Renewable energy sources in Croatia - a quantitative assessment and policy conclusion towards, and beyond, 2020

Author: Dr. Christian Panzer

Company: Vienna University of Technology - Energy Economics Group (EEG)

Contact:
Web: eeg.tuwien.ac.at
Email: panzer@eeg.tuwien.ac.at
Outline of the presentation

1. Renewable targets for 2020
2. National NREAP’s trajectories
3. Is Europe / Croatia on track - first quantitative assessments
4. Will the implemented supports schemes be sufficient for the envisaged 2020 goals?
5. Conclusions
Goal: 20% of gross final energy demand is contributed by renewables in 2020
Pathway: How **Member States** expect to meet the target in 2020? - the NREAP’s

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 figures

- Strong differences in the deviation of actual (Eurostat) to planned (NREAP) RES share across Member States - -76% (MT) to +42% (BE) BUT +9.5% on EU27 level

- The actual RES generation exceeds the minimum trajectory in NREAP’s in almost all Member States, with only 4 slight exceptions (LV, NL, UK, MT).

- Several MS fail to meet the indicative NREAP targets in 2010 in the electricity sector
  - Most significantly due to less wind and biogas contribution

- Notable stronger contribution in RES-Heat sector (+13%) as indicated in the NREAP’s
  - One third more generation from solid biomass and biogas

- Only 11 MS meet their indicative target on RES in the transport sector in 2010
  - Overestimation of renewable electricity in the transport sector (-11% in EU27)
HR: First quantitative assessments based on 2011 figures

- Croatia had a share of 15.74% renewables on gross final energy consumption.

- The RES-electricity generation amounted to 35.45% in 2011 (dominated by hydro power - 96.2%, wind onshore - 2.9% and the rest biomass energy).

- The RES-heating and cooling contributed by 15.6% in 2011, whereby the major share is observed in the household sector (90%) and only a little in the industry sector (hardly any contribution comes from CHP plants).

- RES in transport contributes only to 0.23% in 2011 - no bioethanol or biodiesel has been observed but only very limited amount of renewable electricity in non-road transport sector (train).
Expectation for EU: Modeling results in the 2020 horizon

• **Reduced overachievement in year 2012 compared to 2010**

• **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
Expectation: Modeling results in the 2020 horizon - RES

RES Growth Rate 2010-2011 versus Average Annual Growth Rates Required

- Historic growth rate in Croatia was driven by wind onshore and biomass electricity generation - 46% respective 65% (reduced hydro power production)
Expectation: Modeling results in the 2020 horizon - RES-E

- On EU scale still missing contributions - potential for cooperation mechanisms!
Expectation: Modeling results in the 2020 horizon - RES-H&C

RES-H Growth Rates 2010-2011 versus Average Annual Growth Rates Required

- % change in share 2010-2011
- average annual growth in share required from 2011-2020

White Paper Energy Strategy of the Republic of Croatia:
if demand stabilizes, current growth rates exceed RES-H 2020 target in HR
Expectation: Modeling results in the 2020 horizon - RES-T

RES-T Growth Rate 2010-2011 versus Average Annual Growth Rates Required

- In Croatia almost all additional RES is required in the transport sector if demand stabilize
- Potential re-consideration of RES-T 10% target might ease the 2020 target fulfillment
Opportunities: Recommendations and conclusions to meet the 2020 target

• Financial support deficit
  – Stable framework conditions - reduce the risk
  – Improve efficiency - adjust support options according to market development
  – Limit support period - consider lifetime and residual value of technology
  – Encourage cooperation and coordination schemes

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

• Market integration
  – Integration to balancing markets - gate closure closer to real time
  – Efficient congestion management
  – Efficient cross-border Intra-day markets

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

Contact

Dr. Christian Panzer

e-mail: panzer@eeg.tuwien.ac.at

Tel: +43-1-58801-370360
Energy Economics Group (EEG)
Vienna University of Technology
Gusshausstraße 25-29/E370-3
1040 Vienna, Austria
http://eeg.tuwien.ac.at