

Paris Session 2022



Grid Forming Challenges and Mitigating Modular Technologies

SC B4 PS 1 – PS 3 Q S.1

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SMART  WIRES
REIMAGINE THE GRID

Group Discussion Meeting

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What is Grid Forming Services Standard Definition ?

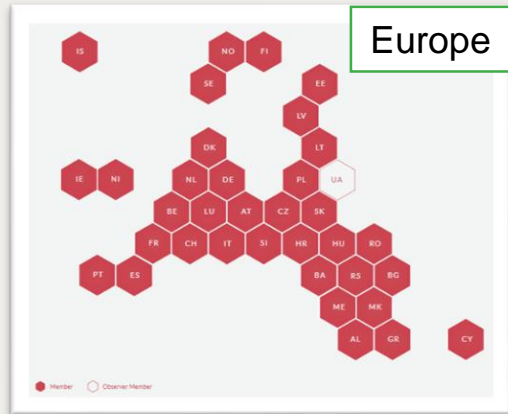


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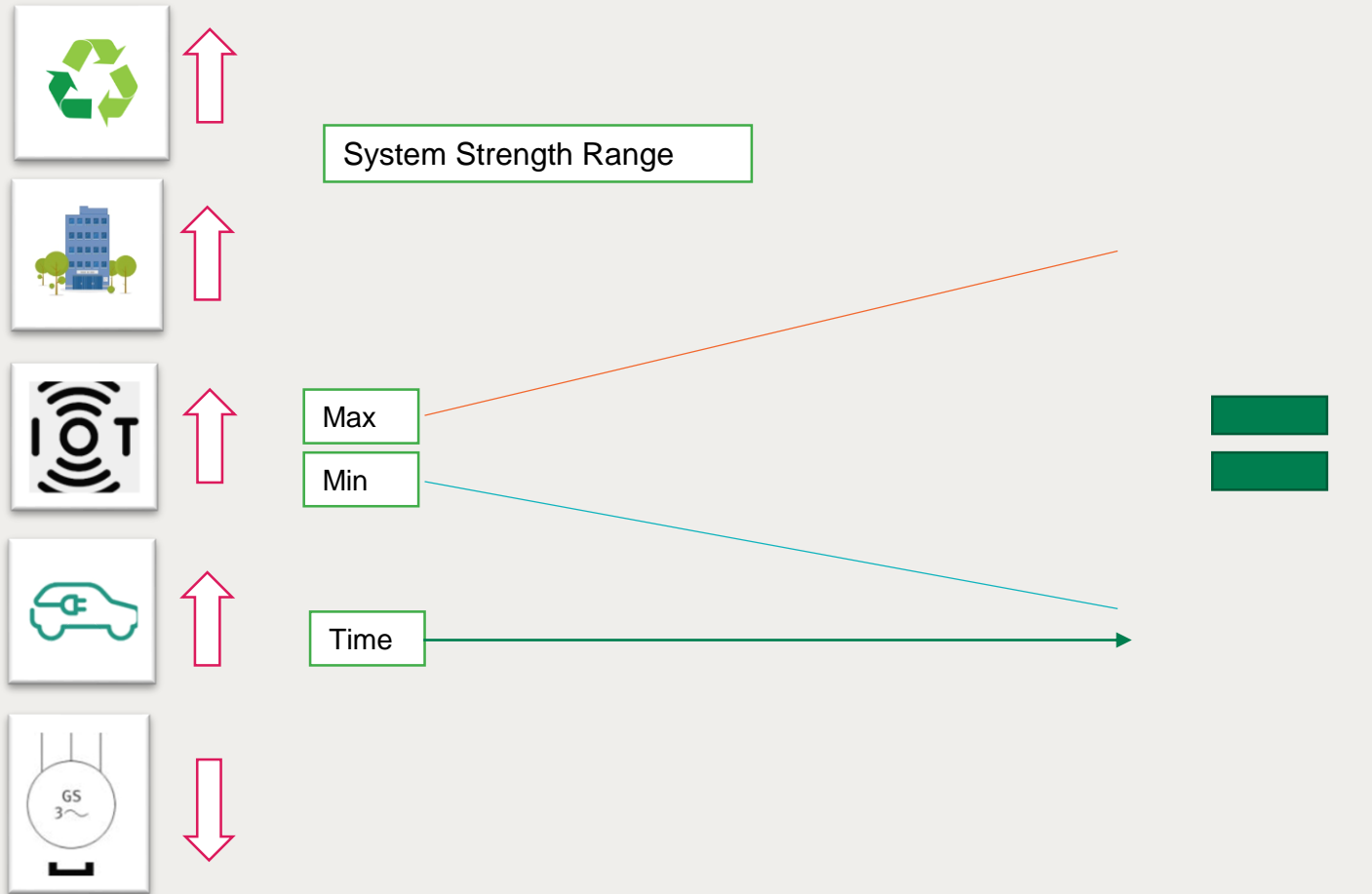


1. Creating (forming) system voltage
2. Contributing to fault level (short circuit power)
3. Contributing to total system inertia
4. Supporting system survival to enable the effective operation of low frequency demand disconnection for rare system splits
5. Acting to counter harmonics and inter-harmonics in system voltage
6. Acting to counter any unbalance in system voltage
7. Preventing adverse control system interactions

?

Recommend Technical Brochure or IEC/IEEE Categorisation?

Large integration of Power Electronic challenges and opportunities



- Controller action/interaction?
- Harmonics (Sub/Super) resonance
- Power Quality limits
- Temporary over-voltages
- Mitigation selection with future uncertainty
- Increasing variability of the problem

Modular [M-SSSC] solution service contribution to Grid Forming

Grid Forming Service	Attributes of M-SSSC that provide service						
	Injects Reactive voltage	Changes effective impedance	Maximizes other Resources	Controlled voltage injection	Single Phase operation	Negligible physical impedance	Dispersed deployment
Creating (forming) system voltage	✓						
Contributing to fault level (short circuit power)		✓	✓				
Contributing to total system inertia			✓				
Supporting system survival to enable the effective operation of low frequency demand disconnection for rare system splits	✓	✓					
Acting to counter harmonics and inter-harmonics in system voltage				✓			
Acting to counter any unbalance in system voltage					✓		
Preventing adverse control system interactions						✓	✓
Experience	Global in service	Global in service	Regional Analysis	Local Analysis	Global in service	Global in service	UK in service Global analysis