



ETIP SNET

EUROPEAN
TECHNOLOGY AND
INNOVATION
PLATFORM

SMART
NETWORKS FOR
ENERGY
TRANSITION

**PLAN.
INNOVATE.
ENGAGE.**

Working Group 3 „Flexible Generation“

**Martin Pogoreutz
Co-Chair of Working Group 3**



Specific Objectives of the Working Group

WG 3 addresses the business & technology trends considering

- **the contribution of flexible generation**
- **of all dispatchable generation sources**
- **for power, heat and cooling**
- **centralized and decentralized**
- **with or without embedded storage**

as needed for an integrated energy system.



WG 3 Members and Leader



May 23, 2019 7th WG3 Workshop in Villingen

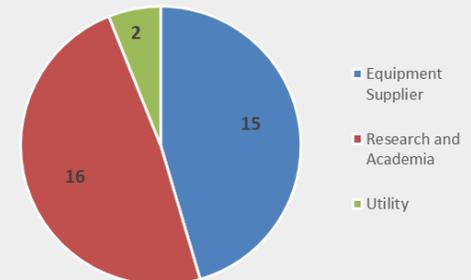
Members: Membership Call 2019



- Chair:** Michael Ladwig General Electric, CH
- Co-Chairs:** Miguel Garagorri de Miota Iberdrola, ES
Martin Pogoreutz ANDRITZ, AU
- Advisor:** Vincenzo Casamassima RSE, IT

The public call in May 2019 resulted in 24 applications. The WG3 leadership team selected 14 candidates, which lead to an:

- Increased number of members from 19 → 33
- Increased number of countries represented from 9 → 14
- Increased number of female members from 1 → 3



Position of WG3 to be reflected in White Paper: “Flexible Power Generation in a Decarbonizing Europe”

What do we want to achieve?

- understanding the existing energy system in EU (demand & supply)
- providing a forecast on how we see the European energy generation landscape in 2050
- understanding of «flexible generation» (what does it mean?) and its necessity for Europe, its technologies, challenges and future R&D needs (targets)
- explaining definitions and boundaries
- detailing the deliverables of flexible generation
- explaining the economics
- outlining the sector integration
- explaining the contribution of flexible generation to the generation transition and CO₂ reduction

Position of WG3 to be reflected in White Paper: “Flexible Power Generation in a Decarbonizing Europe”

Structure of the paper

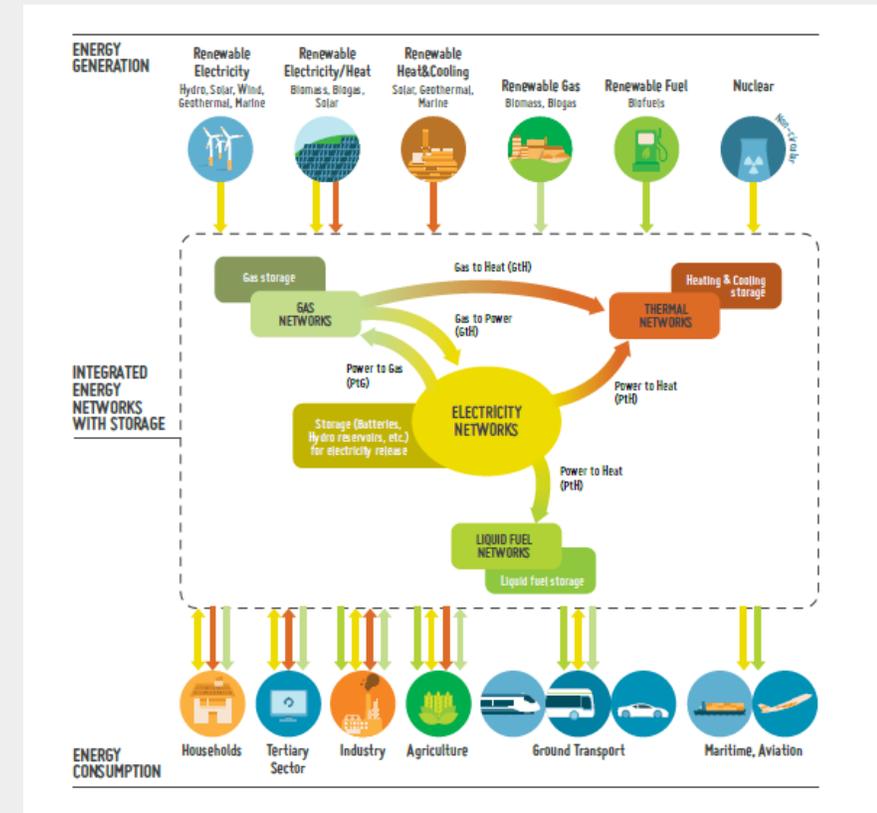
Executive Summary

1. European targets with regard to flexible generation
2. Flexible generation technologies
3. Technology description in annex or «grey boxes»
4. Outlook for a generation in a decarbonizing Europe
5. From linear to circular economy
6. Plant Level demonstration based on available technology

Conclusion

Status

Discussion of actual status in the course of upcoming f2f meeting in Graz
 Revised draft finished by beginning of December
 Submission before next Gov. Board meeting in January
 Layout support by ETIP-SNET



Technological Requirements (by WG3)

Needed joint efforts to address the following topics:

- **Operational Flexibility:** minimum loads, quick start possibility, fast ramp rates
- **Fuel Flexibility:** unlimited fuel flexibility designs, up to 100% H₂
- **Emission Reduction Technologies:** cycling, minimum load down to idle
- **Product Flexibility:** enabling sector integration
(heat, electricity, synthetic fuels)
- **Integrating Storage into Power Generation:** seasonal storage to encounter “dark doldrums”
- **New Technologies:** Fuel cells, novel electrolyze technologies:
materials technology
- **Chemical Use of Gaseous by-Products:** waste gasification
- **Offshore Hydropower:** extended utilization of hydrokinetics
(river, ocean and wave)



Conclusion

- Lots of technologies have been established and are available
- They need to be adjusted to the circular economy

Unless CO2 emissions do have a certain cost impact in all sectors, it is difficult to develop business models for further carbon reduction

If we want to achieve our vision we need to define the way forward and start right now!



The pathway forward:

- **What is the role of thermal power and heat generation in 2050?**
- **Do we need CCS in the future?**
- **„Blue Hydrogen, “ or can we produce enough „Green“ Hydrogen?**
- **Do we have to be afraid of „cold doldrums“ and blackouts?**
- **Centralized or decentralized generation, other sectors?**
- **How can we achieve a common mind in all EU countries?**
- **How can we raise more public awareness and acceptance for needed infrastructure?**
- **How can policy contribute to accelerate the transition towards a decarbonized society?**



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**On behalf of
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Thank you