

eSTORAGE - WP2_T2.3: PSP Dispatching Solution Workshop

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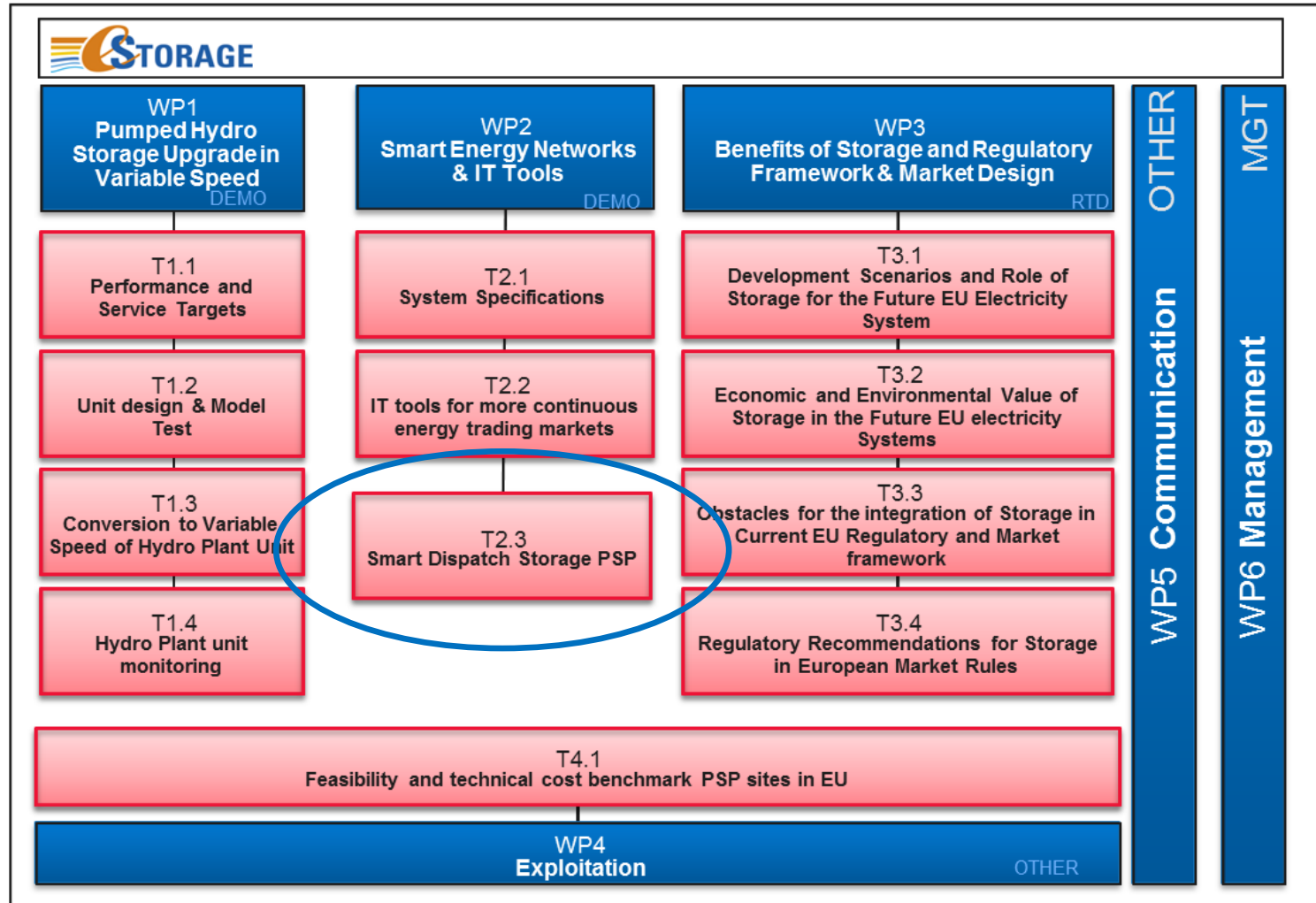
London

22/10/2014



- **The eSTORAGE project context**
- Smart Dispatch for var-speed PSP
- Demonstration
- Q&A

The eSTORAGE WBS



WP2 - Smart Energy Network & IT Tools

WP2 objectives:

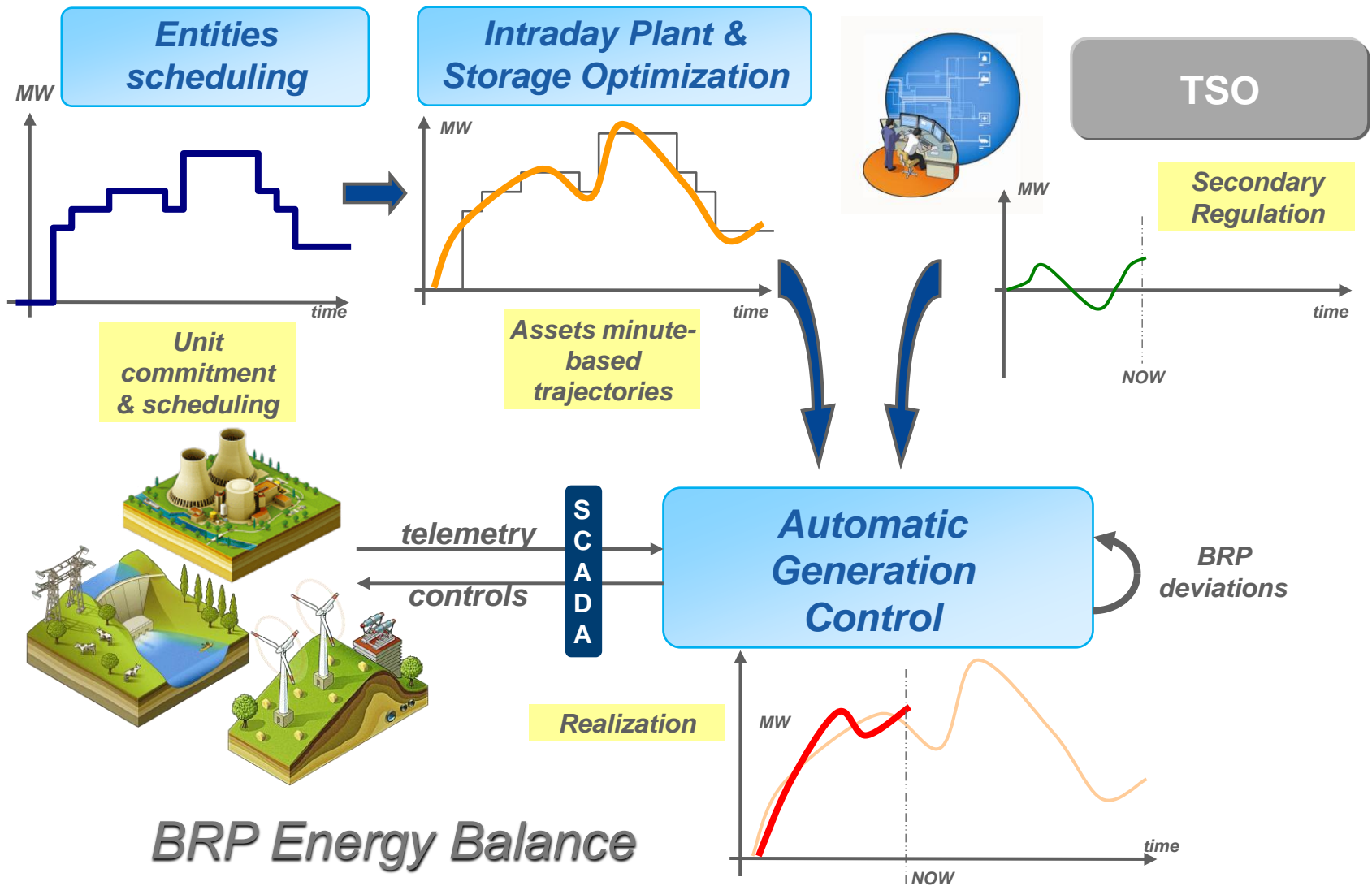
- Implement new market rules and associated incentives schemes related to storage in a context of large renewable resources integration – T2.1 and T2.2
- Demonstrate the criticality of IT tools in enabling the deployment and efficient use of storage systems in the framework of Smart Energy Networks – T2.3

Task 2.3 - Smart Dispatch Storage PSP

The intent within this task is to use smarter scheduling and dispatch techniques to take advantage of variable-speed PSP assets, with the objective of providing as much balancing flexibility as possible while meeting the main energy storage target (i.e. energy transfer target)

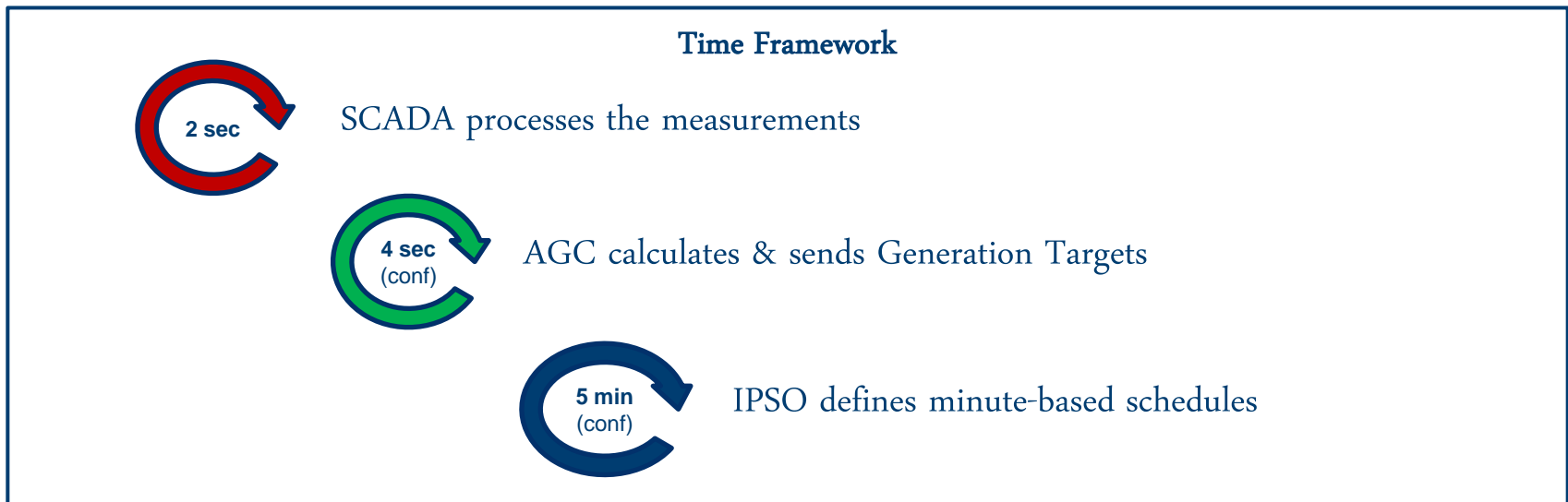
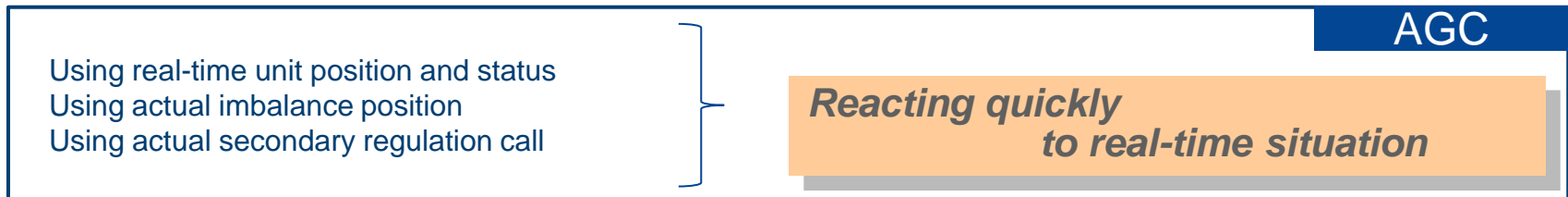
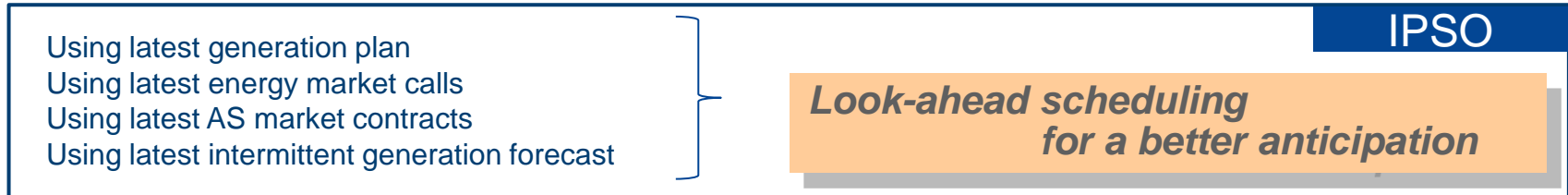
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From day-ahead to real-time...



Very-short term optimization

IPSO/AGC for real-time generation management



Intraday Plant and Storage Optimisation

Specifically designed to meet trading period balancing requirements (5, 10, 15, ... minutes)

- ◆ Defines the least-cost strategy on a minute basis to balance generation and load over each trading period
- ◆ Avoids imbalances in the trading period



Deals with unit technical constraints

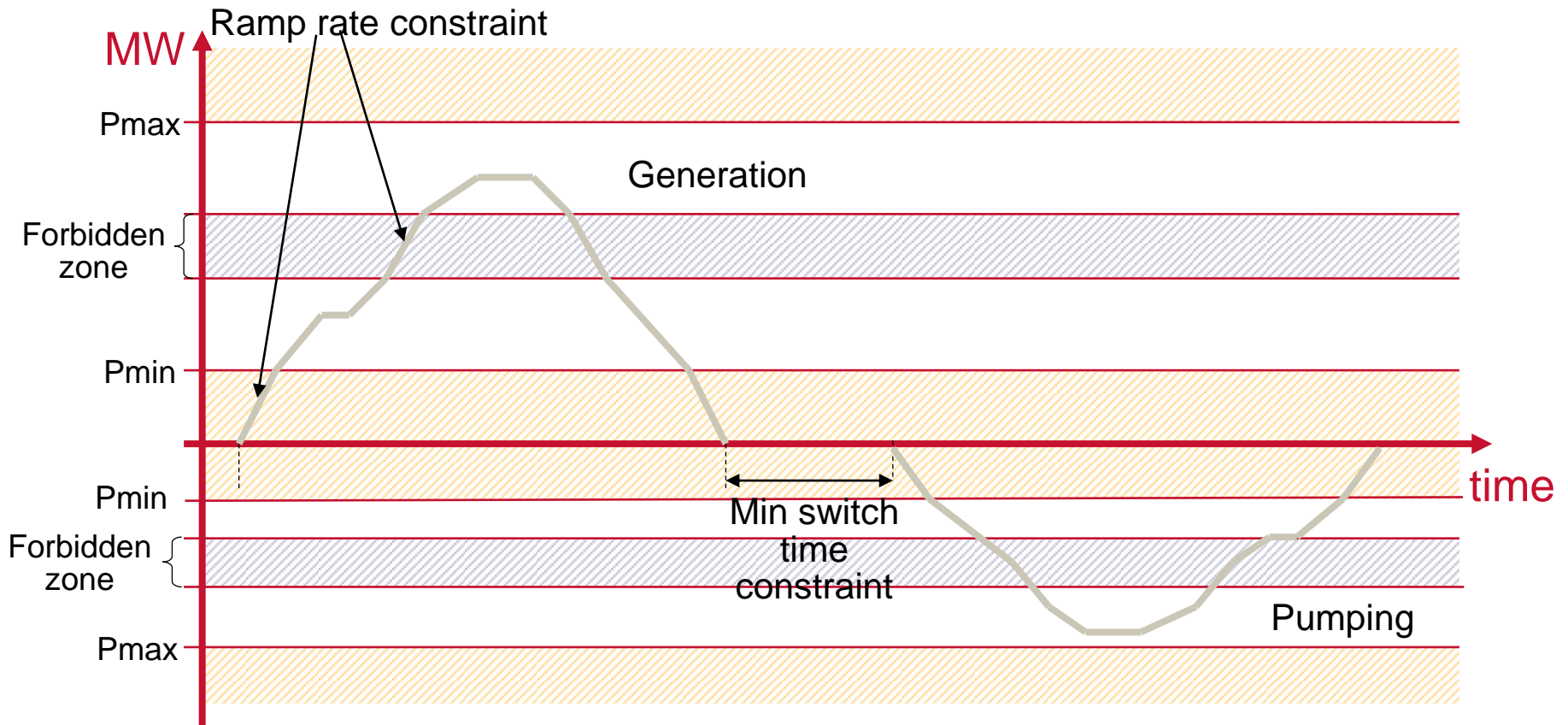
- ◆ Enforces technical limits, ramp rate, forbidden zones, ...

Deals with ancillary services obligation

- ◆ Keep room for regulation/reserve when contracted



Main Unit Technical Constraints



- The eSTORAGE project context
- Smart Dispatch for var-speed PSP
- **Demonstration**
- Q&A

DEMO Part 1 – Base Case

Available Power Units

- 2 var-speed PSP
- Demand of +/- 20 MW of regulation (Frequency Restoration Reserve)
- Schedule including generation to pump switch in unit 1

DEMO Part 2.1 – Wind curtailment

Available Power Units

- 1 Wind park
 - 1 Gaz Turbine
 - 1 fixed speed PSP
-
- Demand of +/- 20 MW of regulation (Frequency Restoration Reserve)
 - Wind forecast error of 43 MWh (net) in 4 hours

DEMO Part 2.2 – Wind curtailment

Available Power Units

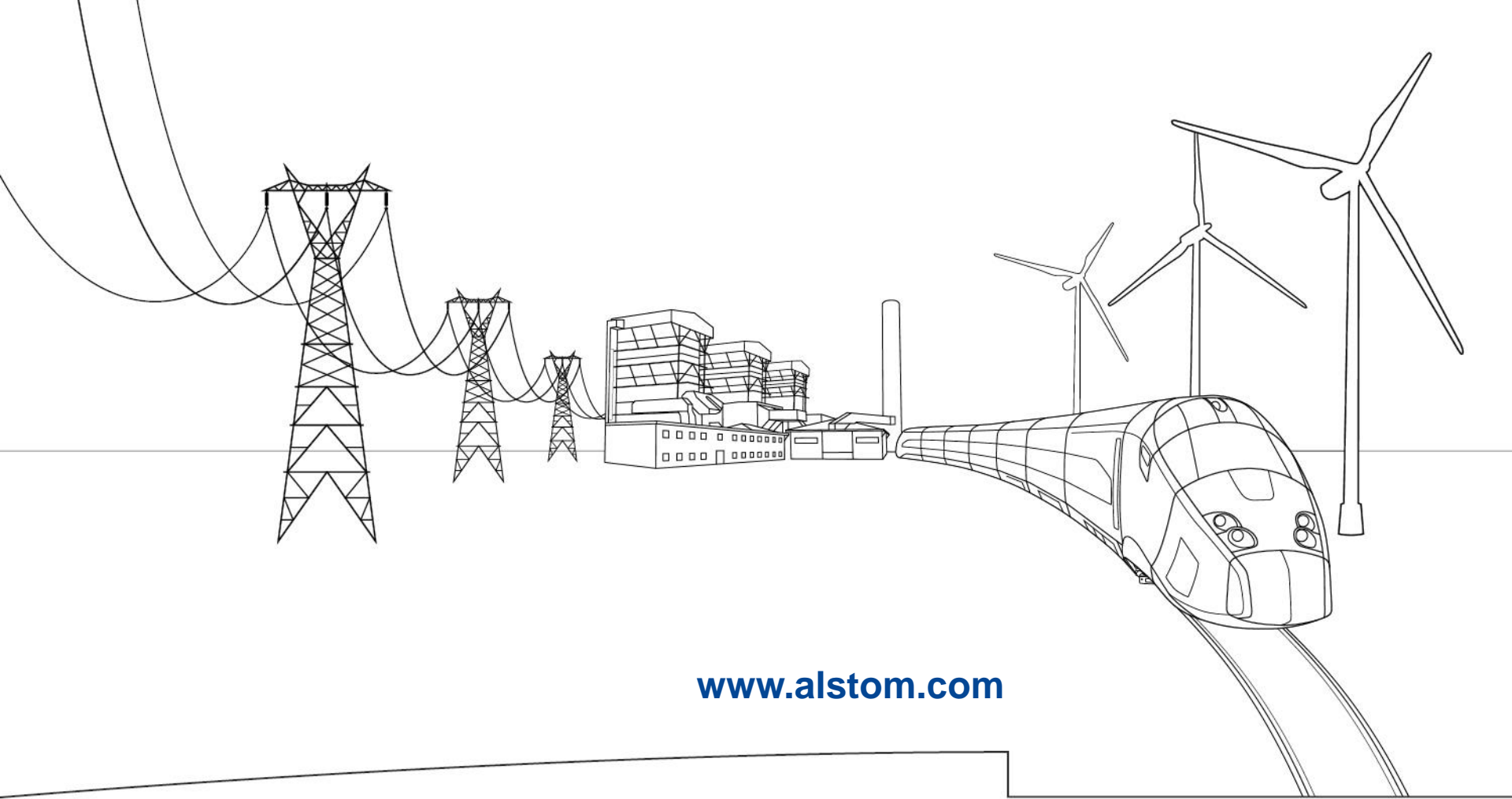
- 1 Wind park
 - 1 Gaz Turbine
 - 1 fixed speed PSP
-
- Demand of +/- 20 MW of regulation (Frequency Restoration Reserve)
 - Wind forecast error of **393 MWh** (net) in 4 hours

DEMO Part 2.3 – Wind curtailment

Available Power Units

- 1 Wind park
 - 1 Gaz Turbine
 - **1 var-speed PSP**
-
- Demand of +/- 20 MW of regulation (Frequency Restoration Reserve)
 - Wind forecast error of **393 MWh** (net) in 4 hours

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