Renewable energy sources in Greece and the EU - a quantitative assessment and policy conclusion towards, and beyond, 2020

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• The Keep-on-Track! Project:
  
  o 17 Partners:
    o EREC
    o EUFORES
    o BBH
    o eclareon
    o EEG (TU Wien)
    o Fraunhofer ISI
    o 11 nat. RES Associations
  
  o 3 Year Project (2012-2015)
Outline of the presentation

1. Past progress of the EU-27
2. Is Europe / Greece on track? - first quantitative assessments
3. Will the implemented supports schemes be sufficient for the envisaged 2020 goals?
4. Barriers
5. Conclusions and recommendations
The EU is on track so far...

RES Share in gross final energy consumption

- actual overall RES share
- NREAP overall RES trajectory
- minimum trajectory defined in the RES Directive
…with the transport sector below planned developments
Planned vs. actual deployment: Status 2011

- RES Share 2010
- RES Share 2011
- 2011/2012 interim target set in RES Directive
- 2011 NREAP target share
- 2020 Target

Graph showing the comparison between planned vs. actual deployment of renewable energy sources in Greece and the EU for the year 2011, with a focus on the share of renewable energy sources (RES) in the countries of the EU-27.
NREAP trajectories: How Member States expect to meet the target in 2020

Rather modest increase in minimum trajectories across all Member States in the early stage but significant increase is expected towards the end of the time period.
Deviation: First quantitative assessments based on 2011 data

- The actual RES generation 2011 already exceeds the 2011/2012 interim target in almost all Member States. Exceptions are UK, NL, MT, LU, LV, FR.

- **RES-E**: 13 MS did not meet the indicative 2011 NREAP targets
  - including EL, most significantly due to less wind and solid biomass contribution

- **RES-H&C**: only 4 MS underachieve on indicative 2011 NREAP targets
  - Slightly more generation from solid biomass and biogas, much less bioliquids than planned.
  - EL achieved its NREAP target

- **RES-T**: 18 MS underachieved on indicative 2011 NREAP targets, including EL
  - Many MS overestimated use of renewable electricity in the transport sector
Greece: First quantitative assessments based on 2011 figures

• Greece had a share of 11.57% renewables on gross final energy consumption

• The RES-electricity generation amounted to 14.6% in 2011 (dominated by hydro power - 54%, and onshore wind - 37% and the rest mostly PV) - NREAP: 15.7% ☠

• The RES-heating and cooling share was 20.1% in 2011, of which 75% in the household sector and 25% in the industry sector - NREAP: 15.7% 🟢

• RES in transport contributes only to 1.8% in 2011 - mostly due to biodiesel. No bioethanol, very limited renewable electricity in transport - NREAP: 3.3% ☠
Expectation for EU: Modeling results for EU-27 in the 2020 horizon

**Until 2012:** Reduced overachievement in year 2012 compared to 2011

**Until 2020:**

- **Current policies appear insufficient** to trigger enough RES development to meet the target in 2020 - only few countries will meet the target (AT, EE, SK); total **RES share about 15.6%**

- New planned policies are expected to increase the RES share to about 16.7% only - target achieved by BG, SE in addition to before mentioned MS

- **Missing contribution in all sectors** - major difference in the transport sector (-30%)
  - Electricity and heat sector show an about 15% reduced contribution

- **Technology specific CSP, tide and wave as well as on- and offshore wind are expected to contribute less RES-E, like heat pumps and geothermal heat do for RES-H in 2020**
We need well-designed, effective and cost-efficient policies to reach the European 20% target!
Options: Policy effectiveness versus efficiency

Effectiveness: How much RES is triggered from the available potential due to support mechanisms
Profit range: Results from support levels and levelized costs of generation

Example Onshore wind.
Source: Reshaping (2011)
Increase Policy Effectiveness and Efficiency

- High growth RE production
  - Reduce windfall profits by adjusting support level
  - Use risk-free interest rate
  - Low revenue risks
  - Facilitate markets managing risks
  - Policy stability
  - Simple permitting & grid procedures

- No growth RE production
  - (General country risk)

Example for wind onshore 2009

Barriers in the EU-27: The lack of long term visions for RES is perceived as most significant
We are continuously improving our data on barriers:

**NEW!**
Interactive online database on barriers to renewable energy and the corresponding policy recommendations

re-frame.eu
Main obstacles identified in Greece

• growing RES account deficit of the Electricity Market Operator has led to lack of liquidity and delayed payments to RES generators
  – Existing generators find it difficult to pay back their loans
  – Banks are reluctant to provide loans to new RES projects

• The crisis-induced pressure on the government to reduce support costs, which has led to unfavourable policy actions:
  • Levy on existing RES installations (retrospective policy change)
  • Interruption of support to new PV installations (moratorium)

• Grid extension needed, especially between islands and mainland, and with other countries
Opportunities: Recommendations and conclusions to meet the 2020 target

- **Create a stable and predictable framework for RES**
  - reduce (unproductive) risks for investors
  - Improve efficiency - adjust support levels according to market development
  - Limit support period - consider lifetime and residual value of technology
  - Encourage European cooperation and coordination schemes

- **Mitigation of non-economic barriers**
  - Simplify planning and authorization procedure - one stop shop
  - Spatial planning mechanisms for faster approvals
  - Harmonize grid connection approaches

- **Re-establish true fossil fuel and CO₂ prices**
- market integration
- Provide a thorough analysis of electricity prices and the tariff deficit

Improving energy efficiency - reducing the overall energy demand
Thank you for your attention!

Keep-on-Track! project website:  
http://www.keepontrack.eu/

RE-Shaping project website:  
http://www.reshaping-res-policy.eu/

Interactive online barriers database:  
re-frame.eu

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