

# Northern Ireland & Ireland preparing for the future...

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Wednesday 4 November

# Agenda

1. Context
2. General Overview of DS3 Programme
3. RoCoF (Rate of Change of Frequency) Project
4. System Services Implementation Project
5. Summary



# Policy ambition for tomorrow...



At least 27% RES-E



40% Reduction in GHG emission



Emission reductions in ETS and non-ETS



Sustainable Economic Growth



Security of Supply



27% increase in energy efficiency



Affordable Energy

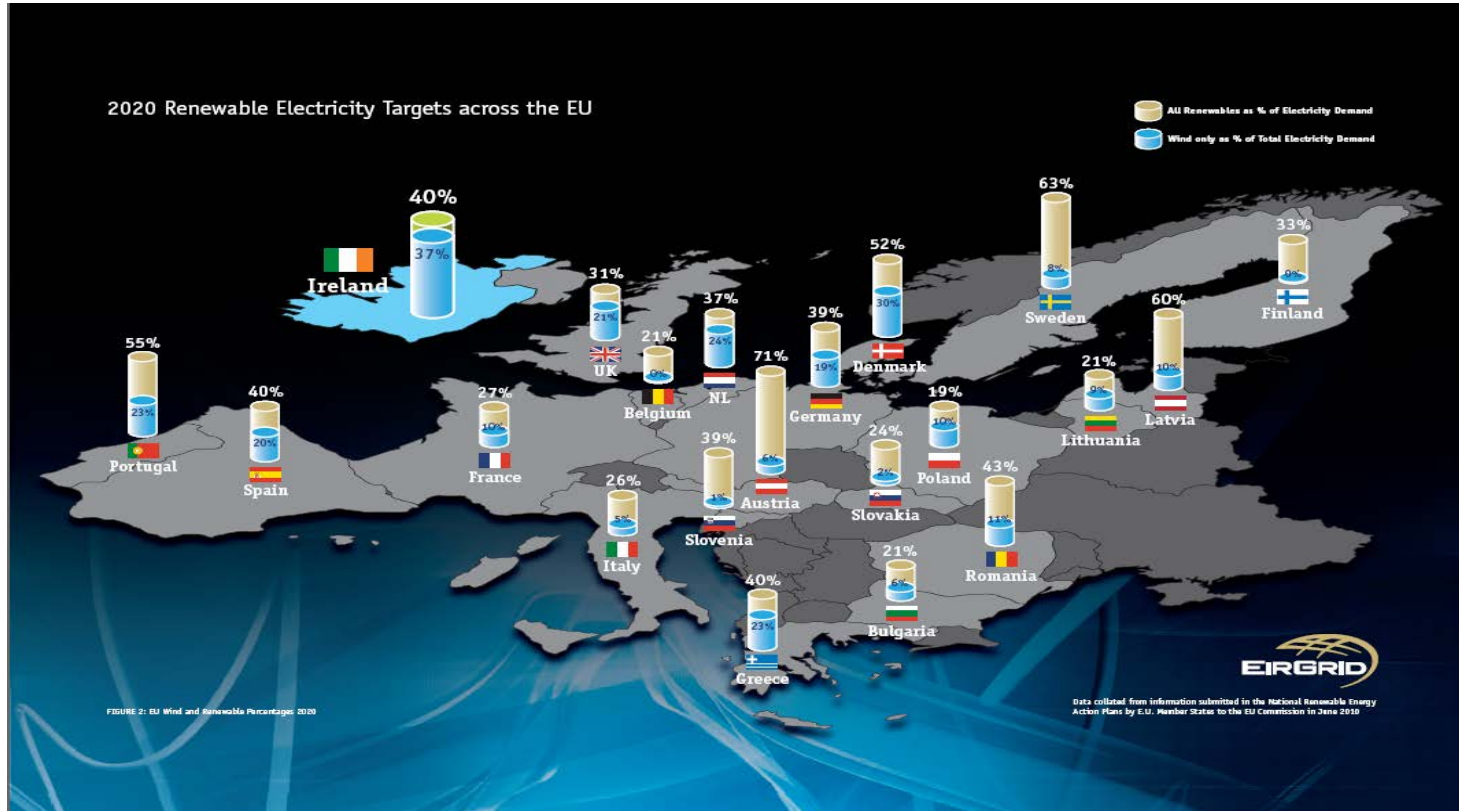


Climate Change (Paris 2015)



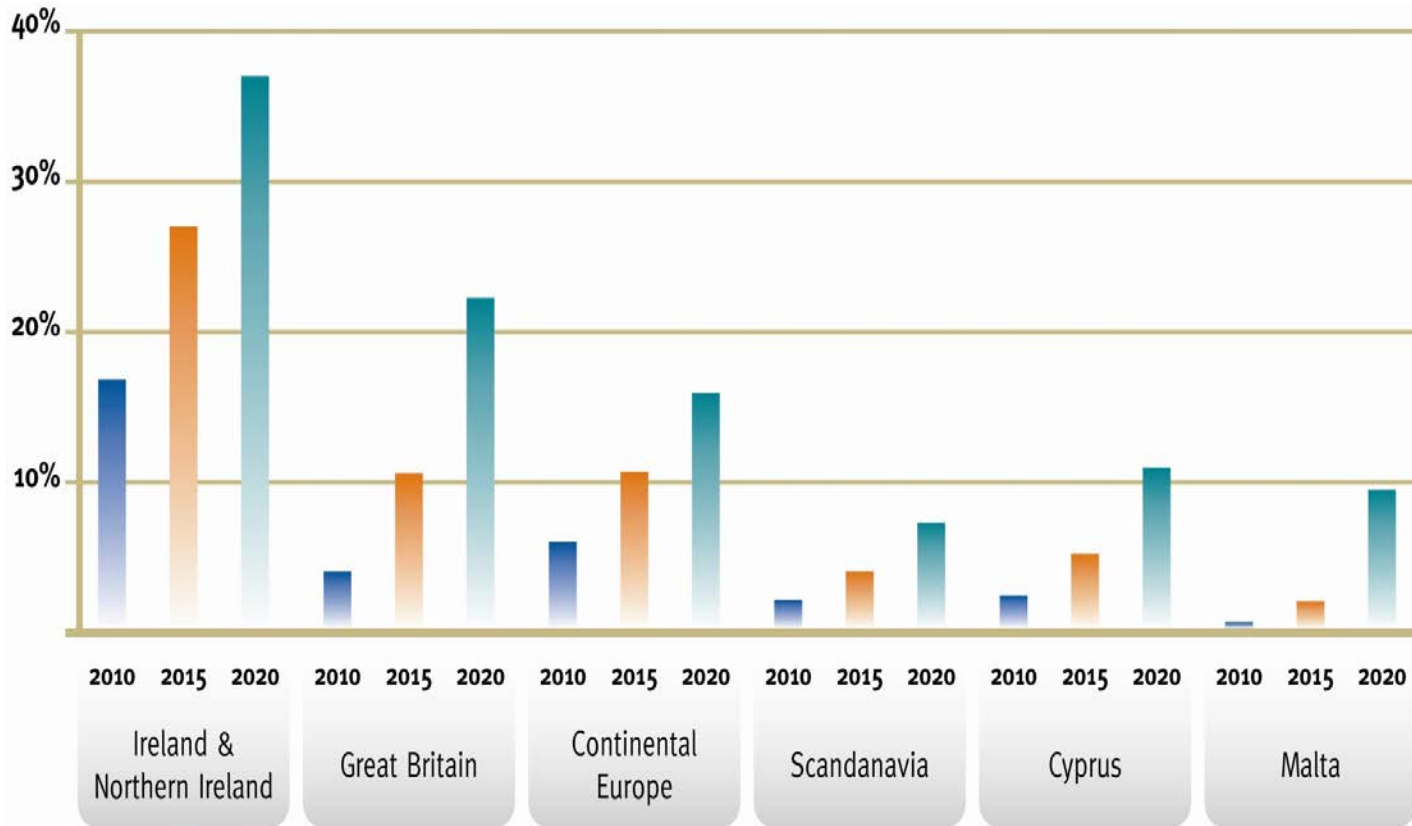
Energy Union

# ...starting with renewable targets for 2020

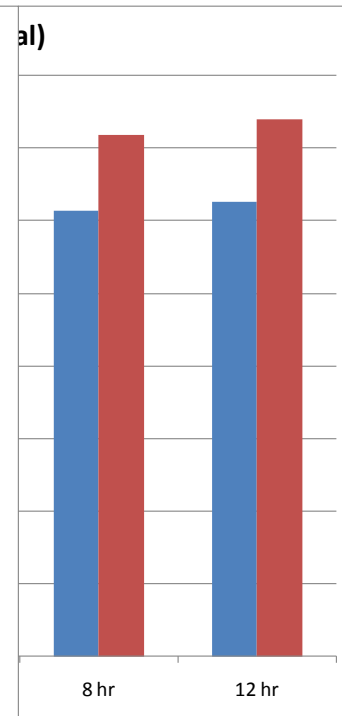
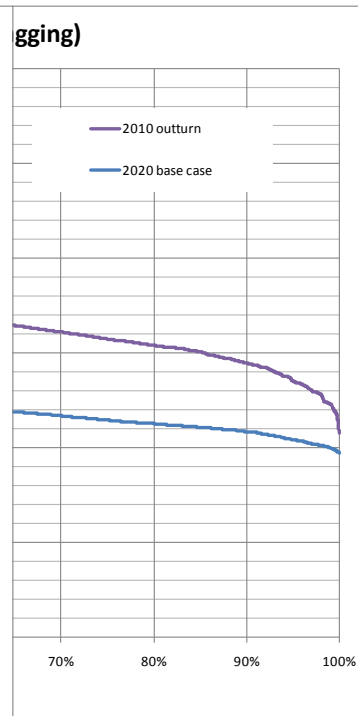
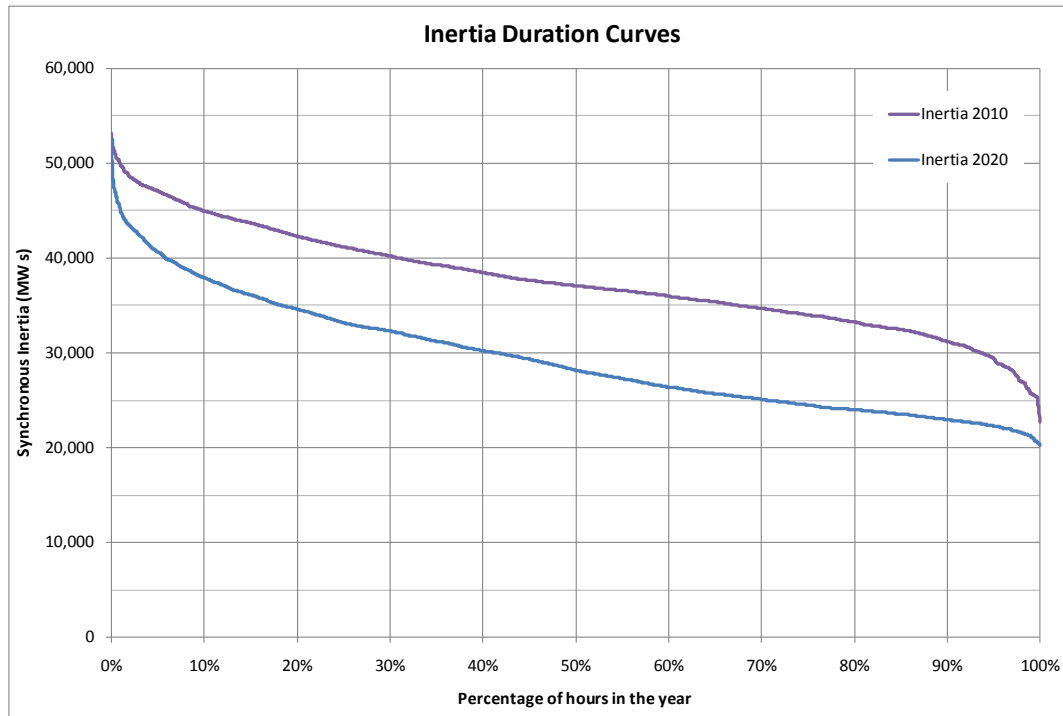


- Based on analysis of National Renewable Energy Action Plans

# EirGrid is seeing the impacts first...



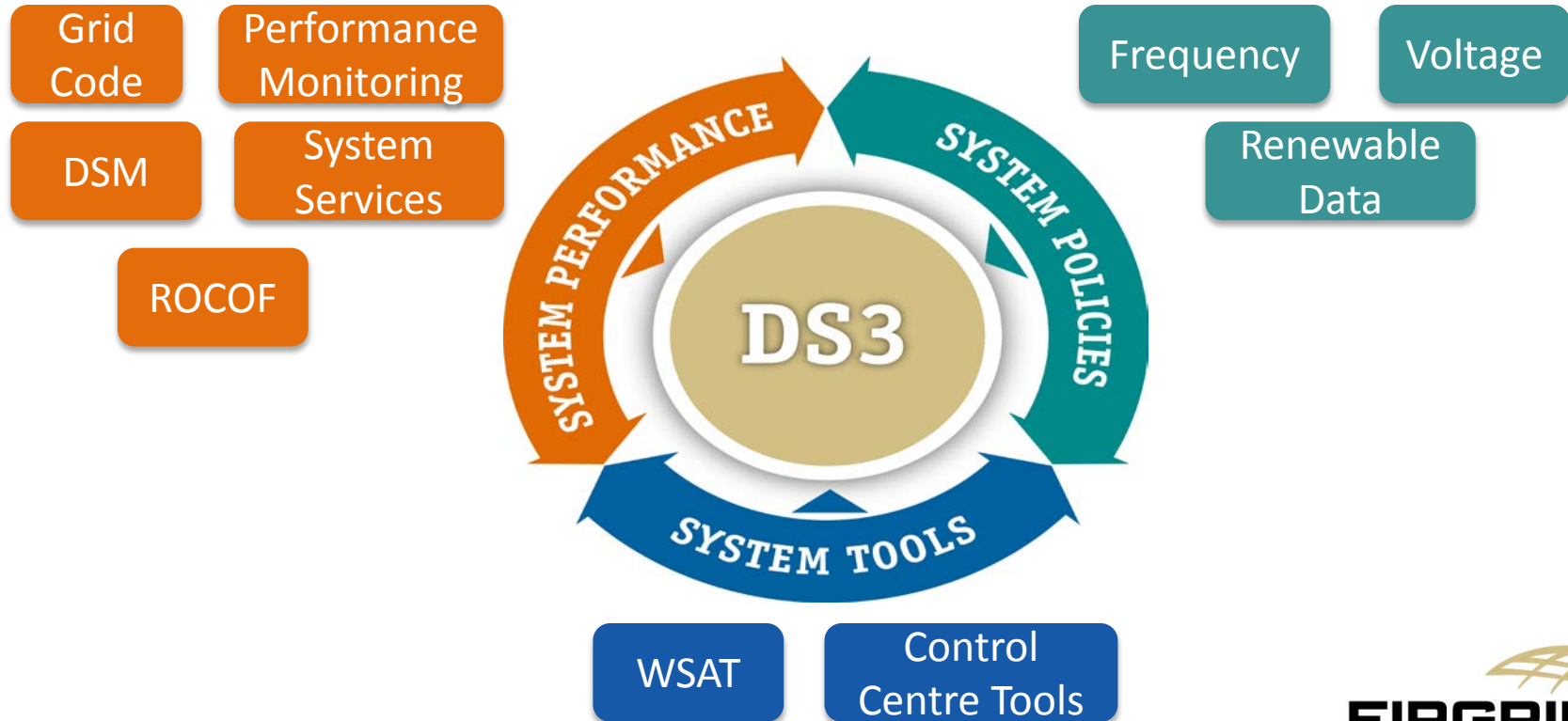
# and is seeing new system scarcities...



# General Overview of DS3 Programme

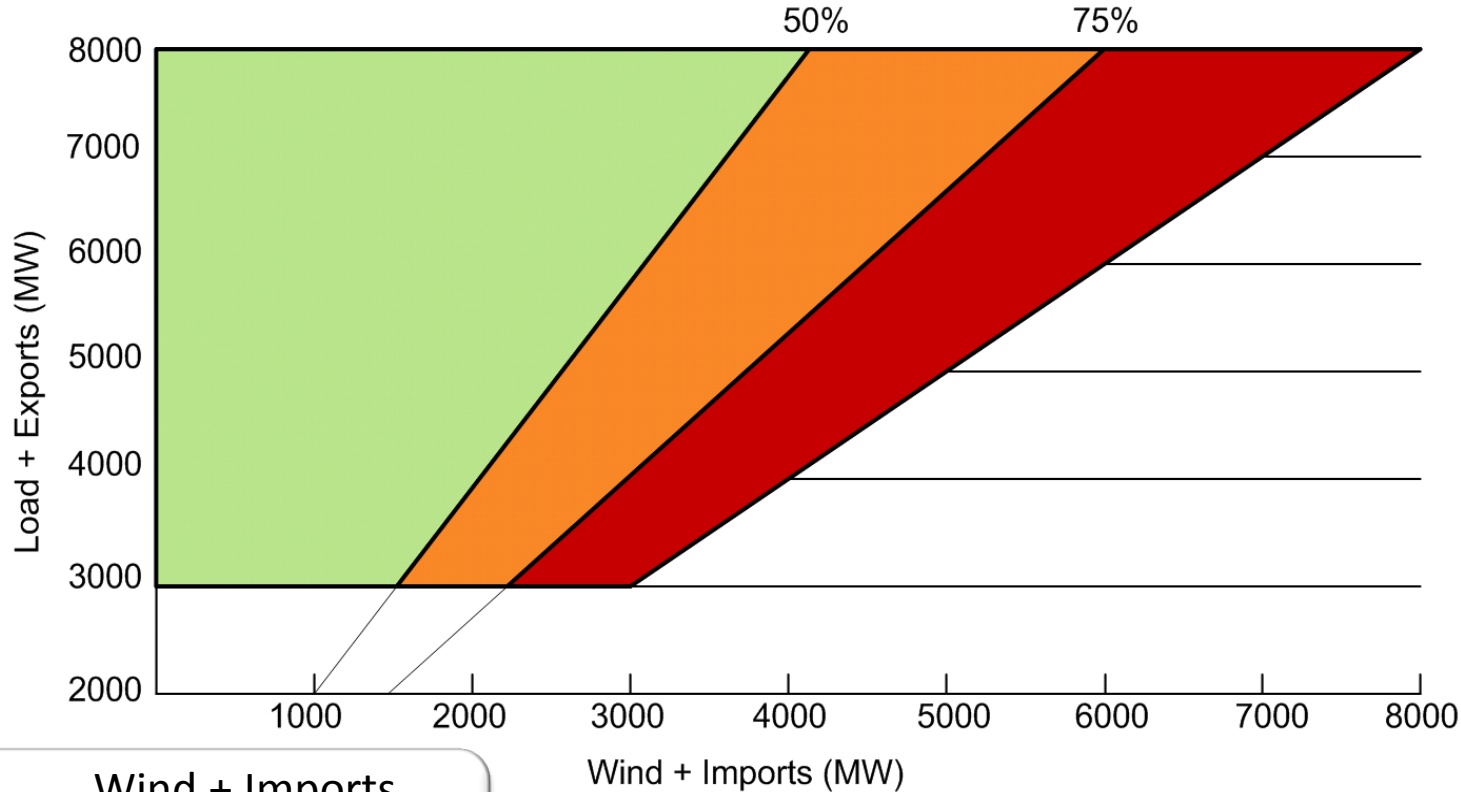


# DS3 – Shaping the System of the Future



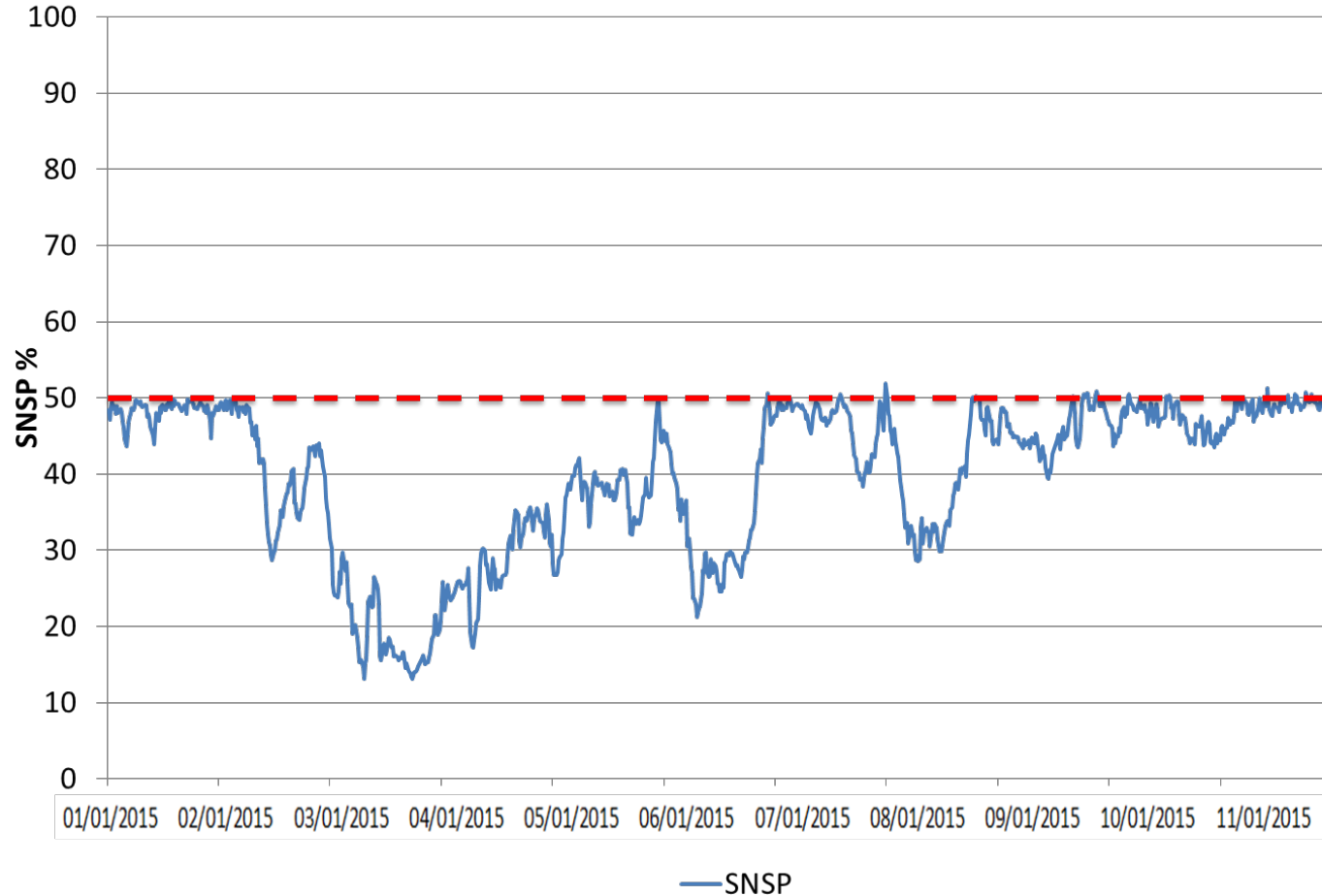


# System Non-Synchronous Penetration

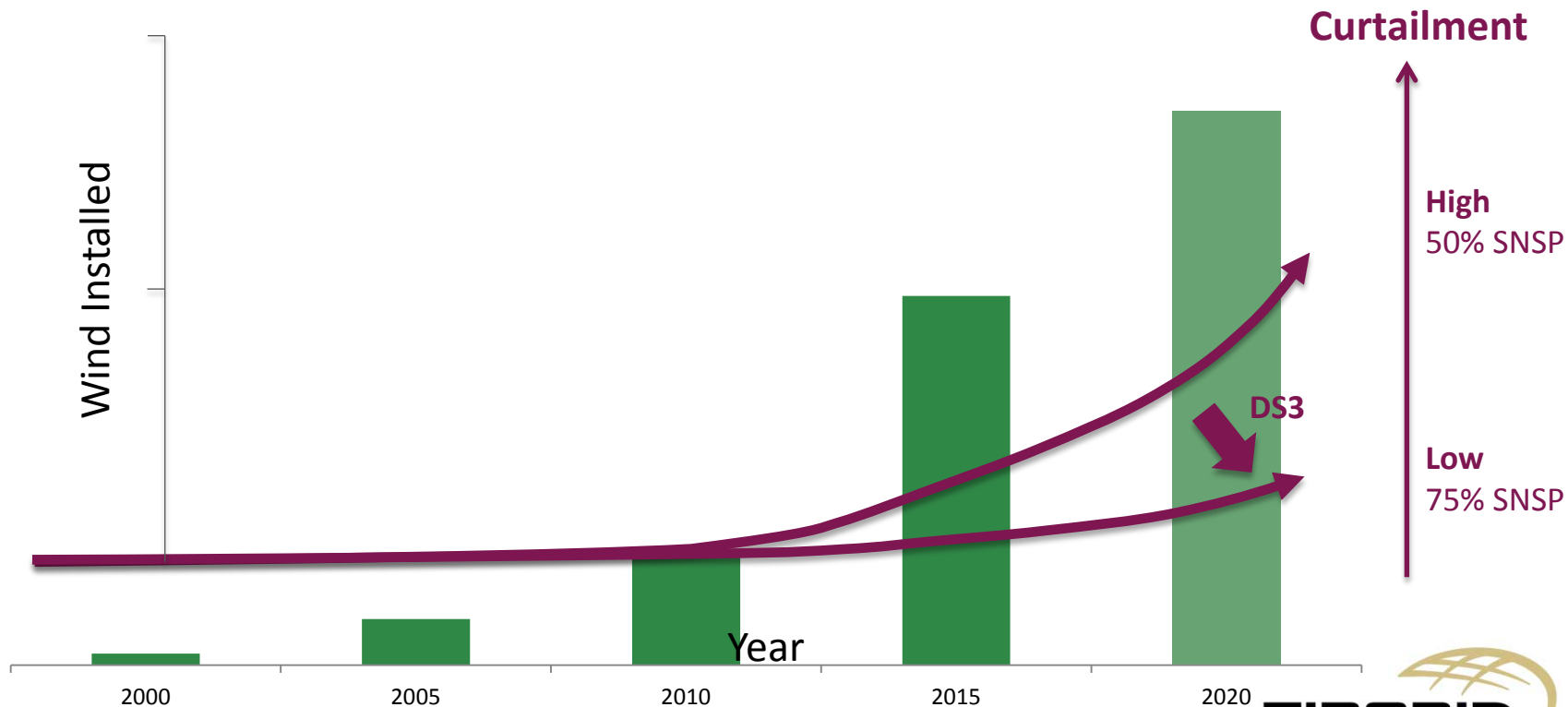


$$\text{SNSP} = \frac{\text{Wind + Imports}}{\text{Demand + Exports}}$$

# SNSP – early 2015

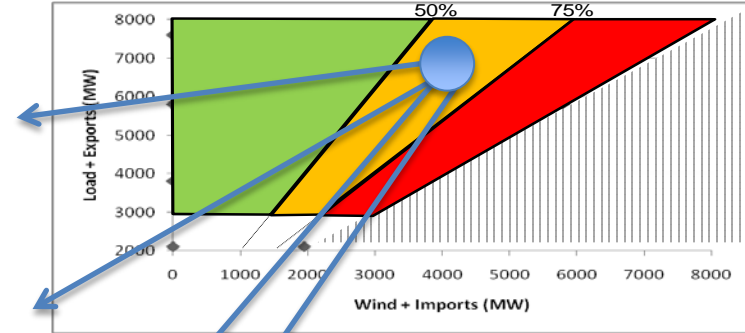


# Effect of SNSP on Curtailment

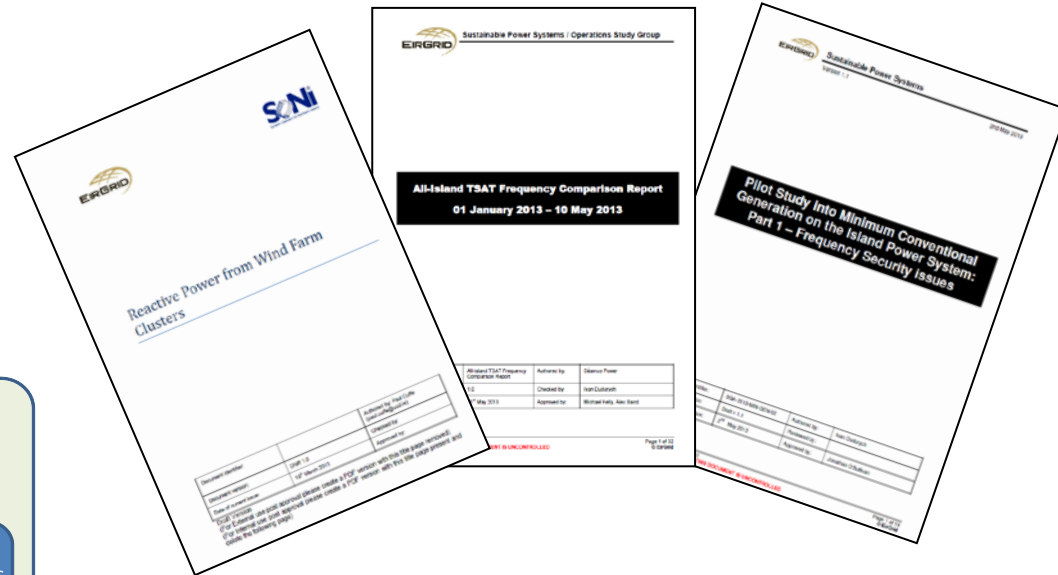
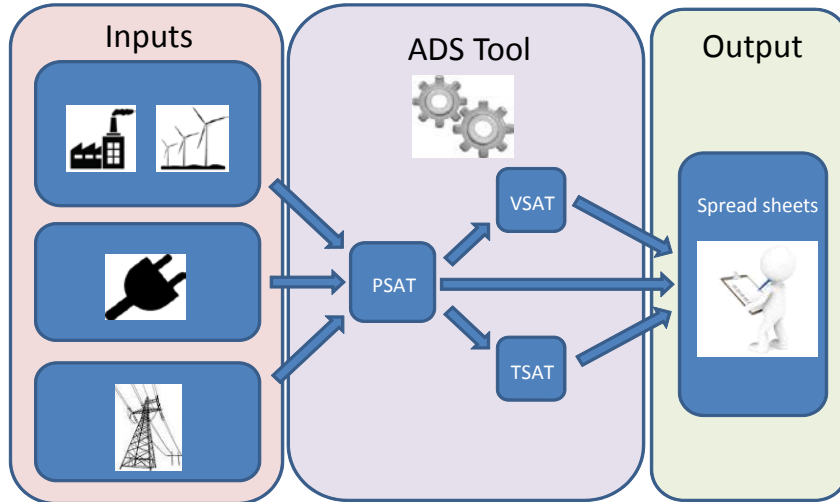


# Tomorrow: Enabling 75% SNSP...

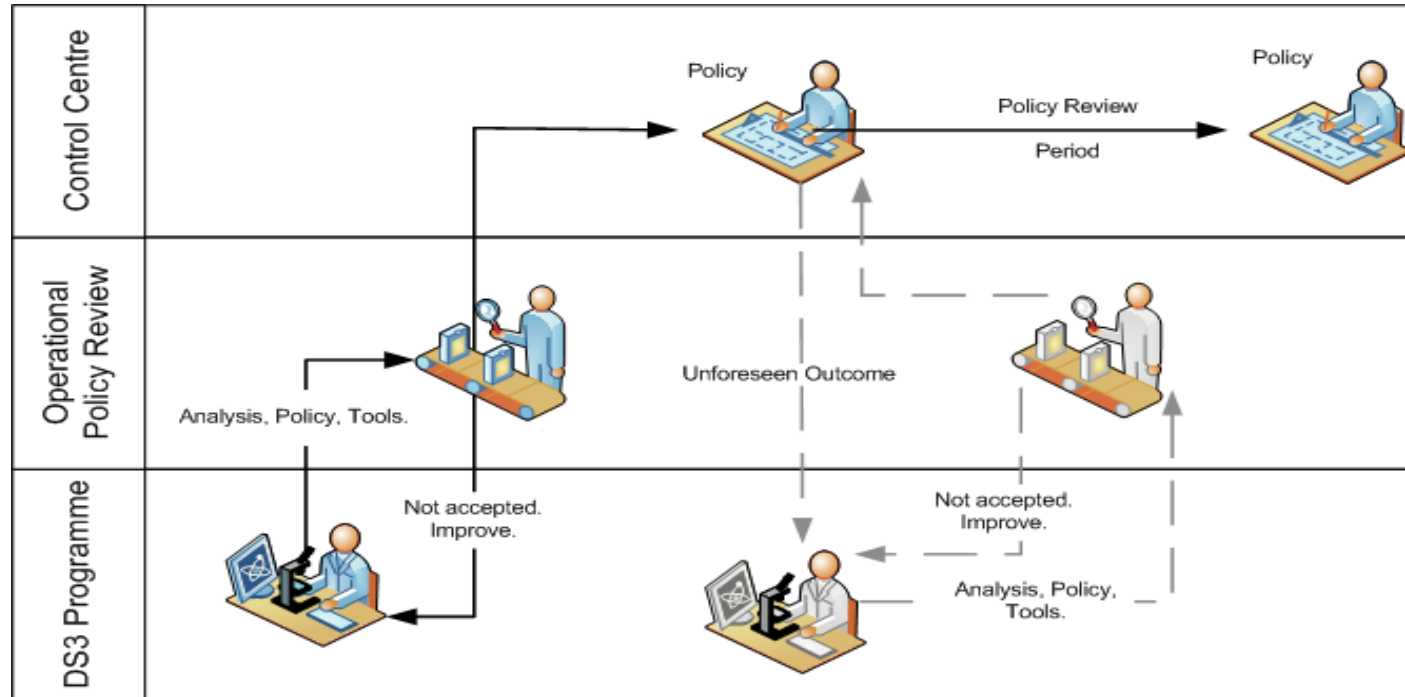
1. Change RoCoF Standard
2. Additional System Services
3. Revised Operational Policies
4. New Control Centre Tools



# Operational Policies



# Operational Policy Review (OPR) Committee



# Control Centre Tools

## New Tools

### Tools **Delivered**

**Existing** Control  
Centre Tools

WSAT, Short Circuit, Wind  
Dispatch, Synchrophasor....

Regulation, Ramping, Voltage  
Trajectory, WSAT Look ahead,  
System Services....

**Blue Sky**  
Thinking



2011

2012 - 2015

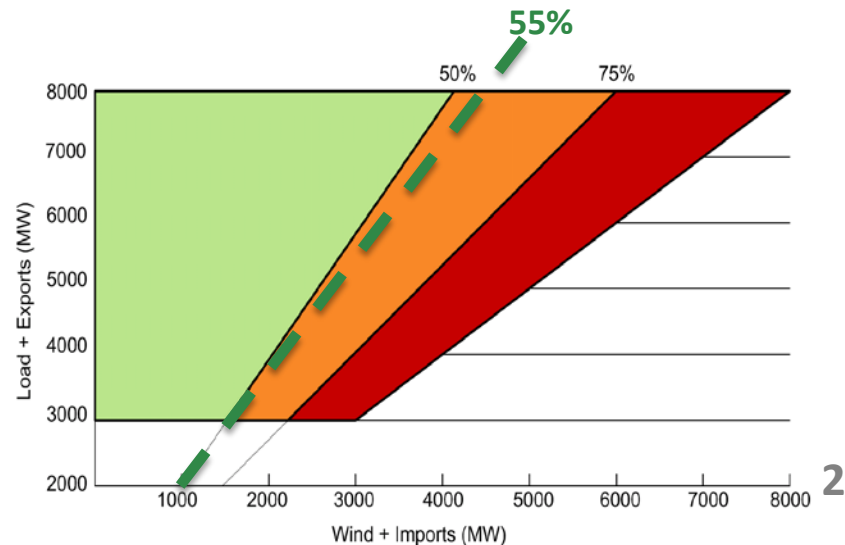
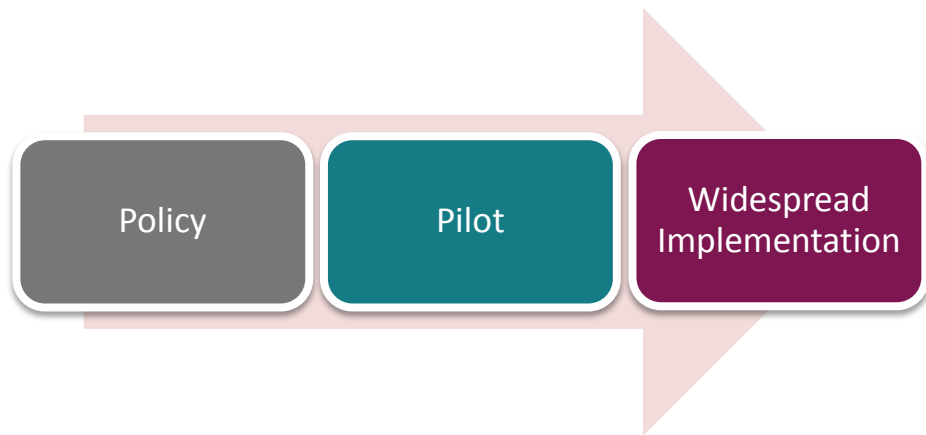
2015 - 2017

2017 - 2020

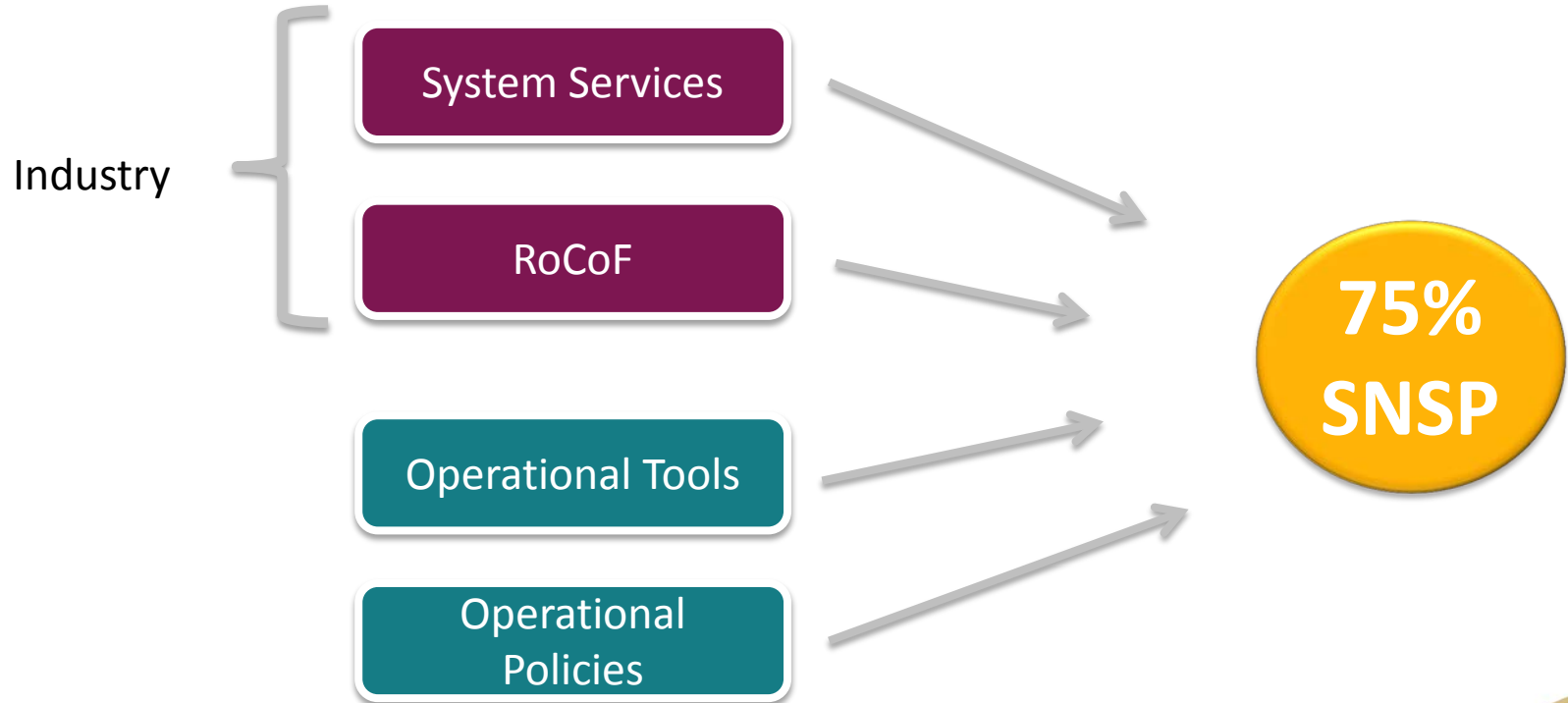


# Increase of SNSP to 55% - System Trial

- Builds on the policies and tools brought through the OPR Committee
- Will inform future operational policy
- Began October 2015

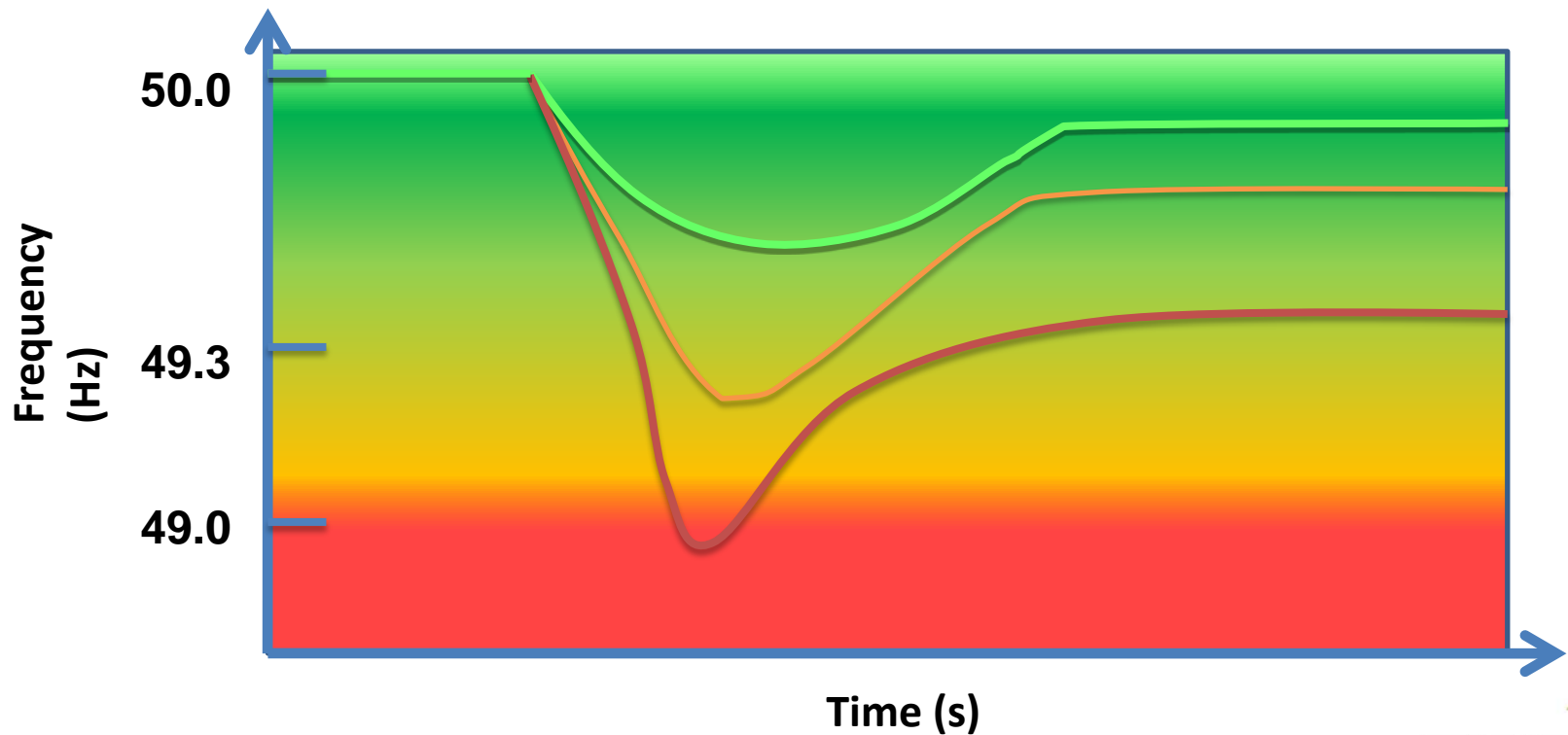


# Complementary Progress Essential

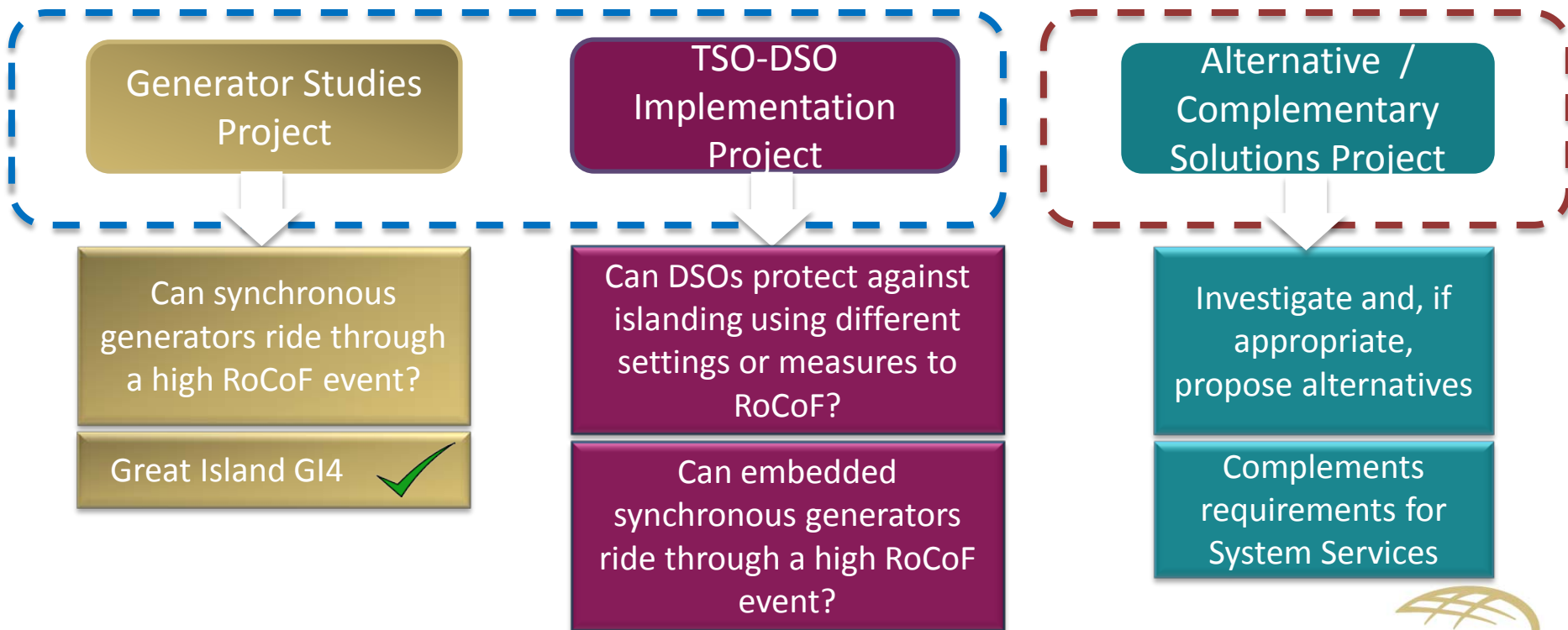


# RoCoF Project

# RoCoF Concept



# RoCoF Project Overview



# RoCoF Generator Timelines

Q2 2014  
CER & UR  
decisions

Q2 2016  
Complete  
Category 1  
Studies

Q4 2016  
Complete  
Category 2  
Studies

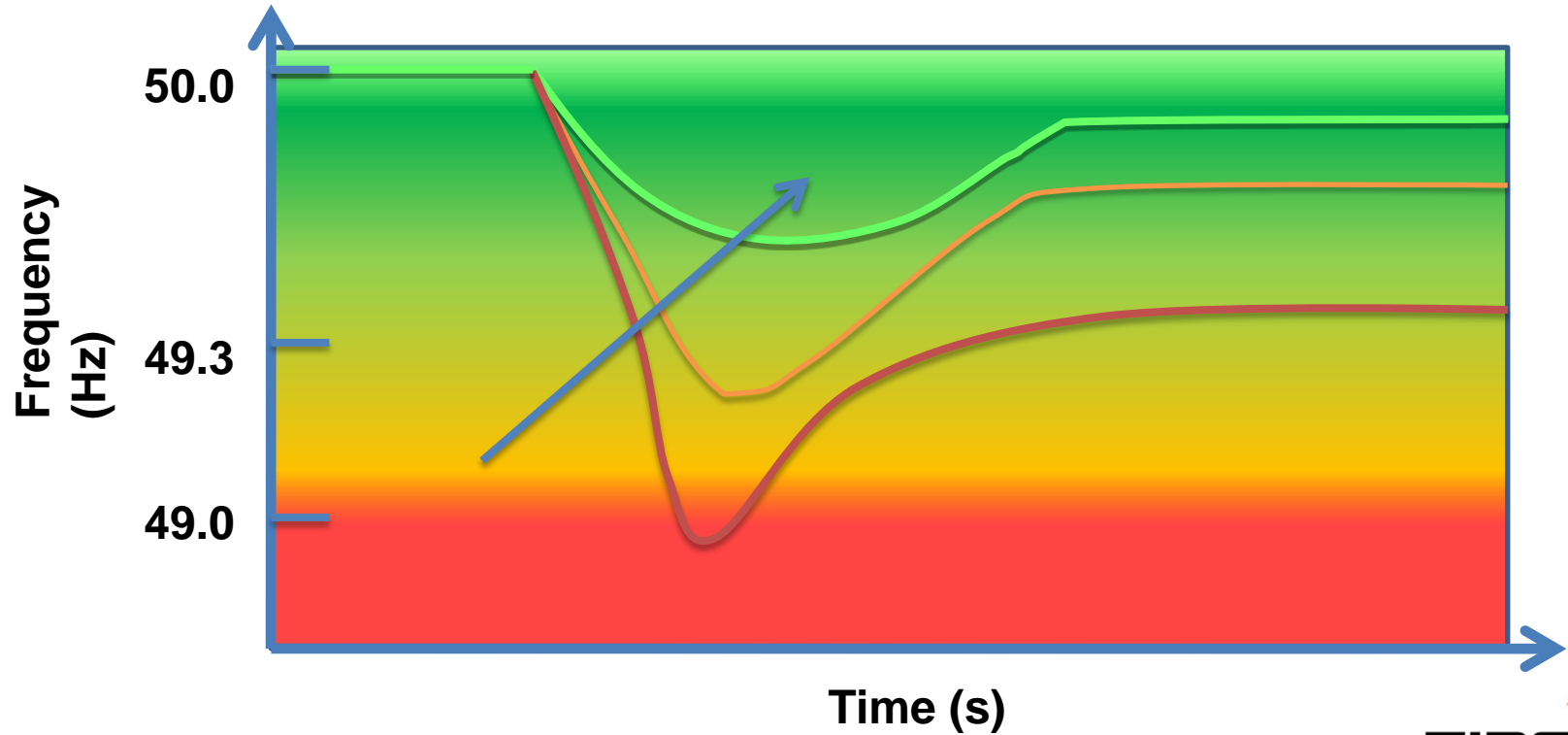
Q4 2017  
Complete  
Category 3  
Studies

Category 1 Generator  
Studies

Category 2 Generator Studies

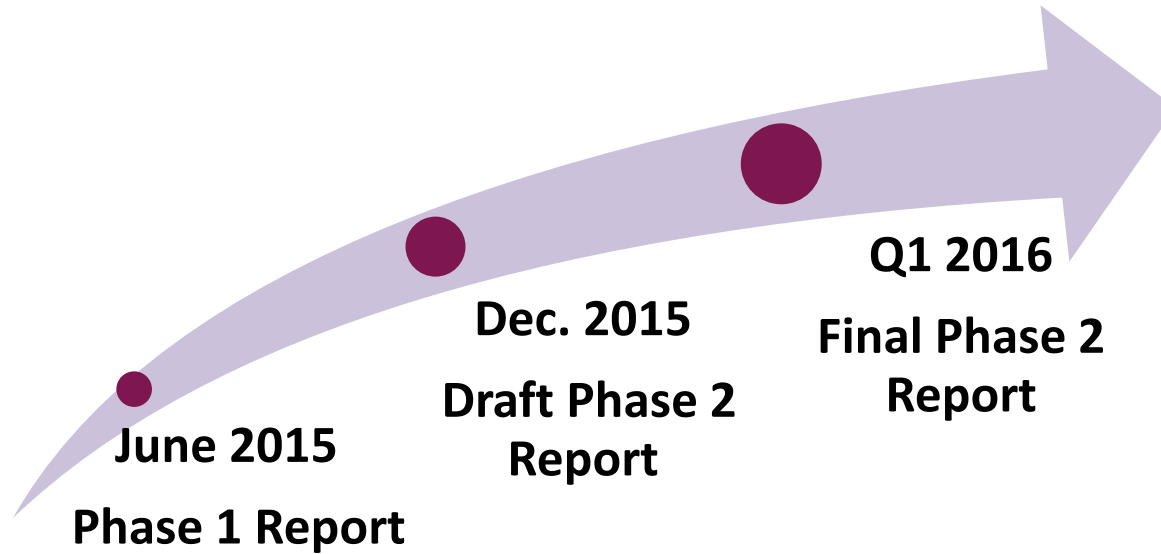
Category 3 Generator Studies

# RoCoF Alternatives Project Objectives





# RoCoF Alternatives Timelines



# System Services

# Operational Challenges

**RoCoF**

**Lack of  
Synchronising  
Torque**

**Voltage Dip  
Induced  
Frequency  
Dips**

**Low System  
Inertia**

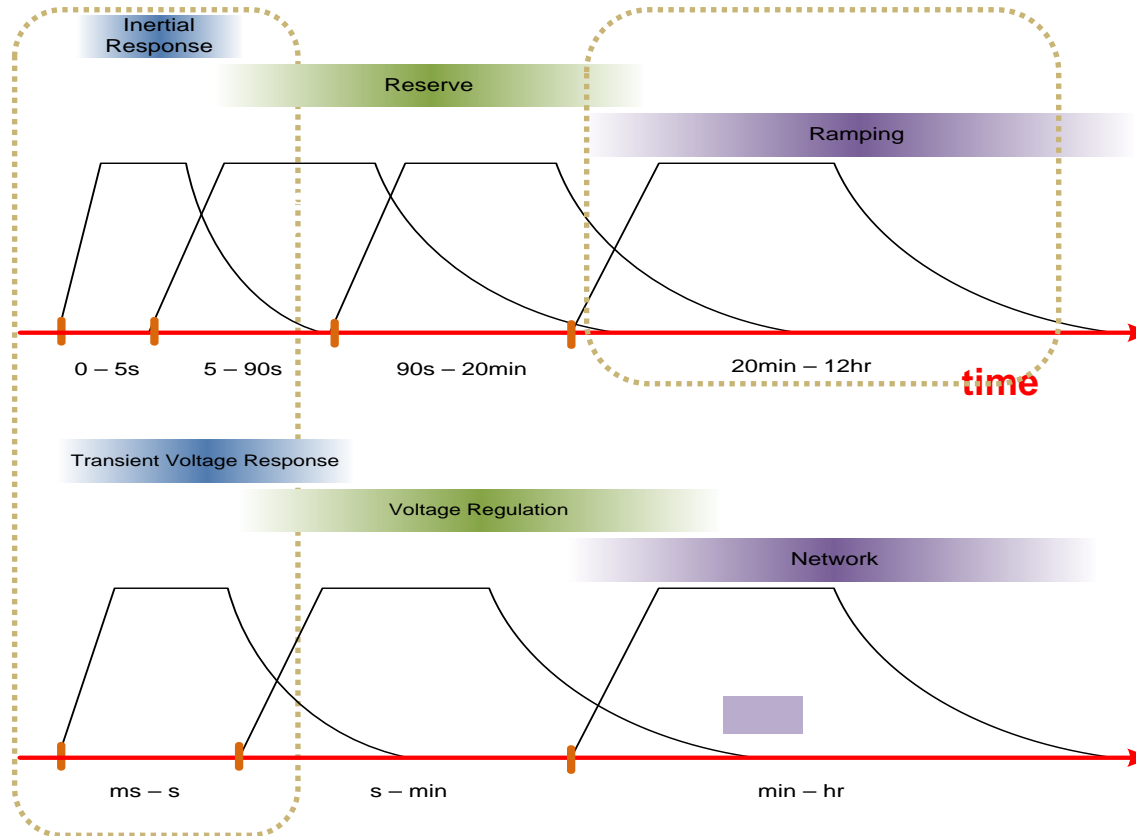
**Frequency Nadirs**

**System Ramping  
Capability**

**Reactive Power  
Shortfall**

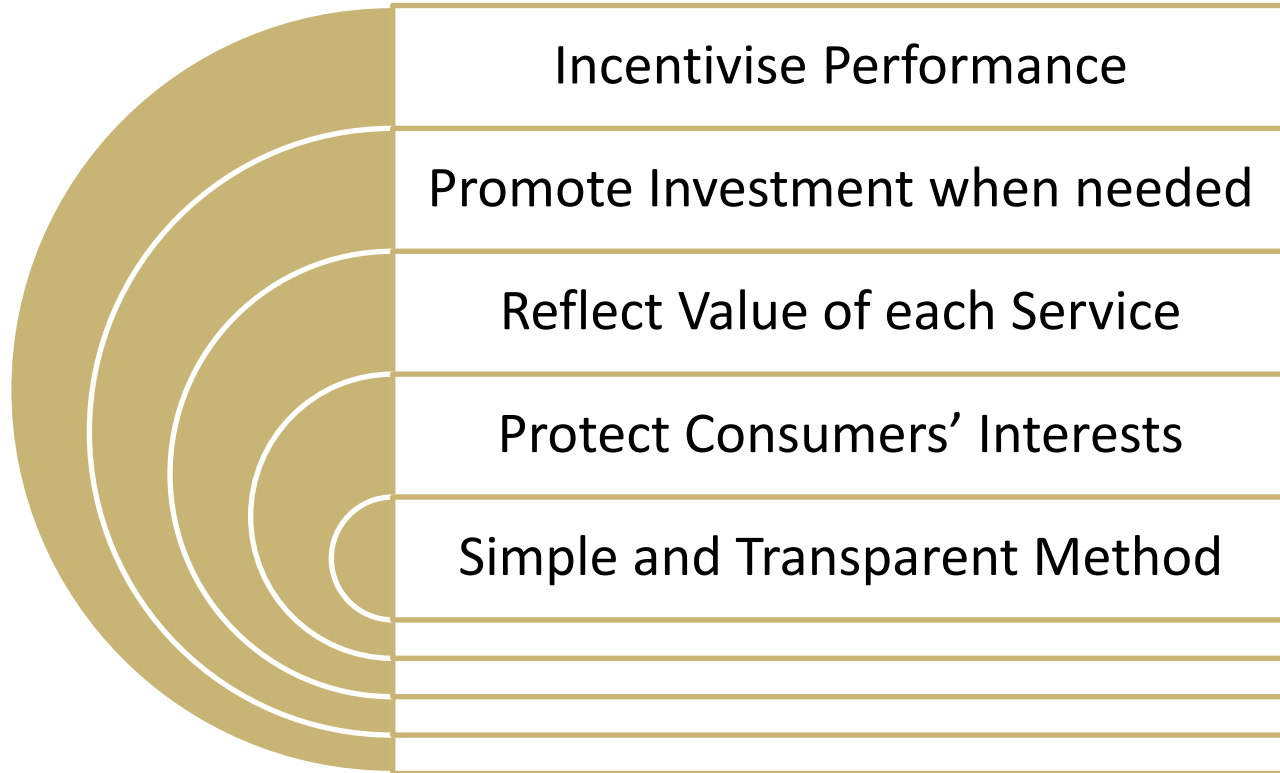
# DS3 System Services

To ensure  
system  
security



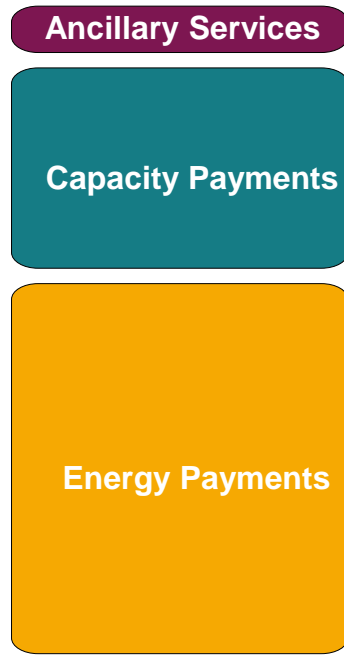
To manage  
forecast  
uncertainty

# System Services Objectives

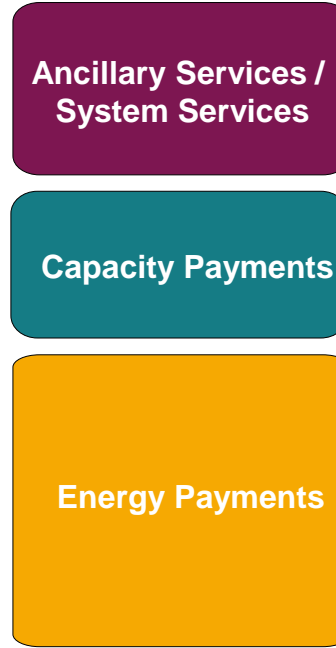


# Incentivising Portfolio Performance

- 60 €m
- 7 Services



Today



Tomorrow



- 235 €m cap in 2020/21
- 14 Services

# DS3 System Services Decision



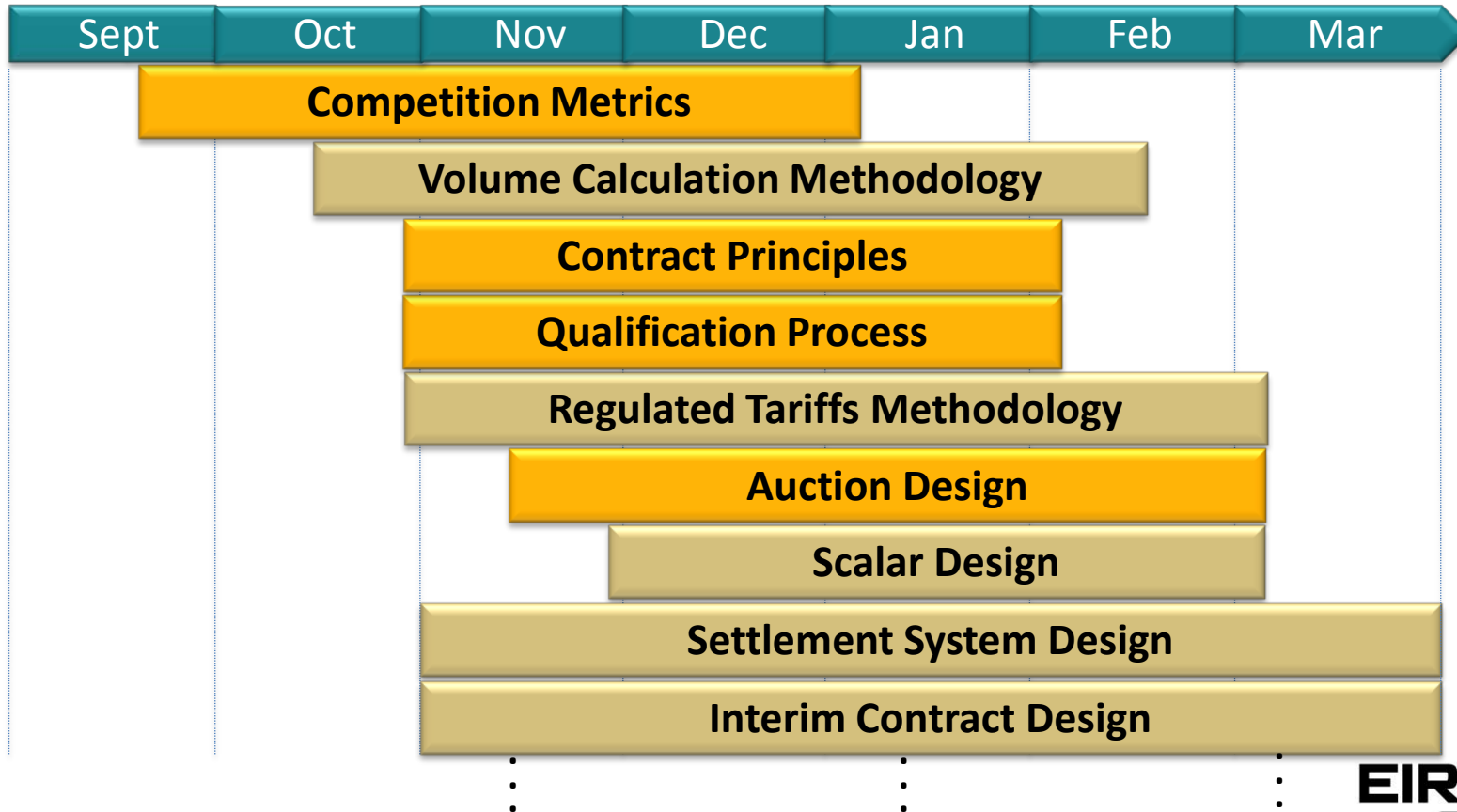
- Regulated tariffs paid for all 14 services for one year only
- Auction for services deemed competitive
- Regulated tariffs for others



# Timelines to March 2016

SEMC

TSOs



# What do we mean by Volumes?

## **Real-time requirement**

Changes every trading  
period

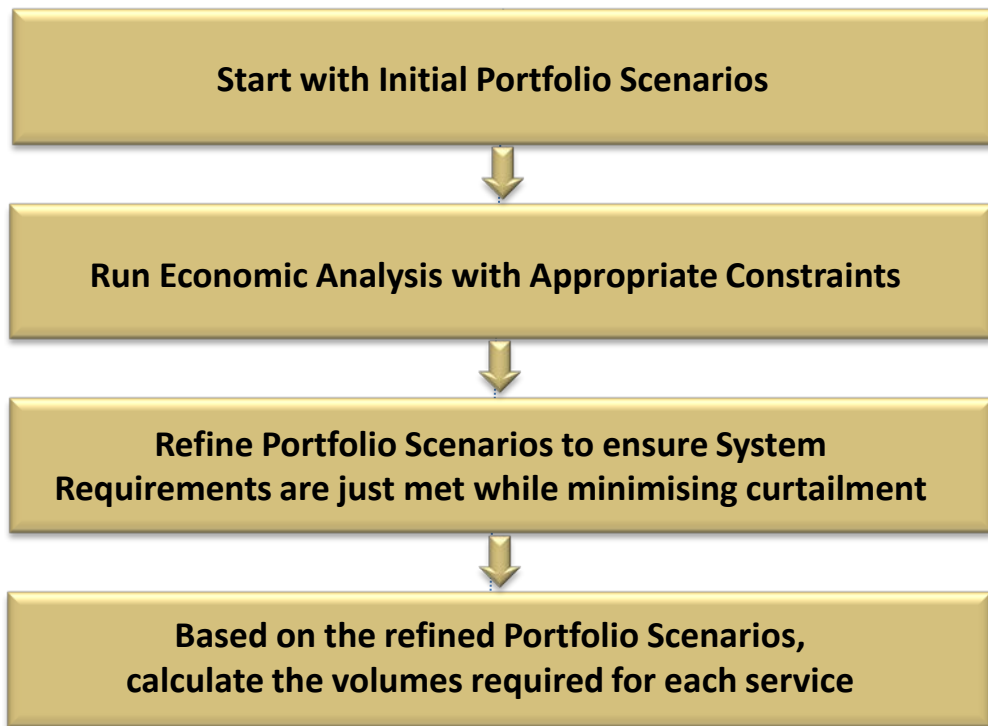
## **Portfolio capability requirement**

Sets the service volumes  
procured in an auction

## **Remuneration volumes**

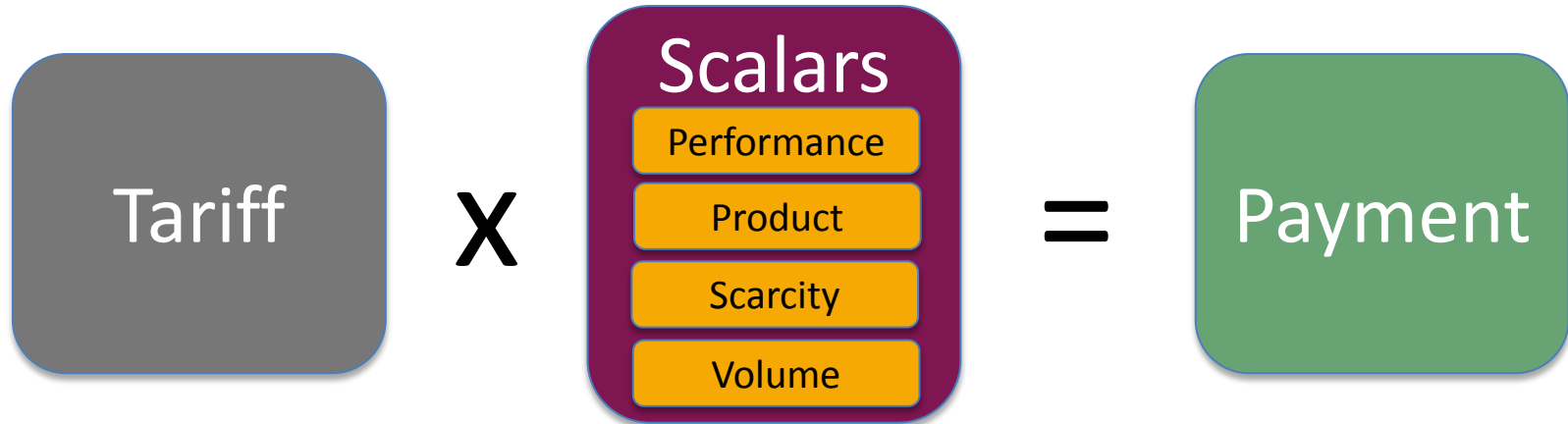
Dependent on the  
payment basis

# Basics of Volumes Methodology

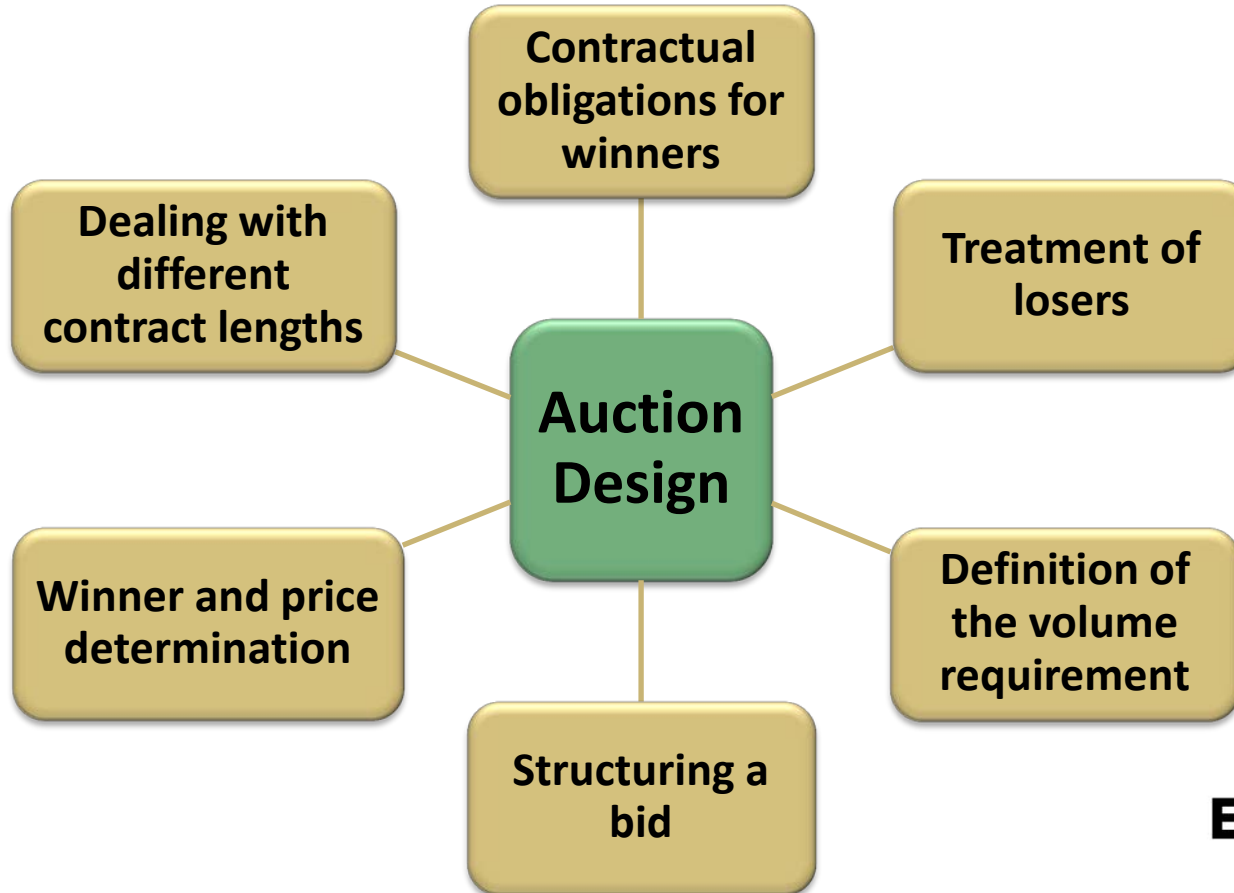


# Enduring Regulated Tariffs & Scalars

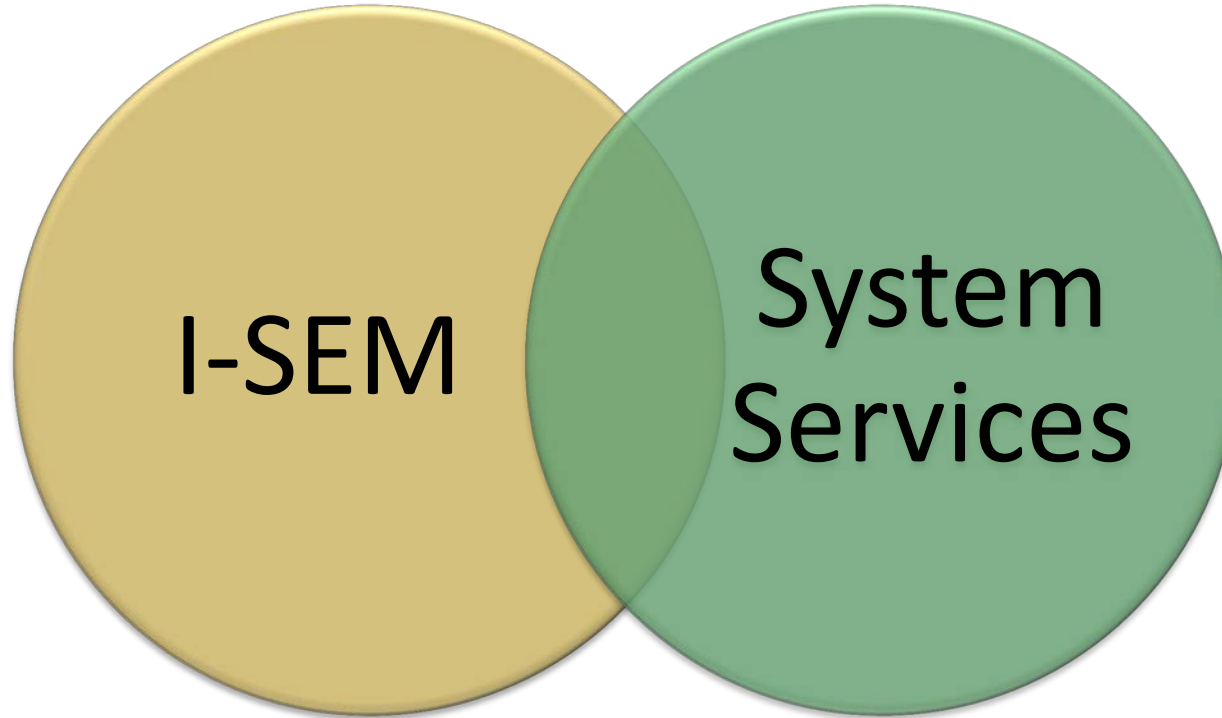
- Holistic approach to design of Regulated Tariff and Scalars needed



# Auction Design



# System Services / I-SEM Interaction



# DS3 Programme Summary

# Summary

1. Monitor performance at 55% SNSP
2. RoCoF workstreams progressing
3. System Services underway but significant design and implementation issues need to be worked through
4. Operational policy and tools need to develop in parallel

