



EUTurbines comments to the consultation on the ETIP SNET draft Implementation Plan 2017-2020

(Overview of questions answered)

07.08.2017

EUTurbines is the European association of gas and steam turbines manufacturers employing more than 70,000 people across Europe with a turnover of around 25 billion Euros. Our members are Ansaldo Energia, Doosan Skoda Power, GE Power, MAN Diesel and Turbo, Mitsubishi Hitachi Power Systems Europe, Siemens and Solar Turbines.

General comments to the entire exercise:

- EUTurbines welcomes the initiative and stresses the importance of a continuous R&I support to achieve the energy system of the future. The relevance of all system contributors should be acknowledged.
- The change of structure and the separation of topics/WGs as well as the 10-year Roadmap is not necessarily clear – some additional explanations would be most welcome.
- Harmonisation of references to years and TRL levels should be done throughout the document, as well as clarification on how to interpret these. In the same way, there are some differences between the content in the tables in the first part of the IP and the long topic descriptions. This should be double-checked.
- On the process (section 2.1.1), we agree that repetitions should be avoided. In the case that topics have been covered in the meantime via support mechanisms such as H2020 or national tools, an assessment on the extent and impact of the activities is needed before considering a topic exhausted/tackled. It also needs to be kept in mind that some of the topic descriptions outlined in this IP cover a wide range of possibilities and project ideas under a more generic heading. The removal of areas identified in the IP should mirror the content of the supporting tool – this may mean not removing the entire topic but only parts of it.
- As mentioned in section 2.1.2, it is already the case that topics that are not in the 10-year Roadmap have been included in the draft IP. This should be clearly stated in the texts introducing the topics.
- We appreciate the budget estimations provided by the different ETIP SNET WG experts to the proposed topics. There may still be some discrepancies between the type of activities described and the estimated budget, which may need to be further analysed. This may be the case of modelling exercises with relatively high budgets or of demonstration/pilot actions with relatively low budgets.
- Within the process explanation, some further information on the role of the IP and how it is expected that the IP is implemented is needed – including recommendations to the Commission and to Member States.

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PART 1. HIGH-RES AND EMPOWERED END-USER ENERGY SYSTEM: GOVERNANCE AND MARKET DESIGN

The integration of the European energy system in a context of a high share of energy (electricity and heat) produced from renewables, together with the internal energy market, raise several questions regarding both governance (how to organize the operations of the energy system and the associated interactions between the different stakeholders) and market design (market rules supporting the development of renewables and empowering prosumers).

General comments about PART 1. GOVERNANCE AND MARKET DESIGN / Topics that would deserve to be added in your views:

EUTurbines agrees that market design is an extremely important topic. Flexibility is the cornerstone to build a reliable and secure energy system that can quickly adapt to increasing challenges due to higher shares of variable renewable energy sources. We would like to stress the need to ensure that all measures considered and developed within this topic contribute to a reliable, efficient and affordable power supply. In the same way, all flexibility options, including flexible thermal power generation, need to be considered in the models.

Any activities under this part also need to take into account the on-going discussions at EU level and reflect any decisions that are relevant within this framework.

PART 2. DIGITALISATION OF THE ENERGY SYSTEM

Smart networks should allow the enhanced monitoring, automation and control of the existing networks while ensuring that all involved stakeholders (regulated and market players) can interact: this will be made possible by a full digitalization of the power system, and of the energy system a whole. As of today, digitalisation is under implementation in transmission networks and distribution networks (mainly MV) but also for market applications. Still, a lot of work remains to be done to achieve a full digitalisation of the energy system.

General comments about PART 2. DIGITALISATION OF THE ENERGY SYSTEM / Topics that would deserve to be added in your views:

EUTurbines supports the topics identified in this part and confirms their relevance.

Under this part, we would like to highlight the importance of questions on data ownership, potential users of data for analytics and responsibilities in terms of privacy and security. This should be taken into consideration in the different topics as appropriate.

PART 3. INTEGRATED GRID WITH IMPROVED INTERFACES BETWEEN ENERGY SYSTEM COMPONENTS

SYNERGIES BETWEEN ELECTRICITY AND HEAT SYSTEMS

Heat networks will play a pivotal role in the future integrated energy system by providing additional flexibility. This additional flexibility needs to be optimised by better defining the role and interactions between the different stakeholders (regulated and market players) of the distribution grids and the heat networks (district heating and industry), taking into account the necessary technology-based integration issues (thermal storage and heat pumps for instance). This additional flexibility must also be provided in coherence with the energy and climate policies of the EC, e.g. integration of renewables and energy efficiency.

Topic 10: Coupling of electricity and thermal sectors

The topic presents a realistic coupling for local power and head supply – optimised solution for CHP plants with local thermal storage and district heating.

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Topic 11: Increase energy efficiency by utilising excess heat from other processes via heat networks and thermal storage

From EUTurbines perspective, the utilisation of excess heat from processes has an enormous potential. In some cases, however, it may be more efficient and economically viable when improvements are done at the heat source directly and contribute to the efficiency of a given process. Synergies to this topic can be found in the activities of the SET-Plan Action 6 Temporary WG (Energy Efficiency in Industry) – coordinated actions could be needed.

SYNERGIES BETWEEN ELECTRICITY AND GAS SYSTEMS

Coupling gas and electricity networks (via power to gas technologies) at different spatial scales (transmission and distribution grids) provides additional flexibility options to manage the power system. At transmission level, gas networks can provide an alternative solution to perform large-scale storage (chemical energy) of renewable excess electricity. At distribution level, the existing gas networks, especially in cities, could be used to promote green fuels for thermal or transport applications.

Topic 12: Coupling of electricity and gas sectors

EUTurbines welcomes the considerations to find ways to continue using the gas network in the future. Coupled with Power-to-Gas, the gas grid offers a long-term storage solution that no other options are able to provide.

COUPLING BETWEEN FLEXIBLE GENERATION AND STORAGE

Coupling generation units (thermal and RES) with a storage unit can help improve the flexibility provided by these units under satisfying techno-economic performances.

Topic 18: Integration of storage in existing thermal generation for increased flexibility

While a similar topic is part of the latest seen draft H2020 Work Programme 2018-2020, EUTurbines would like to stress the importance to have a continuous, wide support for the development of solutions under this topic. The allocated budget under the EU's R&I funding mechanism is much lower than the estimations provided by the experts of the ETIP SNET WG3 – in the future, additional activities to increase the flexibility of thermal power generation will be needed in order to achieve the set-up targets and have the desired impact.

In accordance with the title used in the explanation in p.17 and in the longer topic description in p.43, the word "existing" in Table 8 should be removed.

Your general comments about PART 3. INTEGRATED GRID WITH IMPROVED INTERFACES BETWEEN ENERGY SYSTEM COMPONENTS / Topics that would deserve to be added in your views:

EUTurbines welcomes this part on improved interfaces. For a well-functioning system in the future, the integration of the different sectors as well as components will be key.

TRANSMISSION NETWORKS

The fast-evolving environment of electricity transmission networks (e.g. generation connected at distribution level, converter based power electronics in production and demand facilities, mix of AC and DC interconnectors) calls for increased system flexibility, stability and security.

Topic 23: Public acceptance and stakeholders participation

The description of this topic lacks a lot of details and should therefore be better explained.

It is suggested that the topic is not restricted to transmission networks only; public acceptance and stakeholders' participation is an important matter for all system contributors.

THERMAL GENERATION

The ever-increasing penetration of RES in electricity production has changed the operating conditions of thermal power generation (TPG). TPG must increase its flexibility, e.g. at full and partial load with possibly different fuels, at the lowest emission level as possible. Regarding fuel flexibility, for “green” synthetic liquid or gaseous fuels produced from excess RES electricity and which can be used in TPG as well as to couple the electricity grid with the transport and gas sectors (large-scale electricity storage solution), the main challenges are the adaptation of the existing combustion technologies.

Topic 33: Developing the next generation of flexible thermal power plants

EUTurbines welcomes the topic and agrees with the need to continue building on the findings of the projects under H2020 funding calls LCE-17-2015 and LCE-28-2017. Increasing the flexibility of thermal power generation is imperative to have a well-functioning future energy system. Areas that present the biggest challenges when increasing flexibility – which means a different operation mode – include the efficiency levels both at full and part-load and maintaining low emissions. In the same way, the robustness of specific components and of the entire power plant can be compromised. In this sense, we suggest complementing the fourth bullet point under Content/Scope as follows: “Robustness of thermal power plants for increased cycling (materials, lifetime estimation maintenance and repair costs reduction)”

It should be noted that the sections “expected impact” and “expected outcome” can be very similar. Given the fact that the topic describes numerous possibilities on how to address the topic (under the Content/Scope section), at this point, it is difficult to predict what would be the specific outcome – It is therefore suggested to remove the “expected outcome” part.

Possible partners under this topic would include component/technology providers, utilities, research centres and universities, etc.

Topic 34: Adaptation and improvement of technologies to novel Power-to-Gas and Power-to-Liquid concepts

EUTurbines highlights the importance of this topic, as it complements other topics identified in this Implementation Plan. While the necessary network for Power-to-Gas/Liquid solutions is ensured through other topics, specific technologies that use the fuels resulting from these options also need to be adapted and improved to reach their full potential.

It should be noted that the sections “expected impact” and “expected outcome” can be very similar. Given the fact that the topic describes numerous possibilities on how to address the topic (under the Content/Scope section), at this point, it is difficult to predict what would be the specific outcomes – It is therefore suggested to remove the “expected outcome” part.

Possible partners under this topic would include component/technology providers, utilities, research centres and universities, etc.

GENERATION: CROSS-CUTTING TOPIC

The digitalisation of generation units is key to improve design methods and tools (techno-economic performances) and operating conditions (better efficiency and extended lifetime resulting in higher profitability).

Topic 39: Digitalisation of flexible, dispatchable generation technologies

EUTurbines agrees with the relevance of the topic.

It is suggested to rephrase the reference to “digital twin” in the first bullet point under Content/Scope as follows: “Simulation and design systems for plant machine components (e.g. digital twin), including...”

Your general comments about PART 4. IMPROVED COMPONENTS OF THE ENERGY SYSTEM /
Topics that would deserve to be added in your views:

EUTurbines welcomes the approach to, complementing system-focused topics, promote improvements of all components of the energy system with this Implementation Plan. In this sense, we support the inclusion of topics aimed at increasing the performance of thermal power generation.

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