1st Stakeholders meeting

ENTSO-E – Balancing Pilot Projects

May 14th 2014

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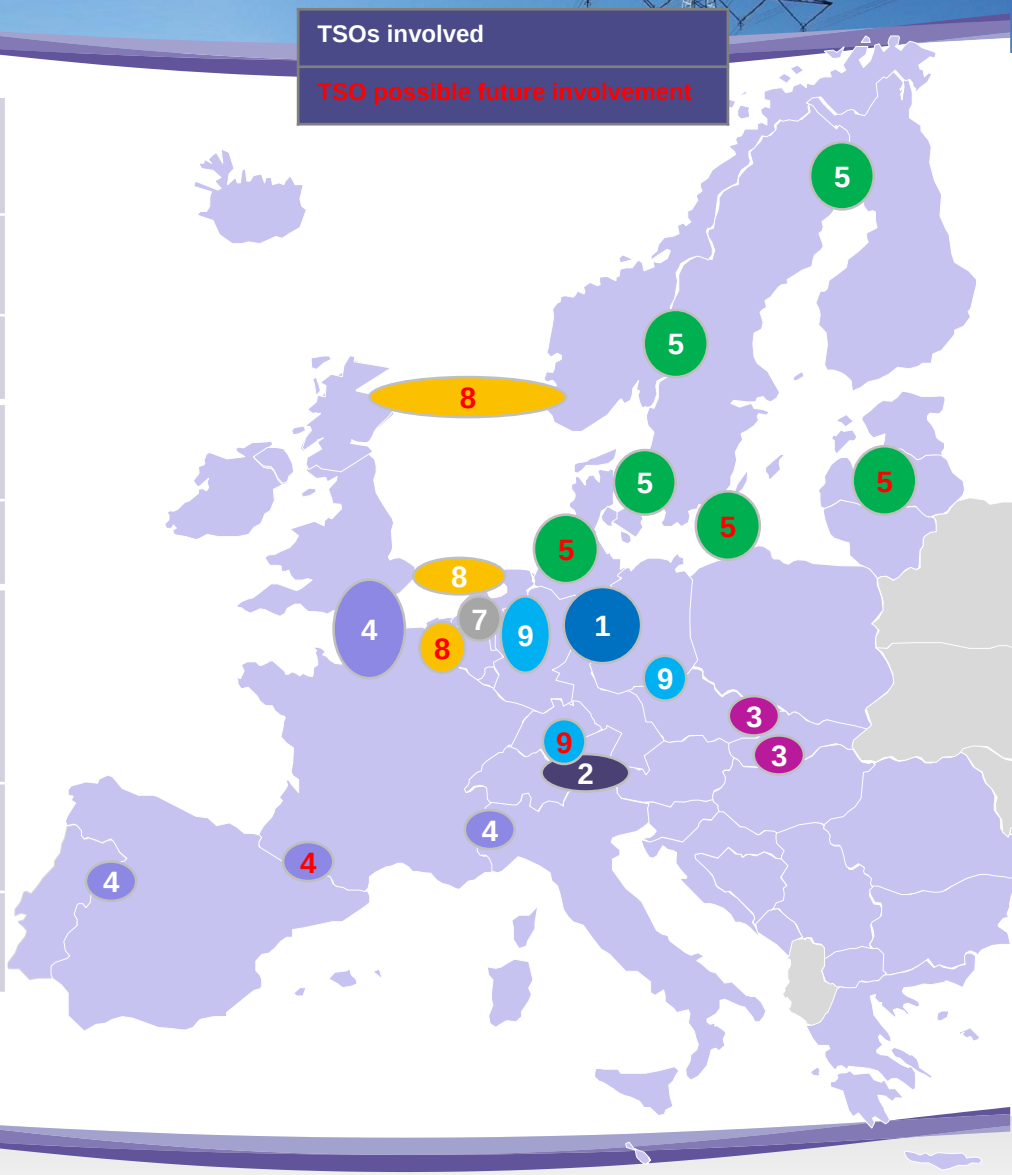
Reliable Sustainable Connected

The Cross Border Pilot Projects on Electricity Balancing

1	CMOs for mFRR and aFRR with real time flow based congestion management
2	Cross-border market for FCR based on TSO-TSO model
3	E-GCC
4	TERRE: Trans-European Replacement Reserves Exchange
5	Development of the Nordic RPM
7	Design and evaluation of a harmonised reactive balancing market with XB optimisation of Frequency Restoration while keeping control areas, bid zones, and regulatory oversight
8	BritNed / TenneT / National Grid Balancing Services
9	IGCC Imbalance Netting, aFRR-Assistance and Flow-Based Congestion Management



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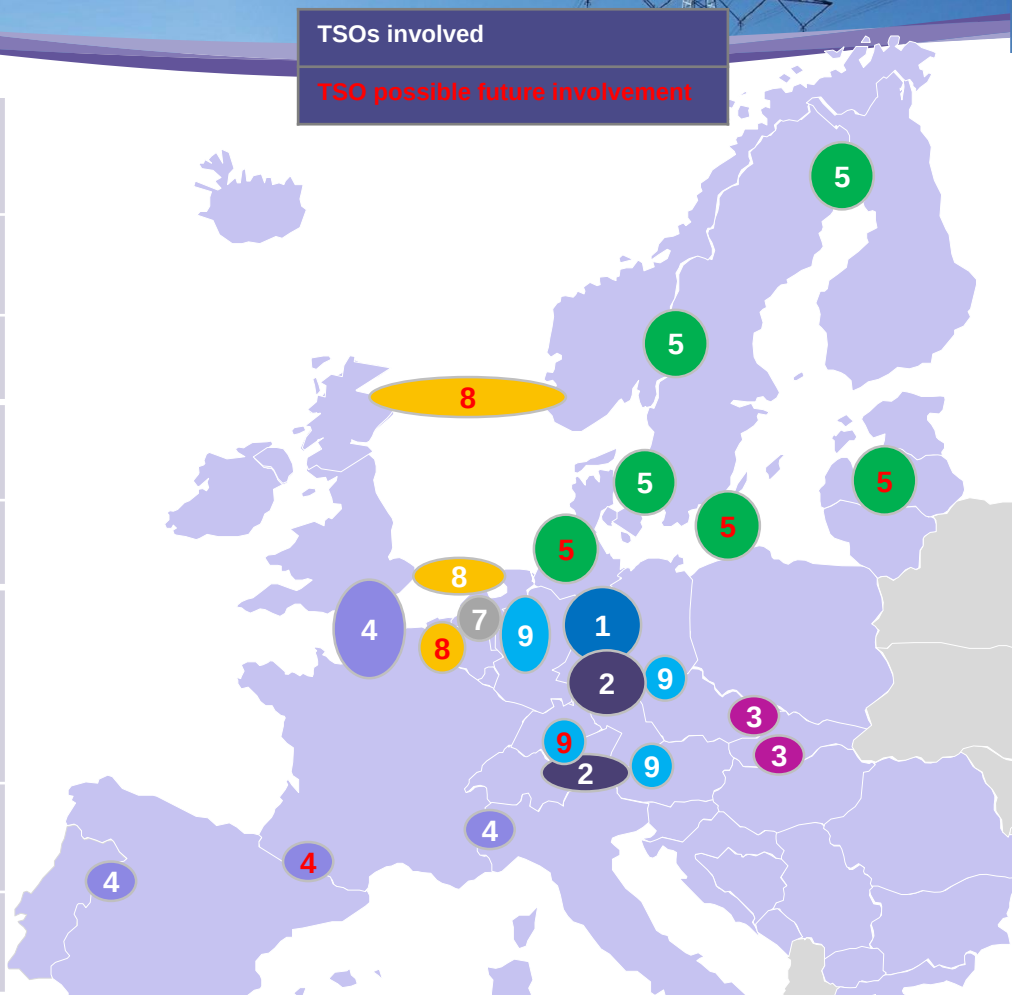
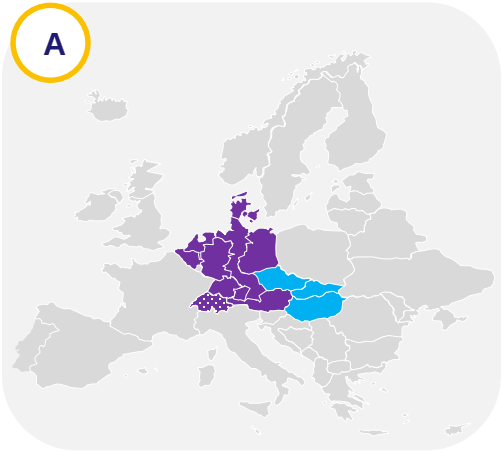
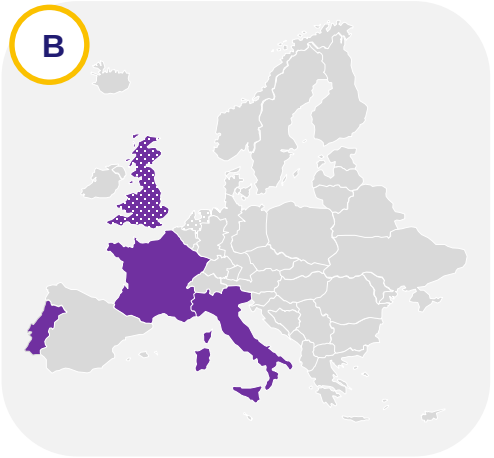
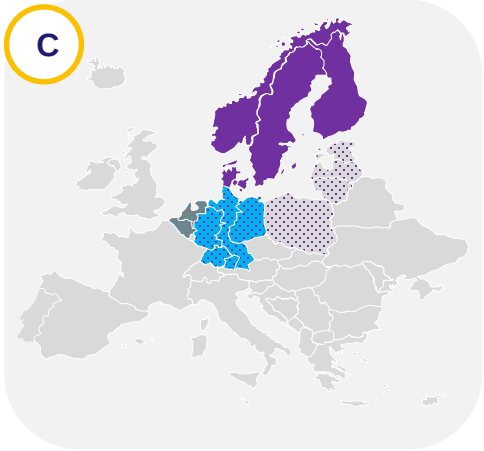


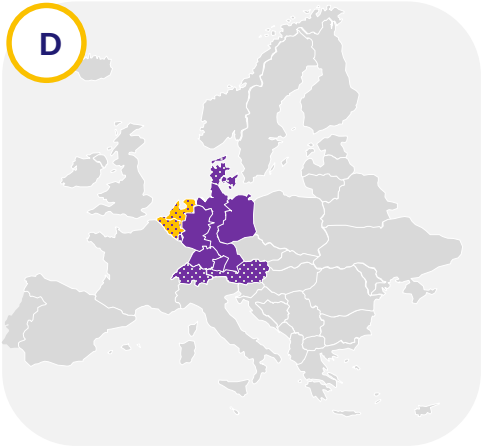
New developments: Project 2: German TSOs and TTB join APG and swissgrid in Project 2 and APG joins IGCC in Project 9.

Process Grouping

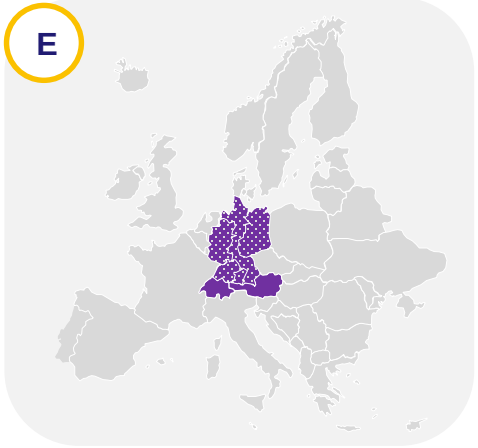








A. Imbalance Netting (IN)
B. Replacement Reserve (RR)
C. Manual Frequency Restoration (mFRR)
D. Automatic Frequency Restoration (aFRR)
E. Frequency Containment Reserve (FCR)



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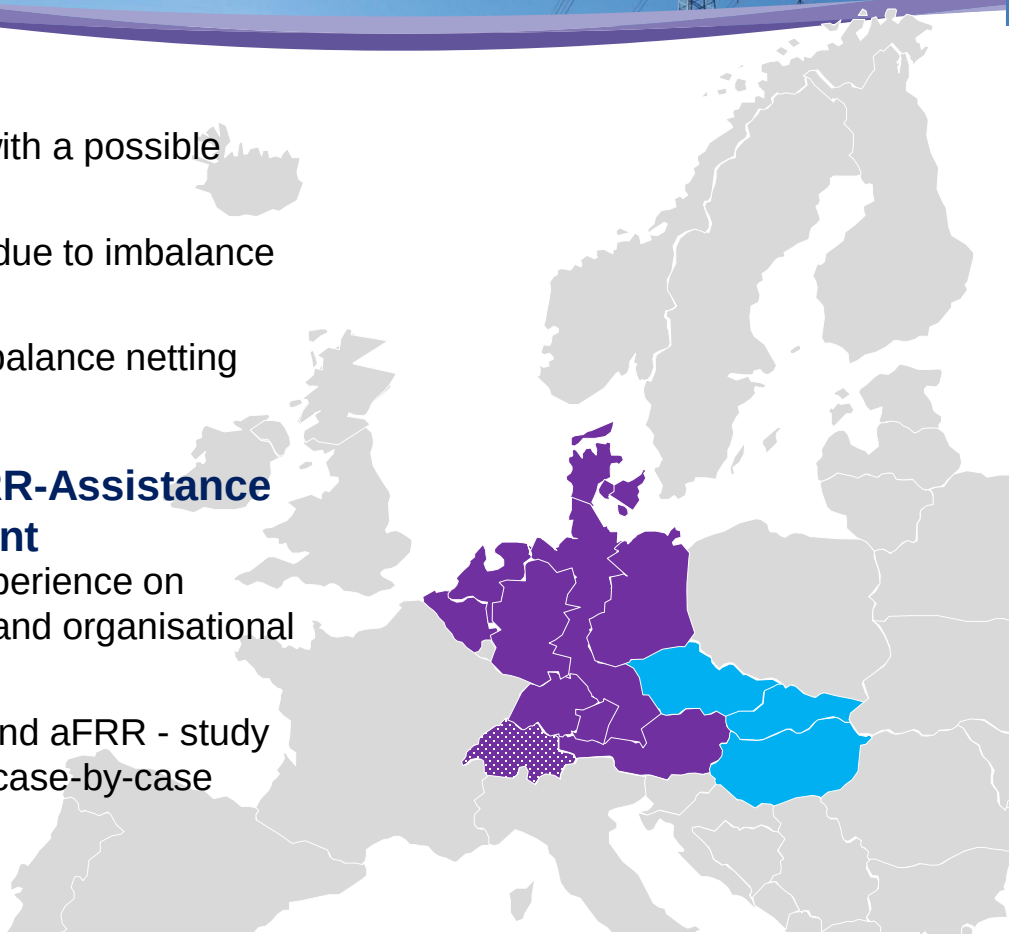
A. Process Grouping: Imbalance Netting (IN)

Project 3 - e-GCC

1. Evaluation of the current pricing mechanism with a possible outcome to change the pricing system.
2. Reduction of aFRR activated energy (& cost) due to imbalance netting.
3. Possibility to join a bigger CoBA regarding imbalance netting product

Project 9 - IGCC Imbalance Netting, aFRR-Assistance and Flow-Based Congestion Management

1. The project for Imbalance Netting will bring experience on operational procedures, TSO-TSO settlement and organisational issues.
2. Flow-based approach for Imbalance Netting, and aFRR - study on regulatory and market related aspects and case-by-case implementation.
3. Bring experiences about aFRR



Project 9: The technical principles of Imbalance Netting are harmonised with GCC and e-GCC. Pricing issues are still to be harmonised between Projects 3 and 9.

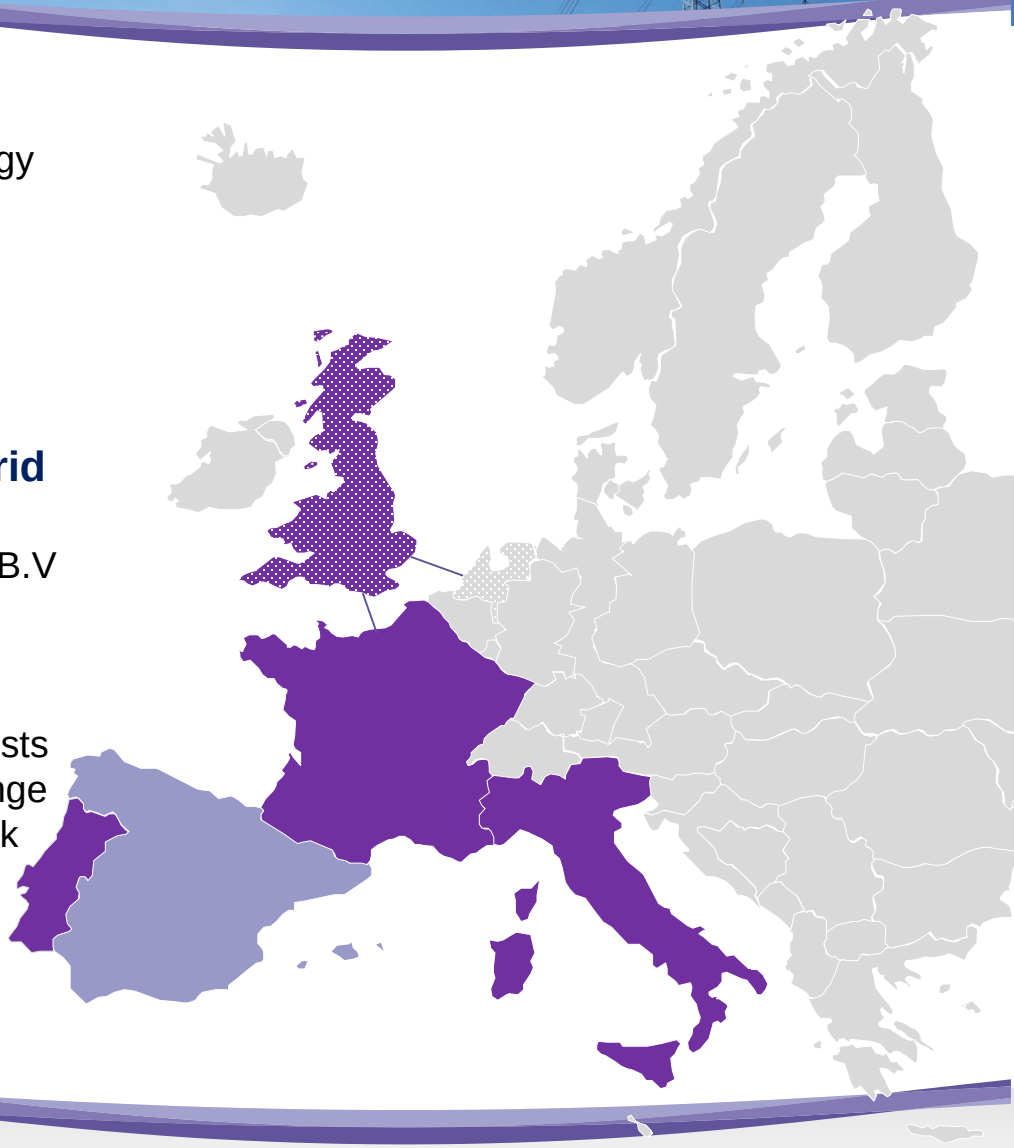
B. Process Grouping: Replacement Reserves (RR)

Project 4 - TERRE: Trans-European Replacement Reserves Exchange

1. Pioneer initiative in Europe focused on RR energy product
2. It considers future extension of CoBA to other TSOs
3. Possibility to join a bigger CoBA regarding imbalance netting product

Project 8 - BritNed / TenneT / National Grid Balancing Services

1. Find the key differences between TenneT TSO B.V and NG in order to identify the feasibility of providing cross border balancing services
2. Determine the balancing products that can be developed, where spare capacity for energy exists
3. Aim to deliver a Replacement Reserves exchange product which aligns with the Balancing Network Code
4. Develop a Cross Border Balancing Energy Exchange service through a TSO-TSO trading function or common platform



C. Process Grouping: Manual Frequency Restoration (mFRR)

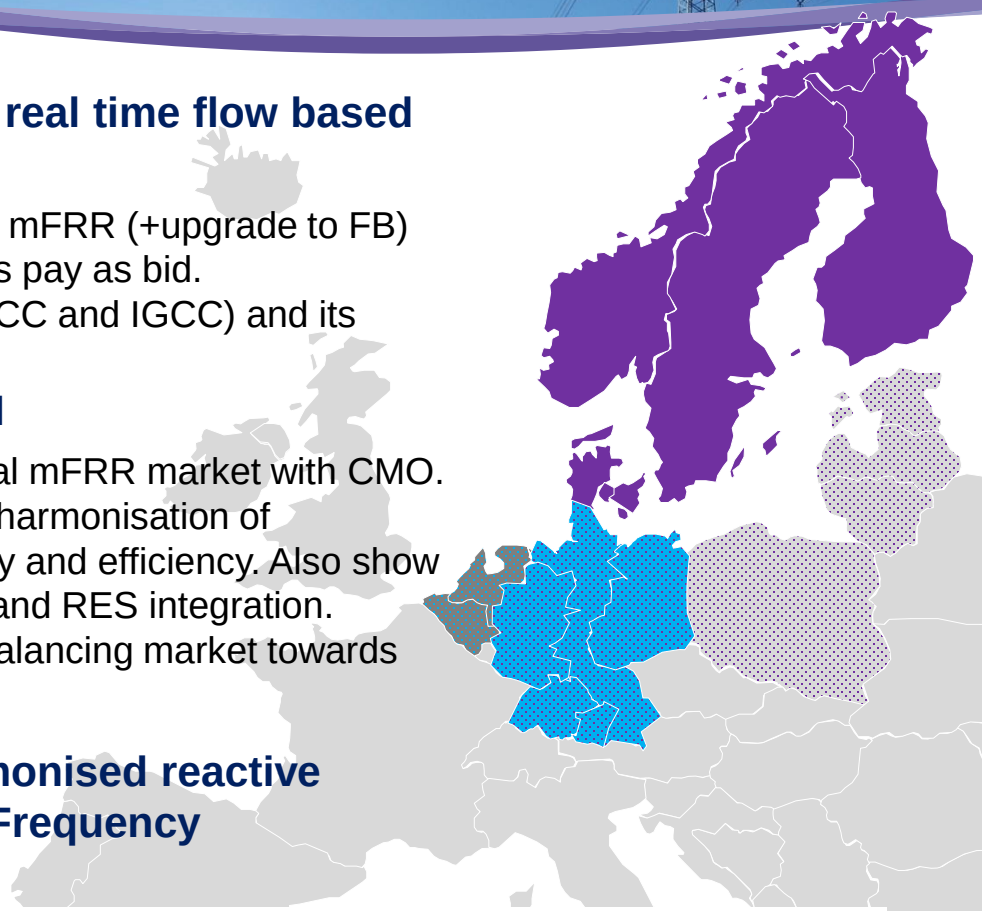
Project 1 - CMOs for mFRR and aFRR with real time flow based congestion management

1. Imbalance Netting as well as CMOs for aFRR and mFRR (+upgrade to FB)
2. Study of the implications of marginal pricing versus pay as bid.
3. Coordination of different cooperation initiatives (GCC and IGCC) and its improvement

Project 5 - Development of the Nordic RPM

1. Demonstrate and describe an existing multinational mFRR market with CMO.
2. Make and report on improvements and increased harmonisation of multinational mFRR market towards higher liquidity and efficiency. Also show ways to allow for more demand side participation and RES integration.
3. Work and test for an extension of current Nordic balancing market towards neighbouring countries and pilots.

Project 7 - Design and evaluation of a harmonised reactive balancing market with XB optimisation of Frequency Restoration



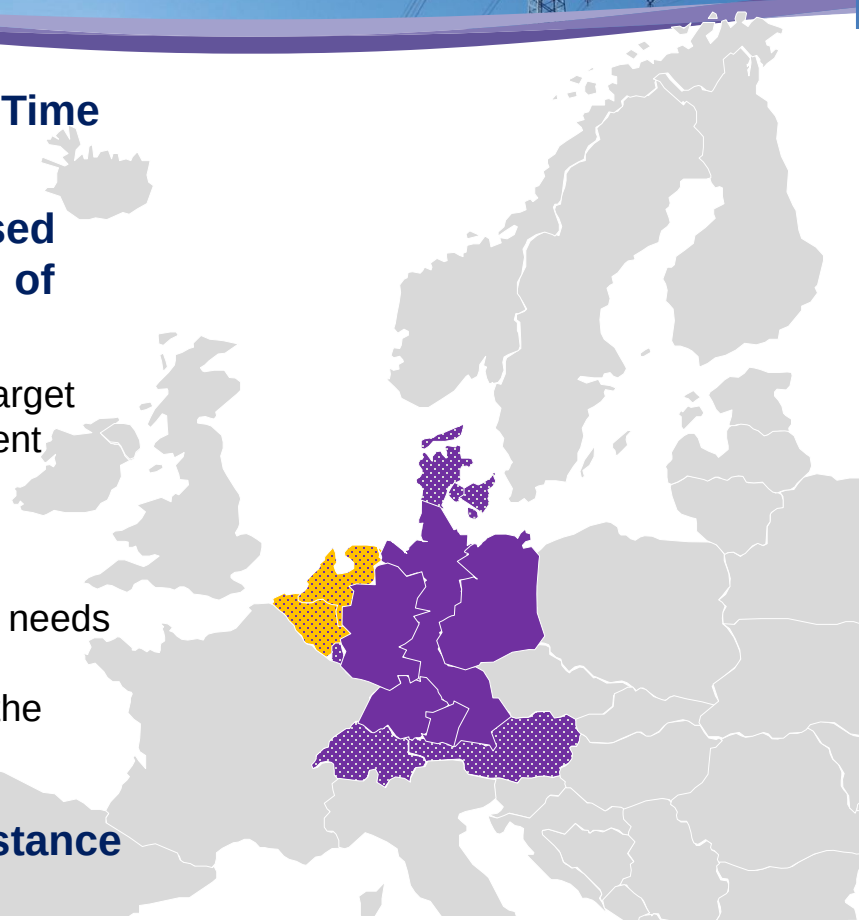
Feasibility studies are already on-going between projects 1 & 5 and 1 & 7 for possible coordination or merging and between projects 5 and Baltic countries and Poland (the latter in order to analyse mFRR interchange between a self dispatch system and a central dispatch system)

D. Process Grouping: Automatic Frequency Restoration (aFRR)

Project 1 - CMOs for mFRR and aFRR with real Time Flow Based congestion management

Project 7 - Design and evaluation of a harmonised reactive balancing market with XB optimisation of Frequency Restoration

1. Study to assess the feasibility and added value of the target model; exchange of aFRR and mFRR between 2 different bidding zones.
2. Harmonisation of balancing products and settlement procedure.
3. Adequate balancing market design reducing balancing needs and fostering liquid ID markets.
4. Assessment of reactive BRP´s contribution to balance the system



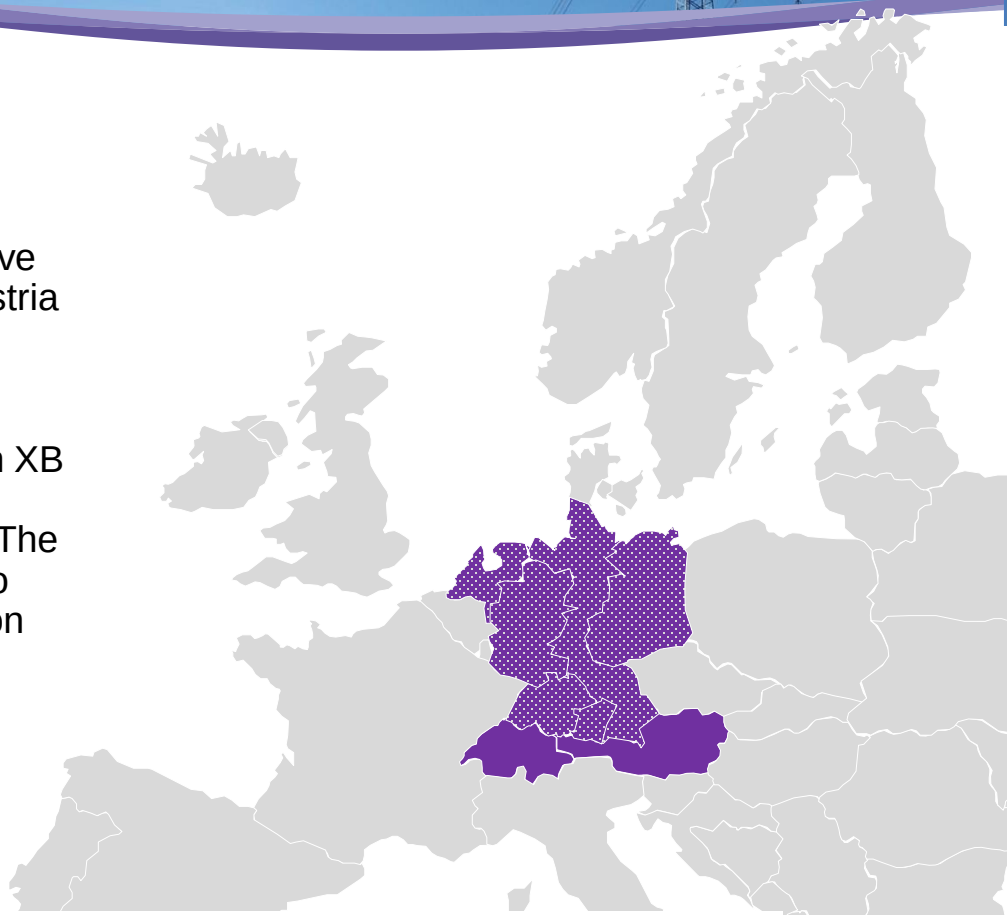
Project 9 - IGCC Imbalance Netting, aFRR-Assistance and Flow-Based Congestion Management

Cooperation between projects 1 & 9 (usage of the same optimisation function), coordination of real-time congestion management. Ongoing study between pilots 7 & 1

E. Process Grouping: Frequency Containment Reserve (FCR)

Project 2 - Cross-border market for FCR based on TSO-TSO model

1. Pioneer experience regarding CMO FCR reserve interchange using a TSO -TSO scheme for Austria and Switzerland
2. TSOs remain the only interface for market participants
3. No need to increase current TRM value´s (then XB capacity reservation is not an issue).
4. Reserve Procurement Optimisation Function - The function implemented in this project is similar to the Reserve Procurement Optimisation Function described in the draft NC EB.



Agreement with German TSOs and Netherlands for extension of the collaboration – Feasibility studies completed (Business Case, Settlement model, System Architecture, Harmonisation needs etc.)

Pilot 1 description: Imbalance Netting, aFRR, mFRR (50Hertz Transmission GmbH, Amprion GmbH, Tennet TSO GmbH, TransnetBW GmbH)

The pilot project is structured into two work packages:

- Cooperation with other pilot projects and TSOs including
  - communication and exchange of experience with other TSOs;
  - further development of cooperation within IGCC and other regional initiatives;
  - feasibility studies related to possible harmonisation of balancing markets.

- Upgrade of the real-time congestion management activation of aFRR and Imbalance Netting
  - implementation and operation of real-time flow-based approach (in parallel with ATC-based approach)
  - coordination of flow-based approach within GCC area and ATC-based approach within IGCC area.

Summary update on the Pilot Projects (Imbalance Netting, CMO and CMF for aFRR, mFRR): Pilot 1 (German TSOs):

Recent achievements	1. Adaption of the operational concepts for real-time flow-based Congestion Management (Imbalance Netting and aFRR activation) 2. First operational test of the flow-based approach
Project co-operation and merging	1. Feasibility study with Pilot 5 (first technical analysis) 2. Feasibility study with Pilot 7 (since March 2014) 3. Feasibility study with Pilot 2 completed

Main achievements pilot 1 (April 2014)

The recent achievements related to **work package 1** are:

Cooperation with pilot project 5:

- Kick-off for the feasibility study on 14.03.2014.
- First results are expected in the end of May 2014.

Cooperation with pilot project 7:

- Feasibility study is running.

Cooperation with pilot project 2:

- The German TSOs will join the Pilot Project.

The recent achievements related to **work package 2**:

Approval of the new operational concept related to real-time flow-based aFRR and Imbalance Netting congestion management;

Leading time of pilot project and NC EIF

		A	B	C	D	E	F	G	H	I	J
		Proposal of regional implementation framework	Implementation of the regional integration model	Proposal of modification of the European integration model	Proposal of the European implementation framework	Proposal of common settlement rules	Proposal of settlement harmonisation	Proposal of standard products definition	Proposal of standard products pricing	Proposal of standard products algorithms	Proposal for common settlement rules of intended exchanges of energy associated to the Frequency Containment Process
Imbalance netting	NC EB (EIF +)	6 m	2y	3 y	4 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project 1	12/2008	12/2008	12/2008	12/2008	12/2008	12/2008	12/2008	12/2008	12/2008	
RR	NC EB (EIF +)	6 m	2.5 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project 1	na	na	na	na	na	na	na	na	na	
mFRR	NC EB (EIF +)	2 y	4 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project 1	05/2010	05/2010	05/2010	05/2010	05/2010	05/2010	05/2010	05/2010	05/2010	
aFRR	NC EB (EIF +)	3 y	4 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project 1	09/2009	09/2009	09/2009	09/2009	09/2009	09/2009	09/2009	09/2009	09/2009	
FCR	NC EB (EIF +)							1 y	1 y	1 y	
	Pilot Project 1							8 y	8 y	8 y	

Pilot 1: Roadmap

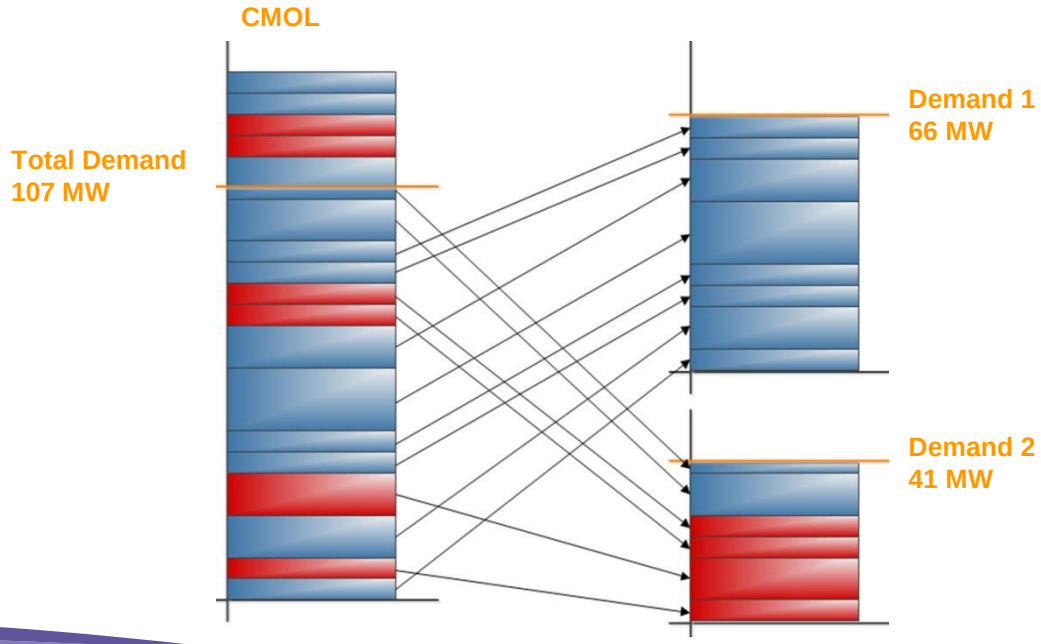
	2013				2014				2015			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Flow-based algorithm IT-Implementation												
Testing												
Go Live												
Monitoring of economic variables (costs, volumes, social welfare)												
Feasibility Studies with other Pilot Projects												

Pilot Project 2 focused on FCR (APG, SG)

Recent achievements	1. Project successfully designed and implemented within one year - Go Live date: 3rd July 2013 2. Specifications on a common website agreed by both TSOs
Risks or legal/regulatory issue	1. Request of Austrian Regulator for detailed publishing of the auction results – No critical issue for the project 2. Common publishing policy for both countries
Project co-operation and merging	1. Pilot project 2 is the only one focusing on FCR – No merging with other pilots possible 2. Agreement with German TSOs for extension of the collaboration – Feasibility studies complete (Business Case, Settlement model, System Architecture, Harmonization needs etc.)

Project Details

- **Settlement principle**
  - **Each TSO may profit from the cheaper remaining bids of the other TSO, without resulting in a disadvantage for the second**
  - **Principle that guarantees profits for all involved parties, avoiding cross-subsidizing**



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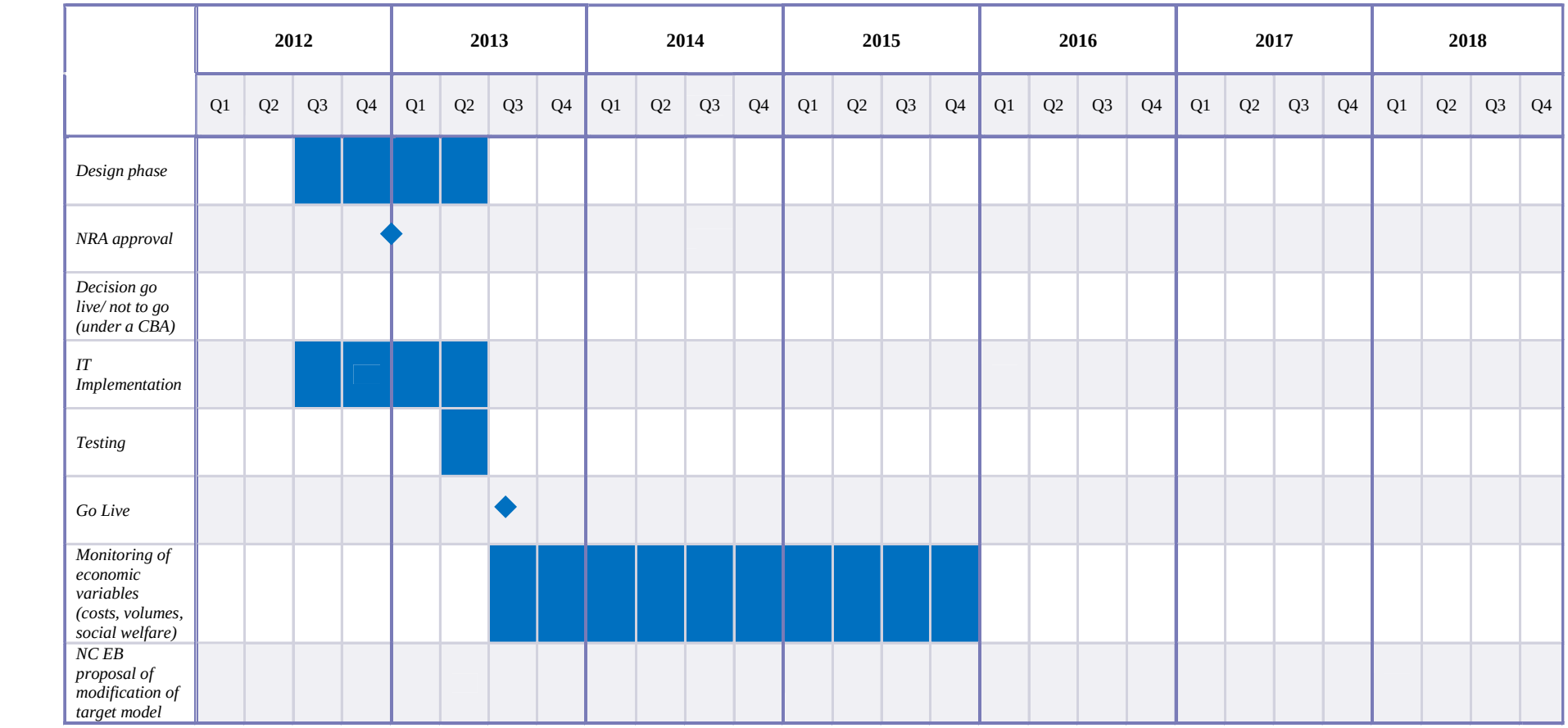
Pilot 2: FCR market evolution

Product: FCR	Jul 2013	Aug 2013	Sept 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014
Volume (MW) of XB balancing reserve interchanged at project level. (*) *Each week we have an amount of reserves that is exchanged. The number in these cells is the aggregated amount of reserves exchanged per month together with the average amount exchanged per week.*	153 Average: 38.25	90 Average: 22.5	78 Average: 19.5	49 Average: 9.8	49 Average: 12.25	58 Average: 14.5	50 Average: 10	89 Average: 22.25	24 Average: 6
Total volume (MW) of balancing reserve at project level. (**)	428	428	428	535	428	428	585	468	468

The reserved capacity is 107 MW per week (For 2013 both Switzerland and Austria had to reserve 66 MW in FCR per week. 25 MW of Switzerland are auctioned in a common auction with Germany. Therefore the amount auctioned is in total 107 MW with 41 MW for Switzerland and 66 MW for Austria.

Pilot 2 road map



Summary update on the Pilot Projects (Imbalance Netting): Pilot 3 (CEPS, SEPS, MAVIR)

Recent achievements	1. The one year trial period of MAVIR is in its last quarter. Its evaluation shall be delivered by the end of this quarter to ENTSO-E. 2. Discussion about possible modification of settlement price calculation begins. In the second half of 2014 it is planned to make a Cost Benefit Analysis on the current and the possible future pricing methodologies.
Risks or legal/regulatory issue	1. As Pilot 3 is an ongoing co-operation, there is no risk or legal/regulatory issue.
Project co-operation and merging	1. The possibility of co-operation in the sence of common reporting as a Balancing pilot with other Balancing project(s) is under internal discussion now. 2. From a project merging point of view: As e-GCC is based on a different contractual and legal framework, there is no intention to merge (= have one agreement) e-GCC with other projects based on the imbalance netting process at the moment.

Pilot 3 road map

	2013				2014				2015			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design phase	x											
NRA approval	CEPS,SEPS: before 2013, MAVIR: 2013 Q1											
Decision go live/ not to go (under a CBA)	x											
IT Implementation	x											
Testing		x										
Go Live		x										
Monitoring of economic variables (costs, volumes, social welfare)					Monitoring according to ENTSO-E Testbook.	Closing the one year trial phase of e-GCC joint by MAVIR. Monitoring according to ENTSO-E Testbook[1].	x	Cost Benefit Analysis on pricing methodology.	x	x	x	x

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15/11/2012

[1] Testbook for the cooperation of control blocks int he framework of GCC (Moduel 1). Final version 10.10.2011

Summary update on the Pilot Projects (RR): Pilot 4 (NG, RTE, TERNA, REN,NGIL)

Recent achievements	1. Review of the TERRE Product in line with the NC EB Standard Product 2. Review of the Matching Process (FCFS vs Implicit Auctions) 3. Review of the Data Collection Requirements for the Financial Benefit Analysis and Matching Process
Risks or legal/regulatory issue	1. Changing in the NC EB (Currently under ACER Revision until Jun 14) 2. Possible involvement of other TSOs might cause delays to the design and implementation phases and getting NRA approval
Project co-operation and merging	• Steering Committee Mtg on 12th May to discuss involvement of other TSOs • RTE/NG Bilateral Mtg 23rd May to discuss data capture, financial simulation and IFA Constraints.

Pilot 4 TERRE organization of tasks

The pilot project TERRE was organized in six subgroups (working axes):

1. Definition of standard products (led by Terna)
2. Matching process (led by RTE)
3. Financial issues (led by NG)
4. Timing and scheduling (led by REN)
5. ATC management (led by RTE and NGIC)
6. Governance issues (led by legal group)

Leading time of pilot project 4 and NC EIF

		A	B	C	D	E	F	G	H	I	J
		Proposal of regional implementation framework	Implementation of the regional integration model	Proposal of modification of the European integration model	Proposal of the European implementation framework	Proposal of common settlement rules	Proposal of settlement harmonisation	Proposal of standard products definition	Proposal of standard products pricing	Proposal of standard products algorithms	Proposal for common settlement rules of intended exchanges of energy associated to the Frequency Containment Process
Imbalance netting	NC EB (EIF +)	6 m	2y	3 y	4 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
RR	NC EB (EIF +)	6 m	2.5 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project TERRE		Q1 2016	Q2 2016	Q4 2016			Q3 2014	Q3 2014	Q3 2014	Not Applicable
mFRR	NC EB (EIF +)	2 y	4 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
aFRR	NC EB (EIF +)	3y	4y	4y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
FCR	NC EB (EIF +)							1 y	1 y	1 y	2 y
	Pilot Project X										

Pilot 4 road map

	2013				2014				2015				2016				2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design phase				■	■	■	■																					
NRA approval							■	■																				
Decision go live/ not to go (under a CBA)								■	■																			
IT Implementation									■	■	■	■																
Testing										■	■	■																
Go Live													■															
Monitoring of economic variables (costs, volumes, social welfare)												■	■	■	■													
NC EB proposal of modification of target model																												

Pilot Project 5 (mFRR): Statnett, Fingrid, Svenska Kraftnät, Energinet.dk

Recent achievements

1. Started studies on how to exchange mFRR energy between possible future CoBAs (German pilot and Baltic feasibility studies)
2. Started a study how to perform imbalance netting between synchronous areas and CoBAs (HVDC) (within German pilot feasibility study)
3. Started a study on how to exchange mFRR energy between a self-dispatch system and a central dispatch system (Polish feasibility study)

Risks or legal/regulatory issue

1. It is not possible for the TSO in the Netherlands to export balancing energy due to the Dutch balancing market design
2. The TSOs in Germany are not allowed to exchange pre-contracted balancing energy

Project co-operation and merging

1. Feasibility study with Pilot 1 on-going
2. Finalized ToR for feasibility study with Poland and the Baltics
3. Initiated dialogue on the possibility for feasibility study with the Netherlands

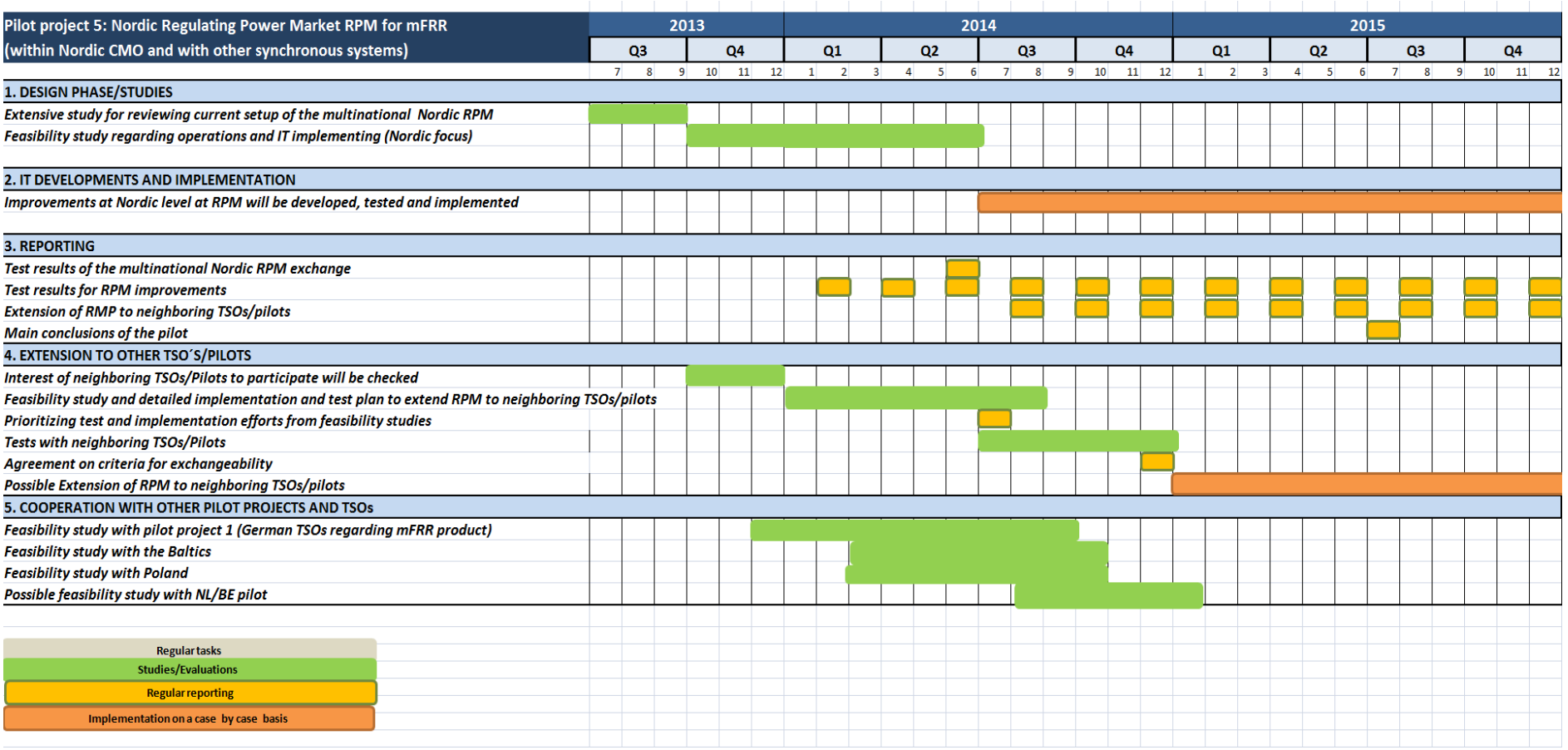
Pilot 5: goals

- Demonstrate and describe an existing multinational mFRR market with CMO
- Increase efficiency and liquidity of the Nordic multinational mFRR market by capturing the full potential of the Nordic resources for regulation. This includes increased harmonization and participation of demand side and RES. The results of the improvements will be reported.
- Work and test for an extension of current Nordic balancing market towards neighbouring countries and pilots.

Leading time of pilot project 5 and NC EIF

		A	B	C	D	E	F	G	H	I	J
		Proposal of regional implementation framework	Implementation of the regional integration model	Proposal of modification of the European integration model	Proposal of the European implementation framework	Proposal of common settlement rules	Proposal of settlement harmonisation	Proposal of standard products definition	Proposal of standard products pricing	Proposal of standard products algorithms	Proposal for common settlement rules of intended exchanges of energy associated to the Frequency Containment Process
Imbalance netting	NC EB (EIF +)	6 m	2y	3 y	4 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
RR	NC EB (EIF +)	6 m	2.5 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
mFRR	NC EB (EIF +)	2 y	4 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X	*Done*	*Done*	*31/12-2014*	*31/12-2015*	*31/12-2014*	*31/12-2015*	*31/12-2014*	*31/12-2014*	*31/12-2015*	*NA*
aFRR	NC EB (EIF +)	3y	4y	4y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
FCR	NC EB (EIF +)							1 y	1 y	1 y	2 y
	Pilot Project X										

Pilot 5 road map



Pilot 7 (*TenneT TSO B.V. (NL) and Elia (B))*: goals

Scope = cross border exchange of balancing energy from (both automatic and manual) FRR with prior harmonisation

Step 1: Description of current functionalities and operating processes => finished and published on the website of both TSOs.

Step 2: Design of a harmonised and integrated cross border market (step 2). The following topics needs to be treated.

Automatic FRR (contracted and non-contracted)

- *Merit order activation or not in BE? Feasibility*
- *Harmonisation of Automatic FRR products – what will we exchange on the border*
- *Link to iGGC and the aFRR assistance*

Manual FRR (only non-contracted)

- *Activation method in both countries*
- *Harmonisation of products – what will we exchange on the border*
- *Link to Intraday markets*

Imbalance pricing/ Settlement of balancing energy

- *Harmonisation of imbalance tariffs required?*
- *Which pricing mechanism shall be used for the settlement?*

Cross-border capacity allocation and priority rules

Step 3: Assessment of potential benefits and general feasibility of cross-border collaboration

- *Cost benefit analysis to exchange balancing energy*
- *Impact on tools en processes*
- *Impact on operations*

Pilot 7: late achievements

Recent achievements	1. Survey launched with market parties in order to assess possibilities of harmonisation of aFRR ramp rates 2. X 3. x
Risks or legal/regulatory issue	1. Risk: Implications for harmonisation of aFRR products (impact on liquidity of local markets and local TSO responsibility-ACE quality) between 2 different control blocks 2. x 3. x
Project co-operation and merging	1. Common study started between pilot 7 and pilot 1 to assess possibilities for collaboration 2. Assessment of interactions by pilot 7 between FRR processes (pilot 7) and imbalance netting and aFRR assistance (pilot 9) 3. x

Leading time of pilot project 7 and NC EIF

		A	B	C	D	E	F	G	H	I	J
		Proposal of regional implementation framework	Implementation of the regional integration model	Proposal of modification of the European integration model	Proposal of the European implementation framework	Proposal of common settlement rules	Proposal of settlement harmonisation	Proposal of standard products definition	Proposal of standard products pricing	Proposal of standard products algorithms	Proposal for common settlement rules of intended exchanges of energy associated to the Frequency Containment Process
Imbalance netting	NC EB (EIF +)	6 m	2y	3 y	4 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	
RR	NC EB (EIF +)	6 m	2.5 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	# N/A#	
mFRR	NC EB (EIF +)	2 y	4 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X	30/06/2014	31/12/2015	30/06/2014	30/06/2014	30/06/2014	30/06/2014	30/06/2014	30/06/2014	30/06/2014	
aFRR	NC EB (EIF +)	3y	4y	4y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X	30/06/2014	31/12/2015	30/06/2014	30/06/2014	30/06/2014	30/06/2014	30/06/2014	30/06/2014	30/06/2014	
FCR	NC EB (EIF +)							1 y	1 y	1 y	2 y
	Pilot Project X							# N/A#	# N/A#	# N/A#	# N/A#

Pilot 7 road map

	2013				2014				2015				2016				2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design phase																												
NRA approval																												
Decision go live/ not to go (under a CBA)																												
IT Implementation																												
Testing																												
Go Live																												
Monitoring of economic variables (costs, volumes, social welfare)																												
NC EB proposal of modification of target model																												

Summary update on the Pilot Projects (RR): Pilot 8 (TENNET NL, NG)

Recent achievements	1. Feasibility study initiated between GB and NL 2. Other balancing services have been considered which are not part of Pilot 8
Risks or legal/regulatory issue	1. The two different market models may prohibit the exchange of cross border energy i.e. proactive balancing regime in GB vs reactive in the Netherlands
Project co-operation and merging	1. Consideration has been given to cooperating and possibly merging Pilot 8 with Pilot 4 at a later date

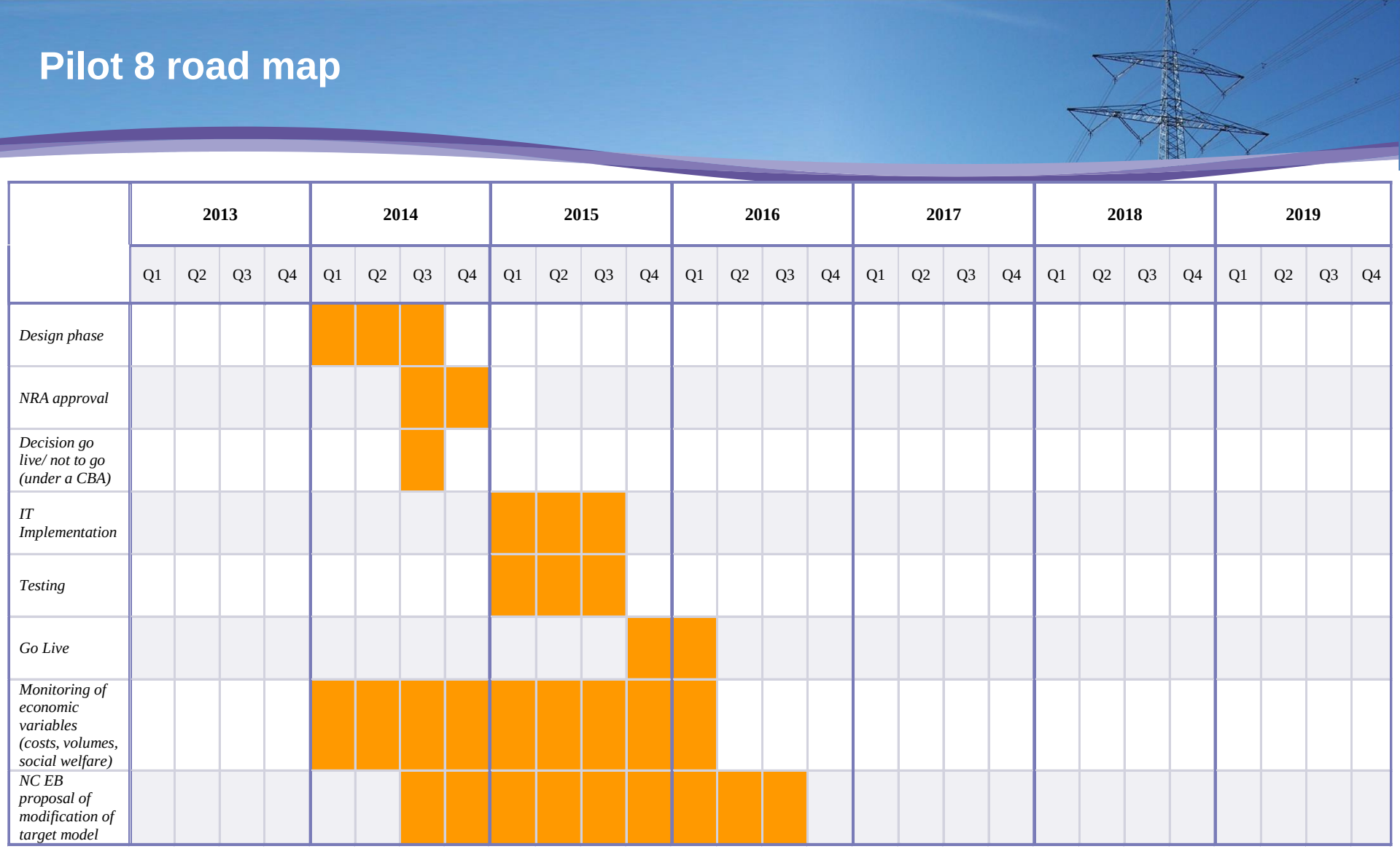
Pilot 8 goals

The goal of this service is to enhance European market integration principles of transparency, optimisation and efficiency, and seek to provide both TSOs with options for restoring the supply-demand balance in their control area and managing domestic constraints where it has a need to do so.

In order to test the feasibility of providing a cross border balancing service, this pilot project will require the following information so that the market arrangements between GB and NL are fully understood:

- Assess how two different market areas can provide a mutually beneficial balancing service
- Test the feasibility of ACER targets, against two fundamentally different market models
- Develop a Cross Border Balancing Energy Exchange service through a TSO-TSO trading function or common platform
- Demonstrate economic efficiency
- Harmonisation of balancing products

Pilot 8 road map



Summary update on the Pilot Projects (Imbalance Netting): Pilot 9 (German TSOs, CEPS, ELIA, ENERGINET, TENNET NL) (to)

Recent achievements

1. Creation of IGCC Steering Committee and Expert Groups
2. First draft of new MLA
3. First version of regular report
4. 1.8 TWh of netted imbalances with the value of over €90 Million in the time frame October 2011 – December 2013

Project co-operation and merging

Cooperation with Pilot Project 1 (usage of the same optimisation function), coordination of real-time congestion management

Pilot 9 goals

The objective of IGCC as a Pilot Project on Electricity Balancing is to further develop the technical and organisational cooperation in the field of balancing using as basis the existing scalable and reliable framework, and positive experiences from more than two years of operation.

The pilot project can be structured in three main parts:

- Further organisational development of IGCC (governance structure, decision processes, agreements)
- Further technical development of IGCC (aFRR-Assistance, upgrade of congestion management for Imbalance Netting, operational procedures)
- Monitoring and further development of the value of netted imbalances and settlement.

Leading time of pilot project 9 and NC EIF

		A	B	C	D	E	F	G	H	I	J
		Proposal of regional implementation framework	Implementation of the regional integration model	Proposal of modification of the European integration model	Proposal of the European implementation framework	Proposal of common settlement rules	Proposal of settlement harmonisation	Proposal of standard products definition	Proposal of standard products pricing	Proposal of standard products algorithms	Proposal for common settlement rules of intended exchanges of energy associated to the Frequency Containment Process
Imbalance netting	NC EB (EIF +)	6 m	2y	3 y	4 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project 9	2012	2012		2012					2012	
RR	NC EB (EIF +)	6 m	2.5 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
mFRR	NC EB (EIF +)	2 y	4 y	4 y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
aFRR	NC EB (EIF +)	3y	4y	4y	5 y	2 y	3 y	1 y	1 y	1 y	
	Pilot Project X										
FCR	NC EB (EIF +)							1 y	1 y	1 y	2 y
	Pilot Project X										

Pilot 9 road map

WP	Name	Tasks	2013					2014											2015											
			08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
1	Operational Procedures	exchange operational experience, best-practices																													
		harmonise IGCC operation (where applicable / beneficial)																													
		monitoring of technical performance																													
2	aFRR-Assistance	regulatory/balancing market constraints for aFRR-Assistance																													
		settlement model for balancing aFRR assistance																													
		interactions between intra-day and balancing markets																													
		new operational procedures for aFRR-Assistance																													
		implement aFRR-Assistance (step-by-step approach)																													
		collect and to report on the experience of aFRR-Assistance																													
3	Upgrade of IGCC-CM	increase efficiency of the current ATC based algorithm																													
		implement flow-based CM where applicable																													
		evaluate impact of flow-based CM on efficiency																													
		interactions between intra-day flow based and real-time																													
4	Evaluation of Settlement Models and Social Welfare	define social welfare																													
		evaluation of social welfare / monitor the settlement model																													
		increase transparency for TSOs																													
		if necessary, adapt the settlement model																													
		increase transparency to market participants																													

Regular tasks

Studies / evaluations

Regular reporting to ENTSO-E on technical quality and social welfare

Implementation of the flow-based IGCC-CM will be first tested inside the German LFC Block

Implementation on case by case basis (or if necessary) based on studies and evaluations of technical feasibility and social welfare