



**RESERVE**



FUTURE GRIDS

**fast, safe, sustainable**

# RESERVE Project

## Presentation of D6.3 – Definitions of Ancillary services and Network Codes

10th of October 2018

**Bucharest, Romania**

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## D6.3 authors

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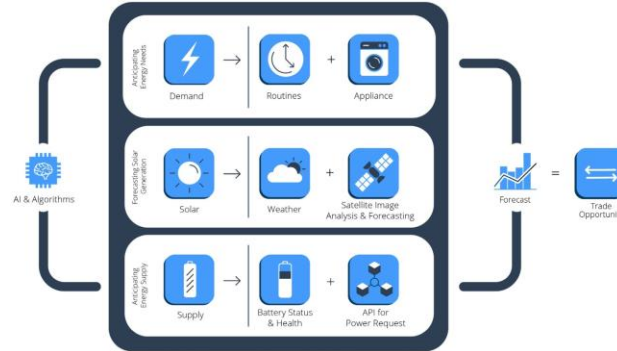
RWTH: Kai Kappner and Philipp Weidinger

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# OBJECTIVES OF THE DELIVERABLE

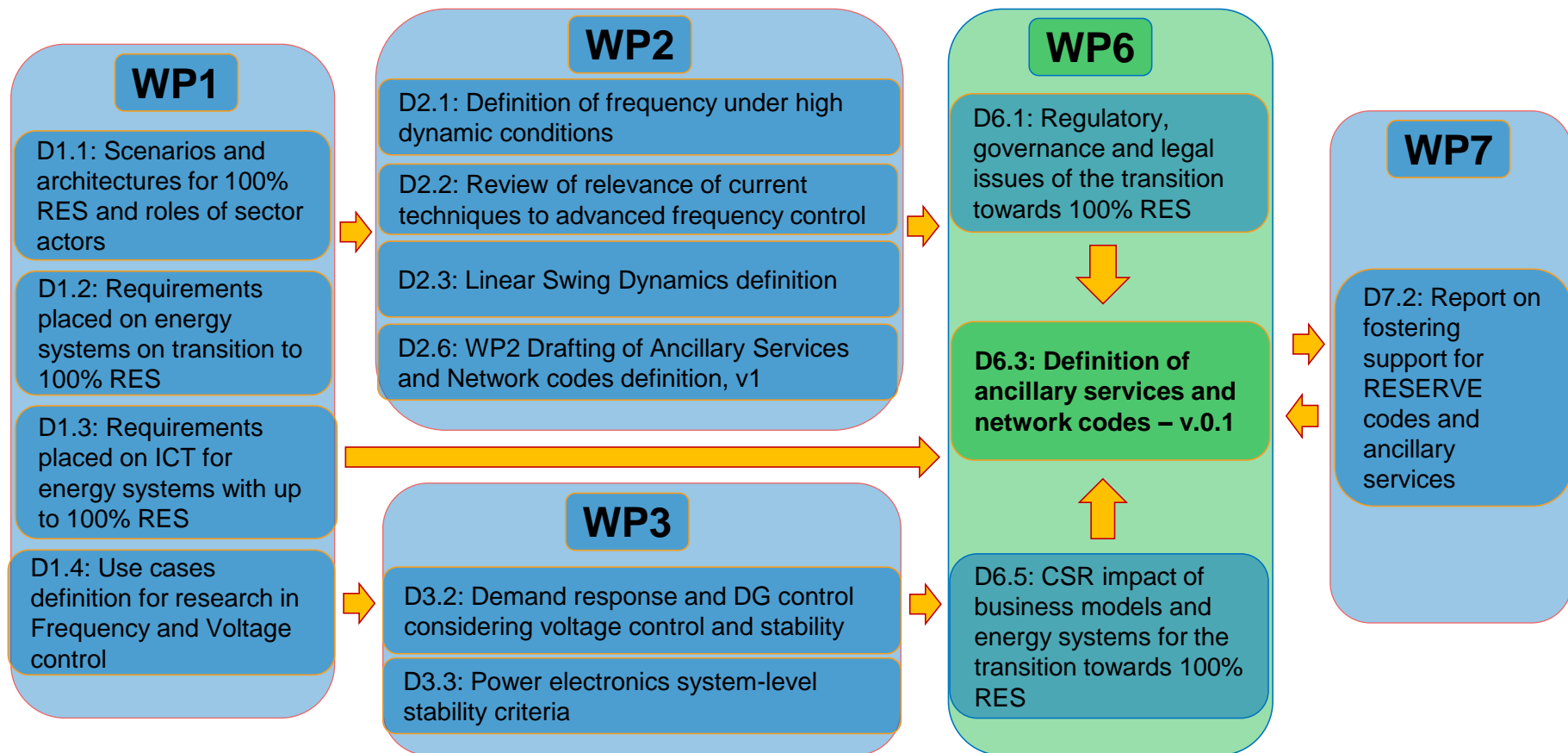


To provide initial definition of new or updated ancillary services and definitions of NCs



To analyse the environmental, economic and societal aspects related to the new or updated ancillary services

# ELABORATION OF D6.3 – INFO FLOW



## Requirements for Power-Converter based Energy Storage System (ESSs) connected to the Electricity Grid (HV, MV, LV)

### Network Code:

- Collection of rules and regulations related to a certain technical activity
- To facilitate the understanding of the main legal requirements for operating a **Grid related activity**

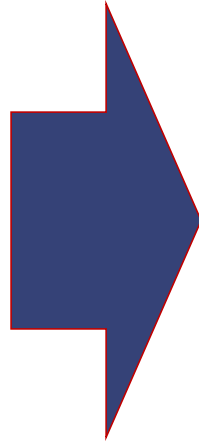
Storage aspects are dispersed into 5 existing NCs



New Network Code with integrated requirements

**Up to 100% RES involves a number of system requirements, that will be addressed by:**

- ***Changes within existing ancillary services***
- ***Definition of new ancillary services***



## ***Updated ancillary services:***

- *New approach for FCR*
- *New approach for Voltage control*

## ***New ancillary services:***

- Specifications and requirements for linear behaviour in Swing Dynamics
- Providing Synthetic Inertia
- Providing System Flexibility

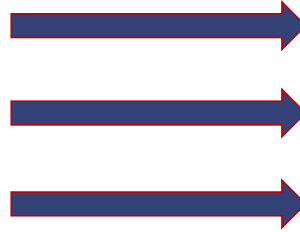


- Adoption of reference scenarios
- Distribution system – frequency control
- Distribution system – voltage control
- Requirements of minimum system inertia
- System Swing Dynamics
- Expanding the frequency control strategy to allow using small sized and/ or intermittent energy resources



- Requirements for the HVDC systems
- Recommended settings for the controlled units
- Requirements for new behaviours of RES inverters
- New requirements for the perturbations injected from RES inverters
- Dynamic stability margins
- ICT chapter in power network codes

**A new generation of inverters  
will be needed in the near future**



**Smarter  
Faster  
More flexible**

**The relationship between TSOs and DSOs will have to adapt to the effects  
of the generalized distributed generation**



[www.re-serve.eu](http://www.re-serve.eu)



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# RESERVE Project

## WP6 Progress report and further actions

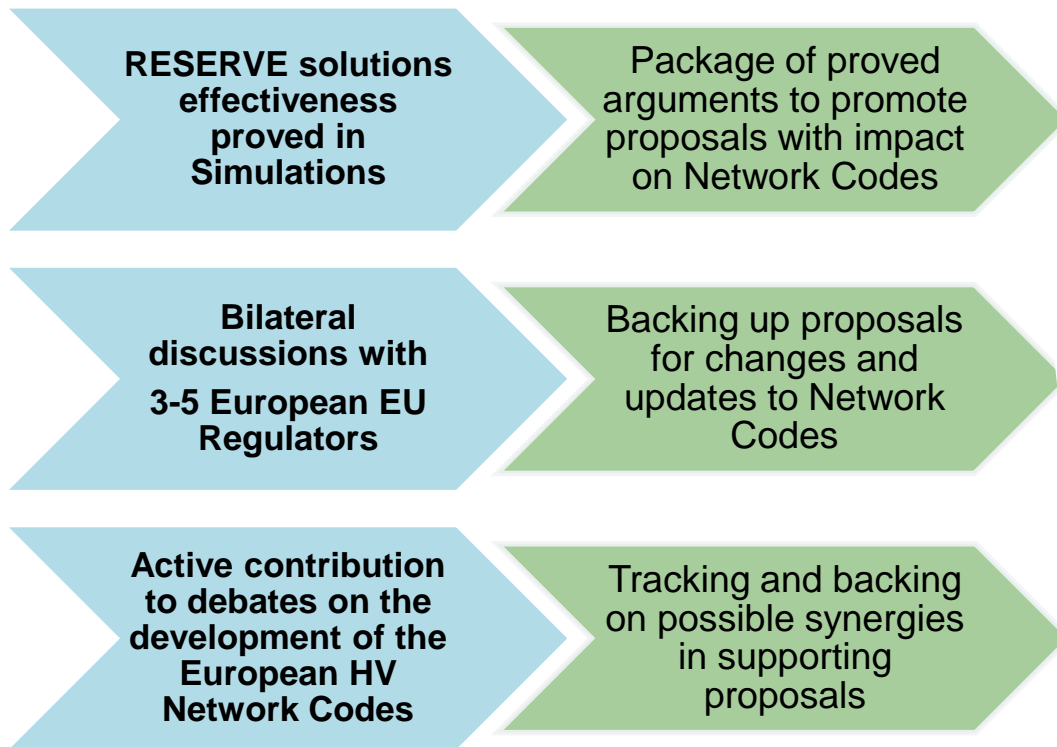
11th of October 2018

**Bucharest, Romania**

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# NEXT STEPS: CONSOLIDATING THE IMPACT ON THE REGULATORY FRAMEWORK



**Communicating a well-founded set of information to:**

- **European Associations** (EURELECTRIC, ESDO for Smart Grids, EASE, EPIA, etc.) that can contribute in dissemination and can jointly support lobbying
- **Standardization Institutions** (CEN, CENELEC, etc.) that can adopt standards relevant to the context of RESERVE

21-22 November 2018 Brussels – [Workshop](#)