

## Joint European Standing Group (JESG) Requirements for Generators – Tech Sub Group Issues



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National Grid

25<sup>th</sup> January 2012

## Summary

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- Following the December technical JESG session, 12 new issues were proposed relating to RfG, which need to be discussed and agreed by the JESG today

## Scope – Review Technical Output

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- Technical RfG Sub Meeting held on 14<sup>th</sup> December
- Outputs:
  - Informal feedback taken back to RfG Drafting Team
    - Consequential changes proposed and accepted
  - Proposed Additional Issues for JESG log (x12)
- **Request for JESG members to:**
  - **Discuss issues and agree descriptions**
  - **Agree which are appropriate to add to issues log**
  - **Agree for issues to be discussed at next Tech meeting**

## Issues I

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1. The RfG drafting team has prepared justification documents for the Network Code (Q&As). Is National Grid intending to produce a GB specific justification?
2. What is the formal governance process for the setting of synchronous area (i.e. GB) specific parameters?
3. The upper voltage operating limit is currently 15 minutes in Grid Code but in the RfG it has been increased to 20 min

## Issues II

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4. What is the impact going to be of the RfG on GB Codes other than the Grid Code/ Distribution Code? E.g. STC/ CUSC
5. What were the assumptions behind the minimum Fault Ride Through (FRT) obligations for sub 132kV network?

If FRT obligations are going to be applied to Type B and Type C generators where is the positive Cost Benefit Analysis?

## Issues III

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6. The definition for “Generating Unit” is confusing – for both Synchronous and PPMs
7. Has the phrase “Significant” been correctly interpreted from the Framework Guidelines?
8. Some attendees questioned whether the methodology/ criteria for determining the boundaries between Types (e.g A,B,C,D) should be in the RfG Network Code

## Issues IV

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9. What happens when there is a common/ shared Point of Connection? e.g. Cruachan and Ffestiniog
10. The proposed rate of change of frequency withstand is 2 Hz/sec for 1.25s
11. Who will own the Dynamic System Monitoring (DSM) equipment? (Fault recorders)
12. Auto-reclosure obligations have changed (8-2(a))

## Speaker Notes

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- There was a dedicated Requirements for Generators JESG meeting held in December 2011, which focused upon the engineering or technical detail for the code. It had a good attendance including Helge Urdal who has been National Grid/ GB's representative at the RfG Drafting Team. Following this session the output was informal feedback for the Drafting Team that was fed back and which resulted in several parts of the final version of the RfG consultation proposals to be changed. The other output was 12 proposed new issues for the JESG Issues Log, which Tom Ireland (NGET) presented in order for the meeting to consider and decide whether the descriptions were adequate and if they should be added to the log. In general, it is proposed that where doubt remains that the issue should be put on the log, so it can be discussed at a further technical session to be held in Feb 2012

# Joint European Standing Group (JESG) RfG – Update, Key Dates and Detailed Grid Code Comparison



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25<sup>th</sup> January 2012

## Summary

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- The publication of the Requirement for Generators Consultation happened last night (24<sup>th</sup> Jan). Next steps include the publication of National Grid's RfG/ Grid Code comparison matrix, an ENTSO stakeholder workshop in Brussels on the 15<sup>th</sup> Feb and a proposed JESG in late February

## RfG Update and key dates

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- RfG Consultation was published on 24<sup>th</sup> January. Three documents:
  - RfG NC Consultation;
  - Motivation and Approach (high level “why”); and
  - Q&A (engineering “why”)
- 15<sup>th</sup> Feb – Stakeholders session in Brussels (ENTSO-E)
- Another dedicated technical meeting is required for RfG – Propose using next JESG session on 22<sup>nd</sup> Feb
- 8 week consultation (closes 20<sup>th</sup> March)

## Comparison

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- National Grid has performed a detailed (~50 page) comparison between RfG and Grid Code
- Against latest baseline available (10<sup>th</sup> Jan) - not published by TSOs
- NGET prohibited from earlier circulation
- Now final Consultation has been published, can be rapidly updated against this version and will be circulated to industry this week

Date:- 19 January 2012

**COMPARISON OF GB AND EUROPEAN GRID CODE REQUIREMENTS**  
*(Comparison based on GB Grid Code Issue 4 Revision 9 only and ENSTO - E RfG Internal Version dated 21 December 2011)*  
*(Note – Does not include other Industry Codes or Offshore)*

**Key to Table**

<b>Symbol</b>	<b>Definition</b>
<b>N/A</b>	<b>Not specified in GB Grid Code but other requirements may apply in other industry Codes such as the System Operator Transmission Owner Code (STC) Distribution Code or Engineering Recommendations such as G59, ETR 113 and G83.</b>
<b>N/S</b>	<b>Not specified in ENTSO-E RfG Code often because not deemed to be a cross border issue but other National requirements may apply.</b>
<b>Article 4(3)</b>	<b>Where reference in the Table is given to Article 4(3) this means that any decision made by a Relevant Network Operator, or Relevant TSO and a Relevant Network Operator or Power Generator may require agreement with the National Regulating Authority.</b>

<b>Requirement</b>	<b>Plant Type</b>	<b>GB Power Station Type</b>			<b>ENTSO-E – Generating Unit Type</b>			
		<b>Large</b> > 100 MW (E&W) > 30 MW (SPT) > 10 MW (SHETL)	<b>Medium</b> 50 – 100MW N/A (SPT / SHETL)	<b>Small</b> < 50MW < 30MW (SPT) < 10 MW (SHETL)	<b>D</b> > 30MW or connected at 110kV or above	<b>C</b> 30 – 10 MW	<b>B</b> 1 – 10 MW	<b>A</b> 400W – 1 MW
Frequency Range (GB CC.6.1.3 ENTSO-E – Article 7- 1(a) Table 2	Synchronous and Asynchronous	51.5 – 52 Hz for 15 minutes 51 – 51.5 Hz for 90 minutes 49.0 – 51 Hz Continuous 47.5 – 49 Hz 90 minutes 47 – 47.5 Hz 20 seconds	As per Large	N/A unless directly connected	As per Type A	As per Type A	As per Type A	51.5Hz – 52.0 Hz for 15 minutes 51 Hz – 51.5 Hz for 90 minutes 49 Hz – 51 Hz Unlimited 48.5 – 49 Hz – defined by TSO but pursuant to Article 4(3) 47.5 – 48.5Hz for 90 minutes 47 – 47.5 Hz for 20 seconds
Voltage Operating Range (GB CC.6.1.4) (ENTSO-E – Article 9 – 3a) and Article 10 – 2 a) – 1 Tables 5.1 and 5.2)	Synchronous and Asynchronous	At 400 kV ±5% <i>(although voltages between +5% and +10% will not last longer than 15 minutes)</i> At 275 kV ± 10% At 132 kV ± 10% Below 132 kV ± 6%	As per Large	N/A unless directly connected	Between 300 kV and 400kV 0.9 p.u – 1.05 p.u and between 1.05 p.u and 1.1p.u for 15 minutes Between 110kV and 300kV 0.9 – 1.10 p.u	As defined by the Relevant Network Operator as defined in Article 9 – 3a) pursuant to Article 4(3).	N/S	N/S
Power Quality Harmonic Content (GB CC.6.1.5(a) ENTSO-E – Article 9 – 6 j1).2)	Synchronous and Asynchronous	The harmonic distortion from all sources under both Planned Outage and fault conditions	For directly Connected Power Stations – as per Large.	N/A	As per Type C	Specified by the Relevant Network Operator which shall be consistent with National and	N/S	N/S

Requirement	Plant Type	GB Power Station Type			ENTSO-E – Generating Unit Type			
		Large > 100 MW (E&W) > 30 MW (SPT) > 10 MW (SHTL)	Medium 50 – 100MW N/A (SPT / SHTL)	Small < 50MW < 30MW (SPT) < 10 MW (SHTL)	D > 30MW or connected at 110kV or above	C 30 – 10 MW	B 1 – 10 MW	A 400W – 1 MW
		shall comply with the requirements of the Tables of Appendix A of Engineering Recommendation G5/4. The Electromagnetic Compatibility levels will be specified by NGET in the Bilateral Agreement  N/A for Embedded Power Stations (Specified by DNO)	N/A for Embedded Power Stations – specified by DNO.			International technical rules.		
Power Quality Phase Unbalance (GB CC.6.1.5(b)) ENTSO-E – Article 9 – 6 j 1), 2)	Synchronous and Asynchronous	For Directly Connected Users - Under Planned Outage Conditions the maximum Phase Voltage Unbalance should in England and Wales should remain below 1% and in Scotland below 2% unless abnormal conditions prevail.  N/A for Embedded Power Stations – specified by DNO	For directly Connected Power Stations – as per Large.  N/A for Embedded Power Stations – specified by DNO	N/A	As per Type C	Specified by the Relevant Network Operator which shall be consistent with National and International technical rules.	N/S	N?S
Power Quality Phase Unbalance during infrequent short duration peaks (GB CC.6.1.6) ENTSO-E – Article 9 – 6 j 1), 2)	Synchronous and Asynchronous	For Directly Connected Users - Under Planned Outage Conditions stated in CC.6.1.5(b) infrequent short duration peaks with a maximum value of 2% are permitted for phase (voltage) unbalance subject to the prior agreement of NGET	For directly Connected Power Stations – as per Large.  N/S for Embedded Power Stations – specified by DNO	N/A	As per Type C	Specified by the Relevant Network Operator which shall be consistent with National and International technical rules.	N/S	N/S

## Speaker Notes

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- The previous day a suite of documents were published by ENTSO-E which form the RfG Network Code Consultation. The documents include a high-level and an engineering justification and the draft NC itself. As the two justifications are new, a further meeting in the future is needed after a suitable time to consider them has occurred. The date of the 22<sup>nd</sup> Feb is to be proposed. The consultation closes on the 20<sup>th</sup> March after an 8 Week period. There is also a ENTSO e run stakeholder session in Brussels on the 15<sup>th</sup> February.
- National Grid has completed a detailed 50 page comparison between the RfG NC and the current GB obligations are laid out in the Grid Code and Distribution Code. This aims to aid the formulation by GB Users of responses to the consultation. This will also aid further discussion between NGET and GB parties. This will be published this week as soon as it can be updated for the very latest version of the draft code.

# Joint European Standing Group (JESG) Ten Year Network Development Plan - Update



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25<sup>th</sup> January 2012

## Summary

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- Drafting of the 2012 Ten Year Network Development Plan (TYNDP) is almost complete. The report is published every two years and is a ten year view of pan European transmission investment. An assessment is made of the plans resilience and adequacy and its ability to deliver wider European Energy Objectives (renewables, cost efficiency and market integration).

Slides are an extract from a recent ENTSO-E presentation

# General presentation on ENTSO-E, Ten Year Network Development Plan and Regional Investment Plan

Irina Minciuna  
Planning Data Advisor  
ENTSO-E

RG CSW Workshop

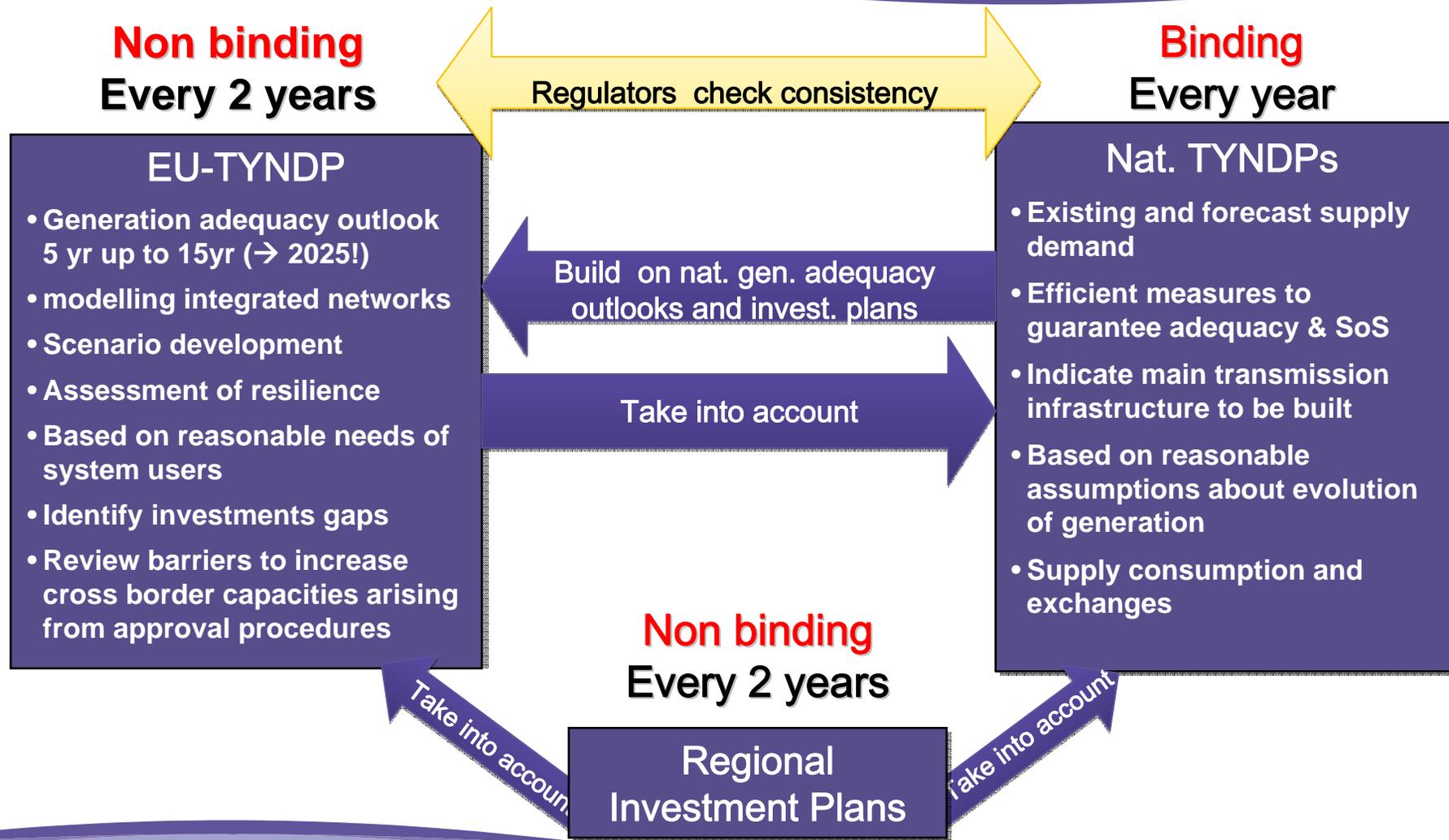
Madrid, 29 November 2011

Irina Minciuna | 29/11/2011

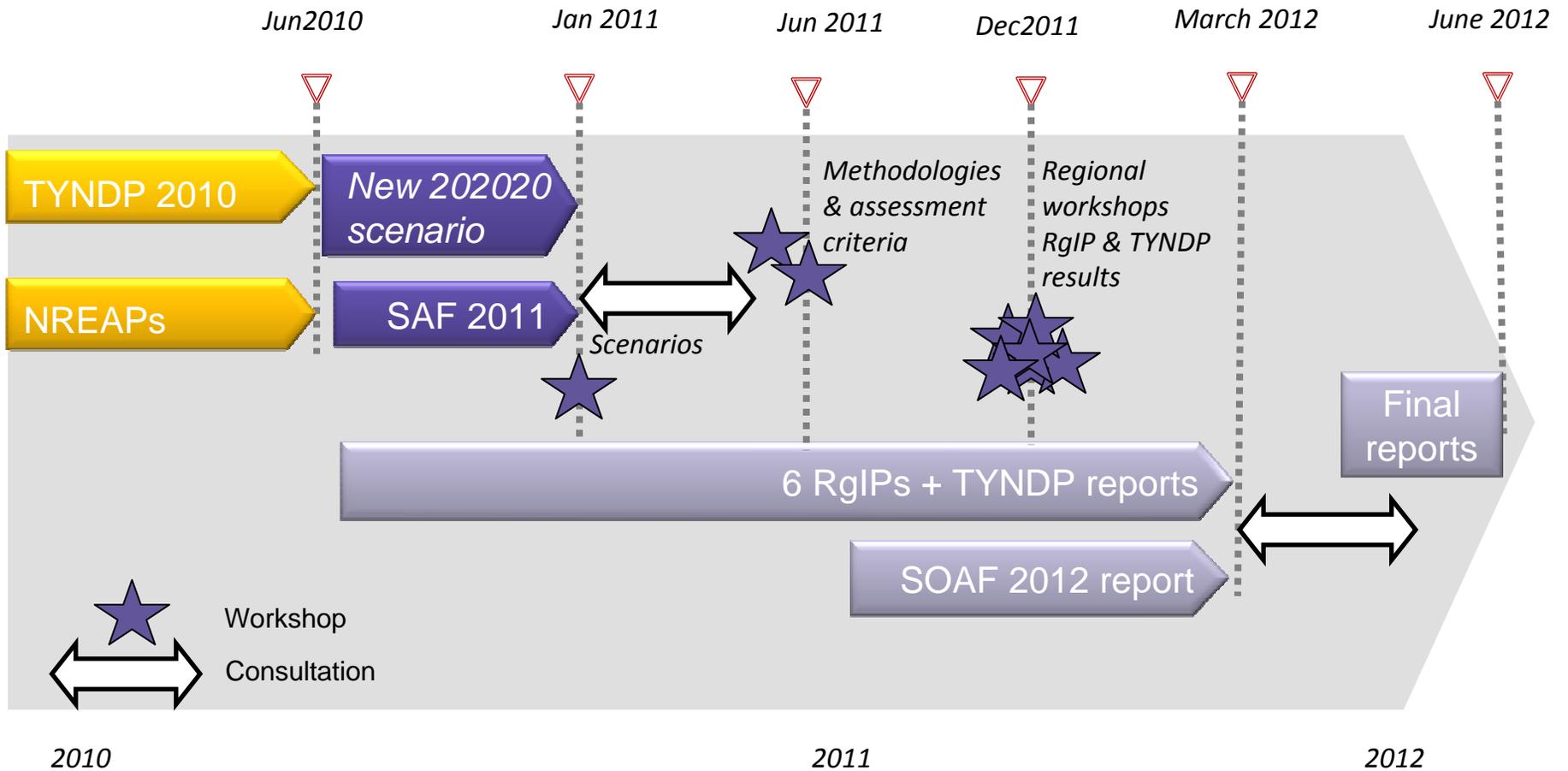


Reliable Sustainable Connected

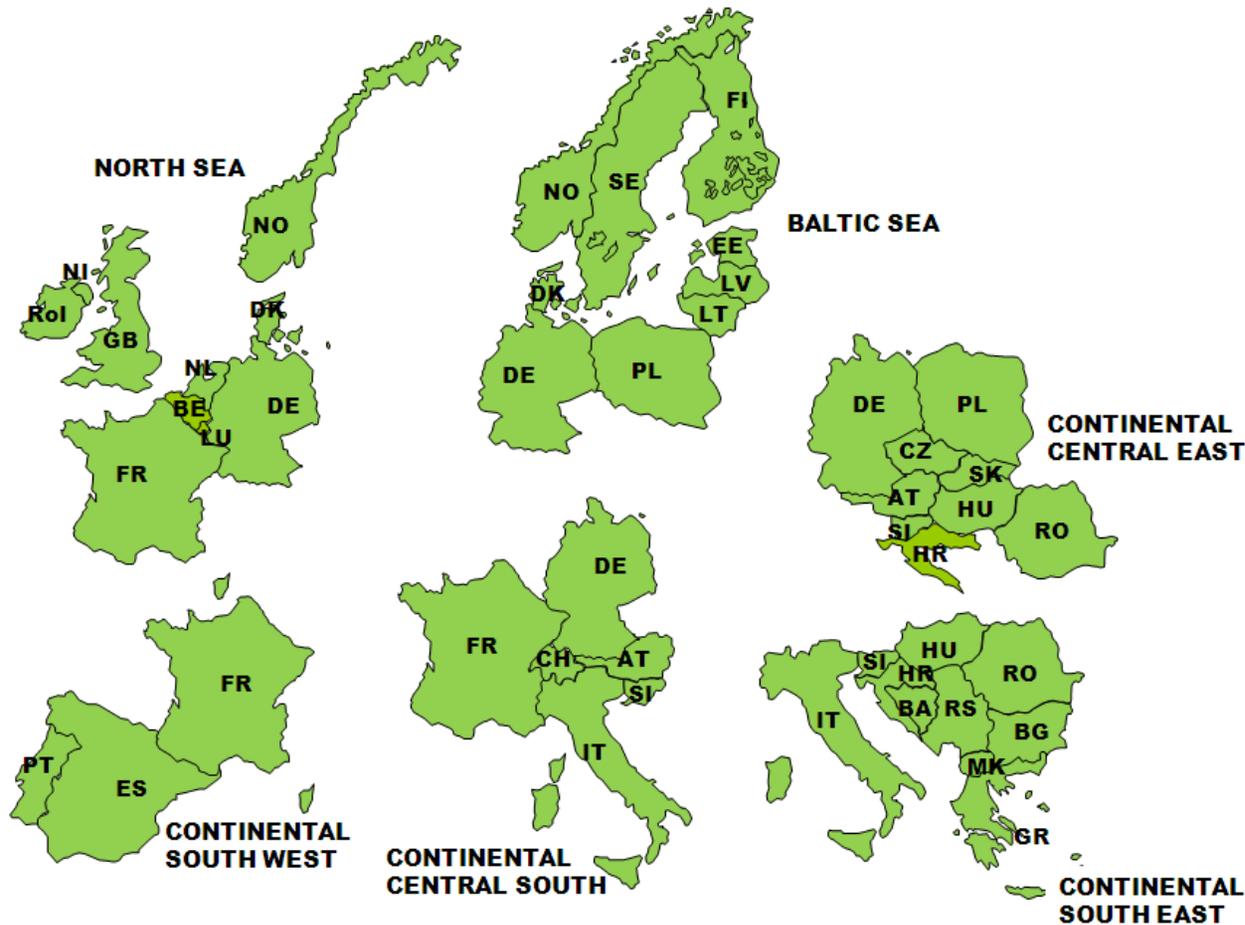
# The 3rd Package defines the TYNDP



# Overall schedule TYNDP 2012



# ENTSOE Regional Groups



The most appropriate framework for grid development in Europe

Every RG gather countries sharing the same common concerns

Overlapping, in order to ensure overall consistency

# Main deliverables TYNDP 2012

