IAEE WWW.IAEE.ORG INTERNATIONAL ASSOCIATION for ENERGY ECONOMICS International Conference

REGISTRATION Now Open!

Objectives and Aims/Goals

The 37th IAEE International Conference will take place in New York City between June 15 and 18, 2014, and will focus on the relationship between economic growth and energy. This relationship grows ever more important as economies around the world struggle to reinvigorate themselves and to develop energy resources in sensible, sustainable ways. Can economic growth be stimulated even with pressure to reduce if not forego certain forms of energy for environmental or safety reasons? Alternatively, can energy development be a major force that stimulates economic growth? What policy framework would maximize the contribution of energy to growth while encouraging efficient substitution of sustainable for less sustainable sources?

New York City is the financial center of the United States, a place where multi-billion dollar bets are laid on future economic growth and on energy technologies, and therefore a place where analysis of subjects like these is constantly in demand. Some of the very best minds in energy economics in the world will assemble there for what promises to be one of the best and biggest IAEE Conferences ever. Already, the Administrator of the US Energy Information Administration has committed to address the opening session of the Conference on the renaissance in U.S. energy and what it means for the country and the world. Other high level policy makers will talk about the challenges they face, while business professionals and academics will offer practical and analytically-based approaches to meeting such challenges. The agenda will be filled with topnotch speakers plus a number of concurrent sessions, places where the results of specific topical research will be presented and absorbed.

The conference also will offer networking opportunities through informal receptions, breaks between sessions, and student recruitment. These provide opportunities for attendees to renew acquaintances and to forge new ones. There will be special events for students, including paper, poster and case competitions, and side trips to interesting energy-related locations. New York City offers a myriad of cultural attractions from museums to musical, dramatic and athletic performances, not to mention some of the best shopping in the entire world. It's a conference program and a venue not to be missed.

What's New

- **Governor's Welcome**
- **Conference Program**
- **Conference Videos**
- **Conference Pictures**

Mobile Site

Who Should Attend?

- Energy Company Executives and Managers
- Energy Policy Analysts
- Governmental Employees in Energy Resource Planning
- Academics Specializing in Energy Policy and Analysis
- Electricity Pricing and Market Analysts
- Energy Consultants
- Energy Company Planners
- Economic Energy Risk and Derivatives Specialists
- Oil and Natural Gas Executives
- Energy Rate Executives
- Electric and Utility Supervisors
- Energy Environmental Analysts
- Geologists and Engineers
- Environmentalists
- Energy Journalists

With Support From:

USAEE United States Association for Energy Economics

Connect with others! **#IAEE2014**

With Support from: USAEE United States Association for Energy Economics

ASSESSMENT OF EUROPEAN RES POLICY PATHWAYS FOR THE PERIOD BEYOND 2020

Gustav Resch, Vienna University of Technology, Energy Economics Group, Austria, +43 58801 370 354, resch@eeg.tuwien.ac.at
Pablo del Río, Institute for Public Policies and Goods, Consejo Superior de Investigaciones Científicas, Spain, pablo.delrio@csic.es
Mario Ragwitz, Fraunhofer ISI, Germany, +49-6809-721-6809-157, mario.ragwitz@isi.fraunhofer.de
André Ortner, Vienna University of Technology, Energy Economics Group, Austria, +43 58801 370 367, ortner@eeg.tuwien.ac.at
Sebastian Busch, Vienna University of Technology, Energy Economics Group, Austria, +43 58801 370 359, busch@eeg.tuwien.ac.at

Overview

With Directive 2009/28/EC, the European Parliament and Council have laid the ground for the policy framework for renewable energies within the European Union (EU) until 2020. The aim of this paper is to look more closely beyond 2020 by evaluating feasible pathways of a harmonised European policy framework for supporting an enhanced exploitation of renewable electricity. In short, we provide a quantitative model-based analysis of future deployment of renewable electricity and corresponding costs and expenditures based on the Green-X model. Generally the assessment includes RES in all energy sectors but a topical focus is put on renewable electricity, specifically within the discussion of policy options for a harmonisation of RES support. It can be concluded that a strategy, and clear commitment to RES beyond 2020, is needed in order to ensure substantial future RES growth. The results of the policy assessment indicate that both cooperation and coordination among Member States appear beneficial and, indeed, are required to tackle current problems in RES markets. Thus, these policy options would also appear to be fruitful for the period beyond 2020.

Note that the work represented in this paper reflects findings of the beyond2020 project (cf. Resch et al. (2013)), a collaborative action of European research institutions, consultants and industry partners. Thus, we gratefully acknowledge the financial and intellectual support for this initiative provided by the "Intelligent Energy - Europe (IEE)" programme of the European Commission.

Methods

The model-based analysis of policy pathways as discussed in this paper has addressed specifically the role of RES support schemes and related impacts on financing. Fig. 1 provides an overview of the broad set of policy cases assessed within the beyond2020 project. The quantitative techno-economic assessment of policy options was done by application of the Green-X model. Green-X is an energy system model that offers a suitable representation of RES technologies in Europe, indicating the consequences of RES policy choices in a real-world energy policy context. The model allows conducting in-depth analyses of future RES deployment and corresponding costs, expenditures and benefits arising from the preconditioned policy choices on country, sector and technology level.

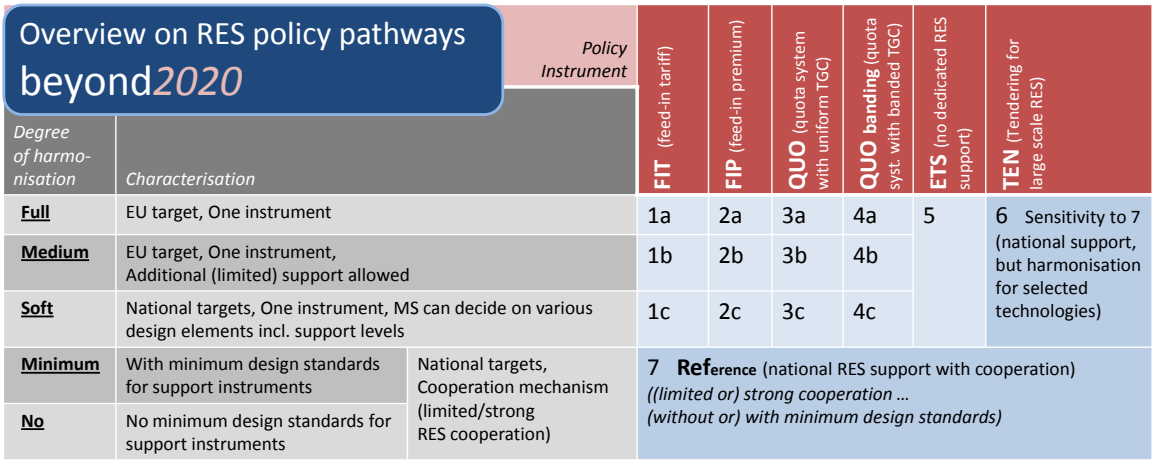

Fig. 1: Overview on assessed RES policy pathways

In order to ensure consistency with other related studies at EU level, key assumptions on the conventional reference system, energy and carbon prices as well as energy demand were based on these general energy scenarios, in particular on the PRIMES "high renewables" case (cf. EC, 2011). Moreover, in common with this PRIMES case, the targeted deployment of RES (as a share of gross final energy consumption) at EU level by 2030 was set at 31.2% for all Green-X scenarios. Note that this assessment ignores social, political, and legal implications, in contrast it focuses only on the performance of researched pathways regarding economic evaluation criteria, in particular effectiveness, and static and dynamic efficiency. Conclusions on equity and environmental and economic effects can also be drawn using Green-X results, but are not described further here.

Results

The results of the model simulations show that there are small differences between the evaluated cases regarding effectiveness. All the policy pathways score similarly regarding the deployment of renewable electricity, i.e., with different degrees of harmonisation and whether using a feed-in tariff, a feed-in premium, a quota system with or without banding scheme. The only exception is the case of no dedicated RES support where the GHG emission trading scheme (ETS) acts as only driver to support RES and all other GHG mitigation options, leading to a substantially lower renewable electricity deployment. In contrast to above the policy costs clearly differ across different pathways. The least cost alternatives with respect to the resulting support expenditures are tendering and the feed-in tariff, whereas the most expensive options include both quota alternatives (i.e., with or without banding). No clear differences emerge under different degrees of harmonization regarding the amount of policy costs, i.e., variability regarding policy costs is related to instruments rather than to the degrees of harmonisation. Finally, our results suggest that keeping strengthened national support, but with intensified coordination /cooperation (and with or w/o complementary harmonised tenders (for large-scale RES)) also leads to similar results to other policy pathways in terms of effectiveness and cost-effectiveness. In short, cooperation and coordination among Member States is beneficial and required to tackle current problems/challenges in RES markets.

In line with above Fig. 2 offers a comparison of both overall deployment of new RES-E plants (installed between 2021 and 2030) by 2030 and the corresponding support expenditures (on average per year for the period 2021 to 2030) for selected policy pathways, including all options of a full harmonisation. As applicable therein, in the ETS-only case obviously no support expenditures for RES are applicable. If long-term climate targets are taken seriously, meaning that Europe strives for the 80%-95% GHG reduction by 2050, no dedicated RES support may, however, possibly cause unexpected side effects. A comparison of the two variants of "ETS-only", characterised by either low (in the case of no strong carbon commitment) or moderate-to-high carbon prices (reflecting a strong long-term carbon commitment), shows that, in the absence of a strong RES deployment, a rise in electricity prices may lead to an indirect consumer burden of similar magnitude to that involved in the case of perfectly-tailored RES policies. In the absence of continuous RES support and related expansion, this is caused, on the one hand, by a reduction of the so-called "merit order" effect that usually goes hand in hand with RES deployment. On the other hand, a lower RES-E penetration leads to higher carbon prices and, thus, also higher electricity prices, since more alternatives have to enter the (common) carbon market in order to comply with the carbon target.

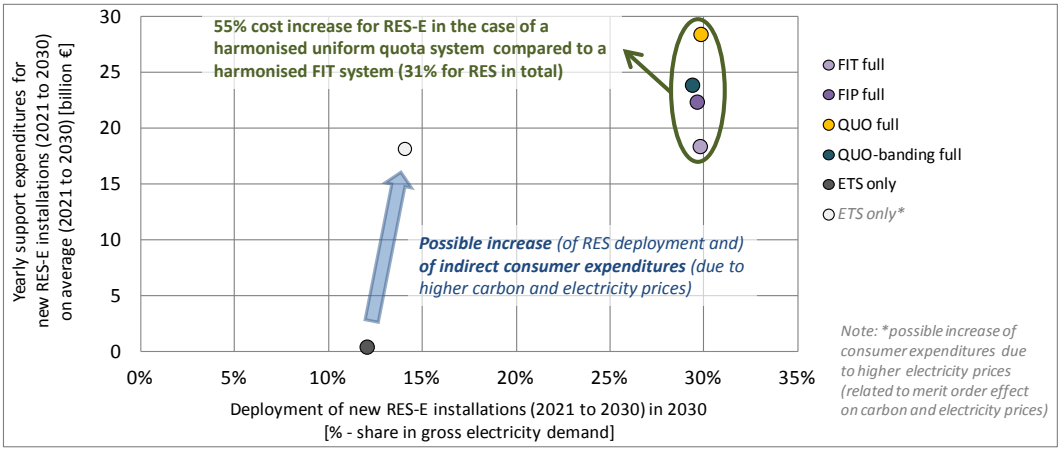

Fig. 2: Comparison of the resulting 2030 deployment of new RES-E (installed 2021 to 2030) and the corresponding (yearly average) support expenditures in the EU-27 for all assessed cases of full harmonisation

Conclusions

Our results suggest that, while the RES directive (Directive 2009/28/EC) lays the ground for the RES policy framework until 2020, a strategy and clear commitment to, with dedicated support for RES beyond 2020 is of need (if RES shall deliver what is expected). On the other hand, our results also suggest that a harmonisation of RES support based on simplistic policy options offering uniform support e.g. via a uniform RES certificate trading cannot be recommended.

References

European Commission, 2011. Energy Roadmap 2050, COM(2011) 885/2.

Resch, G. et al. (2013): Draft summary report beyond2020 - approaches for a harmonisation of RES(-E) support in Europe. Report compiled within the project beyond2020, supported by the EACI of the European Commission within the "Intelligent Energy Europe" programme. Energy Economics Group at TU Wien, 2012.