grid capacity in the respective location was insufficient and that 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
UNSTABLE AND UNPREDICTABLE LEGISLATIVE CLIMATE	In the past five years, changes and amendments of the support system have happened very often, which notably hampers long-term planning of RES investors.
MANY REGIONS ARE NOT WILLING TO PROMOTE BIOMASS BOILERS	So far, only 4 of the 14 Czech regions have issued calls for tender to promote the exchange of solid fuel boilers through 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.
LIMITED ACCESS TO FINANCE	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
LEGISLATIVE UNCERTAINTY FOR BIOFUELS	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.
HIGH COST OF AGRICULTURAL RAW MATERIALS	The use of biofuels in the Czech transport sector is hampered by the high costs of agricultural raw materials.
LACK OF FINANCIAL SUPPORT FOR E-MOBILITY	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 to those acquiring electric cars.

KEY TRENDS IN THE RES SECTOR

• RES-E are supported through either a guaranteed feed-in tariff or a premium paid on top of the market price, while RES-H profit from several subsidies, including an exemption from real estate tax.

• The main support scheme for renewable energy sources used in transport (RES-T) is a quota system which is based on the Clean Air Act (Zákon o ochraně ovzduší).

• In the past, the focus was on reducing the country's energy consumption and to mitigate the economic burden for electricity consumers.

• Due to the favourable legal conditions, a lot 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: By the end of 2013, the guaranteed support for electricity generated by photovoltaic, wind, hydro or biomass plants in form of feed-in tariffs or premium tariffs was de facto entirely abolished. The Government also introduced a retroactive tax on the revenues from the feed-in/premium tariff schemes and a recycling fee for solar panels.

• Increase the transparency of administrative procedures: In 2013, both the wind and the solar sector experienced a sharp decrease of grant authorisation by the Energy Regulatory Office. It has also been reported that the authorities repeatedly requested identical documents, justifying this by the alleged termination of their validity.

• Maintain the 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 the support scheme: In the past five years, frequent changes and amendments have been made to the support system. This notably hampers long-term planning 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 for the cashflow of renewable energy companies.

• Sharpen the RES-T strategy and properly adjust the support scheme: The expansion of electric vehicles in the Czech Republic is mainly hampered by the lack of financial support. Due to political uncertainty, investors are unwilling to take risks. Additionally, there are no support schemes offering financial assistance for those acquiring electric cars.

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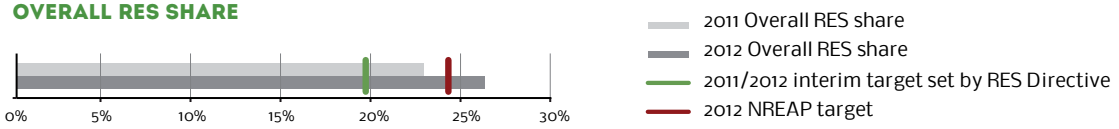
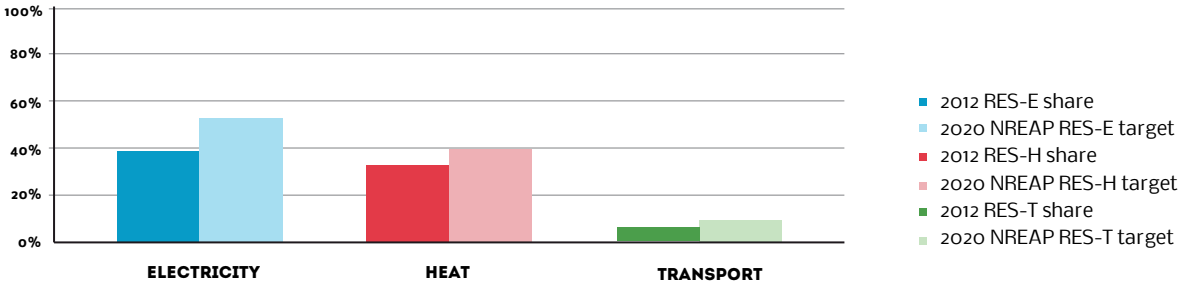
Is Denmark
ON TRACK?

- Denmark has achieved both its NREAP 2012 target and the interim target 2011/2012.
- Growth rates in both RES-E and RES-H&C share are enough to achieve the 2020 target.

OVERALL RES SHARE

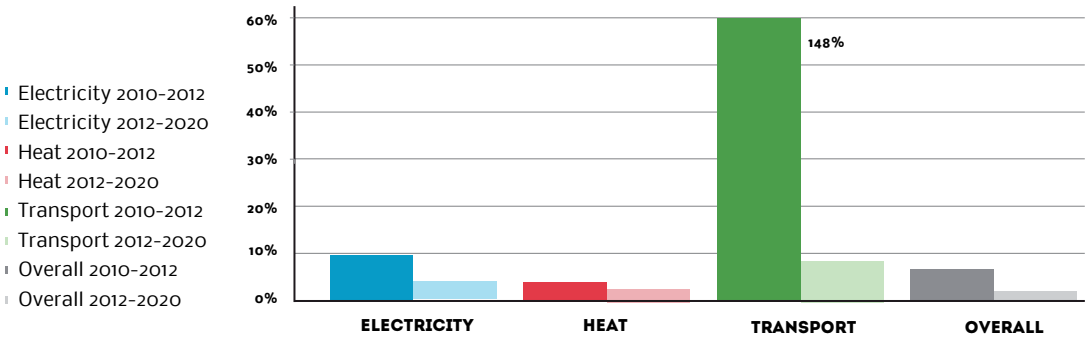


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	38.7%	33.3%	5.8%	26.0%
2012 NREAP target	38.0%	32.1%	5.9%	24.2%
2011/2012 interim target set by RES Directive	-	-	-	19.6%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
EU FRAMEWORK DISCUSSION FOR 2030	The currently ongoing 2030 framework discussion in the European Union is hindering the further development of RES. The framework suggests no binding targets for RES for Member States (MS). This may put the Danish ambitions for RES development under pressure. It might also affect the Danish RES industry. If other MS stop developing renewable energy, Denmark's companies producing and exporting wind energy technologies might face a decline in export opportunities for wind technology.
EUROPEAN GUIDELINES CAUSE INSECURITY	The European guidelines on environmental and energy State Aid for 2014-2020 cause insecurity regarding the continuation of support for wind energy in Denmark. If these guidelines categorise off-shore wind energy as a deployed technology, the support would have to be organised in a different way. There is insecurity among off-shore wind energy developers on how the support design will have to change.
CONFLICT BETWEEN ENERGY-CLIMATE POLICY AND TAX POLICY	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, the lower the tax revenues.

HEAT

BARRIER	DESCRIPTION
LACK OF CONSISTENT POLICY	There are very ambitious targets, however, the taxation policy and single regulations are inconsistent with this policy.
CONFLICT BETWEEN ENERGY-CLIMATE POLICY AND TAX POLICY	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, the lower the tax revenues.
SUSTAINABILITY PROBLEM CONCERNING BIOMASS	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
UNCERTAINTY ON THE EUROPEAN MARKET	Uncertainty on the European market, due to the failure of the European Council to reach an agreement on biofuel regulations, constitutes a very severe barrier for the advanced biofuels. A compromise proposal, introducing a 2% target of second generation biofuels as part of the general 10% target for biofuels, has not been agreed on. The discussion is still not finalised. The lack of goal setting hinders the development of advanced biofuels.
EU FRAMEWORK DISCUSSION FOR 2030	The EU framework discussion for 2030 does not include any target for renewable energy sources in the transport sector. This might not only hinder the development of biofuels after 2020 but also already before that period.
INSUFFICIENT SUPPORT SCHEMES FOR BIOFUELS	A tax allowance scheme and a biofuel quota obligation are in place. These schemes, however, do not distinguish between first and second generation biofuels and are thus not sufficient for supporting the development of 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 at a European level for 2030. The Danish Parliament has decided on an ambitious Energy Agreement in March 2012[11].

• RES-E technologies are mainly supported through a feed-in premium scheme. Net metering, loan guarantees, and investment subsidies for small installations are also available. Feed-in premium levels are technology specific and mostly set administratively. An exception is offshore wind power, for which support levels are determined in a tendering procedure. The Danish support system has proven to be very effective in the past and can provide policy learning experiences to other member states.

• Most of Denmark's renewable heat production is from solid biomass, which is also meant to remain the dominant renewable fuel until 2020. The main instruments to support RES-H&C are exemptions on the various taxes applied to the production, processing, possession, receipt, and distribution of fossil fuels in the heating sector. All RES-H&C technologies are eligible for these exemptions. Denmark also applies premium tariff payments to biogas used for heating, with the tariff level depending on the price of natural gas.

• 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 through a premium tariff.

POLICY RECOMMENDATIONS

OVERALL

• The ambitious goals and measures specified in the 2012 Energy Agreement should be implemented.

• Public budgets: "Green taxes", for instance on fossil fuels, provide revenues for the state. These taxes are bound to decrease, as renewables, which are exempt from such taxes, replace conventional fuels. Plans for future public budgets need to take this effect into account.

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 use wind electricity in the district heating sector through the introduction of big heat pumps.

• Maintain and improve the public's acceptance for RES plants: Finish and publish the study on the relationship between the noise from wind turbines and its effects on health.

HEATING AND COOLING SECTOR

• The high consumption of biomass can cause sustainability issues. Introduce sustainability criteria for biomass either on the national level or push for such criteria on the European level.

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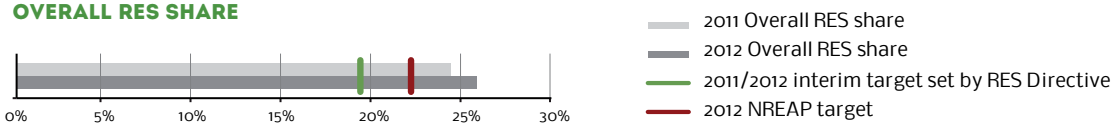
[11] Accelerating Green Energy towards 2020 - The Danish Energy Agreement of March 2012", http://www.ens.dk/node/2132

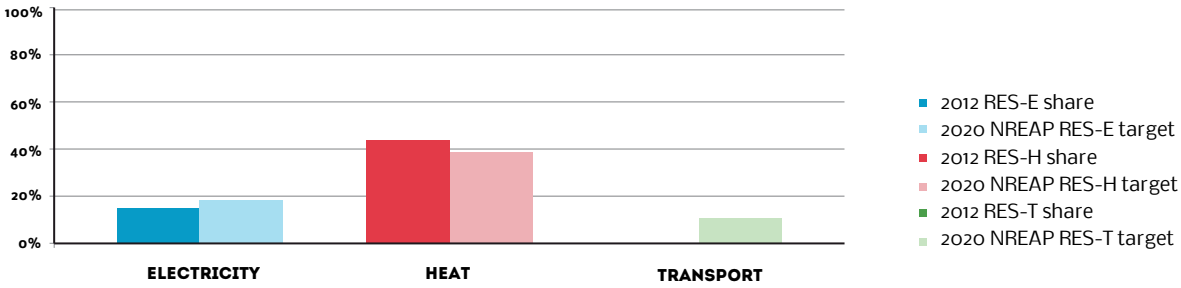
Is Estonia ON TRACK?

- Estonia has achieved both its NREAP 2012 target and the interim target 2011/2012.
- 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 decreased very slightly (-0.2%) from 2010 to 2012, and care should be taken not to let it drop too far.

OVERALL RES SHARE

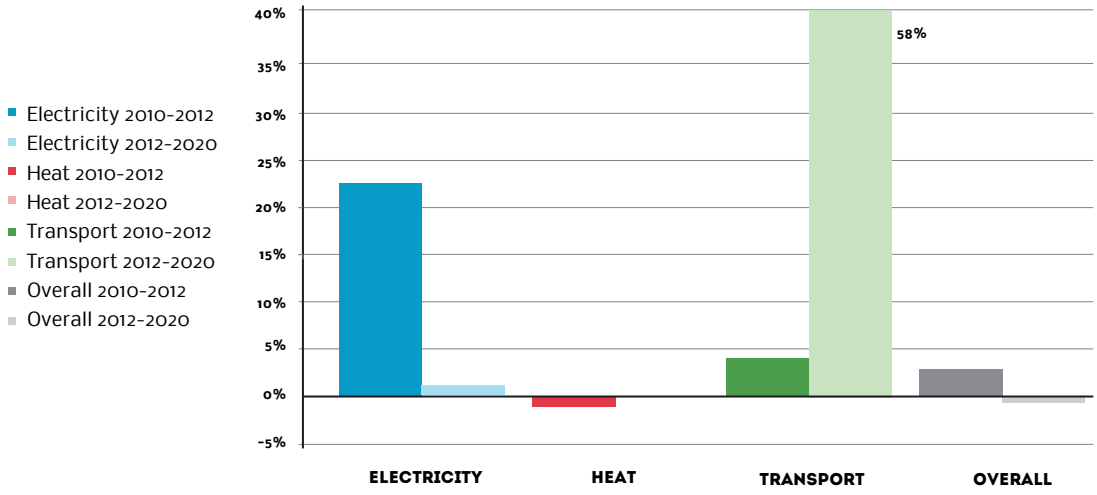


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	15.8%	43.1%	0.3%	25.8%
2012 NREAP target	8.1%	39.8%	2.4%	22.0%
2011/2012 interim target set by RES Directive	-	-	-	19.4%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
RELIABILITY OF THE RES-E SUPPORT SCHEME	The support scheme is currently being amended. A final decision on the exact amendments has not been taken yet. The discussions have been going on for several years and have thus discouraged investors and reduced the investment security in Estonia. In addition, retroactive changes are planned.
PREDICTABILITY OF THE CONNECTION PROCEDURE	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, the duration of the procedure is not predictable, as it is not regulated well.
LACK OF SPATIAL AND ENVIRONMENTAL PLANNING	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 has only very little priority. In addition, because of environmental reasons and other aspects, the process takes very long.

HEAT

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

TRANSPORT

BARRIER	DESCRIPTION
DOMINANCE OF CONVENTIONAL RETAILERS	The market design favours the use of conventional fuels. Estonia's domestic legislation does not oblige fuel distributors to mix diesel or petrol with biofuels. Furthermore, an obligation to sell biofuels does not exist.
LACK OF INFRASTRUCTURE	Biogas has a potential of providing Estonia's transport sector with biofuels. Biogas, e.g biomethane, is usually produced in rural areas and it is often impossible to transport it via gas pipelines. Therefore, biogas must be transported by a truck which is rarely fuelled by something else than diesel.
LACK OF RAW MATERIAL	Estonia is lacking a large scale agricultural industry that would provide enough raw materials to produce biofuels. Small scale projects are possible. Biofuels such as ethanol and methanol are produced from grains. This would mean that over half of the amount of grain produced in Estonia for the food industry has to be used for the production of ethanol.

KEY TRENDS IN THE RES SECTOR

• Estonia's main instrument to support RES-E is a technology-neutral feed-in premium (5.37€ct/kwh in 2013)[12]. Deployment, especially for wind and biomass, happened much faster than planned. Support levels were thus adjusted for new wind plants from mid-2012. The support scheme is currently undergoing reform.

• There are investment grants for CHP plants, solar-thermal installations, and heat pumps in private households. District heat plays an important role in Estonia.

• Estonia subsidises the purchase of electric cars by consumers. A quota scheme for biofuels is under consideration. The country currently reports zero use of biofuels in transport, and a small amount of RES-E used in transport.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Provide long-term security for investors: Regarding the upcoming revision of the support scheme, foresee an appropriate transition period and communicate this in advance. The new support scheme should be designed taking into account the recent relevant guidelines by the European Commission[13]. Consider applying an automatic and transparent adjustment mechanism for support levels. Avoid retroactive changes (e.g. applying new reduced support levels to existing plants).

• Simplify grid connection procedures: Especially for wind farms, procedures are lengthy and complicated. Consider reducing the amount and level of details that the grid operator can ask from wind power developers.

• As some offshore wind deployment is planned, maritime spatial planning and permitting procedures need to be adapted.

HEATING AND COOLING SECTOR

• Improve the access of small heat producers to heat grids: Conventional retailers are very dominant in this market. Consider creating a clear and reliable regulation for energy cooperatives to foster their development, and simplify procedures for small producers to sell their heat to the grid.

• 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 production of liquid biofuels is to be increased, take into account sustainability considerations early on in agricultural, environmental and industrial strategies.

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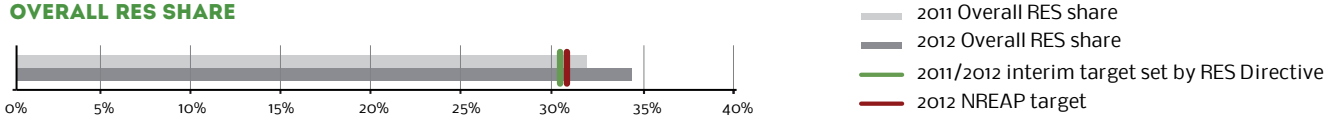
12 Source: RES-legal.eu

13 Commission Staff Working Document. European Commission guidance for the design of renewables support schemes, SWD(2013) 439 final

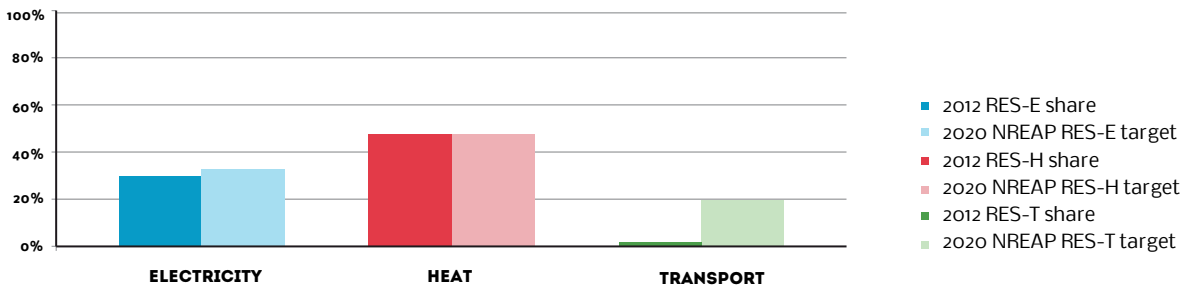
Is Finland
ON TRACK?

- Finland has achieved both its NREAP 2012 target and the interim target 2011/2012.
- Growth in the RES-E share needs to accelerate to achieve the 2020 target. For RES-H&C, the 2020 target share has already been achieved and growth over the last two years has been more than enough. The low RES-T share and the negative growth rate from 2010-2012 may possibly be due to statistical issues but must be closely monitored.

OVERALL RES SHARE

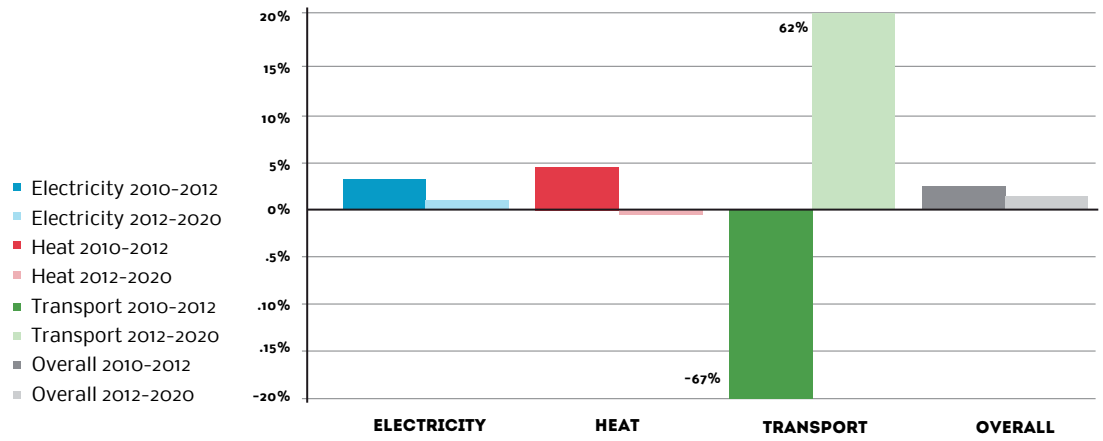


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	29.5%	48.1%	0.4%	34.3%
2012 NREAP target	26.0%	40.0%	8.0%	31.0%
2011/2012 interim target set by RES Directive	-	-	-	30.4%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
LACK OF AN ATTRACTIVE SUPPORT SCHEME FOR SMALL AND PV SYSTEMS	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 of residential buildings and other private persons have no access to funding for small scale RES projects.
REJECTION OF WIND PARKS BY THE FINNISH AIR FORCE DUE TO SECURITY OF RADAR SYSTEMS	Project developers of onshore wind power plants struggle mainly with the rejection of wind parks by the Finnish air force due to the security of radar systems. Even though sometimes the modification of existing radar stations is possible, this leads to additional costs and risks for the project.
COMPLEXITY OF THE ADMINISTRATIVE PROCESS	There are no general instructions for municipalities on 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 drawn plans. As a consequence, RES developers have to spend additional time on each project.

HEAT

BARRIER	DESCRIPTION
LACK OF A SUPPORT SCHEME	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.
CONNECTION PROCEDURES ARE NOT TRANSPARENT	Connections to district heating networks constitute a great challenge. As there is no single regulation on the connection to district heating networks for solar plants in Finland, every project is considered separately.
CALCULATION OF THE HEAT PRICE VARIES	The calculation of heat prices does not provide fair access for solar thermal power plants. For small-scale solar energy producers it is difficult to sell their heat into the district heating network. The reason for this is that paying for small-producers brings about indirect costs for the heat supplier. Secondly, heating prices are almost the same throughout the year and are not very cost-oriented.

TRANSPORT

BARRIER	DESCRIPTION
RELIABILITY OF A GENERAL STRATEGY & A SUPPORT SCHEME	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 additionally enhanced by a lack of interest by the Finnish consumers.
LACK OF INFRASTRUCTURE	First of all, there are not sufficient filling- and charging stations in most parts of the country. Secondly, stations which charge electric cars do not sell 100% RES electricity but a blended electricity mix that contains electricity from nuclear power and other sources as well. This also applies to biodiesel which cannot be bought as 100% biodiesel but which is usually blended with 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" in addition to 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 the 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. Consider strengthening the position of smaller wind project developers against dominant market players.

• Coordinate the transmission grid development strategy with the wind development strategy to avoid bottlenecks in the future.

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 to make it easier for producers to feed heat into district networks. For solar thermal installations, create a simple and unified procedure for the connection to district heating networks.

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 to ensure acceptability by the consumers.

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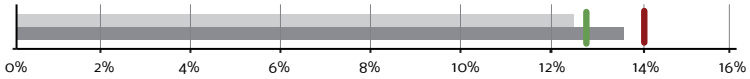
Is France
ON TRACK?

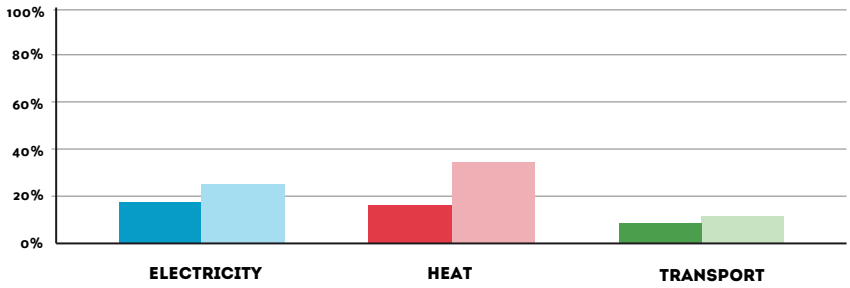
- France has neither achieved its 2012 NREAP target nor the less ambitious interim target 2011/2012.
- Growth in RES-E and RES-H&C shares needs to accelerate in order to achieve the 2020 targets.

OVERALL RES SHARE



2011 Overall RES share
2012 Overall RES share
2011/2012 interim target set by RES Directive
2012 NREAP target

2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND

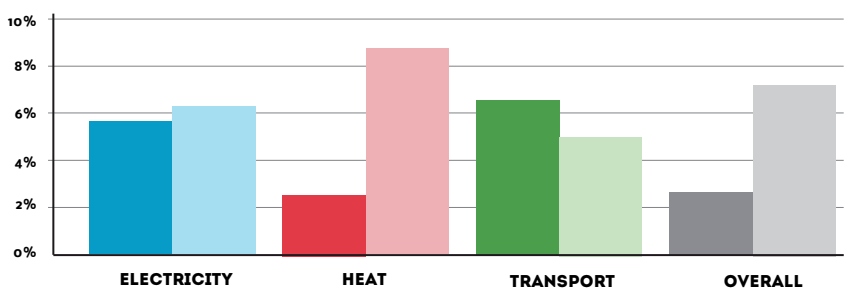


2012 RES-E share
2020 NREAP RES-E target
2012 RES-H share
2020 NREAP RES-H target
2012 RES-T share
2020 NREAP RES-T target

	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	16.6%	16.9%	7.1%	13.4%
2012 NREAP target	17.0%	19.0%	7.2%	14.0%
2011/2012 interim target set by RES Directive	-	-	-	12.8%

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

Electricity 2010-2012
Electricity 2012-2020
Heat 2010-2012
Heat 2012-2020
Transport 2010-2012
Transport 2012-2020
Overall 2010-2012
Overall 2012-2020



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
LACK OF STABLE AND DURABLE SUPPORT FOR RES	This particularly affects onshore wind and solar energy. The French wind energy sector is suffering from legal uncertainty of the FiT, due to the failing of France to notify the FiT as state aid. The PV sector has been subject to retroactive measures, undermining the confidence of investors and developers. The Court of Auditors also casts doubt on the support for PV, which is deemed too expensive and inefficient.
LENGTHY ADMINISTRATIVE PROCEDURES	The multi-layered legislation and permits, as well as the lack of coordination between the competent authorities, severely impair the efficient processing 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.
SHORTCOMINGS OF THE REGIONAL GRID CONNECTION PLANS FOR RES	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 shared unequally between producers and grid operators, which increases grid connection costs for project developers.

HEAT

BARRIER	DESCRIPTION
COMPETITION WITH ELECTRIC HEATING APPLIANCES	Over 30% of the existing individual and collective housing in France is 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 1st January 2013 and only applies to new buildings.
DESIGN OF EXISTING SUPPORT SCHEMES	In France, the main share of renewable heat consumption is met by low capacity installations. However, two important support mechanisms, namely the Heat Fund and the tendering processes of the French Energy Regulatory Authority, do not address low capacity installations.
RIVALRY BETWEEN SOLAR THERMAL AND ENERGY EFFICIENCY MEASURES	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 new devices for the production of hot water. Moreover, the purchasing cost of solar thermal systems is higher than for conventional systems fuelled by gas or electricity.

TRANSPORT

BARRIER	DESCRIPTION
LACK OF LONG-TERM REGULATORY STABILITY AND VISIBILITY OF SUPPORT POLICIES	While the production of biofuels was originally vigorously encouraged, current debates at the European and national level rather discuss their limitation. The lack of stability is all the more critical since investors in 1st generation biofuels are the same as those in 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.
UNCERTAINTY OF THE BIOFUEL INCORPORATION RATE	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.
LACK OF CLARITY OF EXISTING REGULATIONS FOR DOUBLE COUNTING OF BIOFUELS	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, 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 power, tidal and wave, and solid biomass installations are eligible for support. In the case of PV, the amount of electricity to be remunerated for every power plant is capped at 1,500 full load hours annually. In addition, tenders exist for wind, PV, geothermal, hydro power, biogas and solid biomass installations.

• RES-H installations are supported by investment grants allocated through a tendering procedure (large biomass), and via a programme to support homeowners with modest incomes. A zero-interest loan exists for RES installations in the course of building renovations. 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 exposing RES producers to legal and regulatory uncertainty such as caused by the recent law suit concerning state aid against French wind power producers. The uncertain situation has severely undermined investor confidence.

• Avoid changes in the tax regime which retroactively affect RES projects, such as the significant increase of the IFER tax[14] especially for solar and onshore wind installations.

• Improve planning and permitting procedures: Ensure better coordination between the involved authorities and their respective time schedules. Speed up court procedures regarding complaints against planned wind farms. Simplify the adaptation of land use plans for large PV installations and ensure better coordination between spatial planning for wind farms and military safety restrictions.

• Grid connection and access: Provide reliable long-term RES policies to grid operators. Consider simplifying grid connection procedures. Apply compensation payments in case of curtailment due to local grid congestion.

HEATING AND COOLING SECTOR

• Consider encouraging investments into small RES-H installations. The investment grant allocated through tenders is mainly targeted at larger installations.

• Introduce a RES-H building obligation for new and renovated buildings as required by the RES Directive.

• Improve the energy efficiency of CHP plants: The tender design for CHP often focuses on electricity production. Consider the possibility of including heat production, in connection with heat demand on site, as a criterion in the tendering process

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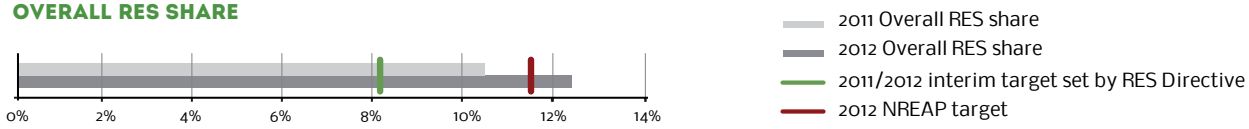
14 IFER refers to the ICPE authorisation: "Installation classée pour la protection de l'environnement"

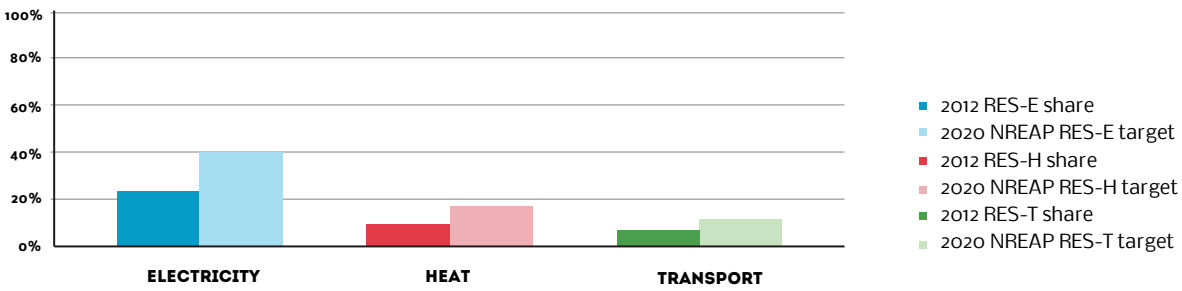
Is Germany
ON TRACK?

- Germany has achieved both its NREAP 2012 target and the interim target 2011/2012.
- Growth in the RES-E share was enough to achieve the 2020 target, if it can be maintained. Growth in the RES-H&C share needs to accelerate.

OVERALL RES SHARE

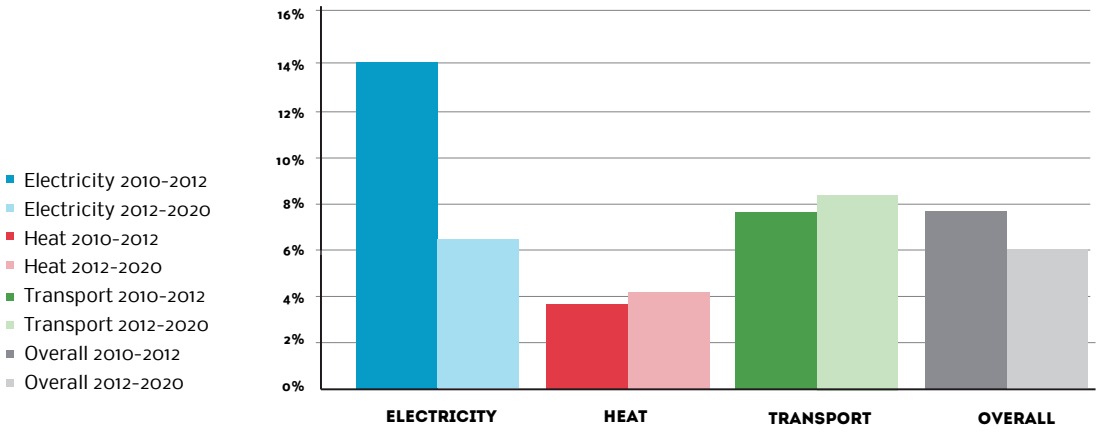


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	23.6%	11.1%	6.9%	12.4%
2012 NREAP target	20.9%	10.0%	7.6%	11.4%
2011/2012 interim target set by RES Directive	-	-	-	8.2%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
NO RELIABILITY OF THE SUPPORT SCHEME	The political and financial framework conditions for developing RES-E projects are uncertain. The fundamental amendments to the Renewable Energy Sources Act (EEG) as proposed by the responsible ministry (such as mandatory direct marketing, the introduction of a tendering procedure, burdening own consumption with the EEG surcharge) massively threaten the future of RES-E development in Germany. The situation is especially difficult for biogas: there are no incentives to produce flexibly, a cap is planned and a restriction on the allowed feedstock.
HIGH REVENUE RISKS	The profitability needs to be reassessed for projects in planning. Banks tend to pass the rising financing risks on to project developers. With the proposed changes, the risks will definitely increase, which will lead to higher costs for project developers.
DIFFICULTIES WITH INTEGRATING RES-E INTO SPATIAL AND ENVIRONMENTAL PLANNING	Under the proposed amendments to the EEG, federal states are to be given even more regulatory freedom for determining minimum distances between wind power plants and residential areas. If states impose sizable distances, then wind power plants cannot be constructed anymore in areas with potential.

HEAT

BARRIER	DESCRIPTION
ABSENCE OF A GENERAL RES-H STRATEGY	The heating market, with its huge potential for financial and CO_2 savings, is widely ignored. The “Energiewende“ refers almost exclusively to the transformation of the electricity sector.
NO RELIABILITY OF THE SUPPORT SCHEME	The Market Incentive Programme (MAP) has had only a minor positive effect on increasing the sales volume of RES-H technologies, as it offers a continually changing (on an annual basis) and not sufficiently lucrative framework.
LACK OF KNOWLEDGE AND EXPERTISE OF THE INSTALLERS	Installers and craftsmen often lack the technical expertise necessary for a successful installation and maintenance of the different RES-H technologies. This also leads them to not recommending RES-H systems to customers.

TRANSPORT

BARRIER	DESCRIPTION
THE EUROPEAN INSTITUTIONS-POSITION ON RES-T	This barrier mostly refers to the debate on the indirect land use change (ILUC) caused by biofuels. There is no reliable scientific basis for measuring ILUC. Furthermore, this issue is addressed only selectively by focussing on biofuels, because ILUC occurs in other cases as well, for example for fossil fuel power plants or for the building industry.
LACK OF A GENERAL STRATEGY FOR RES-T	The European Commission’s 2030 climate and energy goals, presented in January 2014, do not include any RES target for the transport sector. There is thus no perspective for the development of this sector after 2020.
TECHNOLOGICAL ISSUES	The current blending quotas of 7% biodiesel with diesel and 10% ethanol with gasoline are insufficient to meet the 2020 target of 10% RES in the transport sector. Within the limits of technical feasibility, higher blending limits need to be set politically.

KEY TRENDS IN THE RES SECTOR

• Since December 2013, Germany has a new coalition Government. The new Government is in favour of setting three targets for 2030 - renewable energy, CO_2 reduction, energy efficiency - at the European level. The German support mechanism for renewables will be amended again, with the revision to enter into force before the summer.

• This revision threatens to bring the development of renewables to a halt by implementing the so-called expansion corridor and introducing measures such as a 'breathing cap' for wind onshore of 2,500 MW installed capacity per year, an expansion goal of 100 MW for bioenergy, mandatory direct marketing and tenders starting 2017.

• The RES-H issue addressed by the coalition agreement is the stabilisation of the existing market incentive programme (MAP). Coalition talks about the introduction of a tax relief did not materialise due to the unwillingness to bear the costs.

• Biofuel production is still very low and the outlook remains grim. Regarding e-mobility, there are slight upward tendencies, but not enough to reach the 2020 goals.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Guarantee a clear and stable framework for the development of renewables in Germany. The missing reliability of the general RES-E strategy and of the future of the support scheme is one of the most significant barriers the sector is facing.

• Improve the framework for biogas plants. With increasing environmental and technical obligations, a proposed annual cap of 100 MW starting 2014, and lower remuneration levels since 2012, the operation of the plants cannot be guaranteed anymore.

• Reverse the current negative tendency in spatial planning. Some states define the distances between wind power plants and residential areas in a very restrictive way.

HEATING AND COOLING SECTOR

• Make the renewable RES H&C sector visible and functional. Despite its huge potential for financial and CO_2 savings, the heating and cooling market is widely ignored.

• Improve standardisation efforts for heating systems. Many installers do not recommend renewable heating because they often lack the technical expertise.

TRANSPORT SECTOR

• Guarantee a clear and stable framework for biofuels at the European level. The ILUC debate has created uncertainty among biofuel producers and might entirely stop the development in the sector.

• Revise the introduction of a greenhouse gas reduction quota in 2015. The proposed change will involve complex calculations and translate into an increased workload for biofuel producers. Moreover, the concrete processes, methodologies and provisions are still undefined.

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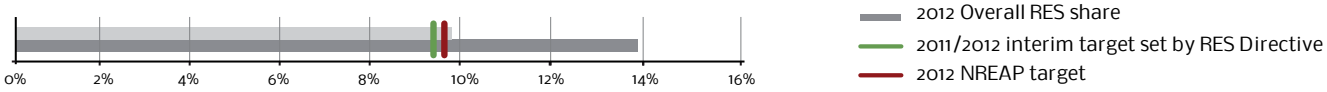
Is Greece

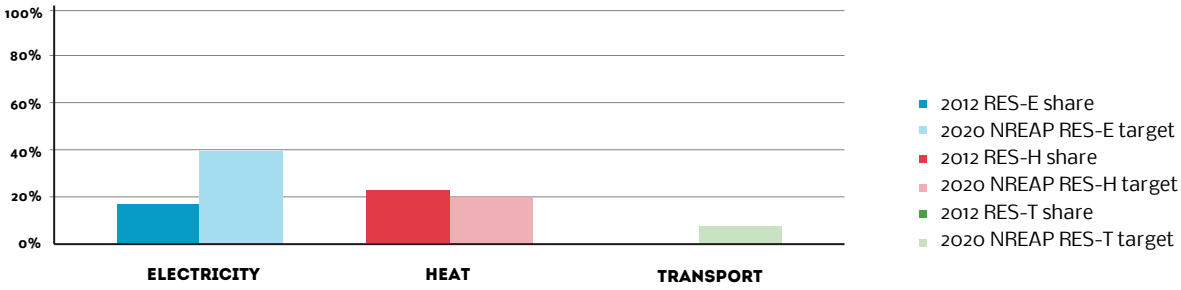
ON TRACK?

- Greece has achieved both its NREAP 2012 target and the interim target 2011/2012, in part still as a result of the economic crisis and subsequent lower energy consumption.
- The growth rate in the RES-E sector would be enough to achieve the 2020 target if it could be maintained. For RES-H&C, the 2020 target share has already been achieved. The negative growth rate in the RES-T sector may possibly be due to statistical issues but must be closely monitored.

OVERALL RES SHARE

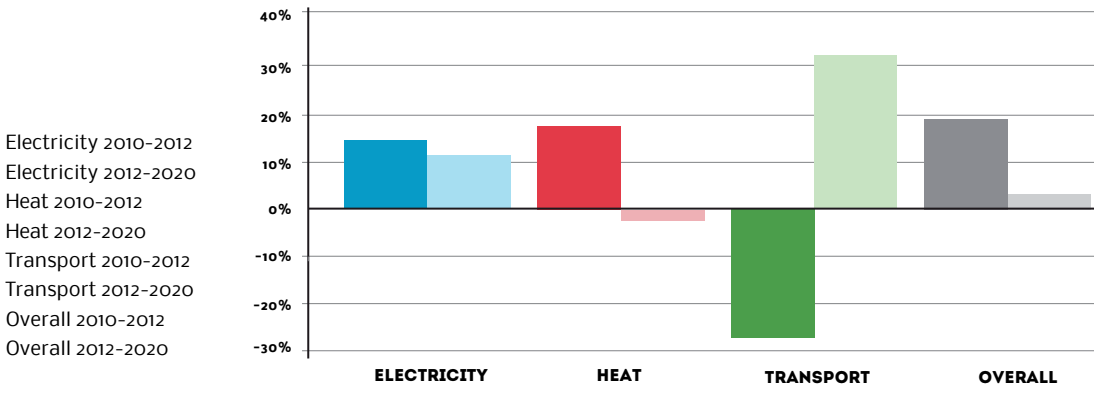


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	16.5%	24.4%	1.1%	13.8%
2012 NREAP target	18.8%	16.2%	4.1%	9.5%
2011/2012 interim target set by RES Directive	-	-	-	9.1%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
TARIFF DEFICIT AND LONG DELAYS IN REMUNERATION	The weaknesses of the national RES-E strategy formulated in 2010, coupled with serious mistakes in its implementation, have produced a burgeoning tariff deficit and long delays in the remuneration of RES-E producers. The RES-E strategy did not provide for the establishment of effective tariff monitoring and control mechanisms and for the correction of the calculation of the required support for RES-E projects.
RETROACTIVE MEASURES	Uncontrollable growth of the deficit of the Special Account for RES of the Market Regulator, the resulting liquidity problems due to the explosive growth of PV and the absence of an effective monitoring and control mechanism that could promptly adjust the Feed-In Tariff scheme to the market conditions puts the revenue for RES-E producers at risk. The imposition of a series of retrospective and new restrictive measures by the Government in an effort to contain the problem has had a further detrimental impact on the viability of existing and the planning of new RES projects.
LIMITED ACCESS TO FINANCE	The fairly unstable and uncertain situation in the RES-E sector along with the ongoing financial crisis hinders the financing of new RES-E projects.

HEAT

BARRIER	DESCRIPTION
LACK OF A GENERAL RES-H STRATEGY	The major barrier in RES heating and cooling has always been the lack of an integrated relevant strategy at the regional and the national level, as well as of a relevant legal framework featuring proper incentives. Only a small number of policies were directed to RES-H and those were mainly integrated into more general energy efficiency policies and measures. In addition, the RES H&C technologies cannot be promoted through a Feed-In Tariff support scheme, like RES-E technologies.
RESTRICTIVE FRAMEWORK FOR BIOMASS	A very restrictive legislative framework for the exploitation of forest residuals is in place. There is also a lack of necessary storage facilities for biomass due to the inefficient coordination between the relevant stakeholders.

TRANSPORT

BARRIER	DESCRIPTION
NON-EXISTENCE AND EFFECTIVENESS OF A GENERAL RES-T STRATEGY	The prospects were harmed by the inconsistent policies in the sector. Firstly, the amount of biofuels that should be distributed is defined annually by a Ministerial Decree and secondly, the amount of kiloliters announced diverges from the amount that is finally distributed. In addition, a lack of monitoring mechanisms has been observed concerning the blending ratio of conventional fuels with biofuels and local cultivations are substituted with cheaper imports.

KEY TRENDS IN THE RES SECTOR

• In 2013 the RES sector has been strongly influenced by the ongoing recession, the obsolete design and the distortions in the operation of the energy market.

• In 2013, support for RES-E has dwindled further. A moratorium has been imposed on the licensing and the connection of new PV projects to the grid. Tariffs for new PV projects were halved. A new levy on the annual revenues of all RES-E producers has been imposed. Since January 2014, new wind projects are not eligible to receive capital subsidies.

• RES-H: The use of biomass has increased in 2013. This can be explained through the burning of increased quantities of cheap, low quality wood for space heating by low as well as middle income families.

• The utilisation of RES in the transport sector has been limited to the introduction of small quantities of local biodiesel in the national automotive fuel mix.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Propose and implement a viable solution on the electricity tariff deficit problem. The most realistic option includes an increase of the levy imposed on energy consumption coupled with a voluntary, permanent decrease of the annual revenues of RES (mainly PV) producers in exchange for an extension of the duration of their Power Purchase Agreements and an extension of their bank loans. The Government should formulate a new/improved RES-E development strategy and support scheme. All market actors must be involved. The strategy should be consistent with the principles outlined in the European Commission guidance for the design of renewable support schemes announced in November 2013. It should uphold the current national RES targets for 2020 and further expand them for 2030.

• Support/secure the financing and implementation of new interconnections of the electricity grid, both with the non-connected islands and with neighbouring countries. Support the implementation of pump-storage systems.

HEATING AND COOLING SECTOR

• Formulate a national RES-H strategy identifying priorities and setting realistic targets and incentives for its implementation.

TRANSPORT SECTOR

• Formulate a RES-T strategy to deal with the limitations in the use of biofuels in the transportation sector and to monitor and promote the implementation of new, reliable RES-T technologies.

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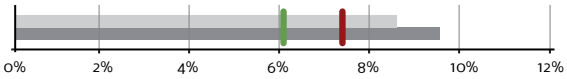
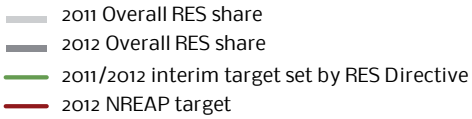
Is Hungary ON TRACK?

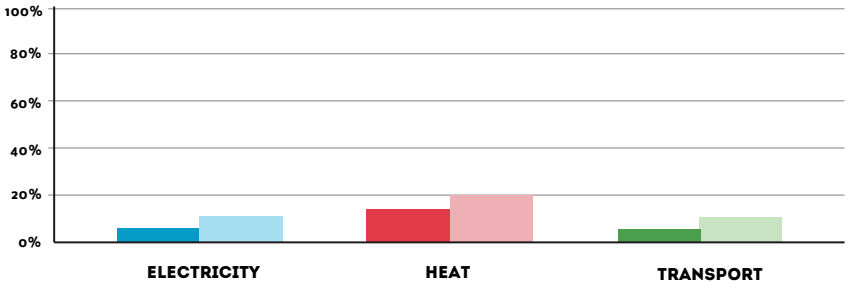
- Hungary is comfortably above both its NREAP 2012 target and the interim target 2011/2012.
- Growth in the RES-H&C share was more than enough to achieve the 2020 target. However, growth in the RES-E share was negative from 2011-2012. This trend needs to be reversed in order to maintain the overall favourable situation.

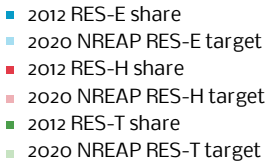
OVERALL RES SHARE





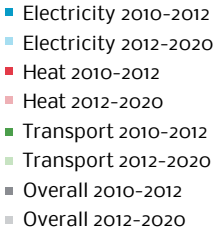
2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND

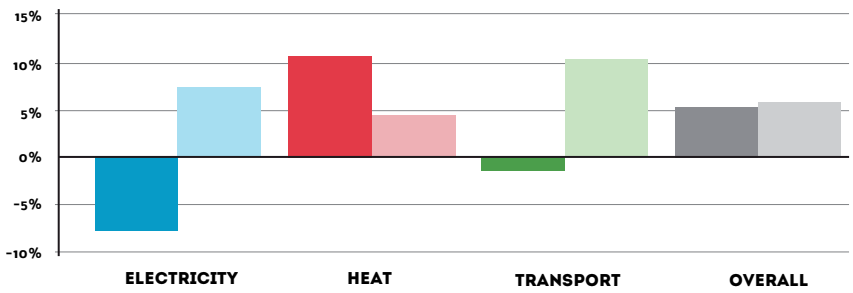




	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	6.1%	13.6%	4.6%	9.6%
2012 NREAP target	6.9%	8.6%	5.0%	7.4%
2011/2012 interim target set by RES Directive	-	-	-	6.0%

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





BARRIERS
to RES deployment

ELECTRICITY

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

HEAT

BARRIER	DESCRIPTION
INSUFFICIENT SUPPORT SCHEMES FOR RES-H&C PROJECTS	Financial support is only allocated through subsidy programmes for which no calls for projects are currently open. Furthermore, the availability of grants does not live up to very high potential for demand of renewable energy installations in the heating sector, so that the programmes are often closed due to exhausted funds only few days after being launched.
IRREGULAR AND UNPREDICTABLE LAUNCH OF SUBSIDY PROGRAMMES	The frequency of calls for projects, especially under the Green Investment Scheme, is unreliable and little predictable, as these programmes are financed by revenues from Hungarian Emission Unit Allowances (EUA). Furthermore, the programmes might be terminated due to exhausted funds before the initially announced deadline.
UNTRANSPARENT LICENSING PROCEDURE WITH A HIGH NUMBER OF AUTHORITIES INVOLVED	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 is involved in the administrative process. This is also due to an overlap of responsibilities of different authorities and an insufficient delimitation of responsibilities.

TRANSPORT

BARRIER	DESCRIPTION
CONTRADICTORY POLITICAL STRATEGY ON BIOFUELS	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 the domestic demand for biofuels produced in Hungary is missing. Consequently, approximately 90% of Hungary's bioethanol production is exported.
UNAMBITIOUS BIOFUEL TARGETS AND INSUFFICIENT ENFORCEMENT OF QUOTAS	The biofuel targets are comparably low and unambitious. However, fuel retailers still failed to meet the quota of 4.9% since the beginning of 2014.
BACKLASH FOR BIOFUELS ON CENTRAL EUROPEAN MARKETS BY ILUC DEBATE	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 at 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

• Infrastructural planning and the adaptation of the transmission system have to prioritise RES-E rather than nuclear power. The transmission grid has only limited capacity for integrating variable RES-E. Thus, the improvement of the grid infrastructure along with the development of a balancing capacity and smart grid measures are essential next steps.

• Strategic reliability in the RES-E sector has to be ensured. The postponing of the introduction of an improved new feed-in tariff system has created considerable insecurity in the Hungarian RES-E market.

• Align feed-in tariffs with complementary support. Feed-in tariffs are generally too low for most technologies, requiring additional support, for example through investment grants. Both need to be appropriately aligned however.

• Implement a state financed insurance scheme to cover the drilling risks of geothermal projects.

• Clearly defined rules regarding grid connection for RES-E have to be implemented, as only minimal obligations are defined by law.

• Simplify the application procedures for RES-E support. There is no reliable overview of all the necessary documents and application procedures. Licensing involves various authorities and is slow.

HEATING AND COOLING SECTOR

• The availability of grants for RES-H&C projects needs to be increased. This problem is apparent since subsidy programmes are closed due to exhausted funds only few days after being launched.

• Provide support for infrastructure development in the heat sector. This would alleviate financing barriers and permit the deployment of biomass and geothermal-based district heating.

TRANSPORT SECTOR

• To create a well-functioning market for biofuels, a consistent strategy for increasing domestic demand for biofuels produced in Hungary is needed. Today approximately 90% of Hungary's bioethanol production is exported.

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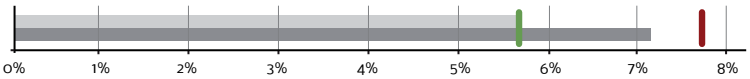
Is Ireland
ON TRACK?

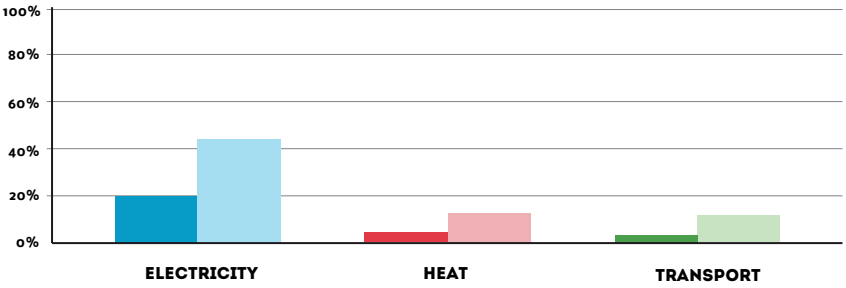
- Ireland has not achieved its NREAP target for 2012 but is on track regarding the less ambitious interim target 2011/2012.
- Growth in the RES-E share was just sufficient to achieve the 2020 target if maintained. Growth in the RES-H&C share needs to accelerate, however. The growth rate for RES-T has been high enough. The actual share was still below the 2012 target share, although this may be due to a statistical issue.

OVERALL RES SHARE



- 2011 Overall RES share
- 2012 Overall RES share
- 2011/2012 interim target set by RES Directive
- 2012 NREAP target

2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND

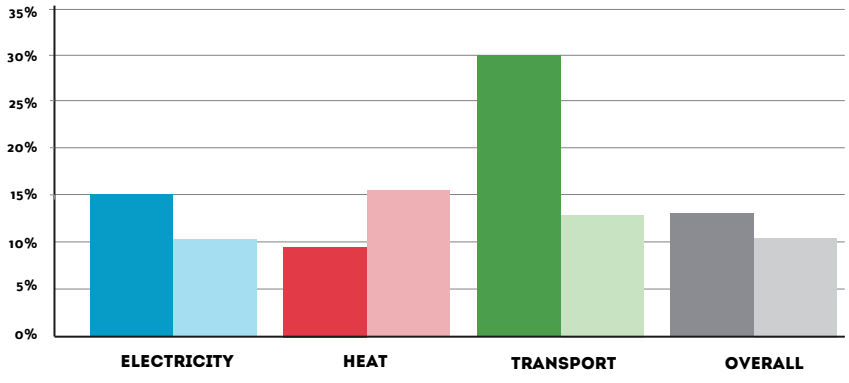


- 2012 RES-E share
- 2020 NREAP RES-E target
- 2012 RES-H share
- 2020 NREAP RES-H target
- 2012 RES-T share
- 2020 NREAP RES-T target

	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	19.6%	5.1%	4.1%	7.2%
2012 NREAP target	25.3%	6.1%	4.6%	7.6%
2011/2012 interim target set by RES Directive	-	-	-	5.7%

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

- Electricity 2010-2012
- Electricity 2012-2020
- Heat 2010-2012
- Heat 2012-2020
- Transport 2010-2012
- Transport 2012-2020
- Overall 2010-2012
- Overall 2012-2020



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
REMUNERATION LEVEL OF RES-E	The way the FiT is calculated, as well as the operational requirements for receiving the FiT, are factors that reduce the expected FiT support for RES.
DURATION AND COMPLEXITY OF THE ADMINISTRATIVE PROCESSES	Before applying for grid access, applying for a planning permission is necessary. Even though the planning permission had a duration of 5 years, it often expired due to the lengthy delays for grid connection. Even an extension of the planning permission from 5 to 10 years has not been effective.
TREATMENT OF PRIORITY DISPATCH CURTAILMENT-	RES are granted priority access to the grid over fossil fuels but not over the interconnectors.

HEAT

BARRIER	DESCRIPTION
LACK OF SUPPORT SCHEMES	Currently, there are no programmes for the development of certain technologies such as biomass and more specifically high efficiency CHP in place.
TRAINING	As installers are not adequately trained, they cannot take into consideration biomass technologies as an alternative solution

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 power) benefit from a tax relief scheme. Ireland's RES strategy focuses on wind, around 12,000 GWh of (onshore and offshore) wind 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 installations 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 which handles all relevant procedures should be created.

HEATING AND COOLING SECTOR

• Create a reliable RES-H&C strategy and appropriate support schemes: Ireland is currently experiencing less deployment of biogas and solid biomass than planned. Previous support programmes have expired and have not been replaced. Consider providing support to these technologies and focus especially on improving the framework conditions for high-efficiency CHP plants.

• Improve awareness and training among professionals in the sector: Installers are often not aware of renewable alternatives and therefore not able to advise building owners in this respect.

TRANSPORT SECTOR

• The consumption of biofuels has been below planned levels in 2012. If the NREAP figures are to be achieved, the support scheme has to be reviewed and adjusted.

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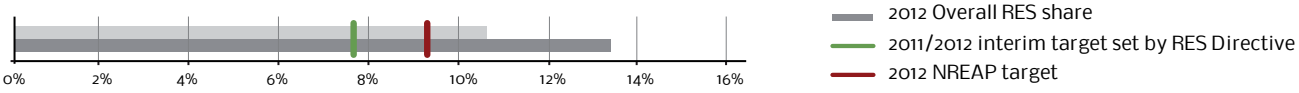
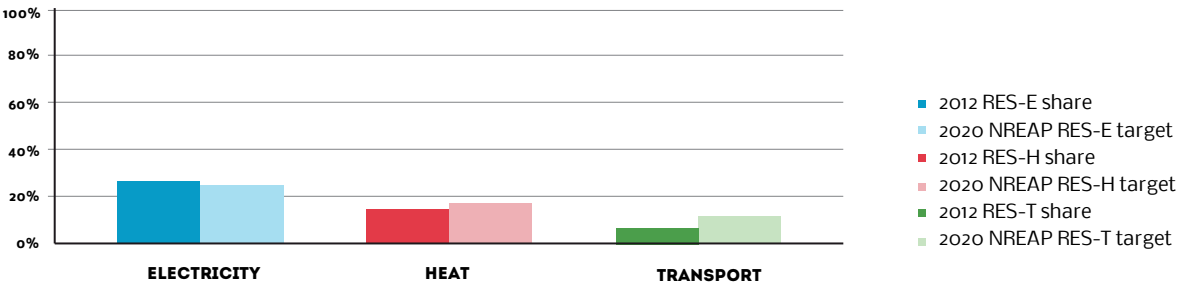
Is Italy
ON TRACK?

- Italy is comfortably above both its NREAP 2012 target and the interim target 2011/2012.
- The target RES-E share for 2020 has already been achieved and growth is still strong. On the other hand, growth needs to accelerate regarding the RES-H&C share.

OVERALL RES SHARE

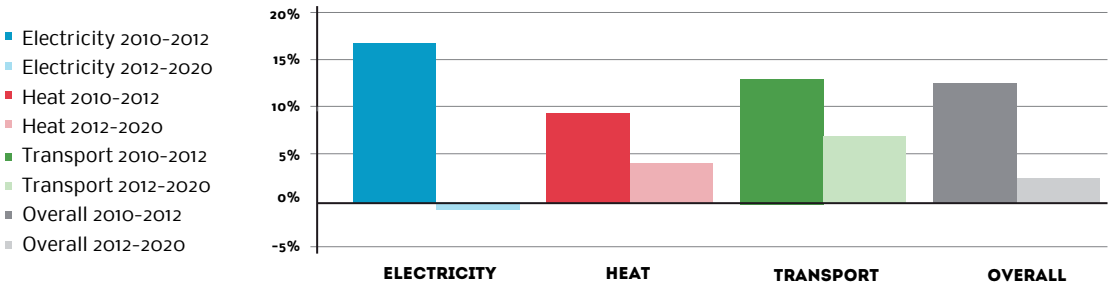


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	27.6%	12.8%	5.8%	13.5%
2012 NREAP target	20.3%	7.7%	4.7%	9.2%
2011/2012 interim target set by RES Directive	-	-	-	7.6%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
UNRELIABILITY OF THE LEGISLATIVE FRAMEWORK AND THE SUPPORT SCHEME	The endless modification of support schemes does not allow for long term investment planning. Retroactive impacts of specific measures (e.g. modifications in the "Ritiro Dedicato" scheme and in the "Robin Tax" application) are mining the reliability of the sector.
DIFFICULTIES IN THE ACCESS TO FINANCE	The uncertainty about the obtainment of incentives, their amount and what will happen after 2015 (DM 06/07/2012) is creating problems for the access to finance. Moreover, the quotas of incentivised energy within the new support scheme have revealed themselves inadequate and are wrongly distributed among the different RES technologies and sizes.
UNCLEAR FISCAL LEGISLATIVE FRAMEWORK	Tax structure is quite complex and many bureaucratic fulfilments are necessary. In addition, local tax agencies often provide different interpretations of the rules, thus leading to different treatments of operators. The bioenergy sector is especially affected since many different fuels are used.

HEAT

BARRIER	DESCRIPTION
COMPLEXITY OF THE LEGAL FRAMEWORK	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 an inconsistency between measures of different nature, which causes difficulties in the access to finance. Finally, there is a general lack of know-how of the involved actors.
INSUFFICIENT DEVELOPMENT OF THE BIOMASS SUPPLY CHAIN	The underdevelopment of the supply chain implies higher risks and a tendency to use imported biomass. Moreover, many urban, industrial and agricultural biomass residues and prunings are treated as waste, with the practical impossibility to use them as fuels at a competitive price. There is a need to set up a modern logistics infrastructure: forest management, system automation, transport.
INCOMPLETE LEGISLATIVE FRAMEWORK FOR SPECIFIC SECTORS	The lack/delay in the completion of the legislative framework is discouraging the development of new projects. Incentives for the realisation of new DH networks are foreseen by law (D.Lgs. 28/2011) but still not implemented. The possibility to inject biogas into the natural gas network is still not operational, as the legislative framework with all the necessary technical rules still has to be completed.

TRANSPORT

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

KEY TRENDS IN THE RES SECTOR

Uncertainty is still the key element that characterises the RES sector in Italy, even if in 2013 renewables accounted for around 30% of the national gross electricity production.
Bad news: The Government lowered the turnover threshold for paying the "Robin Tax", with an impact on many small and medium RES enterprises. The new RES support scheme revealed its limits: quotas available for registries were by far overfiilled, while only a few plants participated in the auctions. The feed-in tariff scheme for PV (V Conto Energia) was shut down on the 06/07/2013.
Good news: The "Conto Termico", the support scheme for small RES-H sources, has finally been published. Incentives for the purchase of low-emission cars and for the use of biomethane in the gas grid and the transport sector were issued.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Guarantee clear and stable incentives over time: The endless modifications of the support scheme are dangerous for the market and create problems to access finance. Investors need a clear and long-lasting support framework. New rules should not be applied retrospectively.

• Revise quotas of the new tendering mechanism: the quotas of incentivised energy set in the new tendering mechanism have revealed themselves as inadequate and are wrongly distributed among the different RES technologies and plant sizes. Flexibility should be provided.

• Simplify the administrative procedures through the centralisation of energy competences: The fragmentation of competences among national, regional and local bodies causes an inhomogeneous implementation of the legislative framework. The decisional power in the energy field should be kept at the national level as much as possible.

HEATING AND COOLING SECTOR

• Improve incentives and access to finance: The high cost of RES-H&C requires adequate incentives for an adequate period. Banks need more training for financing RES-H&C solutions, especially if linked to ESCOs.

• Simplify the rules and implementation of the support scheme for district heating networks: Regulation is complex (is it a public service or not?) and foreseen incentives are still not being implemented.

• Implement a legislative framework for the injection of biomethane into the natural gas grid: The legislative framework should be completed with all the necessary technical rules to connect plants to the grid and the standards for gas quality.

TRANSPORT SECTOR

• Elaborate a comprehensive strategy for the development of a sustainable transport system by shaping a targeted legislative framework and a suitable support scheme, by improving training and creating an official statistical database.

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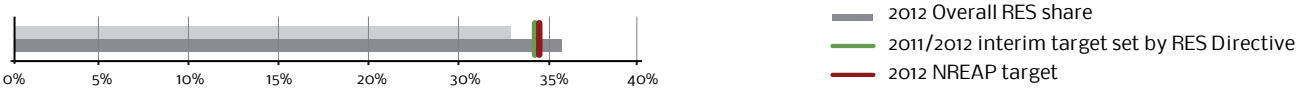
Is Latvia

ON TRACK?

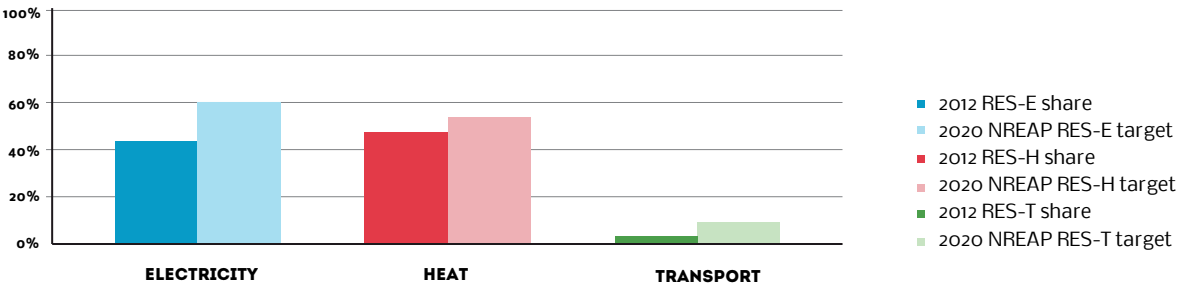
- Latvia has achieved both its NREAP 2012 target and the interim target 2011/2012.
- The growth rate in the RES-H&C share is more than enough to achieve the 2020 target if it can be maintained.

The RES-E share has grown very little between 2011 and 2012 and growth needs to accelerate.

OVERALL RES SHARE

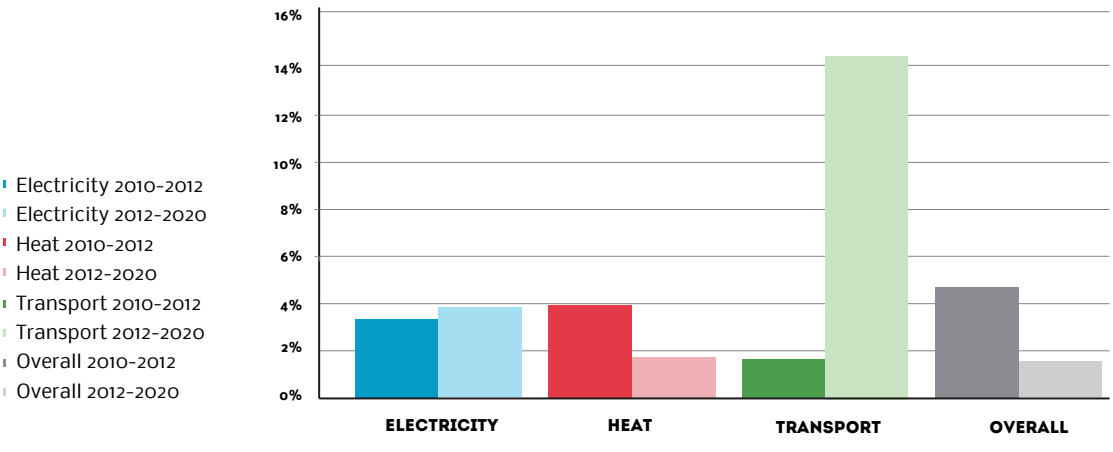


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	44.9%	47.3%	3.3%	35.8%
2012 NREAP target	47.0%	47.6%	4.2%	34.3%
2011/2012 interim target set by RES Directive	-	-	-	34.1%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
POLICY RISK AND UNCERTAINTY IN THE MARKET	The current support system is under revision since 2011 without certainty on the future project support and with possible retroactive effects for existing production plants. However, new amendments to the laws foresee a stricter supervision of subsidised electricity producers, more stringent controls and a limited timeframe for the implementation of RES projects (within 10 years at the latest). Legislative disorder and the lack of long-term predictability repel investors, increase costs and complicate project development.
TAX ON SUBSIDISED ELECTRICITY	In January 2014, a new tax (tax rates of 5 to 10%) on subsidised 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 stakeholders, the tax is going to have an adverse impact on renewables deployment in Latvia. The tax is not only hindering the development of new RES-E projects in Latvia but could also pose problems for the survival of existing companies.
UNDERDEVELOPED TRANSMISSION GRID FOR RES AND DISTRIBUTION OF THE COSTS	As reported by the stakeholders, the grid in Latvia is currently underdeveloped for the uptake of renewable energy. This resuls in too little capacity to transmit and distribute RES-E in some locations and at the required scales. The costs of grid connection shall be borne by the plant operators, including the costs for grid reinforcement. Several stakeholders especially reported the costs for grid development 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 an unclear calculation and allocation of costs

HEAT

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

TRANSPORT

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

KEY TRENDS IN THE RES SECTOR

• Latvia's main RES-E support instrument (a feed-in tariff with tenders) has been put on hold. No new tendering rounds are expected until 2016. The scheme is under revision. Previous support levels for biomass and biogas were rather high and led to a target overachievement. A retrospective tax of 5-10% has been applied to existing installations.

• RES-H&C is supported through a 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 is below the planned level.

• The use of biofuels in transport is promoted through a preferential tax treatment of blended fuels. Latvia is currently lagging behind its plans on the use of biodiesel, bioethanol/-ETBE, and other biofuels.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Plan for regular and transparent adjustments: In the future support scheme, support levels for small- to medium-scale installations can be set administratively. An automatic adjustment mechanism is a preferable instrument compared to technology-specific capacity caps if there is strong concern about support costs getting too high.

• In case of a tendering mechanism for large-scale installations, the process must be well designed to ensure competitive bidding. Penalties must be high enough to discourage winners from not realising their projects, but not so high as to discourage bidders from participating at all.

• 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 for efficient installations: As Latvia focuses very much on biomass until 2020, it is advisable to ensure an efficient use of biomass in heating. The incentives could for instance comprise investment grants or a CHP bonus included within the RES-E support scheme.

• 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.

TRANSPORT SECTOR

• Increase support: Biofuel consumption has decreased between 2011 and 2012, suggesting that the support level is too low to incentivise biofuel use. Consider increasing the support through further tax instruments or through a quota scheme.

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Is Lithuania

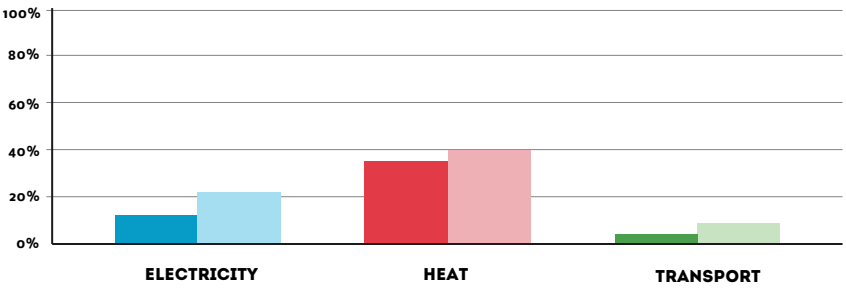
ON TRACK?

- Lithuania has achieved both its NREAP 2012 target and the interim target 2011/2012.
- 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

2011 Overall RES share
2012 Overall RES share
2011/2012 interim target set by RES Directive
2012 NREAP target

2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND

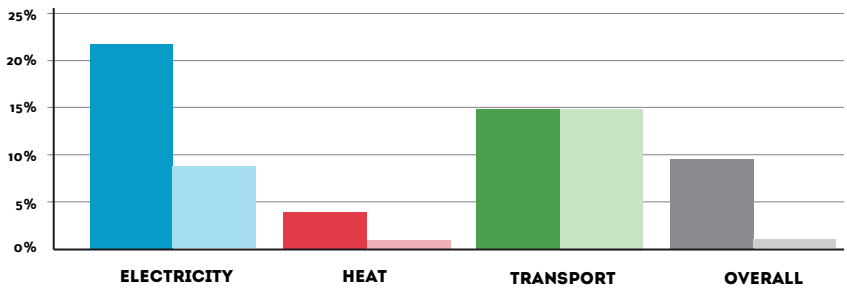


2012 RES-E share
2020 NREAP RES-E target
2012 RES-H share
2020 NREAP RES-H target
2012 RES-T share
2020 NREAP RES-T target

	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	10.9%	35.5%	4.8%	21.7%
2012 NREAP target	11.0%	30.0%	5.0%	18.0%
2011/2012 interim target set by RES Directive	-	-	-	16.6%

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

- Electricity 2010-2012
- Electricity 2012-2020
- Heat 2010-2012
- Heat 2012-2020
- Transport 2010-2012
- Transport 2012-2020
- Overall 2010-2012
- Overall 2012-2020



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
LACK OF A POLITICAL WILL	The 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, the development of renewable energy sources in Lithuania is currently at a virtual standstill.
LACK OF A LONG-TERM NATIONAL STRATEGY FOR RES	A number of strategic documents envisaged in the Law on RES have not yet been 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 the National Renewable Energy Development Programme which is due to be implemented by national and local institutions and organisations; and the National Special Plan for the Use of Biodegradable Industrial and Municipal Waste for Energy Production, etc.
UNSTABLE LEGAL FRAMEWORK	The legal framework regulating RES-E is unstable. In 2013, a number of amendments to the Law on Energy from Renewable Sources and its implementing legislation have been carried out (e.g. reduction of the cap for the support of power from biomass from 355 MW to 105 MW; change of the definition of small power plants, etc.). Together with the lack of a long-term strategic perspective, frequent changes of the legal basis result in uncertainty for project developers and investors.

HEAT

BARRIER	DESCRIPTION
LACK OF A POLITICAL WILL	The 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, the development of renewable energy sources in Lithuania is currently at a virtual standstill.
INCOMPLETE LEGISLATIVE FRAMEWORK	Due to the incomplete legislative framework, biogas purification is at standstill in Lithuania. Since more than two years, the industry is waiting for a legal act that would regulate certain aspects of biogas (e.g. how the 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 so far unclear.
COSTLY GRID CONNECTION	RES-H producers have two options of connecting to the gas network - connecting to the gas transmission network or the gas distribution network. If connecting to the transmission network, the total heat produced is purchased by the gas network operator "Lietuvos dujos". However, the connection to the transmission grid is much more expensive (LTL 2 million/1 km instead of LTL 200,000/1 km in case of a connection to the distribution grid). The connection to the distribution grid is cheaper. However, renewable heat supply may not exceed consumer demand for heat, which makes biogas production during the warm season economically not viable.

TRANSPORT

BARRIER	DESCRIPTION
LACK OF A LONG-TERM NATIONAL STRATEGY FOR RES	A number of strategic documents envisaged in the Law on RES have not yet been 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 the National Renewable Energy Development Programme which is due to be implemented by national and local institutions, etc.
TOO SMALL NATIONAL BIOFUEL MARKET	According to the industry, the Lithuanian biofuel market is simply too small. One Lithuanian company producing bioethanol and biogas stated that it is capable of producing 60 m^3 of bioethanol and dehydrated ethyl alcohol a day. However, this amount is too large for the domestic biofuel market. In Lithuania, there are just a few cars powered by bioethanol so far.
LACK OF A LEGAL FRAMEWORK AND A LONG TERM STRATEGIC PERSPECTIVE	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 for electric cars is also not clear because they are not covered in the national strategic documents. Without a regulatory framework and a clear strategic long-run perspective in place, the deployment of electric vehicles and the 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. The tariff amount 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 heat supplier.

• RES-T is promoted via an excise tax relief and an exemption from environmental pollution tax for biofuels. Furthermore, there are financial incentives for farmers who produce raw materials for biofuel production.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Consider increasing the capacity caps for low-cost technologies such as onshore wind. The caps are expected to be hit long before 2020.

• The design of competitive tenders can be complicated. Risks for bidders should not be too high to prevent participation but there have to be penalties for winners who do not realise projects. Consider reviewing the tender scheme regularly to check whether risks and penalties are still set at appropriate levels given the market situation.

• Explore possibilities to let local populations benefit financially from wind farms built in their vicinity to improve public acceptance.

HEATING AND COOLING SECTOR

• For district heat, the purchase guarantee for independent RES-H suppliers only holds if they produce more cheaply than the main supplier. This leads to insecurities for independent producers, as they can be denied grid access as soon as the main supplier switches to a cheaper fuel. Consider creating a more reliable framework with long-term security regarding grid access.

• Some deployment of heat pumps is foreseen in the NREAP but there is virtually no support. Consider either adapting the investment grant scheme to include more heat pumps, or enforce the legal provisions ensuring reduced electricity prices for electricity consumed in heat pumps more strictly.

TRANSPORT SECTOR

• Biofuels produced in Lithuania are mostly 1st generation, most of which is exported. Policies favouring 2nd generation biofuels in the EU will thus have negative effects on domestic biofuel producers and on farmers producing the raw materials. Take early action to help the domestic industry and agricultural sector adapt to the changing circumstances.

• Biofuels produced in Lithuania are mostly 1st generation, the vast majority of which is exported. Policies favouring 2nd generation biofuels in the EU will thus have negative effects on domestic biofuel producers and on farmers producing the raw materials. Take early action to help the domestic industry and the agricultural sector adapt to the changing circumstances.

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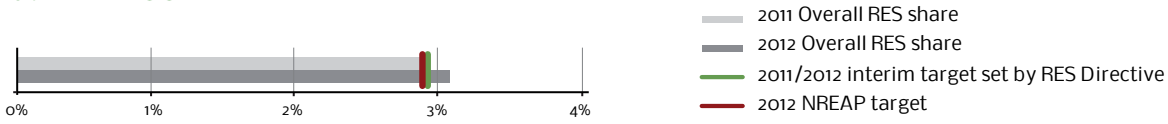
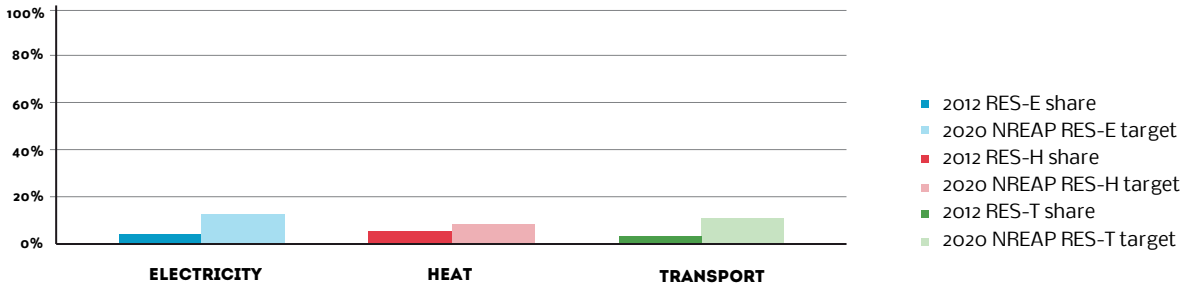
Is Luxembourg
ON TRACK?

- Luxembourg has achieved both its NREAP 2012 target and the interim target 2011/2012.
- 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

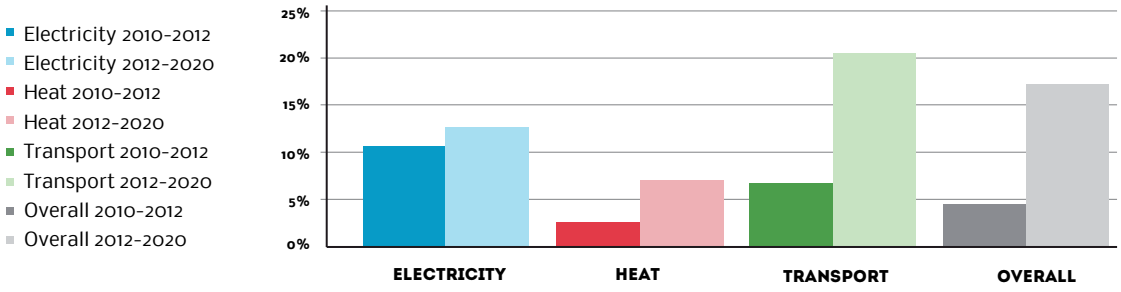


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	4.6%	5.0%	2.2%	3.1%
2012 NREAP target	5.4%	2.7%	1.8%	2.9%
2011/2012 interim target set by RES Directive	-	-	-	2.9%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
LACK OF A CLEAR STRATEGY TO ACHIEVE RES TARGETS	Within the framework of the Kyoto Protocol, 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 the indigenous production of RES-E.
LACK OF SECTORAL PLANS FOR RES-E DEVELOPMENT	There is no Governmental development plan identifying favourable areas for the installation of wind parks and of PV systems. The Government did not take the initiative for the implementation of wind and solar cadastres. Consequently, other actors such as municipalities or private companies have created their own registers, based on various standards, thereby hindering a homogeneous RES-E deployment at the national level.
STOP-AND-GO SUPPORT POLICY FOR SOLAR ENERGY	Between 2002 and 2004, the RES-E support policy allowed for a boom of PV installations. In response, the Government stopped the allocation of a FiT for PV in 2004. From 2008 to 2012, the FiT system has been reintroduced. In parallel, the price of solar panels dropped significantly, without the level of the FiT being gradually adjusted. This windfall for PV producers led to a new boom in the PV sector. Consequently, the allocation of the FiT was suspended again from 01.01.2013, this time however only for electricity installations over 30 kW.

HEAT

BARRIER	DESCRIPTION
LACK OF COMMUNICATION ON THE MOST ADAPTED RES TECHNOLOGIES	Not all types of RES are adapted to Luxembourg. Solar energy is deemed too expensive due to the low insolation rates in the country. People are not informed enough 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, even though the country's conditions would allow for a good profitability of such facilities.
COMPLEXITY OF APPLICATIONS FOR SUBSIDIES	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.
LACK OF CERTIFICATION OF INSTALLERS FOR RES	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 market presence 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
INSUFFICIENT SUPPORT SCHEMES FOR BIOFUELS	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 a biofuel quota. On the other hand, the new Government of Luxembourg, which came into 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.
LACKING PUBLIC ACCEPTANCE OF BIOFUELS BY CIVIL SOCIETY ACTORS	Numerous advocates of renewable energies in Luxembourg criticise the Government's strategy 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_2 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 energy targets primarily consists in focussing on the transport sector and electricity imports, whereas a possible reduction of the incorporation rate of first generation biofuels from 10% to 5% calls this strategy into 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 need for RES-H. The challenge lies in meeting the heating demand of historical districts in the country, where it is necessary to develop suitable heat generation systems, e.g. cogeneration systems partly fuelled by RES.

• The use of renewable energies in the transport sector is promoted through a biofuel quota, currently set at 4.75%.

POLICY RECOMMENDATIONS

• Create a stable support scheme for RES-E: In the period from 2002 to 2013 for example, feed-in-tariffs for solar PV have been introduced and abolished a number of times.

• Integrate RES-E projects into spatial and environmental planning: Luxembourg's wind energy developers for example face several challenges (including environmental constraints due to the presence of radars) prior to the installation of wind turbines.

• Increase the provision of information and communication about the availability of renewable energy technologies most adapted to Luxembourg: There is a mismatch of information regarding the profitability of solar thermal systems in Luxembourg. At the same time, the use of wood burning systems is fairly limited, although the country-specific conditions would allow for a good profitability of such facilities.

• Reduce the complexity and bureaucracy of support applications: Applications have to be perfect in order to be considered admissible, yet applicants are often not technically qualified to fill-in all the files properly.

• Maintain quality standards of RES installations: There is a lack of certification of installers regarding several renewable energy technologies, resulting in unnecessarily high costs and reduced acceptance of RES technologies.

• Revise the strategy for RES development in the transport sector (with involvement of the general public): Public acceptance of biofuels is lacking in the country. Numerous advocates of renewable energies in Luxembourg criticise the Government's strategy to focus on the development of biofuels in the transport sector.

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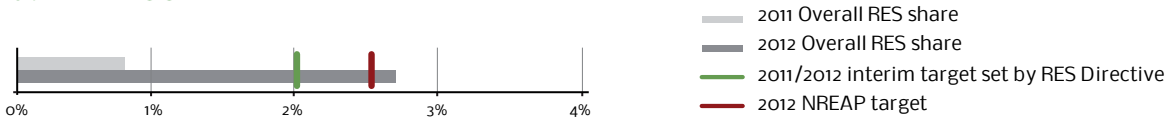
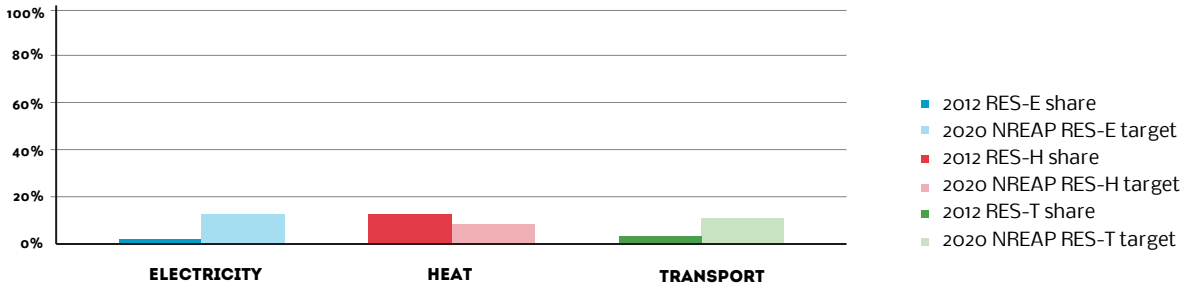
Is Malta ON TRACK?

- Malta has achieved both its NREAP 2012 target and the interim target 2011/2012 (according to its Progress Report).
- The target RES-H&C share for 2020 has already been achieved. The RES-E share is below planned values in 2012 but if the high growth rate can be maintained, the 2020 target can still be achieved.

OVERALL RES SHARE

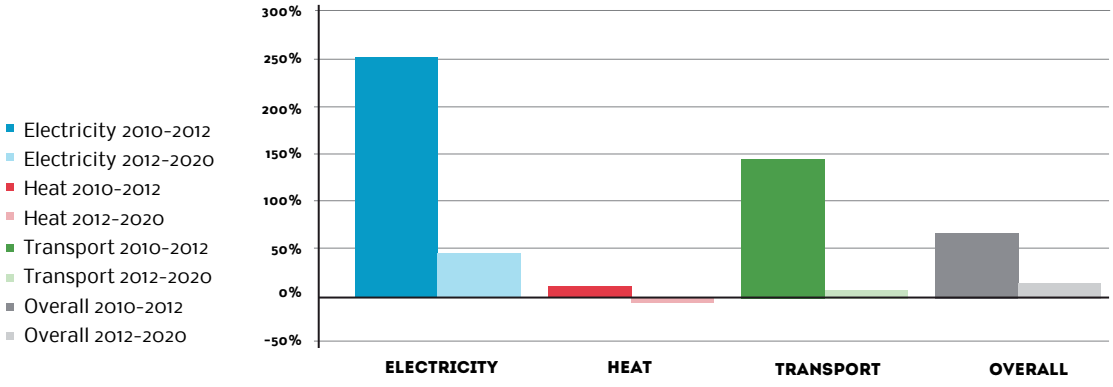


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	1.0%	12.5%	3.8%	2.7%
2012 NREAP target	1.5%	8.8%	3.3%	2.6%
2011/2012 interim target set by RES Directive	-	-	-	2.0%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
INEFFICIENT GENERAL ADMINISTRATIVE PROCEDURES	Micro-wind turbines are being somewhat limited in the built environment by the Malta Environment & Planning Authority (MEPA) through high requirements, which pose a large burden on the applicant. As for large-scale projects, a clear sharing of responsibilities is lacking. The Malta Resources Authority (MRA), the MEPA and the domestic energy company Enemalta refer to three different ministries, which in turn do not have a clear division of responsibilities between themselves.
INEXISTENT OR INSUFFICIENT SPATIAL PLANNING, COMPETING PUBLIC INTEREST	Large-scale RES installations are not possible in Malta. Furthermore, spatial planning is not oriented on a long-term basis.
LACK OF TECHNICAL KNOWLEDGE IN THE GOVERNMENT	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, making energetic and environmental policy dependent on them and therefore lacking continuity.

HEAT

BARRIER	DESCRIPTION
NO GUARANTEED LONG-TERM SECURITY OF SUPPORT MEASURES	For the promotion of domestic SWH, only the Solar Water Heaters scheme is in place. 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
NO LONG-TERM SECURITY OF THE SUPPORT MEASURES	There is no long-term security of the support measures mentioned in the NREAP. Regarding the supervision and non-fulfilment 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

- Exclusively electricity generated by PV installations is supported through a feed-in tariff. Investment costs are partly refunded through a subsidy scheme. According to Malta's Progress Report[15], this support nearly resulted in a tripling of the installed PV capacities from 6.6 MW in 2011 to 18.7 MW in 2012.
- The planned offshore wind farm Sikka l-Bajda will not be considered any further for environmental and economic reasons.
- Malta promotes solar water heating systems for domestic use through a subsidy scheme. As a result, energy generated by solar heating grew from 2.88 ktoe in 2011 to 3.88 ktoe in 2012.

15 under Directive 2009/28/EC of 2013

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Reduce the complexity of administrative procedures: Micro wind energy is being limited in the built environment by the Malta Environment and Planning Authority (MEPA) through requirements including a complete environmental impact assessment. This poses a large burden on the applicant. As for large-scale projects, there are no rules or guidelines, nor a clear sharing of responsibilities.

• Provide financial incentives for several RES-E options: Currently, RES-E support is limited to PV installations. Other RES-E options are not considered in an adequate manner.

• Reduce the duration of administrative procedures: The lead time involved in grid connection, including the collection of all permits, may take up to 5 years.

HEATING AND COOLING SECTOR

• Raise the remuneration level for RES-H&C installations: According to an analysis of the monetary sufficiency of the support measures in the renewable heat sector, heat sources (district heating, heat pumps and biomass) are not supported sufficiently. Only for solar thermal applications remuneration levels are adequate.

• Implement regulations for a suitable installation of solar H&C technologies: Around 50% of the Maltese population live in apartment buildings. They might not have access to the roof (except for the top floor). In order to solve this problem, a facade installation represents an option. However, for aesthetic reasons or for lack of knowledge, the Malta Energy and Planning Authority (MEPA) does not easily give permits for this kind of installations. Another example: there are no solar rights in Malta. If a building has a new flat built at its top, casting shadow on the solar panels of the neighbouring building, no compensation is paid to the solar panel owner..

TRANSPORT SECTOR

• Establish technical regulations to mitigate barriers for biofuel blending: Biodiesel has a separate pump in the filling station, forcing drivers to create the mix themselves by taking fuel from two separate pumps.

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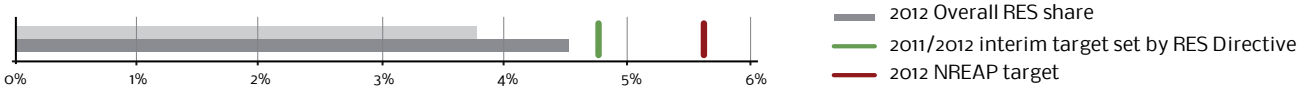
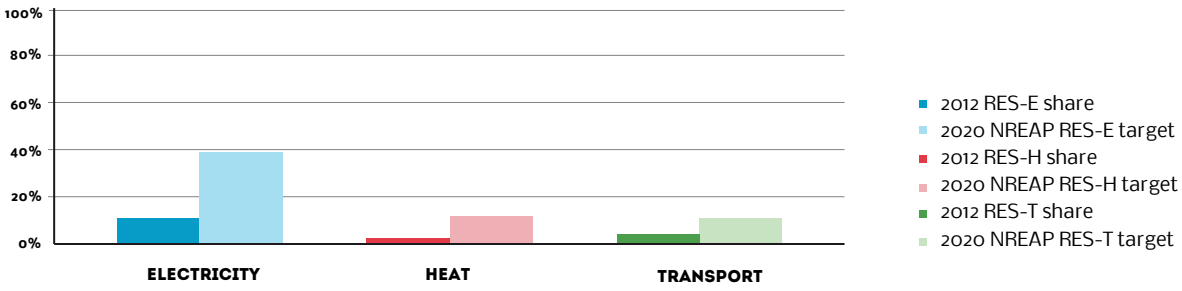
Are the Netherlands ON TRACK?

- The Netherlands missed both their NREAP 2012 target and the interim target 2011/2012.
- Growth in RES-E and RES-H&C shares needs to be accelerated significantly if the 2020 targets are to be achieved.

OVERALL RES SHARE

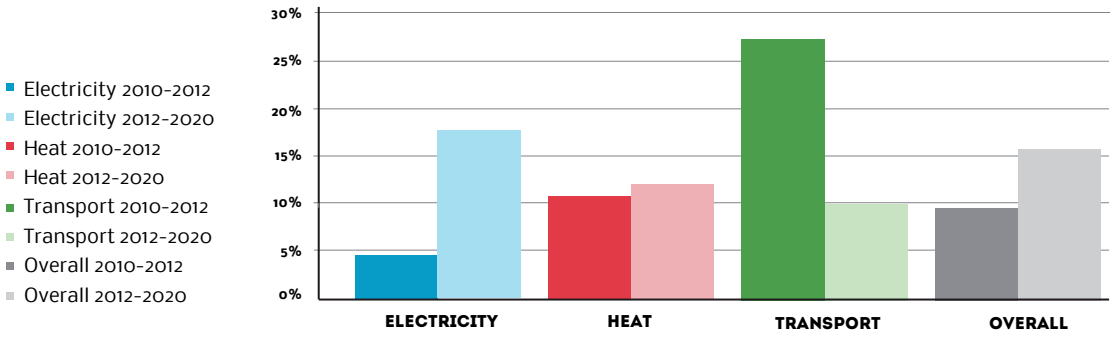


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	10.5%	3.4%	5.0%	4.5%
2012 NREAP target	12.5%	4.4%	4.6%	5.6%
2011/2012 interim target set by RES Directive	-	-	-	4.7%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
RELIABILITY OF THE GENERAL RES-E STRATEGY AND SUPPORT SCHEME	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 for 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.
ACCESS TO FINANCE	Developers of large scale commercial PV systems, wind developers, biogas & biomass operators, as well as geothermal developers, have raised concerns about 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.
NIMBY RESISTANCE	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
RISK OF FAILING RENEWABLE HEATING PROJECTS	During the last years, the general renewable energy strategy put a strong focus on bioenergy and the heating sector. In 2012, 95% of the projects supported under the SDE+ scheme were from the renewable heating sector. A high number of developers applied in one of the earlier tender rounds of the SDE+ scheme in order 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. Ultimately, this led to a stop of the project realisation or the failure of the project.
ACCESS TO FINANCE	Developers of renewable heating projects have raised concerns about 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.
RELIABILITY OF THE GENERAL RES-H&C STRATEGY AND SUPPORT SCHEME	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 for 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
RELIABILITY OF THE GENERAL RES-T STRATEGY AND SUPPORT SCHEME	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 for 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.
ACCESS TO FINANCE	Developers of renewable transport projects have raised concerns about 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.
NIMBY RESISTANCE	Developers of biogas installations are more and more confronted with objections of concerned citizens in the framework of the administrative procedures or even with law suits, which are substantially lengthening the required procedures for developers, resulting eventually in higher realisation costs. Local populations are especially afraid of odour emissions as well as of the traffic caused by the required supply of raw materials.

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 in principle a feed-in premium allocated via a tendering procedure. Low-cost technologies are served first, with higher-cost technologies gradually being included until the annual budget limit is reached. Loans and tax benefits serve as secondary instruments. The Dutch support scheme has been characterised by frequent adaptations and changes in the past. The national Energy Agreement for Sustainable Growth of 2012[16] shall provide for a more long-term view, improving reliability.

• The use of biofuels in transport is promoted through a quota scheme; their production is incentivised via tax benefits.

POLICY RECOMMENDATIONS

ELECTRICITY 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 the transparency and reliability of the national RES strategy. The objectives and measures laid down in the Agreement should now be realised.

• Improve the realisation rates of successful projects under SDES+: Some projects bid too low and later have trouble realising their projects. Consider making support for higher-cost technologies more reliable by allocating a certain portion of the budget to them.

• Improve access to finance: The Green Deal is a first step in helping RES projects access the resources of banks. The scheme should be closely monitored and reviewed if necessary.

• 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 in the planning process at an early stage to integrate their views.

• Introduce a RES-H building obligation for new and renovated buildings, as required by the RES Directive.

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.

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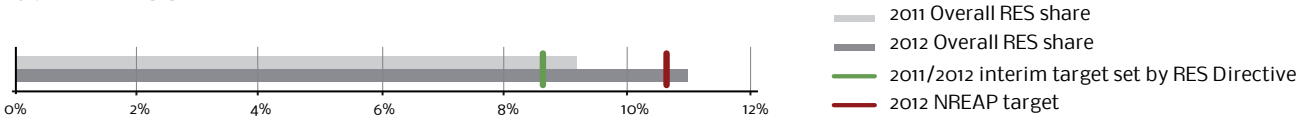
16 http://www.ser.nl/en/publications/publications/2013/energy-agreement-sustainable-growth.aspxv

Is Poland

ON TRACK?

- Poland has achieved both its NREAP 2012 target and the interim target 2011/2012.
- The growth rate in the RES-E share has been more than enough to achieve the 2020 target, while growth in the RES-H&C share needs to be accelerated.

OVERALL RES SHARE



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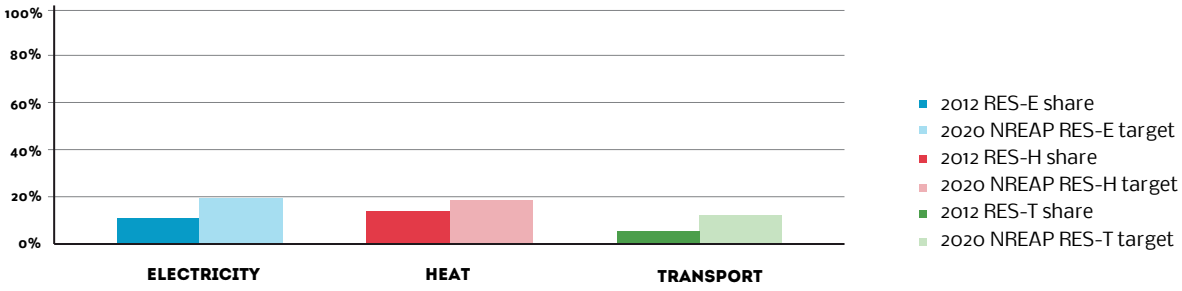
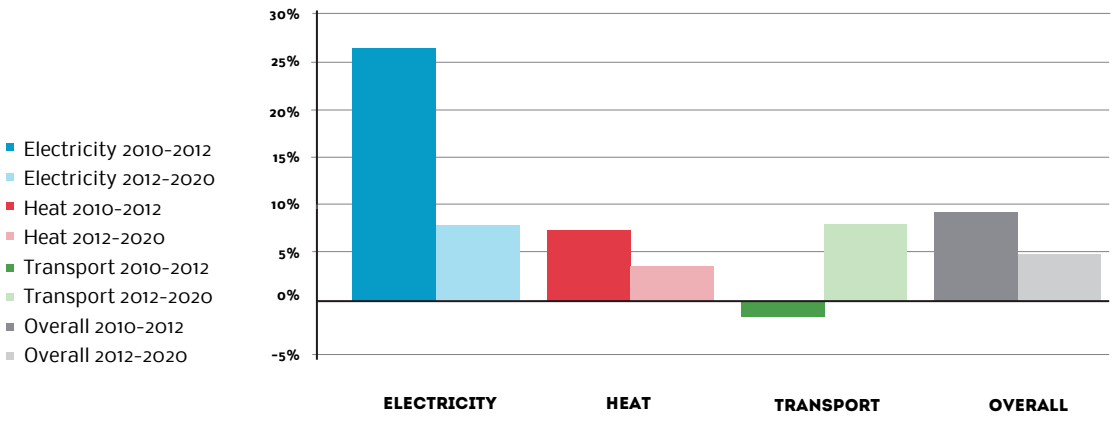


	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	10.7%	13.7%	6.1%	11.0%
2012 NREAP target	10.2%	12.8%	7.3%	10.7%
2011/2012 interim target set by RES Directive	-	-	-	8.8%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
DELAYS IN THE IMPLEMENTATION OF THE DIRECTIVE 2009-28-EC	The Directive 2009/28/EC should have been transposed into national law along with all codes, regulations and standards by 5th December 2010 at the latest, as specified in the Directive. Unfortunately, the bill has not been forwarded to the Parliament until today (end of March 2014). This means that the process has been delayed by almost three years and it may take at least one more year before the Act and the relevant regulations will be approved.
REGULATORY INSTABILITY AND DEVIATIONS FROM THE ELECTRICITY STRATEGY	The circles supporting the development of renewable energy sources in Poland have been waiting for years for Poland's Government to propose and approve an act on renewable energy sources. Such an act should ensure a long-term stable development of the energy sector and introduce a basic legal order, in particular including a long-term support strategy for existing and planned installations using renewable energy sources. Past changes of the Energy Act did not convince the parties interested in the development of RES.
UNSTABLE EXISTING AND PROPOSED SUPPORT SYSTEM	The existing support system is not effective. Due to an oversupply of certificates given to co-firing installations and old hydro power plants, the value of the so called "green certificates" is very low at the moment. The market is waiting for the introduction of a new system which is still unknown.

HEAT

BARRIER	DESCRIPTION
SUPPORT SYSTEM IN CO-GENERATION	The system of red and yellow certificates for co-generation is not valid anymore since the 1st of January 2013. Without having a stable support mechanism with certificates for co-generation, no new development in the renewable heat sector can be expected. A new system is under consideration in Parliament.
LACK OF SUPPORT SCHEMES AND NO CLEAR VISION OF A FUTURE STRATEGY	The support system covers only the generation of electricity. The lack of implementation of a support system for thermal energy based on RES completely blocks the development of this branch.
LACK OF A RES ACT	Appropriate regulation by the Minister of Economy for the use of biogas in natural gas networks already exists. However, the law regulating the support system for agricultural biogas is insufficient. Without a long- term support system, the situation will not change.

TRANSPORT

BARRIER	DESCRIPTION
NO ACTIONS TAKEN TO SUPPORT THE DEVELOPMENT OF ELECTRICITY USE IN TRANSPORT	The Directive 2009/28/EC showed two indicative goals to be achieved by 2020: a percentage of energy from renewable sources in the overall final gross consumption and a percentage of energy from renewable sources in the consumption of final energy in transport. There are no mechanisms in Poland that promote and support initiatives for the development of transport operated by electricity generated from renewable sources.
LIMITATIONS IN THE SUPPLY AND USE OF LIQUID BIOFUELS OTHER THAN BIO100	With the exception of the biofuel BIO100, there is no actual market supply of other types of liquid biofuels in Poland. This is due to the lack of a proper infrastructure (a limited number of pumps at petrol stations) and consumer interest in purchasing biofuels. The latter is determined by the technological capabilities of using biofuels in the fleet of domestic vehicles (e.g. a small number of vehicles on the market is equipped with flex-fuel engines adjusted to run on liquid biofuels developed on the basis of petrol and the wide-spread use of the common rail fuel injection system in diesel engines) as well as the prices of liquid biofuels on the retail market (small price differences do not compensate the higher consumption of biofuels due to lower power efficiency compared to oil-based fuels).
"BLENDING WALL" - LIMITING THE MAXIMUM PERMITTED QUANTITY OF BIOCOMPONENTS IN STANDARD FUELS	Developers of biogas installations are more and more confronted with objections of concerned citizens in the framework of the administrative procedures or even with law suits, which are substantially lengthening the required procedures for developers, resulting eventually in higher realisation costs. Local populations are especially afraid of odour emissions as well as of the traffic caused by the required supply of raw materials.

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. The current law provides a sufficient legal basis for exploiting existing projects as well as developing new investments. But the lack of a long-term strategy for RES in Poland leads to additional risks.

• In the electricity sector: The certificate system is only valid until 2021. A new tendering system may be introduced before that date. A legislation is being prepared for small scale projects (< 40kW) but no additional financial support in form of feed-in tariffs is planned for them.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• To introduce a new RES act to fully implement the RES Directive 2009/28/EC is the most pressing issue. The Government's line on the development of renewables in Poland is neither coherent nor predictable.

• Support for RES generation by households is not sufficient. The energy acts focuses on issues that are important to energy companies, investors and communities, disregarding households and prosumers.

HEATING AND COOLING SECTOR

• In the absence of a support system promoting renewable heating, cooling and CHP, the development of projects is hindered. There are only a few financial incentives for heat or modernisation purposes.

• RES heating and cooling systems should be introduced in buildings, especially in public buildings such as schools, hospitals and offices. In the public sector, a mandatory obligation to use RES heating and cooling technologies should be implemented as soon as possible.

TRANSPORT SECTOR

• In the public transport sector, rules to promote "green tenders" are necessary to ensure that price is not the only criteria for selecting projects during tenders. There is also a need to implement tax allowances for biofuels to provide additional incentives to customers.

• There is no strategic national plan to develop RES transportation in Poland. Interested parties such as local authorities, the public sector, etc. are waiting for a legal framework promoting RES in transportation.

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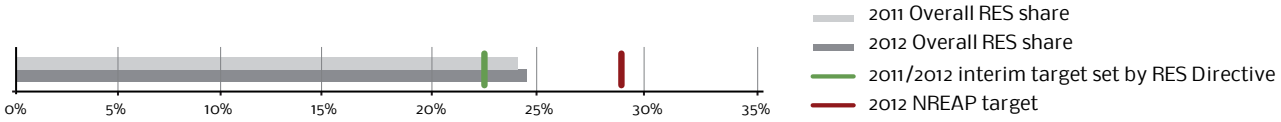
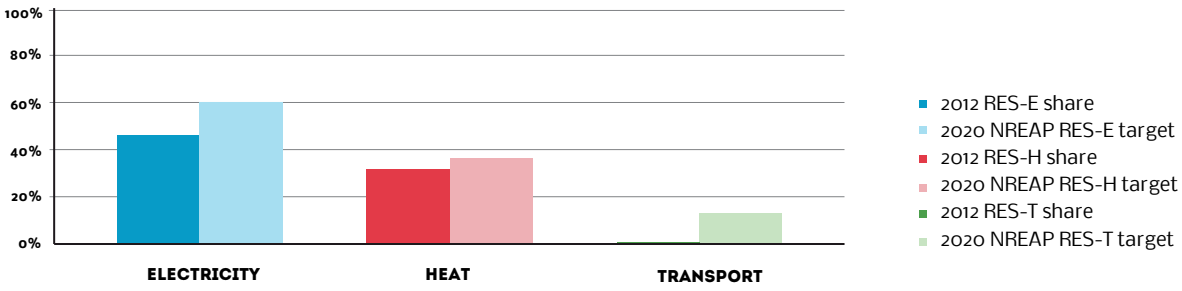
Is Portugal
ON TRACK?

- Portugal has missed its NREAP 2012 target but has met the less ambitious interim target 2011/2012.
- Growth in the RES-E share needs to accelerate to achieve the 2020 target share. The RES-H&C share has even decreased between 2010 and 2012. This trend needs to be reversed. The negative growth in the RES-T share may be due to statistical issues.

OVERALL RES SHARE

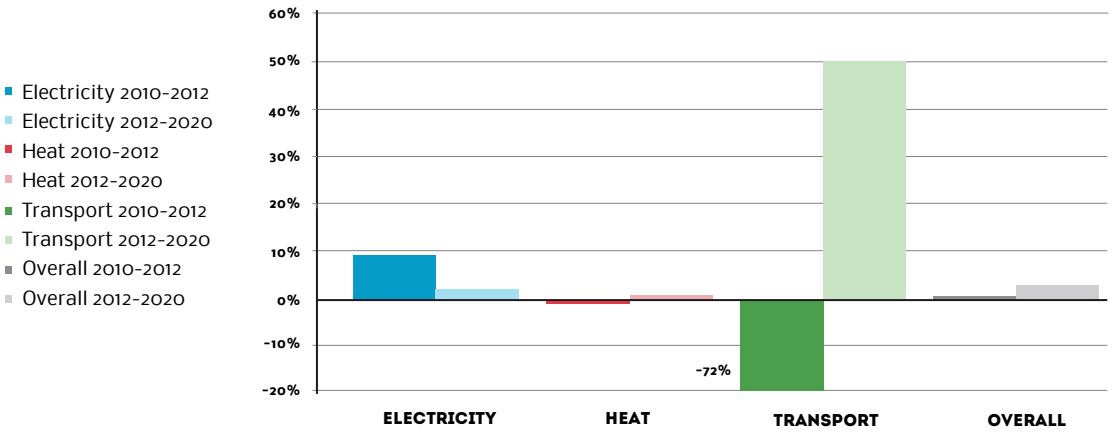


2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	47.6%	33.0%	0.4%	24.6%
2012 NREAP target	48.7%	35.0%	5.7%	28.6%
2011/2012 interim target set by RES Directive	-	-	-	22.6%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
REGULATORY INSTABILITY DUE TO THE REVISION OF THE RES-E SUPPORT SCHEME	As a follow up of the moratorium, a new RES-E support scheme has been published in October 2012. It has abolished support schemes for new projects, which should be fully integrated in the market. However, the ambiguity in the structural definition of the market price brings great uncertainty to the sector.
NEW LICENSING PROCEDURE RULES	The new legislation on power granting and licensing procedures lacks transparency, adequacy and has discretionary dispositions, especially regarding the timings for the environmental impact assessment.
COMMUNICATION OF THE REAL COSTS OF RES	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, recent 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.

HEAT

BARRIER	DESCRIPTION
INEXISTENT RES-H&C STRATEGY	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.
ABSENCE OF SUPPORT MECHANISMS	There is currently no direct support mechanism for RES-H&C. The EE Fund has not renewed the budget to support RES-H&C equipment installation in the household sector. RES-H&C is indirectly supported via the RES-E micro generation regime but the dramatic cuts of the FiT might jeopardise it.
INSUFFICIENT INFORMATION ON RES-H&C TECHNOLOGIES	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
BLENDING LIMITS FOR BIOFUELS IN THE EU FUEL MARKET	In Europe, the maximum limits for biofuel content in the fuel market are set by two European standards: 7% (v/v) FAME biodiesel in diesel (EN 590), and 10% (v/v) for ethanol in the gasoline market (EN228). The requirements are set with the agreement of the European car manufacturers but they should be reviewed taking into account that the maximum limits are important for the compliance with the RES-T target for 2020, as they may influence the market investments for advanced biofuels.
PROTECTION REGIME FOR DOMESTIC PRODUCTION	Rules protecting the national market oblige blenders to source a minimum of biodiesel domestically, which might prevent the import of types of biofuels other than biodiesel - since they are not entitled to renewable energy certificates - and might hamper the entrance of new investors in the biodiesel market.
OUTDATED POLICY FRAMEWORK FOR ELECTRIC MOBILITY	The MOBI.E program (Programa para a Mobilidade Elétrica), established in 2010, is an interesting program but might have been introduced too early. The pilot phase of MOBI.E has still not reached its end, preventing the program to pass on to the next stage. A revaluation of the program has been foreseen to take place in 2013. However, as of January 2014, no further details or results of the revaluation are available.

KEY TRENDS IN THE RES SECTOR

• Portugal is dealing with a profound economical and financial crisis that has triggered an ongoing revision of the RES framework. New support, licensing and compensation regimes have been implemented. Support schemes for new RES-E projects were abolished, with the exception of micro and mini generation regimes (≤250 kW). The new framework lacks transparency and adequacy, bringing great uncertainty for RES-E investments.

• A direct support mechanism for RES-H&C does not exist anymore and the effectiveness of the indirect support via the RES-E micro generation regime is jeopardised.

• Dedicated small producers of biofuels are exempt from the petrol product tax.

• A mandatory incorporation quota of 5.5% in energy content is in place for all biofuels for 2014, together with specific blending obligations for biodiesel in the diesel for road transports until the end of 2014, and for biofuels in gasoline as of 2015.

• The acquisition incentives for electric-vehicles were removed"

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Revise existing support schemes.

• Foster dialogue amongst stakeholders to reduce regulatory instability and redefine the market design.

• Reduce the financial burden being placed on RES-E.

• Implement a one-stop shop including the environmental licensing procedure.

• Redesign the overpowering regime.

• Revise the micro generation regime.

• Improve information provided on RES-E.

• Define curtailment rules after negotiations with RES-E promoters.

• Extend the offshore pilot zone to other national coastal areas.

HEATING AND COOLING SECTOR

• Highlight the need to promote the development of the RES-H&C sector.

• Implement a media campaign for the promotion of all RES-H&C technologies.

• Promote fiscal incentives for the acquisition of RES-H&C equipment.

• Introduce the mandatory certification of installers, equipment and pellets for biomass in households.

TRANSPORT SECTOR

• Redefine the MOBI.E program, create an Observatory for electro-mobility and implement an incentive structure for electro-mobility.

• Revise the technical specifications of road fuels.

• Define incentives for the take-off of advanced biofuels.

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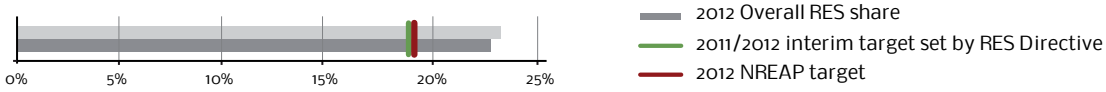
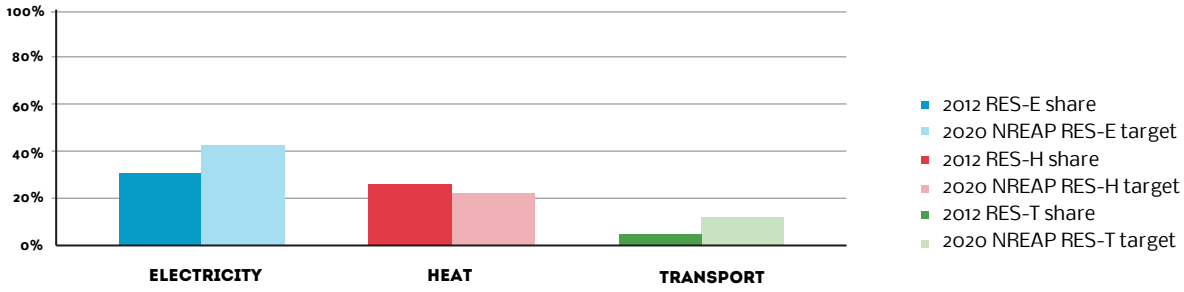
Is Romania
ON TRACK?

- Romania has achieved its NREAP 2012 target which is equal to its interim target 2011/2012.
- Growth in the RES-E share has been fast enough to achieve the 2020 target if maintained. The RES-H&C target share for 2020 has already been surpassed. Nevertheless, the share has been decreasing too quickly over the last two years and developments should be closely monitored.

OVERALL RES SHARE

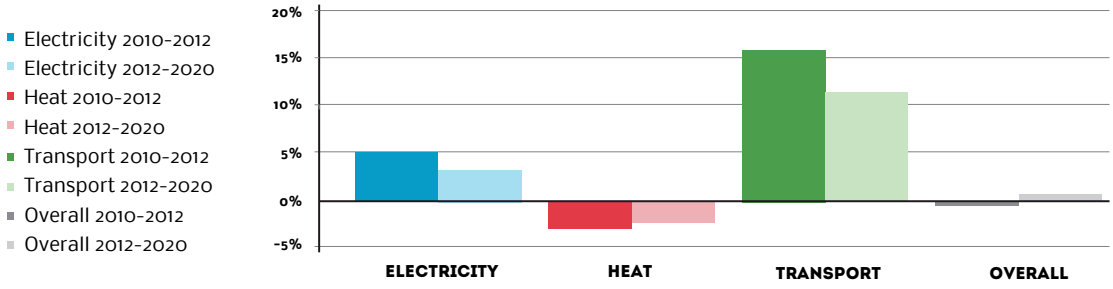


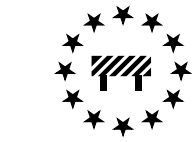
2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	33.6%	25.7%	4.1%	22.9%
2012 NREAP target	33.8%	18.2%	6.9%	19.0%
2011/2012 interim target set by RES Directive	-	-	-	19.0%

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





BARRIERS

to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
LACK OF A NATIONAL STRATEGY	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 are missing. This barrier especially affects PV-installations, small hydro power and wind power.
LEGAL UNCERTAINTY DUE TO THE OVERLAPPING OF DIFFERENT LEGAL PROVISIONS	RES-E plant operators accrediting for the Green Certificate Scheme after 1 January 2014 are subject to both the suspension and the reduction of Green Certificates, as long as the approval of Emergency Ordinance No. 57/2013 has not entered into force. Due to the president's appeal to the constitutional court, the coming into effect of the law is uncertain.
LACK OF RELIABLE PPA'S	The amendment of Law No. 123/2012 on Electricity and Natural Gases banned PPAs outside a centralised 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 centralised market of bilateral contracts for Green Certificates, operated by OPCOM.

HEAT

BARRIER	DESCRIPTION
SUBSIDY PROGRAMMES FOR RES-H&C ARE LACKING FUNDING	The "Casa Verde" subsidy programmes, administered by the administration of the Environmental Fund, is supposed to be launched annually. However, there have been no been no calls for projects since 2011 due to lacking funds.
LACKING SUPPORT FOR INFRA-STRUCTURE DEVELOPMENT OF THE NATURAL GAS NETWORK	The natural gas network is poorly maintained and is characterised by high energy losses. Investment support for maintaining the natural gas transport network through the subsidy programme "Investment support for the interconnection of national electricity and natural gas transport networks with European networks" has been phased out in June 2013.
POORLY MAINTAINED DISTRICT HEATING NETWORK	The district heating network is poorly maintained and is characterised by high energy losses. The existing incentives for developing the district heating infrastructure are not sufficient. However, 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
INSUFFICIENT SUPPORT SCHEMES FOR RES-T	The support schemes for 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.
LACKING INFRASTRUCTURE FOR PROCESSING VEGETABLE OILS	There are no functioning infrastructure and proceedings for collecting and processing vegetable oils in a systematic way.
PURCHASING DECISION MAINLY BASED ON PRICE LEVEL COMPARED TO PETROL AND DIESEL	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, the demand for biofuels consequently diminishes.

KEY TRENDS IN THE RES SECTOR

• Hydro power is the main renewable energy source in Romania. Apart from hydro power, the country ranks second best among the European wind regions with a wind potential of 14,000 MW, and has a solar potential of 1.2 TWh.

• The green certificate scheme set very favourable conditions for solar, wind and new small hydro power plants. However, after concerns about overcompensation arose, the Renewable Energy Law is undergoing significant and ongoing modifications.

• Small-scale RES heating and cooling projects are mainly promoted through subsidies. However, there has been no call for applications since 2011.

• Renewable energy sources in the transport sector are promoted through a quota system, with a quota of currently 6%.

POLICY RECOMMENDATIONS

ALL SECTORS

• Sharpen the RES-E strategy and set up an adequate support scheme (including a legal framework): The RES-E sector in Romania faces a large number of legal amendments, giving rise to a high degree of political instability.

• Mitigate revenue risks under the given support scheme: There is a concern that green certificates suspended and withheld by the Energy Regulator ANRE might not be issued in the end. There are also plans to adjust the maximum price and the annual obligatory renewable energy quota by governmental decision.

• Create stable conditions in order to provide access to finance: The unstable legal situation complicates a proper estimation of the amortisation period of RES-E installations and additionally hinders access to finance. Therefore, it is also necessary to ensure a fair and independent regulation of the RES-E sector.

• Redesign the regulations on grid-access: Just a small number of all projects requesting grid connection has actually been realised and therefore a virtual saturation can be observed, increasing the costs and duration of the process.

• Reduce the complexity and duration of administrative procedures: The problem is the high number of different licenses and permits that are necessary in the course of plant approval.

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

• Provide incentives for a proper infrastructure development: The energy infrastructure, such as the district heating infrastructure and the natural gas network, is poorly maintained and characterised by high energy losses.e offshore pilot zone to other national coastal areas.

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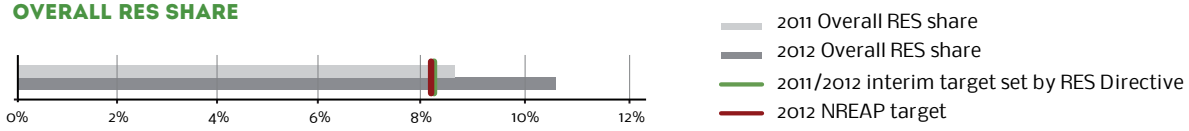
Is Slovakia

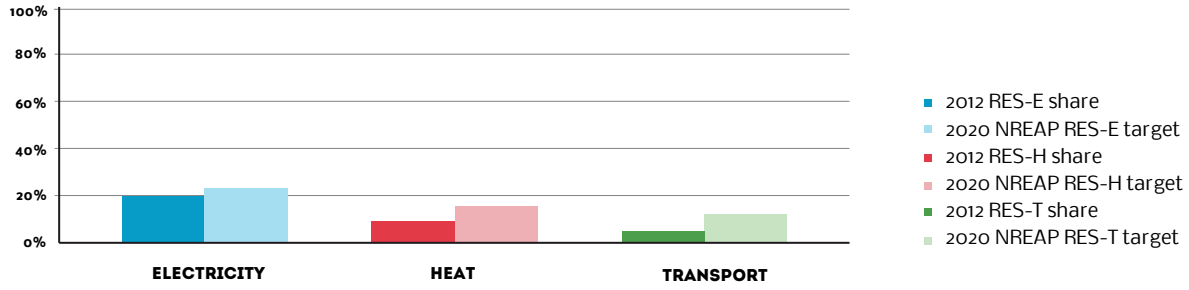
ON TRACK?

- Slovakia has achieved both its NREAP 2012 target and the interim target 2011/2012.
- Growth in the RES-E share has been high enough to achieve the 2020 target if maintained. Growth in the RES-H&C share needs to accelerate.

OVERALL RES SHARE

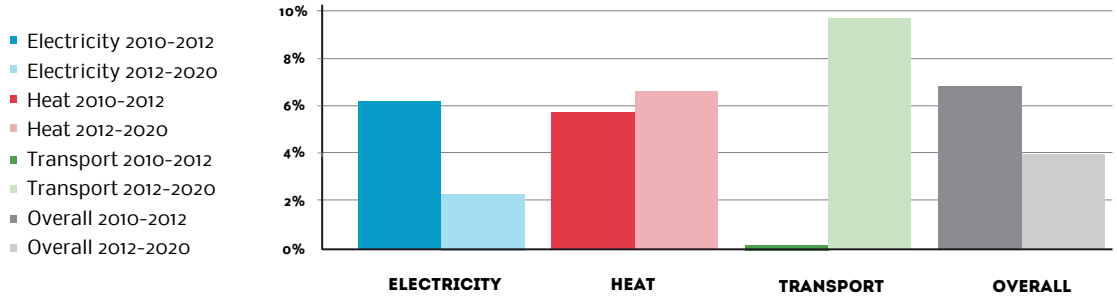


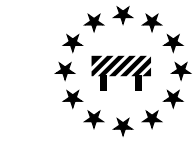
2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	20.1%	8.7%	4.8%	10.4%
2012 NREAP target	20.2%	8.5%	4.3%	8.2%
2011/2012 interim target set by RES Directive	-	-	-	8.2%

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





BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
CONNECTION MORATORIUM	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 has been reached in their area of responsibility.
RESERVATION CHARGE FOR ELECTRICITY TRANSMISSION AND DISTRIBUTION ("G-COMPONENT")	The new reservation charge for electricity transmission and distribution takes two forms: If the plant has been 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.
ONLY PV INSTALLATIONS UP TO 30 KWP ELIGIBLE FOR THE FEED-IN TARIFF	According to an amendment to the Renewable Energy Act from 1st 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 1st July 2013 and were subject to another reduction on 1st January 2014.

HEAT

BARRIER	DESCRIPTION
LACK OF SUBSIDIES FOR THE BIOMASS SECTOR	So far, the Slovak Republic has failed to allocate a sufficient amount of subsidies to provide an incentive for the renewable heating sector. Under current conditions, the initial investment for the installation of a biomass boiler is far too high for a Slovakian household. A sustainable subsidy programme is therefore desperately needed to provide incentives for renewable energy investors.
LACK OF POLITICAL SUPPORT FOR RENEWABLE HEATING	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 Slovakian Energy Policy rather focuses on developing the country's nuclear energy facilities. In reality, renewable energy in the heating sector therefore receives very little attention by the decision makers. Currently, only CHP plants are entitled to receive state support in the form of feed-in tariffs.
UNNECESSARY BUREAUCRACY	According to stakeholders, the existing subsidy programmes 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 only pose an unnecessary administrative barrier.

TRANSPORT

BARRIER	DESCRIPTION
LEGISLATIVE UNCERTAINTY FOR BIOFUELS	The fact that the European Council was not able to reach an agreement on biofuel regulations has led to long-term legislative uncertainty for renewable energy producers in the transport sector in the entire EU.
LACK OF FINANCIAL SUPPORT FOR E-MOBILITY	The expansion of electric vehicles in Slovakia is hampered by 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.

KEY TRENDS IN THE RES SECTOR

• In the Slovak Republic, RES-E is promoted through a feed-in tariff. The use of renewable energy sources is further incentivised through an exemption from excise tax and several subsidies. In the past years, renewable electricity has been supplied mainly by hydro power and to a small extent by biomass. Other renewable energies did not play any role until mid-2011, when the PV sector increased sharply after several large scale installations were connected to the grid (RES Integration, 2011).

• In November 2010, the Slovakian Parliament decided to promote PV projects with capacities exceeding 100 kW only until June 2011.

• Biomass accounts for the highest proportion of heat generation from renewable sources. However, considering its potential, the use of biomass in Slovakia is still negligible in comparison to other EU countries.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• According to Slovakian legislation, the DSO is only obliged to connect new generating sources if there is free capacity in the distribution grid. The DSOs are obliged to disclose the capacity data for any individual connection point on request. Unfortunately, none of the DSOs fulfilled this obligation completely. Therefore, it is impossible for RES plant operators to verify if the capacity limit has truly been reached at the particular connection point. It is essential for the development and installation of new RES-E projects to mitigate this shortcoming.

• According to stakeholders, the regulatory authority ÚRSO requires the installer to provide a lot of unnecessary documentation (re-frame.eu Database). These complexities have to be minimised and requirements reduced to the necessary extent.

• The producer gets the FiT certificate in a two-step process with a 40 day intermitting period prolonging the final provision (re-frame.eu database).

HEATING AND COOLING SECTOR

• Currently, only CHP plants with capacities of more than 125 MW are entitled to receive state support in the form of feed-in tariffs. According to stakeholders, the Slovakian market is lacking a "first stimulus" which could help create an attractive investment climate for renewable energy companies.

• Despite its potential, the biomass sector is not able to provide an 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 barriers identified within the RES-T sector are mostly connected with the existence and reliability of the general RES-T strategy and the support scheme.

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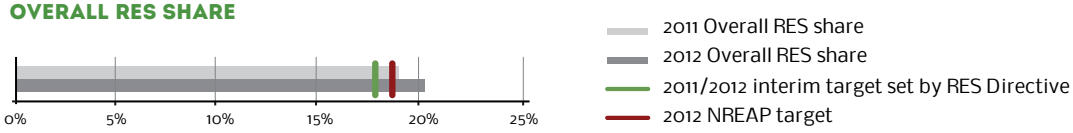
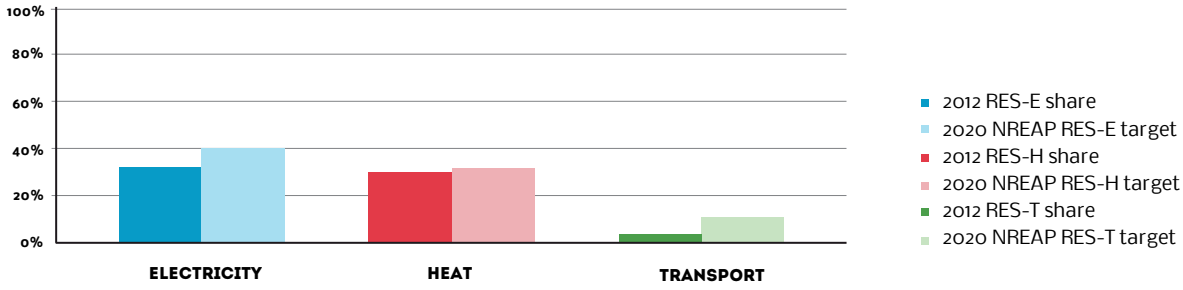
Is Slovenia
ON TRACK?

- Slovenia has achieved both its NREAP 2012 target and the interim target 2011/2012.
- Growth in the RES-H&C share has also been more than enough, as the 2020 target share is already almost achieved. Growth in the RES-E share needs to accelerate.

OVERALL RES SHARE

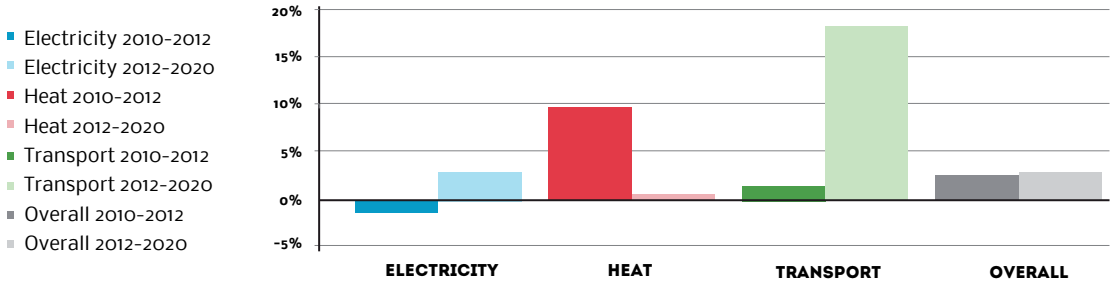


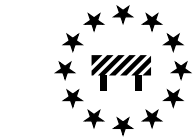
2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	31.4%	30.6%	2.9%	20.2%
2012 NREAP target	32.3%	24.4%	3.1%	18.7%
2011/2012 interim target set by RES Directive	-	-	-	17.8%

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





BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
LACK OF LONG-TERM POLITICAL GOALS	This barrier refers to the lack of political support from the Government that would clearly define the mid-term and long-term goals for 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, the economic growth potential etc.).
DIFFICULT INTEGRATION PROCESS	Under the aspect of environmental protection, certain landscapes (e.g. Natura 2000) or landscapes with "special environmental value" are deemed unsuitable for building. Even if a suitable site is selected, an assessment of the environmental impact needs to be made. These assessments can lead to considerable delays, since many authorities are usually involved on various levels.
LENGTHY ADMINISTRATIVE PROCEDURES	The realisation 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, thus further delaying the entire process.

HEAT

BARRIER	DESCRIPTION
NO LONG-TERM STRATEGIC PLANS	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 and does not recognise its economic opportunity given the Slovenian potential (esp. in wood biomass).
LOW SUPPORT	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 its success 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.
PUBLIC DEBATE	There is not enough public discourse promoting RES-H&C technologies. The general public is not aware of the potential RES technologies have or could have, for example in their households.

TRANSPORT

BARRIER	DESCRIPTION
LACK OF INTEREST	Although Slovenia has a an annual 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, apart from some minor pilot projects at the local level (usually including promotional electric cars and public transportation buses using gas instead of diesel).
EU'S POSITION ON RES-T	Although not really identified as a barrier, the lack of national interest may be backtracked to the position of the EU institutions (or rather the lack thereof) towards RES-T technologies.

KEY TRENDS IN THE RES SECTOR

• The unclear funding situation due to the annual degression rates for some technologies (e.g. PV) has led to a major reduction of installed power and number of installations.

• RES-E technologies (especially non-established technologies such as wind power) are restrained by a lack of integration in spatial and environmental planning and the consequent duration of administrative procedures.

• Financial incentives for the replacement of old and inefficient boiler systems, as well as the increased energy refurbishment of buildings, are planned to further raise the RES share in the H&C sector (51% in 2012).

• Projects targeting the RES-T sector indirectly exist. There is no state-wide action plan in the field of RES-T.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• A transparent and reliable regulation of the RES-E sector under the new Energy Act is needed to access the potential of wind and hydropower for the RES-E sector.

• Barriers in the administrative processes for the integration of RES-E (especially non-established technologies such as wind power) in spatial and environmental planning have to be mitigated and the consequent duration of administrative procedures shortened.

HEATING AND COOLING SECTOR

• The key barriers within the RES-H&C sector are the lack and reliability of a general RES-H&C strategy and support scheme, meaning that Slovenia does not use the full potential of RES that it has at its disposal.

• A RES-H&C strategy and support scheme are needed to generate an impulse for the (state owned) energy suppliers, which could administer projects in the area of district heating. Within the scope of the current support schemes, smaller investors on the local level usually do not have the necessary financial capability to carry out a project that would otherwise be deemed appropriate. It also requires willpower and good management to execute an investment in this sector, as its success usually depends on the will of the entire local community that would want to use a district heating system.

TRANSPORT SECTOR

• A key barrier for RES-T is the absence of a general RES-T strategy and a related support scheme. While Slovenia had and still has certain biofuel production facilities, most of them either stopped their production or are thinking of doing so, due to a lack of economic interest. Incentives for domestic biofuel production to achieve the annual biofuel targets should be implemented.

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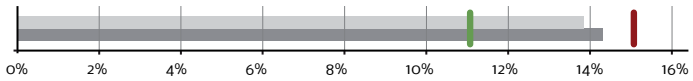
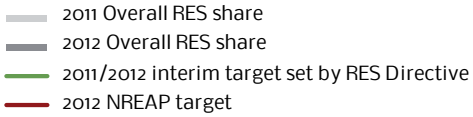
Is Spain

ON TRACK?

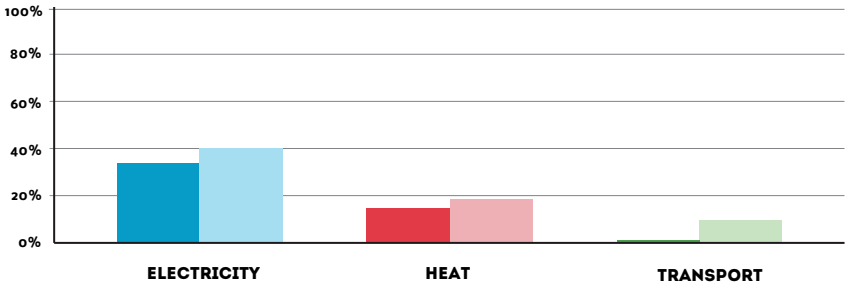
- Spain did not meet its NREAP 2012 target but has achieved the less ambitious interim target 2011/2012.
- The growth rate in the RES-E share has been enough to achieve the 2020 target if maintained. Growth in the RES-H&C share needs to accelerate. The low RES-T share and the negative growth rate from 2010-2012 may possibly be due to statistical issues but must be closely monitored.

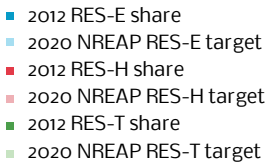
OVERALL RES SHARE





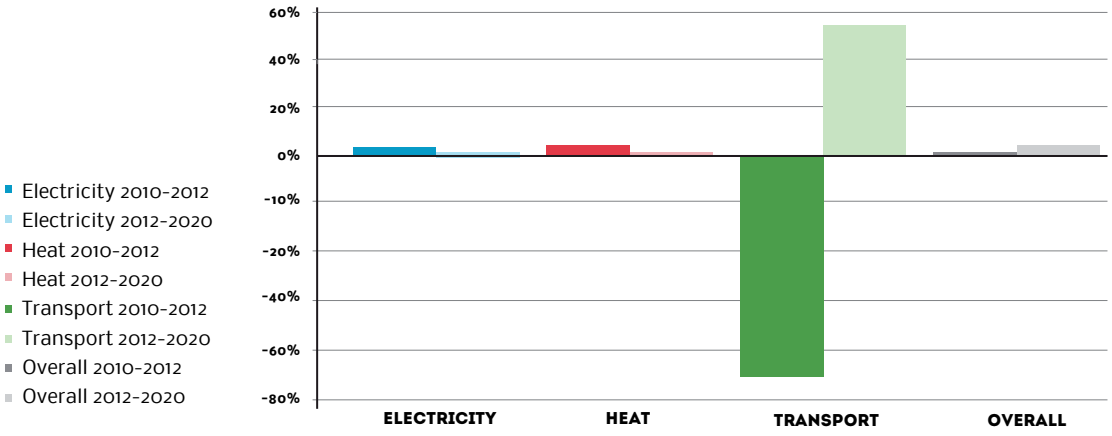
2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND





	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	33.5%	14.0%	0.4%	14.3%
2012 NREAP target	32.0%	11.7%	7.6%	15.1%
2011/2012 interim target set by RES Directive	-	-	-	11.0%

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



BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
RETROACTIVE CHANGES	The new electricity sector law (24/2013) introduced retroactive changes in the support schemes, 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 even opt for disconnecting their RES plants.
DIFFICULT INTEGRATION PROCESS	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 offer their electricity on 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).
ATTITUDE OF THE GOVERNMENT	The law types and the process used to approve the 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 retains a renewable moratorium which was the first law enacted by the current Government.

HEAT

BARRIER	DESCRIPTION
EUROPEAN DIRECTIVES NOT PROPERLY TRANSPOSED	Surprisingly, the principal justification given for the recent update of the CTE (Technical Building Code) and the 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 in these Spanish legal frameworks yet.
LACK OF EFFECTIVE MEASURES IN CTE AND RITE	Apart from the absence of contents from both Directives, the regulations, requirements and standards established in both frameworks are not able to promote a broad implementation of renewables for heating and cooling in Spain. Most of them are anachronistic and do not recognise the real suitability of and the 'long way to go' for these renewable technologies for heating and cooling.
ABSENCE OF AN OFFICIAL RECORD OF RENEWABLE HEATING AND COOLING FACILITIES	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 are no official data and the targets set are not realistic (in some cases they are below the actual capacity installed, in other cases they are above), which complicates the official energy planning.

TRANSPORT

BARRIER	DESCRIPTION
INSUFFICIENT BIOFUEL TARGETS AT THE NATIONAL LEVEL	In February 2013, the Spanish Government approved a severe reduction in the biofuel consumption mandates from the year 2013 onwards: The global biofuel mandate has been reduced from 6.5% to 4.1%, 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 getting closer to the 10% goal of renewables in transport by 2020.
BIOETHANOL BLENDING RESTRICTIONS DUE TO PROTECTION GRADE PETROL	The obligation of all petrol stations to offer "protection grade petrol" (with a max. bioethanol content of 5% (V/V) and a max. Oxygen content of 2.7% (m/m)) with the lower octane index petrol (95 OI) until 31st December 2016 is preventing the introduction of E10 - petrol (with a max. bioethanol content of 10% (V/V) and a max. Oxygen content of 3.7% (m/m)) on the Spanish market. Given that around 90% of the petrol consumed in Spain is 95 OI, such an obligation undermines the development of E10 and its consumption.
LACK OF INCENTIVES FOR THE CONSUMPTION OF DOUBLE COUNTING BIOFUELS AND HIGHER BLENDS	The double counting mechanism established by the RED for biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material has been formally transposed into the Spanish legislation in 2011. However, it is not implemented in practice and therefore the consumption of this kind of biofuels is not been incentivised in Spain as expected by the EU legislation. Moreover, the lack of regulations to incentivise biofuels in higher blends (B10, B20, B100 and E85) leads to a negligible consumption of these products in Spain.

KEY TRENDS IN THE RES SECTOR

• The new overall electricity reform package, which is partly already in force, constitutes a further and decisive step in Spain's policy rollback regarding RES-E promotion:

- The retroactive establishment of a new economic regime for RES-E based on economic parameters and standardised installations is still to be defined.

- A new concept of what might be a "reasonable return of investment" (ROI), to be based on the average yield of a Spanish 10-year Government Bond, plus a spread of 3% which should lead to an average ROI of 7.5% before taxes.

- Establishment of a new grid charge for self-consumed electricity, even in times of complete self-consumption of the produced electricity.

• In April 2013, the Spanish Council of Ministers approved a legislative package to stimulate the deployment of RES, mainly for heating and cooling in the residential sector. In the whole package, energy efficiency is included as a decisive factor in the evaluation of the building. However, the requirement to have nearly zero energy buildings by 2020 mentioned in the preamble is barely reflected in the articles.

• In February 2013, the Spanish government approved a severe retroactive reduction of the biofuels obligation from the year 2013 onwards. The biofuels mandate has been reduced from 6.5% to 4.1%, while biodiesel and bioethanol targets were respectively reduced from 7% to 4.1% and from 4.1% to 3.9%. This leads to an important decrease of biofuel consumption in Spain and also affects the production rates of the Spanish production plants. insufficient biofuel targets endanger the achievement of the 10% goal of RES-T by 2020.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Withdraw the proposed draft Royal Decree (RD) for RES-E in its current form. The new promotion parameters should allow for a minimum ROI level after taxes, sufficient to recover the investment made.

• Skip the discriminatory new grid access fee for RES-E self-consumption, both in the new electricity sector law and in the draft RD for the new economic regime for RES-E installations.

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 into Spanish law.

TRANSPORT SECTOR

• Increase the biofuel targets for the following years to levels that will ensure the fulfilment of the 10% RES-T target in 2020.

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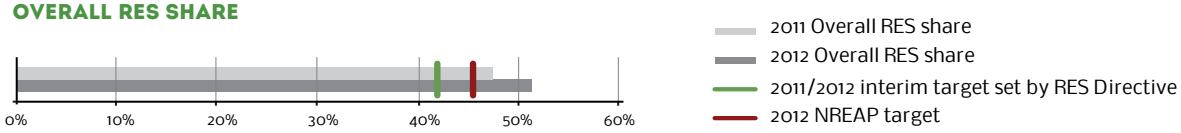
Is Sweden

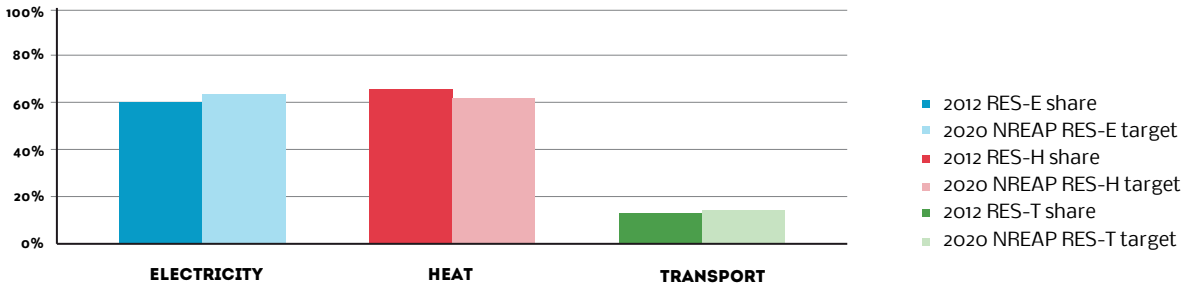
ON TRACK?

- Sweden has achieved both its NREAP 2012 target and the interim target 2011/2012.
- Growth in the RES-H&C share has been more than enough, as the 2020 target share has already been reached. Sweden has also already surpassed its 2012 target shares for RES-E and RES-T and is close to the 2020 target shares.

OVERALL RES SHARE

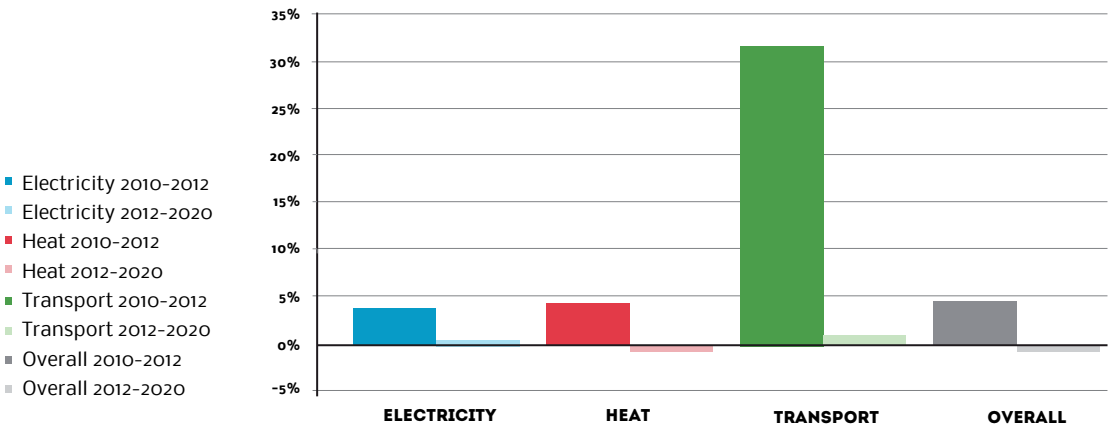


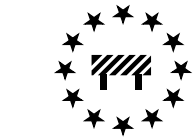
2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	60.0%	65.6%	12.6%	51.0%
2012 NREAP target	56.5%	58.2%	8.8%	44.9%
2011/2012 interim target set by RES Directive	-	-	-	41.6%

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





BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
LOW PRICE OF ELECTRICITY FROM RES	The low price of electricity from renewable sources and the low price of electricity certificates are affecting all levels and process steps, but mainly wind, solar and wave energy. This results in the high risk of hampering technological development in the industry. The low electricity price is due to the fact that the Government and Parliament allow surplus electricity to be produced by old nuclear power plants. Furthermore, the electricity certificate system in Sweden is not as effective as the feed-in systems e.g. in Germany and Finland.
MILITARY RESISTANCE TO WIND TURBINES	The Swedish Armed Forces are questioning the wind turbines in southern Sweden (50% of Sweden's land area is affected) and believe that the turbines interfere with the JAS aircraft.
NO POLITICAL PLAN FOR SOLAR POWER	Small RES-E installations, e.g. solar power PV, are not enjoying as much support from the side of the Swedish Government as larger scale electricity producers. There is for example no political plan for solar power in Sweden, covering issues like economical support, educational measures and research investments. This energy source has great potential and needs a sound support system to be able to be developed.

HEAT

BARRIER	DESCRIPTION
PROHIBITION OF HEAT PUMPS IN SOME MUNICIPALITIES	Some municipalities in Sweden force property owners to connect their houses to the district heating network and thus prevent the property owner from installing heat pumps. The barrier affects all renewable energy sources except for district heating.
THE GOVERNMENT DOES NOT DARE TO SET ENERGY REQUIREMENTS FOR NEW BUILDINGS	The Government does not dare to specify building requirements for near zero energy houses, which leads to construction companies being reluctant to invest in skills development for energy-efficient construction and new building systems for low energy houses.
POOR SUPPORT SCHEME AND LACK OF A REGULATORY FRAMEWORK	Sweden lacks clear support schemes and ambitious targets for the establishment of renewable energy. This leads to a delay of renewable energy deployment.

TRANSPORT

BARRIER	DESCRIPTION
UNCLEAR POLICY INSTRUMENTS FOR BIOFUELS	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, which stops investments in new plants. A decision has been made about supporting the low-admixture of biofuels (bioethanol and biodiesel) through a quota system, but it has not been declared how long the existing tax exemption will apply, which means that there is continued uncertainty.
POOR SUPPORT SCHEME AND LACK OF A REGULATORY FRAMEWORK	Sweden lacks clear support schemes and ambitious targets for the establishment of renewable energy. This leads to a delay of renewable energy deployment.
DISCRIMINATORY SUBSIDISATION	The development of biofuels is slowing down when fossil fuels are subsidised to an excessive degree. This is a barrier for all bioenergies but mainly complex systems like biogas and biofuels suffer.

KEY TRENDS IN THE RES SECTOR

• Sweden already reached its 2020 RES target of 49% in 2012. This success is at the same time the most severe barrier for further RES development in all sectors in Sweden.

• In Sweden, renewable electricity is supported through an inefficient system of green certificates. The system has led to a rapid expansion of RES for some years, but now there is a high risk that the technological development in the industry is, among other things, hampered by the low price of electricity and green certificates for the producers.

• The Swedish Armed Forces are questioning wind turbine deployment in Sweden, arguing that the turbines interfere with the JAS aircraft. This is a serious threat to achieving the target of 30 TWh of wind power in 2020.

• The government does not specify the building requirements for near zero energy houses, which leads to construction companies being reluctant to invest in skills development in energy-efficient construction and new building systems for low energy houses.

• 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, which stops investments in new plants. A decision has been made about supporting the low-admixture of biofuels (bioethanol and biodiesel) through a quota system, but it has not been declared how long the existing tax exemption will apply, which means that there is continued uncertainty.

POLICY RECOMMENDATIONS

• Urgently raise the target for renewable energy corresponding to a level that Sweden can actually deliver, i.e. 70% or higher.

• The Government should:

- introduce feed-in tariffs like most other European countries,
- provide energy intensive industries with a certain quota of green certificates which they currently lack, to reduce the surplus of certificates,
- introduce a guaranteed minimum price to secure profitable investments.

• Set clear energy requirements for near zero energy buildings. The energy requirements of the building regulations should be reviewed, both in terms of what should be included and in terms of requirement levels.

• Establish new ambitious targets for the transport sector of for instance 25% renewable fuels (and 20% biofuels) until 2020. The target for renewable fuels in the transport sector in Sweden (10% until 2020) has already been reached.

• Present clear and stable information on policy instruments and the legislative and regulatory framework concerning support schemes for biofuels. Sweden lacks clear support schemes. This hampers investment in new facilities and affects the development of renewable fuels.

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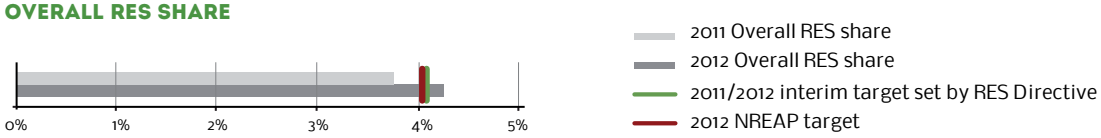
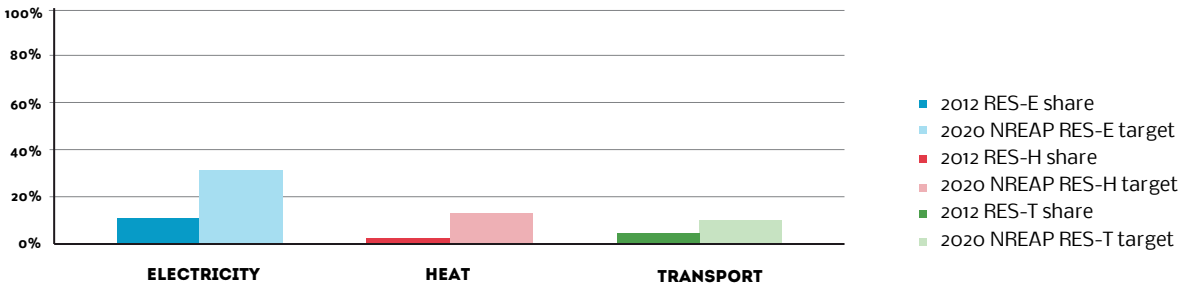
Is the United Kingdom
ON TRACK?

- The UK only just achieved its interim target 2011/2012, with an actual average share of 4.00% in 2011/2012. The NREAP 2012 target was achieved. However, the UK NREAP foresees this target to be slightly lower than the interim target 2011/2012, which contradicts its original purpose.
- The RES-H&C target share for 2012 has been exceeded, but growth in the RES-H&C share was slightly negative (-0.4%). This trend needs to be reversed. Growth in the RES-E share needs to accelerate.

OVERALL RES SHARE

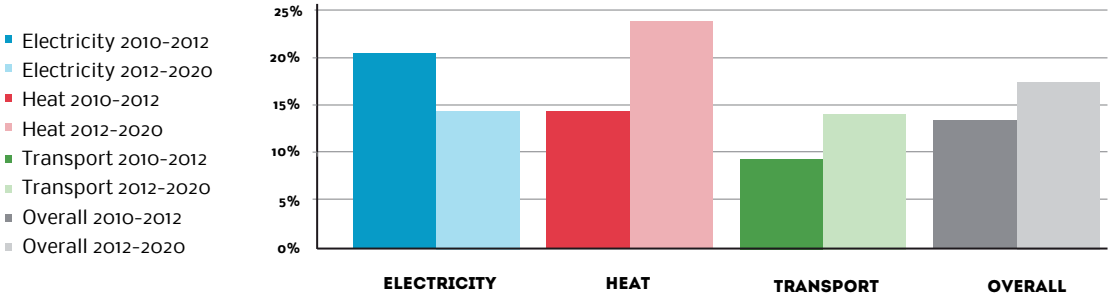


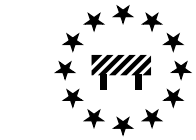
2012 RES SHARE COMPARED TO 2020 TARGET SHARE IN CORRESPONDING SECTORAL GROSS FINAL ENERGY DEMAND



	ELECTRICITY	HEAT	TRANSPORT	TOTAL
2012 actual share of RES in sectoral gross final energy demand	10.8%	2.3%	3.7%	4.2%
2012 NREAP target	11.0%	2.0%	4.0%	4.0%
2011/2012 interim target set by RES Directive	-	-	-	4.0%

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





BARRIERS
to RES deployment

ELECTRICITY

BARRIER	DESCRIPTION
SHORTAGE OF BANKABLE COMMERCIAL OFFTAKERS IN THE PPA MARKET AND LIMITED ACCESS TO FINANCE	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 make the Offtaker of Last Resort mechanism available to all technologies.
DELAYED CONNECTIONS TO GRID AND PROPOSED INCREASE IN GRID USAGE CHARGES	Effectively incentivise the DSOs to offer timely grid connections at fair, transparent cost. This could be achieved through an effective incentive regime currently under discussion.
BIOMASS GENERATORS FACING INCREASING NUMBERS OF BARRIERS TO COMMERCIAL DEPLOYMENT	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
POTENTIAL FOR SUSTAINABILITY REQUIREMENTS TOO SLOW AND, IN SOME CASES, LIMIT THE DEPLOYMENT OF BIOMASS HEAT	Sustainability regulation is a key concern; timing of introduction may need to be phased.
CONSTANT CHANGES TO RHI SUPPORT SCHEME CAUSE CONFUSION AND SLOW UPTAKE	Any further changes considered in the next 2 years should be relatively minor - even welcome changes can cause deployment to stall as industry waits to see if something better will come along.
INDUSTRY LACK OF CONFIDENCE IN GOVERNMENT-S COMMITMENT TO RHI LONG-TERM FUNDING	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
LACK OF A CLEAR TRAJECTORY IS SEVERELY UNDERMINING INDUSTRY CONFIDENCE AND PREVENTING NEW INVESTMENT	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.
LACK OF A CLEAR UK STRATEGY AND PLAN FOR ADVANCED BIOFUELS	As a matter of urgency set out support policy to encourage advanced biofuels in addition to setting a trajectory to 2020.
THE 5% CAP ON FIRST GENERATION BIOFUELS IMPACTS ON VIRTUALLY ALL CURRENT PRODUCERS AND INVESTORS AND SEVERELY DAMAGES MARKET STABILITY	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

• Energy has now become a political football, with further instability likely in the run up to the next election (May 2015).

• There are major changes planned for the electricity sector, with new policies due to be introduced in autumn 2014. The smaller-scale FIT is more stable, although issues around the cost control mechanism need to be addressed, especially for anaerobic digestion.

• The Renewable Heat Incentive should see steady growth in 2014 if changes already announced are implemented smoothly.

• Renewable transport remains in the doldrums, with the UK looking to the EU to resolve the treatment of indirect land use change.

POLICY RECOMMENDATIONS

ELECTRICITY SECTOR

• Resolve issues with Contracts for Difference (CfD) policy and transition from Renewables Obligation and resolve numerous detailed barriers to biomass generation.

• Incentivise the Distribution System Operators to offer timely grid connections at fair, transparent cost.

• Protect small-scale anaerobic digestion from premature FiT tariff reduction.

HEATING AND COOLING SECTOR

• Achieve workable sustainability regulation under the Renewable Heat Incentive.

• Secure confidence in the RHI scheme with long-term budget commitment, especially for larger projects as the scheme has funding agreed only to end of March 2016.

• Support industry learning/skills especially with the planned introduction of a domestic Renewable Heat Incentive from spring 2014.

TRANSPORT SECTOR

• The UK Government must set a trajectory for renewable transport to progress from the current target of 4.75% by volume in 2014 to the Directive target of 10% by energy in 2020. The lack of a clear trajectory is severely undermining industry confidence.

• TSet out support policy to encourage advanced biofuels. This must include policy visibility both to and beyond 2020 to encourage investment. There is a lack of a clear UK strategy and plan for advanced biofuels.

• The Government should cease to support ILUC factors and a 5% cap on conventional biofuels. The 5% cap severely damages market stability.

• Make consistent the legislative treatment of partially renewable fuels (Fatty Acid Methyl Ester and Hydro-treated Vegetable Oil).

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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 2012 is the "EUROSTAT shares exercise" 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. In addition, Member States were requested to submit the second of six biannual Progress Reports to the Commission by December 31st, 2013 - with data covering the years 2011/2012 - to monitor compliance with their planned trajectories and measures. 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 deviate strongly for individual Member States, this is indicated in footnotes.

DATA PROVIDED ON THE MEMBER STATE PAGES

Absolute production figures provided on sector level for 2005, 2020, and 2012 refer to target-relevant production. This includes multiple counting of compliant bioliquids and RES-E in road transport. In case of the transport sector, the figure refers to consumption. Since biofuels are an easily traded good, the amount produced nationally is not relevant.

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

ABBREVIATIONS

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

TEXT AND ANALYSIS
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