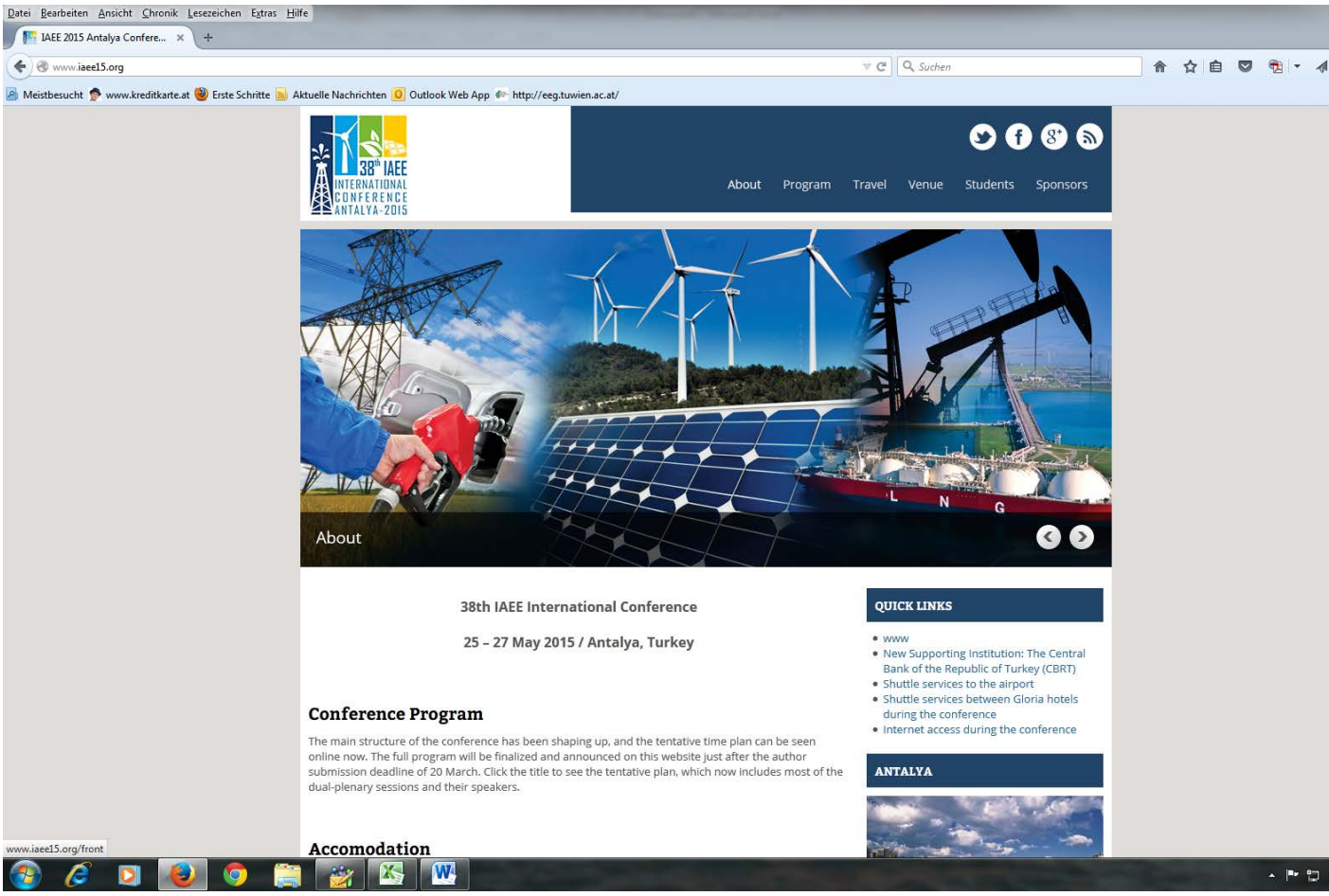
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The main structure of the conference has been shaping up, and the tentative time plan can be seen online now. The full program will be finalized and announced on this website just after the author submission deadline of 20 March. Click the title to see the tentative plan, which now includes most of the dual-plenary sessions and their speakers.
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PROSPECTS FOR RENEWABLE ENERGIES IN EUROPE UP TO 2030

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Overview

The EU Energy Roadmap 2050 gave first signals of renewable energy development pathways beyond the year 2020 and identified renewables as a "no-regrets" option. Subsequently, Europe's way forward towards 2030 has been discussed intensively and at the Council meeting of this October (2014) the next step was taken: A binding EU-wide RES target of achieving at least 27% as RES share in gross final energy demand was adopted.

This papers aims for an outlook to 2030, discussing possible RES developments within the EU and related impacts on costs and benefits in the light of the new Council agreement on 27% RES by 2030. Furthermore, next steps in defining the framework for RES post 2020 will be identified and possible solutions presented.

Methods

The work presented in this paper builds on detailed quantitative and qualitative assessments currently conducted in the IEE project DIA-CORE (cf. Resch et al., 2014). By use of a specialised energy system model (Green-X (cf. www.green-x.at) a quantitative assessment is conducted to identify and assess possible RES developments up to 2030, indicating RES deployment at sector, at technology and at country level that can be expected under distinct policy concepts. Complementary to results on deployment, related impacts on costs and benefits are a core element of the RES policy analysis.

The scenarios analysed combine two different characteristics: different ambition levels for RES deployment in 2030 in particular and different policy concepts for renewables from 2020 onwards:

- In the "Strengthened National Policies (SNP-27)" scenario a continuation of the current policy framework with national 2030 RES targets is assumed whereas.in the scenarios referring to the use of a quota system (i.e. QUO-27 and QUO-30), an EU-wide harmonized support scheme is assumed for the electricity sector.
- As a further sensitivity variant for the 27% RES by 2030 target we assessed the impact of having no dedicated support for biofuels post 2020.
- A baseline case serves as reference, assuming that RES policies are applied as currently implemented until 2020, while for the post-2020 timeframe a gradual phase-out of RES support is presumed.

Results

Figure 1 summarises the assessed costs, expenditures and benefits arising from future RES deployment in the focal period 2021 to 2030. More precisely, these graphs show the additional investment needs, O&M and (biomass) fuel expenditures and the resulting costs – i.e. additional generation cost, and support expenditures for the selected cases (all on average per year throughout the assessed period). Moreover, they indicate the accompanying benefits in terms of supply security (avoided fossil fuels expressed in monetary terms – with impact on a country's trade balance) and climate protection (avoided CO_2 emissions –expressed in monetary terms as avoided expenses for emission allowances).

Some key observations can be made from Figure 1:

- Not so surprisingly scenarios that reach a 27% target lead to overall costs in a comparable order of magnitude. Also it can be observed that a 27% Quota generally leads to lower capital expenditures / additional generation costs compared to the case of national policies, however these savings hardly can be passed on to consumers due to the "one size fits" all approach inherent to all technology neutral policy instruments.

- Moving from a 27% to a 30% target comes at a cost, in this case average yearly support expenditures would roughly double to a level of 30 billion Euros in order to "achieve" the last three percentage points of RES deployment.
- These extra costs however are also mirrored by increasing benefits. In all scenarios average yearly capital expenditures are surpassed by the monetary value of avoided fossil fuels; or in other words: Fuels cost savings of conventional plants alone are sufficient finance the capital costs of new RES installations.
- Furthermore when interpreting the numbers it has to be kept in mind that all scenarios assume a reference case with respect to energy demand development. Thus, efficiency improvements could make a 27% or 30% target much more easily achievable.

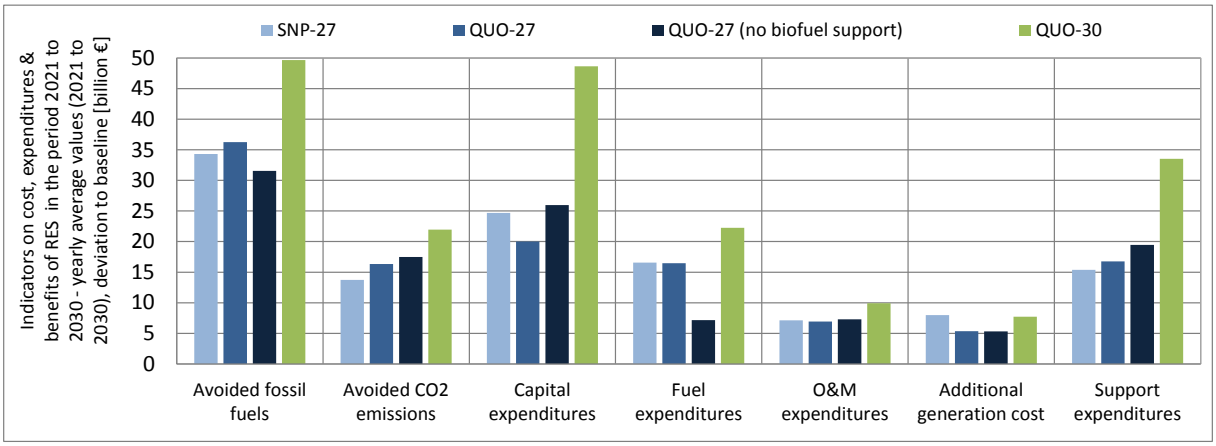

Figure 1: Indicators on yearly average cost, expenditures and benefits of RES at EU 28 level for all assessed cases, monetary expressed in absolute terms (billion €) per decade (2021 to 2030)

Conclusions

The binding EU-wide RES target of achieving at least 27% as RES share in gross final energy demand as adopted recently by the Council has to be seen as an important first step in defining the framework for RES post 2020. Other steps, like a clear concept for and agreement on the effort sharing across Member States have to follow.

The agreed target of 27% RES appears feasible to achieve without strong efforts to be taken at EU and at country level. Even in the absence of additional energy efficiency measures alternative policy scenarios related to 27% RES by 2030 lead to moderate increases in system costs and support expenditures at EU-28 level compared to baseline conditions (where a phase-out of RES support beyond 2020 is presumed). A clear and guiding framework and a removal of currently prevailing non-economic barriers is however a key necessity to keep the cost burden low and to balance cost nicely with accompanying benefits.

As exemplified in Fig. 1, more than 27% RES by 2030 appears feasible but requires additional efforts to be taken. The increase in renewables would however come along with increased benefits related to Europe's trade balance due to a (significantly) decreased demand for fossil fuels and related imports from abroad.

References

Resch, G., Liebmann, L., Busch, S. (2014): Prospects for RES in Europe up to 2030, An interim report compiled within the Intelligent Energy Europe project DIA-CORE. TU Wien - Energy Economics Group (EEG), Vienna, Austria. Accessible at www.diacore.eu.