

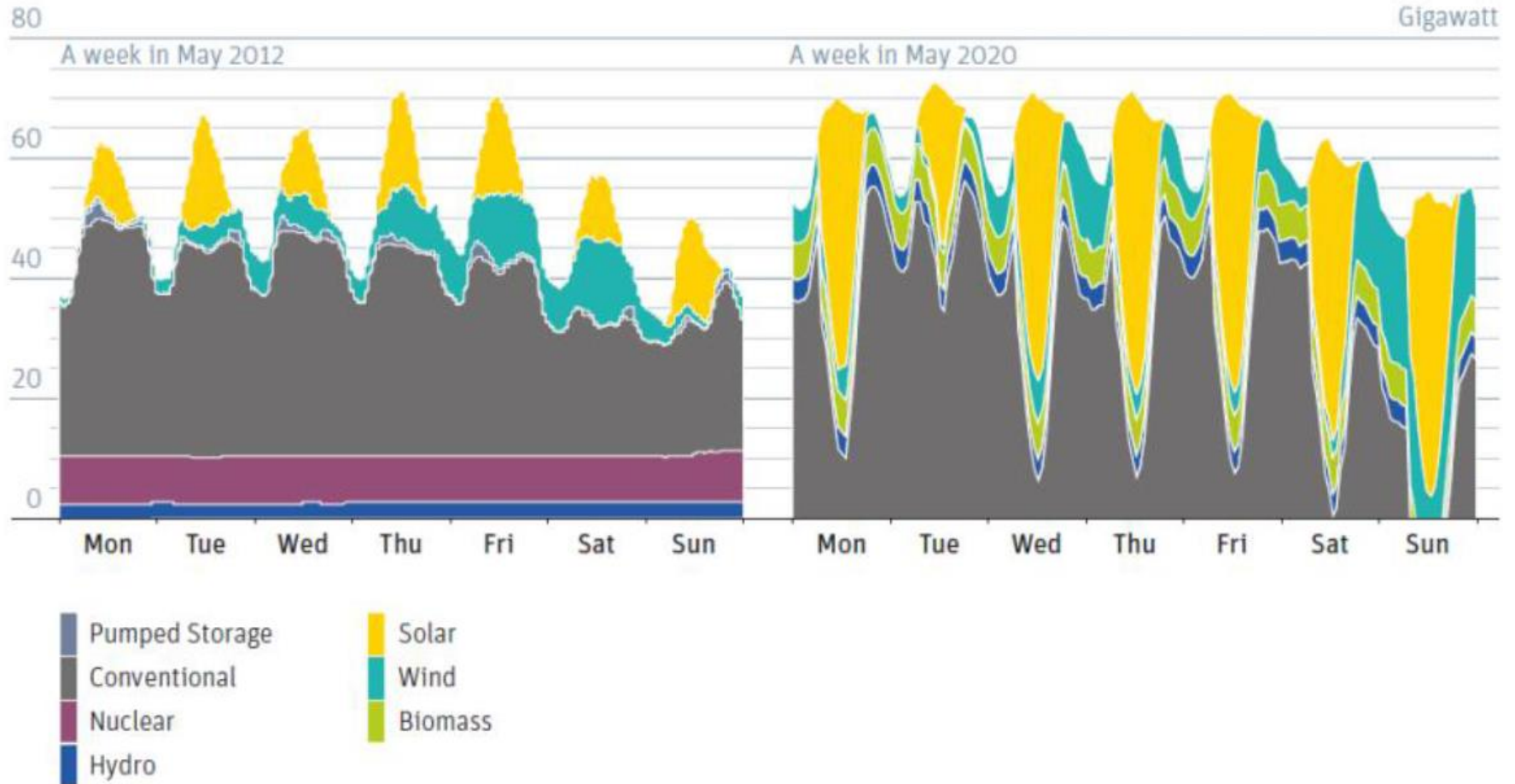
A viewpoint from the flexible power generation sector

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Grid+Storage final event
8 December 2016 – 17:00
Plaza Hotel, Boulevard Adolphe Max 118-126,
Brussels



Today's situation and a glimpse into the future



Source: Volker Quaschning, HTW Berlin

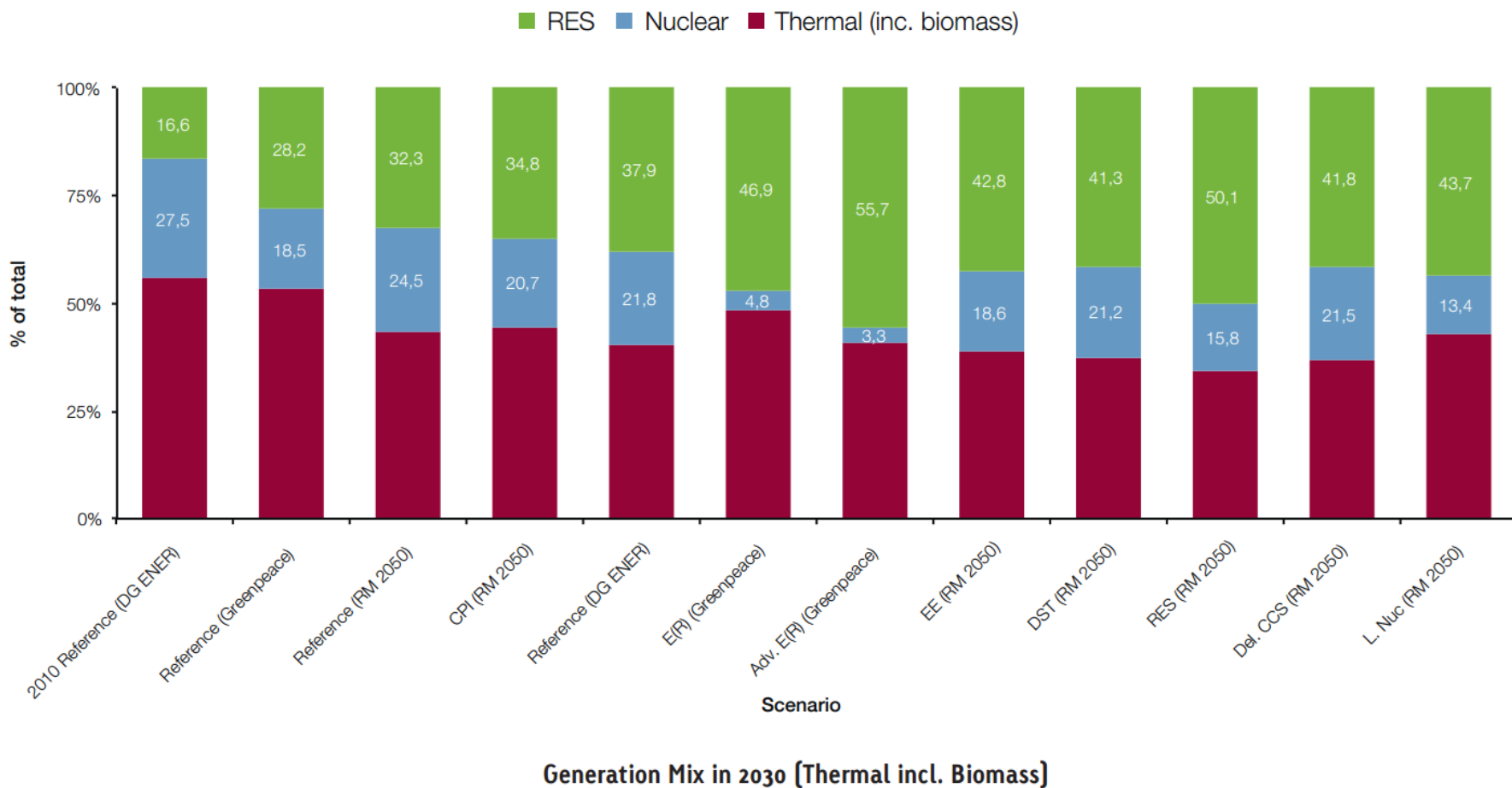
Associated challenges

Massive integration and ever increasing penetration of variable renewable energy sources (vRES):

- Increasing need for dispatchable and flexible power generation that can react rapidly to stabilise the system and ensure the security of electricity supply
- New residual loads profiles (sometimes close to zero and even negative)
- Increased operating durations at partial loads and steeper ramp rates
- Impacts on operations of low voltage & medium voltage networks (e.g. causing voltage profile problems and issues associated with reverse power flows).
- Maintaining power quality (e.g. operating within voltage, harmonics distortion and power oscillations limits) has become a major challenge for DSOs which are deploying monitoring, automation and control solutions on their networks

Enabling more vRES by ensuring the stability of the grid

Huge potential for increasing flexibility in the system in a cost-effective way



A 10 year road for Research & Innovation

for

Flexible centralised and decentralised
thermal power generation

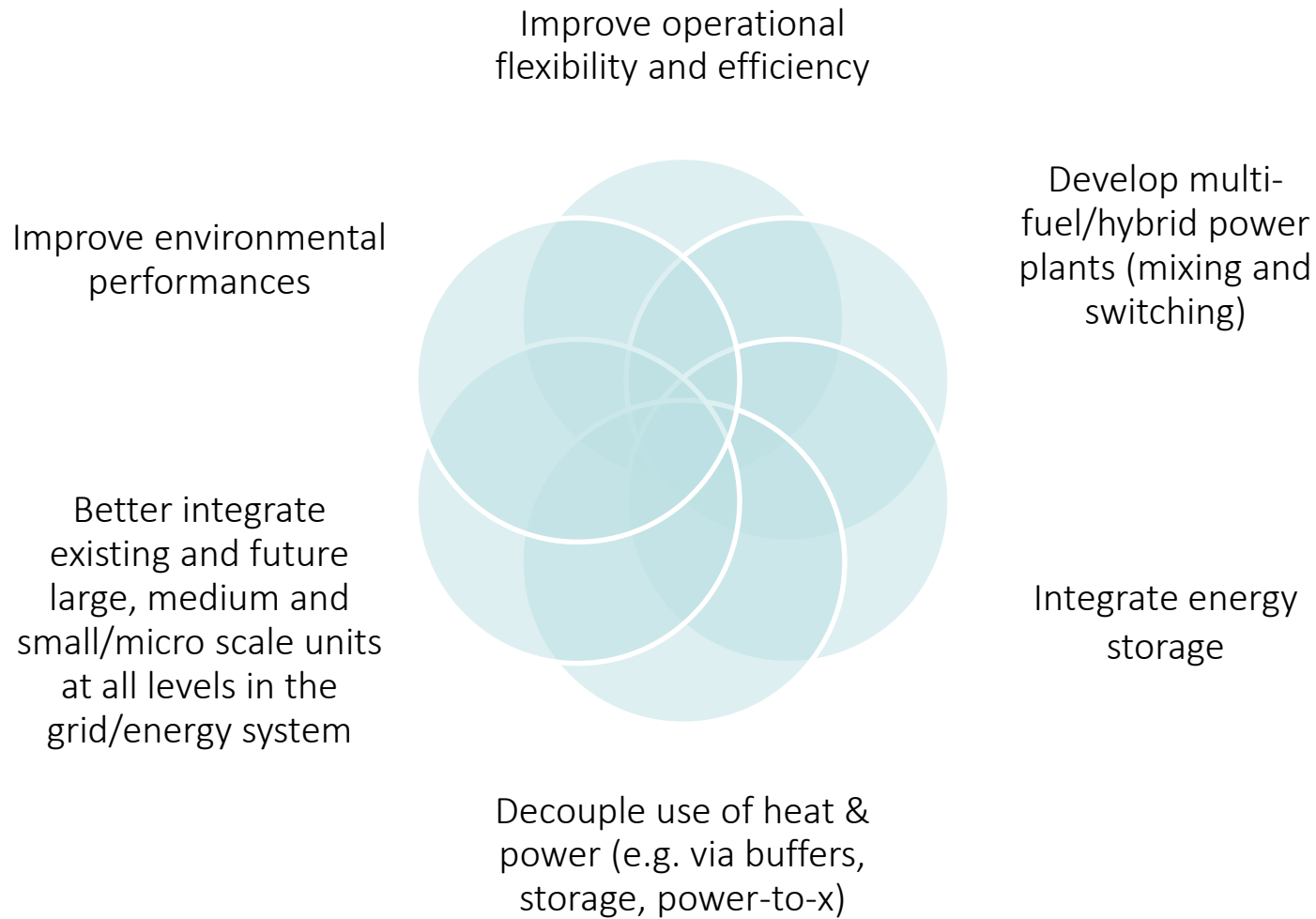
SET-Plan endorsed Declaration of Intent and ETIP SNET

- Rightly reflects the importance of all flexibility options to develop integrated energy systems
- Sets strategic targets on
 - **Flexibility of the system by 2030**
 - Target for the flexibilisation of centralised and decentralised thermal power generation: *50% of all thermal power plants (new as well as retrofitted) should meet the flexibility requirements demanded by vRES. This requires:*
 - *Doubling of average ramping-rates (the speed at which output can be increased or decreased)*
 - *Halving efficiency losses for part-load operations*
 - *Reducing minimum load by 30% compared to the average of today (avoiding plant switch-off)*
 - **Economic efficiency**
- Defines the ETIP SNET as the main vehicle for discussing and agreeing on the implementation plan.
 - Fostering collaboration throughout the entire value chain in the energy system

Flexible thermal power generation in the future

- Thermal power generation is
 - A fundamental part of the energy mix for a resilient energy system
 - Part of the solution to enable the transition to a clean, secure, and affordable energy supply in Europe, in line with the Energy Union objectives
- European technological excellence: crucial to support and maintain EU leadership in low-carbon state-of-the-art power generation technologies (for refurbishment of existing capacity and for new capacity)
- More work needed to appropriately address the R&I needs of thermal power generation
- The Thermal Power Generation sector looks forward to supporting ETIP SNET and its Working Groups to further elaborate identified R&I priorities from an integrated/system-oriented approach including all flexibility options

Main research & innovation topics for flexible centralised & decentralised thermal power generation



Thank you



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