Task Force Balancing

October 12th, 2015

Agenda

1. R1 Cross-Border with Germany
2. Bidding Obligations R1 & R2
3. R2- wind: conclusions of project
4. Publications 2016
5. R3 STS 2016: status update
6. ICH new design 2017
7. Amendment of Billable Margin calculation

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Weekly Tendering of FCR[1] & aFRR[2] via STAR And XB – FCR cooperation with PRL[3]

Project "R1XBGE" – TF Balancing 12/10/2015

[1] *Frequency Containment Reserves or 'primary reserves (R1)'*

[2] *Automatic Frequency Restoration Reserves or 'secondary reserves (R2)'*

[3] *PRL = "Primärregelleistung" with Germany (D), Austria (A), Switzerland (CH) & Netherlands (NL)*

Weekly STAR & XB-FCR Cooperation
“R1XBGE” project

1. Context & Background
2. FCR-Tender Design Proposal
3. Key Design Issues
4. Next Steps

1. Context & background – R1XBGE

FCR-Tendering Anno 2015	STAR - BE - ELIA (Belgium - BE)	PRL – DACHNL* - GE-TSO's (Germany - GE) - TenneT (Netherlands - NL) - Swissgrid (Switzerland - CH) - APG (Austria - AU) 
FCR-demand	83MW	783MW = 578(GE) + 67(NL) + 71(CH) + 67(AU)
Tendering Frequency & Delivery Period	Monthly	Weekly
Bidding Platform	B2C	B2C (www.regelleistung.net)
XB-procurement	From France	With Netherlands/Switzerland/Austria
R1-products	R1-200mHz (standard) R1-100mHz, R1-up, R1-down	R1-200mHz (standard)
Combined procurement	Yes, with aFRR	No
Selection Algorithm	Total cost minimization (FCR + aFRR) Respecting LFC&R limits	Total cost minimization (FCR only) Merit order selection if decoupling GE/NL <-> AU/CH required Respecting LFC&R limits
Bidding characteristics	- Indivisible & divisible bids - Conditional – linking bids - Tariff periods (P/LOP/BASE) - Granularity (1MW & 0,01€/MW/h)	- Divisible bids (GE/NL) & indivisible bids (CH/AU) - Non-conditional linking bids (GE/NL) & conditional bids (CH/AU) - Tariff period (BASE) - Granularity (1MW & 0,01€/MW/h)

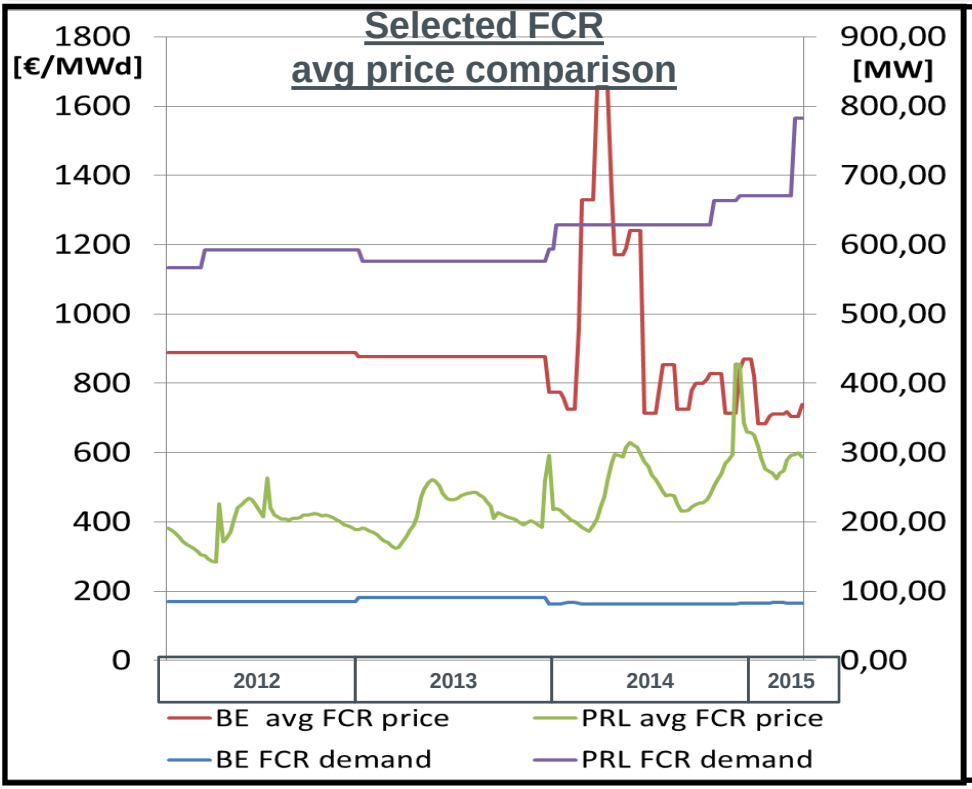
**PRL = "Primärregelleistung" with Germany (D), Austria (A), Switzerland (CH) & Netherlands (NL)*

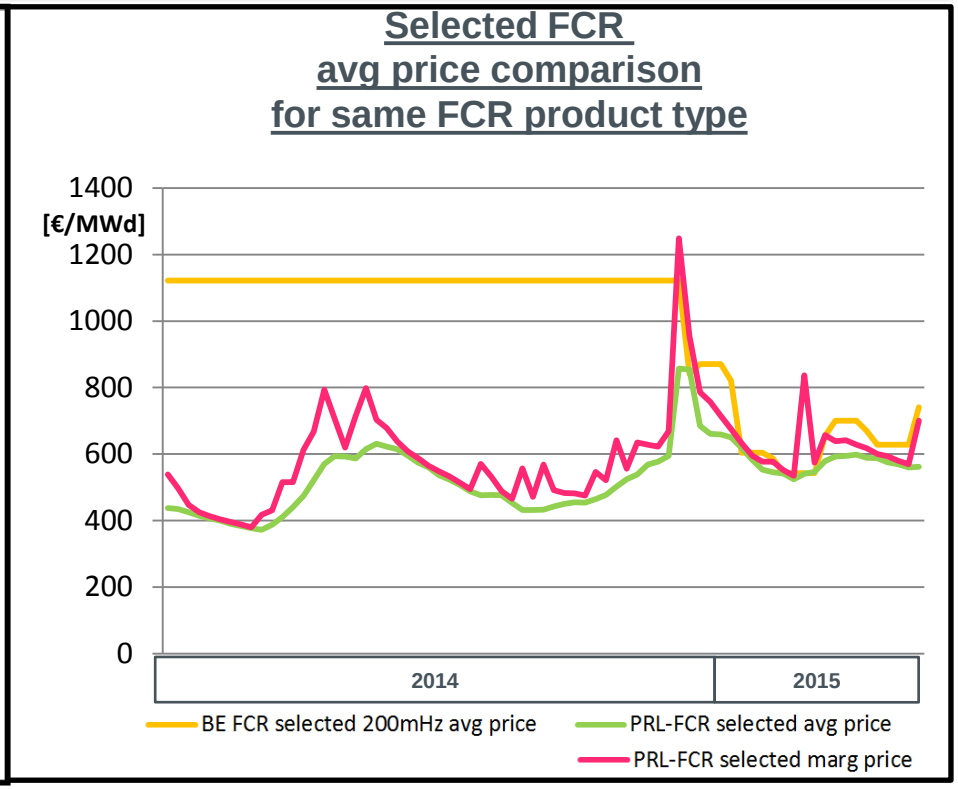
Substantial difference in market design – Belgian market driven by must run costs

1. Context & background – FCR Cooperation

- **Belgian FCR provided mainly by gas-fired powerplants**
  => hence **prices are clean spark spread (CSS) driven:**
  - ⇒ If CSS>0; FCR-prices in range of PRL DACHNL & potentially even lower
  - ⇒ If CSS<0; higher FCR-prices expected

- **PRL DACHNL common procurement on weekly basis:**
  - ⇒ Highly liquid & competitive market with stable low FCR-prices
  - ⇒ Large remaining potential of unused FCR-bids



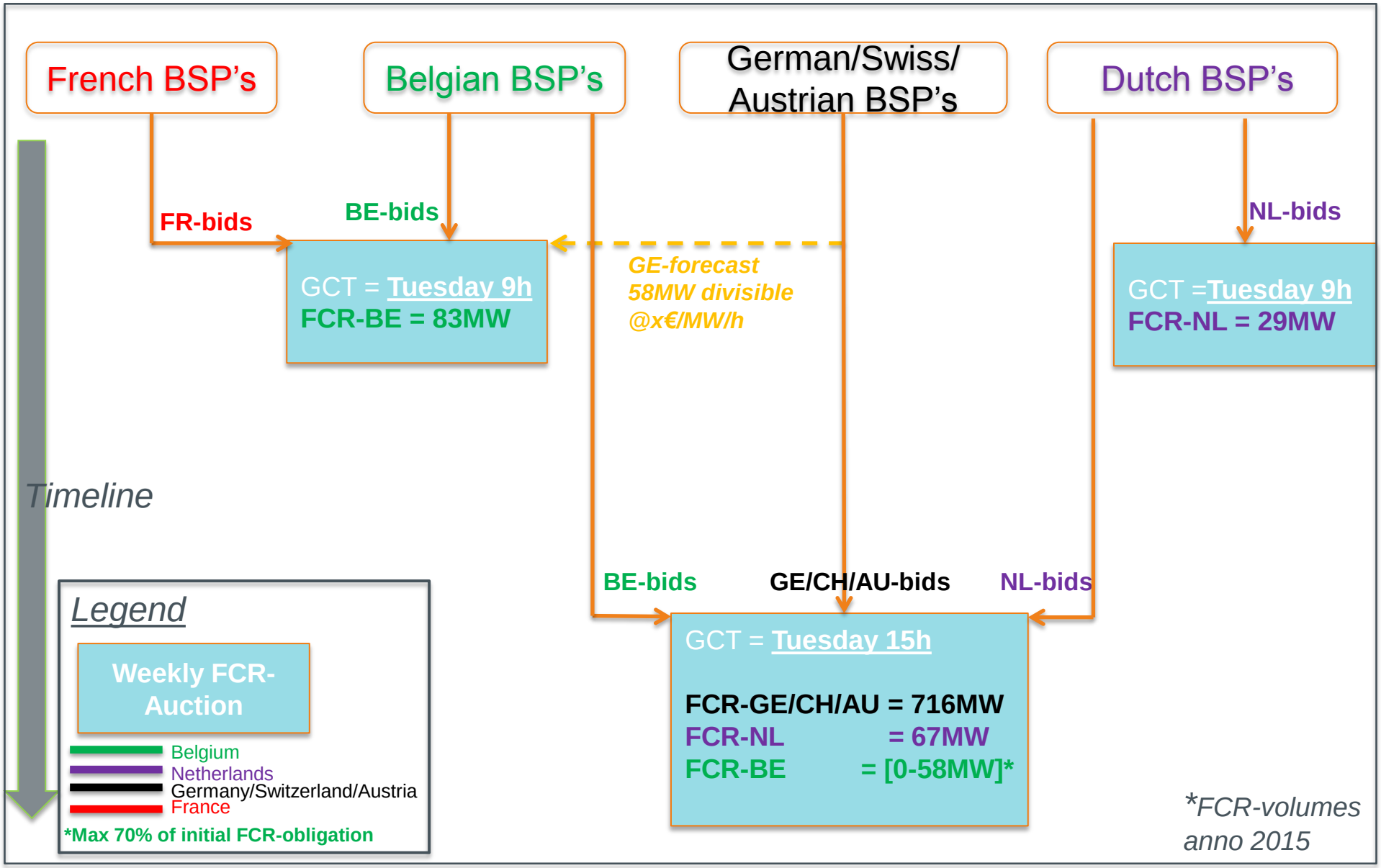


2. FCR Tender Design Proposal – R1XBGE

Motivation for FCR-cooperation:

- XB-FCR-cooperation allows to foster an **increase of overall competition & volume liquidity** so as to further reduce total procurement costs. The overall FCR-market size for both Belgian & PRL-DACHNL bidders will increase.
- Alignment can be obtained with **best practices in EU** since the future NC requires shorter term Rx procurement and an evolution towards 1 common auction for FCR in EU.
- In addition, FCR XB-cooperation is considered as **'low-hanging fruit'** when compared to other Rx-products and will allow learning effects for future short-term & XB procurement.
- **Pre-requisite = move from monthly to weekly procurement in Belgium**; per se, in line with gradual move to short-term (also initiated in Belgium); allows to further **lower overall risk premiums** paid in FCR-capacity prices & allows participation of **new & smaller market entrants** in Belgium.

2. FCR Tender Design Proposal – R1XBGE



2. FCR Tender Design Proposal – R1XBGE

(1) Short-term FCR-cooperation

- **Implementation of a partial merge with PRL-DACHNL common FCR-tender**, similarly as the a.o. the Netherlands, this implies:
  - Organization of a weekly local Belgian FCR-tender first (as-is STAR: with aFRR & local FCR not std products)
  - Participation to the PRL-DACHNL common auction afterwards, by increasing both the weekly FCR-demand- and supply by facilitating reciprocal access for Belgian bidders for the R1-standard product.

- The **weekly variable FCR-demand** increase @PRL-DACHNL will be an output of the first local tender & is hence dependent on the price-forecast used. This price forecast will be based on an ex-ante approved, intelligent & transparent price-formula – which remains to be determined.
  - Difference with NL-mechanism: exchange not always the maximum volume (70%) but sometimes less
  - Goal: avoid suboptimal situations for both markets (combinatorial auction/ total cost minimisation)
  - Result: **more cost-efficient overall outcome**

- This solution allows for a **quick win in terms of design & implementation**:
  - FCR-obligation will be exchanged in a TSO/TSO-model, with rules & contracts remaining between a BSP and its local connecting TSO. The FCR-standard product will be offered via BSP/TSO-model.
  - Local tendering processes remain as-is; initially FCR&aFRR remain procured combined in Belgian tender.
- The FCR-cooperation will be subject to:
  - **Full compliancy** with the EU NC's respecting the LFC&R limits
  - **Approval studies** from TSO-partners & NRA's as precondition for an official go/no-go

(2) Long-term FCR-cooperation

- Harmonization & creating full level playing field by moving to 1 common short-term procurement in a **full merge** via a joint platform.

3. Key Design Issues – R1XBGE

Main design contours are identified, however project implementation is subject to key issues illustrated here below:

- **Move from monthly to weekly procurement** – market & TSO feasibility assessment
  - Operational impact analysis on-going
  - Initial Belgian providers' consultation ► Belgian weekly liquidity risk identified
- **Facilitation of weekly variable FCR-demand** in PRL-DACHNL common auction.
  - Acceptability of variable volumes by all TSO's & NRA's
- **Timing weekly Belgian auction** - timely information on volumes to procure in common auction
  - BE-GCT required < W-2 Friday 12AM ► feasibility analysis on-going
- **Fallback & emergency scenarios** need to be described to guarantee successful FCR-tenders
  - For potential volume liquidity risks a.o.
- **Acceptability of current governance** for FCR-tender organization & potential evolutions
  - Quid if move to daily?
  - Quid change in auction rules?

4. Next Steps – R1XBGE

- **Feedback requested <28/10/2015 via pieterjan.marsboom@elia.be**

- **Request for providers to analyze & give feedback on the following specific points:**
  1. Pro's & con's for both weekly STAR as well as the XB procurement
  2. Listing of pricing & organisational impacts
     - Concrete (quantitative) impact by move to weekly on Belgian FCR & aFRR-prices
     - GCT-requirement for weekly Belgian STAR auction (Thursday/Friday in W-2)
  3. Estimation of required implementation time

- **Further timings are to be determined by Elia & communicated via next TF balancing based on:**
  - Further analysis of providers' consultation results
  - Progress in tackling remaining key design issues
  - Outcome of further alignment with TSO-partners & NRA's

Further developments in R1

ELIA is investigating the feasibility to develop **R1 asymmetric delivered from DSO-access points in 2016**.

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Bidding obligations

1. Basic principles
2. Timing

Bidding Obligations R1 & R2

Basic Principles

1. **Obligation 1 – Smallest offered volume:** The smallest offered volume should not exceed a maximum value
2. **Obligation 2 – Volume Granularity:** When sorting the Capacity Bids in terms of offered volume, the difference between 2 Capacity Bids can be maximum (maximum delta between 2 Capacity Bids):

Initial proposal

	Smalles volume / max step [MW]
R1 200mHz	13
R1 100mHz	6
R1 Down	6
R1 Load	6
R2	23

New proposal

	Smalles volume / max step [MW]
R1 200mHz	**14**
R1 100mHz	6
R1 Down	6
R1 Load	6
R2	**24**

Bidding Obligations R1 & R2

4 Obligations

1. **Obligation 1 – Smallest offered volume**
2. **Obligation 2 – Volume Granularity**

3. **Obligation 3 – Base offer available:** When offering both in Peak and Long Offpeak, the Supplier must submit a BASE Capacity Bid, for a volume that is at least minimum of the maximum volume offered in Peak and the maximum volume offered in Long Offpeak.

Bidding Obligations R1 & R2

4 Obligations

1. **Obligation 1 – Smallest offered volume**
2. **Obligation 2 – Volume Granularity**
3. **Obligation 3 – Base offer available:**

4. **Obligation 4 - Total cost check:** The total cost (unit price * volume) of the smallest volume that can be retained resulting from a Capacity Bid, should never exceed the total cost of the smallest volume that can be retained from a Capacity Bid with a larger offered volume.

Bidding Obligations R1 & R2

4 Obligations, only applicable to BASE offers

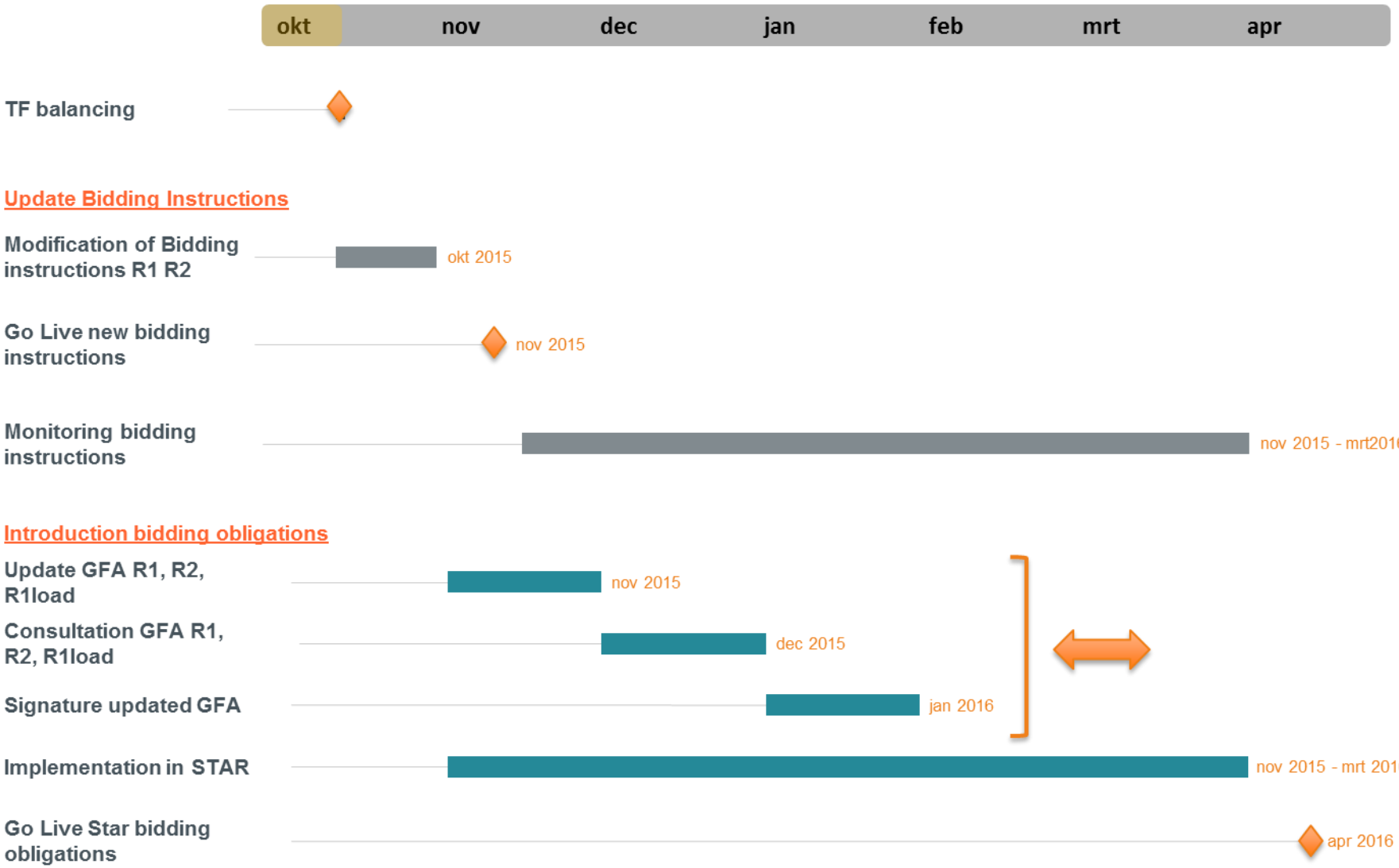
1. **Obligation 1 – Smallest offered volume can be maximum X MW**
2. **Obligation 2 – Volume increments: Increase offered volume by a maximum volume X MW**

3. **Obligation 3 – Base offer available**
4. **Obligation 4 - Total cost check**

- **Offers are divisible untill the next smaller offered volume at the same unit price**

  Only R1 Down and R1load

Timing


okt
nov
dec
jan
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mrt
apr
TF balancing
Update Bidding Instructions
Modification of Bidding instructions R1 R2
okt 2015
Go Live new bidding instructions
nov 2015
Monitoring bidding instructions
nov 2015 - mrt2016
Introduction bidding obligations
Update GFA R1, R2, R1load
nov 2015
Consultation GFA R1, R2, R1load
dec 2015
Signature updated GFA
jan 2016
Implementation in STAR
nov 2015 - mrt 2016
Go Live Star bidding obligations
apr 2016

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Delivery of secondary control (aFRR) by wind farms

TF Balancing 12/10/2015

Jan Voet

Envision the world on wind energy

Agenda

Introduction to aFRR- Wind technical pilot project

Ancillary services in Belgium

- Context
- aFRR product

aFRR provision by windfarms

- Concept & challenges
- Technical results
- Relevance of forecasting & market results

General conclusions

aFRR- Wind project: technical pilot project

Involved parties	Owner wind farm of Estinnes Manufacturer wind farm BRP R2 contract TSO
Scope of pilot project	• Check technical capability of wind farms to provide downward aFRR • Focus on downward regulation due to loss of green certificates • Perform a two month period test where wind farms participate in downward secondary control (aFRR-) at Elia
Wind farm of Estinnes	• Direct driven (variable speed) synchronous generator / full convertor • 10 x Enercon E-126: 7,5 MW • 1 x Enercon E-126: 6 MW

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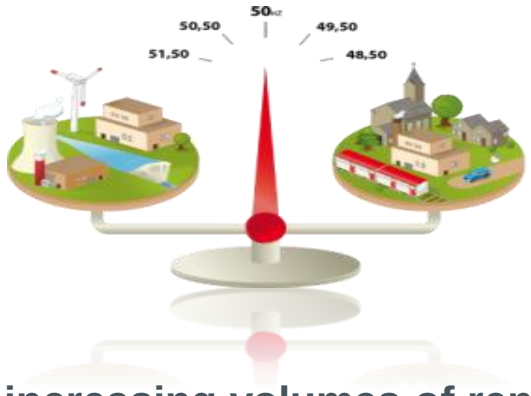
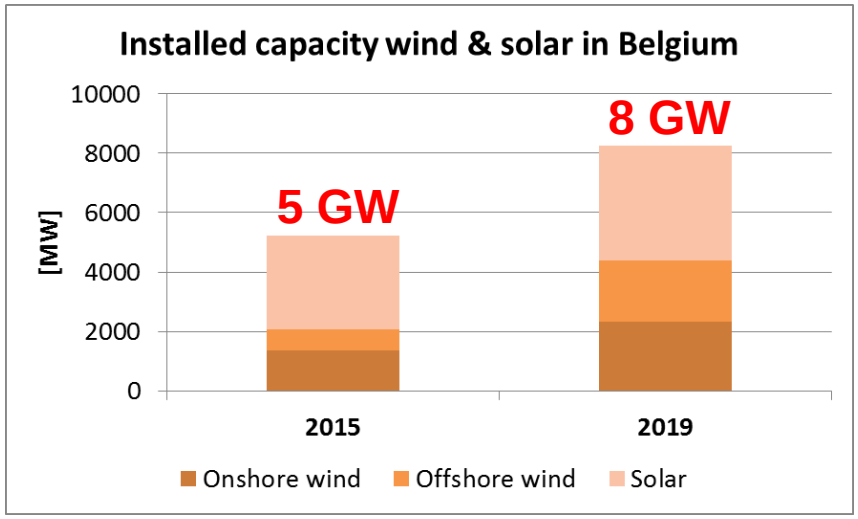
Ancillary services in Belgium: context (1)

Keeping the balance between generation and offtake



With increasing volumes of renewables in the grid



Large scale integration of intermittent renewables represents a balancing challenge…

… intermittent renewables CAN BE flexible and should be part of the solution

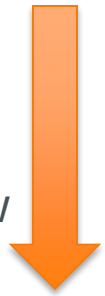
BE peakload:
13 – 14 GW

High share of non-flexible baseload

Ancillary services in Belgium: context (2)

TSO contracts reserve capacity for balancing its control area

Fast



Slow

- Primary reserves (Frequency Containment Reserves, FCR)
- Secondary Reserves (Automatic Frequency Containment Reserves, aFRR)
- Tertiary Reserves (Manual Frequency Restoration Reserves, mFRR)

In Belgium the contracting of aFRR capacity (spinning reserves) often leads **to start-up of gas units, that are out of the money**, to **deliver the service** to the TSO

- Situation leads to high “must run”-costs

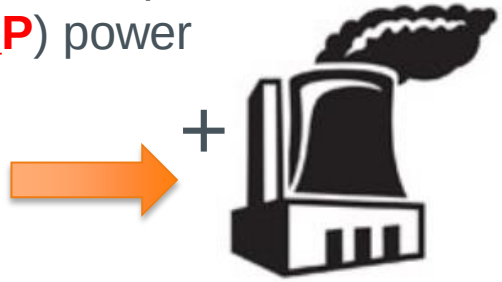
Hence diversification of aFRR resources should be considered:

- Biomass, cogeneration, demand side,…
- **Renewables: wind**, solar

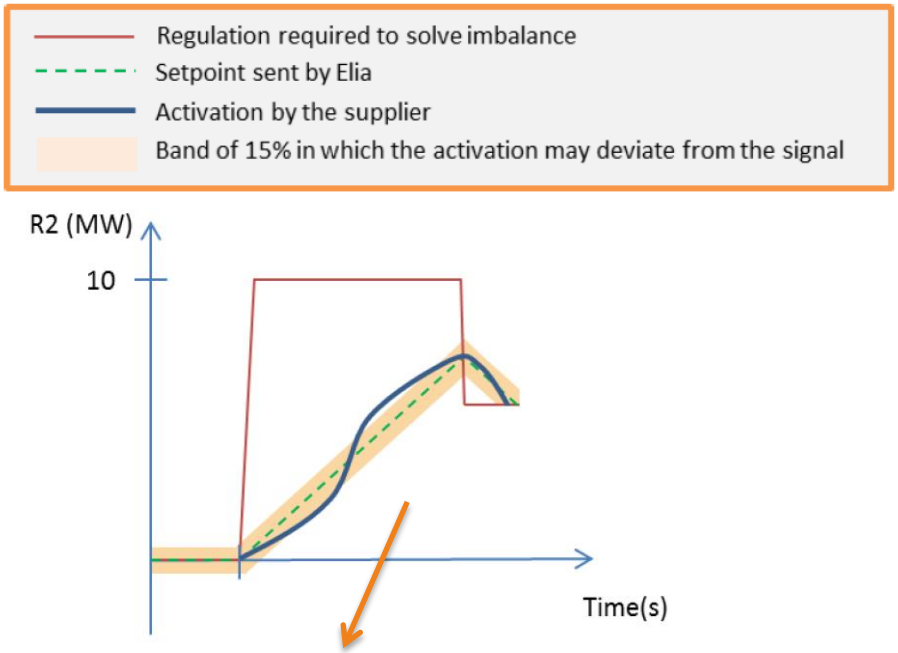
Ancillary services in Belgium: aFRR product

Pref power profile (defined by producer for own purposes)

Elia aFRR setpoint (**delta_P**) power profile



Required power output profile of the unit



- Providers must **deliver the Elia aFRR delta_P setpoint (power profile) on top of their Pref (for own purposes)**
- **Elia aFRR delta_P setpoint**
  - is sent every **4 sec**
  - respects a **full activation time of 7,5'**

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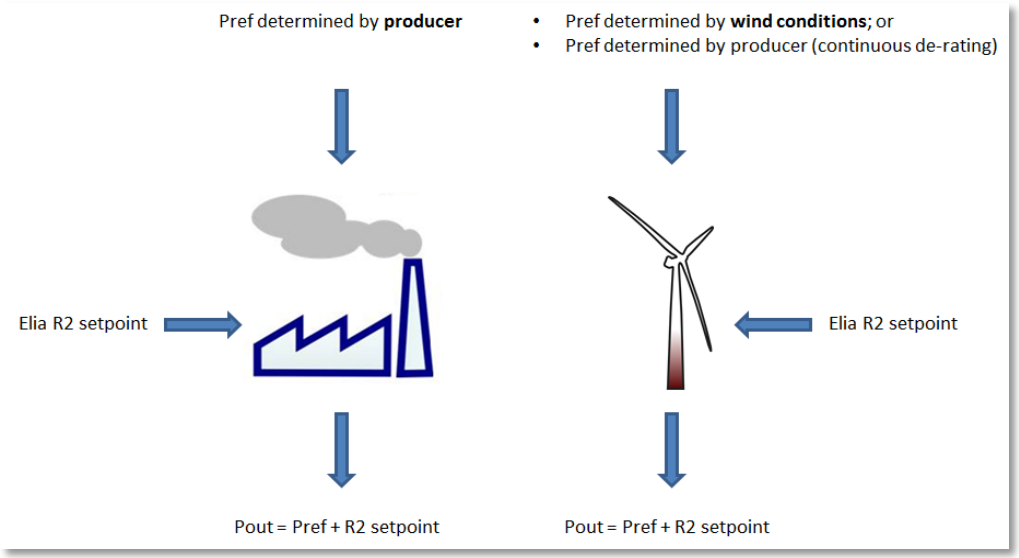
aFRR- delivery by wind: concept



Baselining: for a windfarm the Pref isn't known

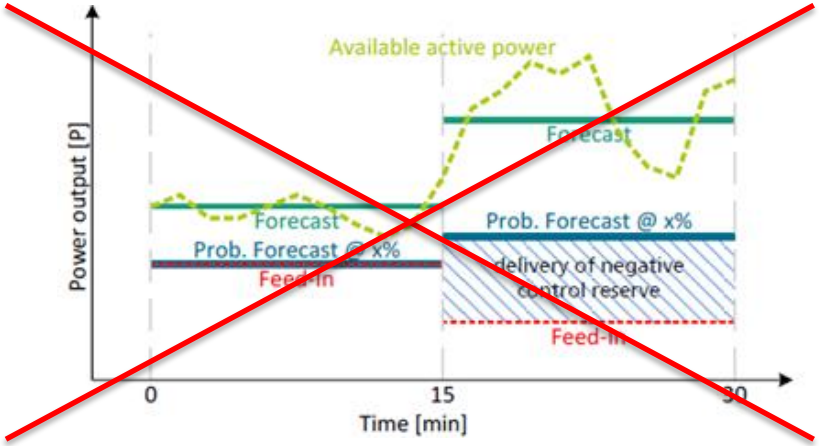
Balancing control mechanism:

- Continuous de-rating towards Pref (starting point for regulation) with high forecasting reliability

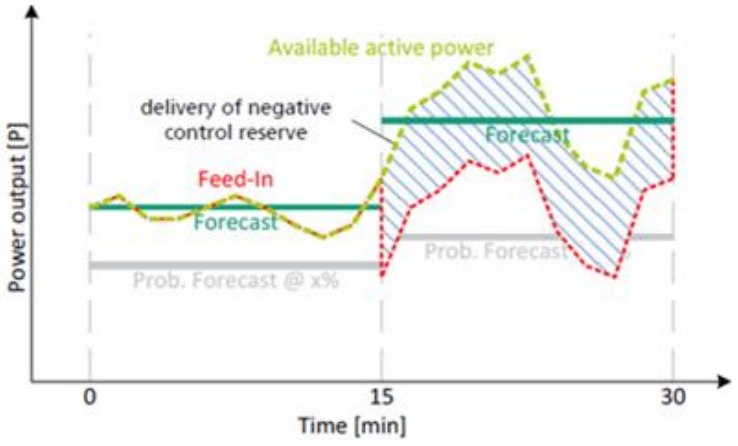
Active Available Power (AAP) mechanism:

- Calculation of the Pref on the basis of power infeed, pitching of the blades, windspeed; or physical model

Balancing control mechanism



AAP mechanism



Source: Jansen, M., Speckmann, M., "Wind turbine participation on control reserve markets", EWEA 2013, February 4-7 2013, Vienna, Austria

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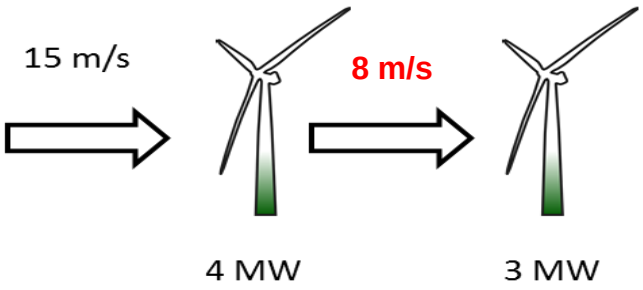
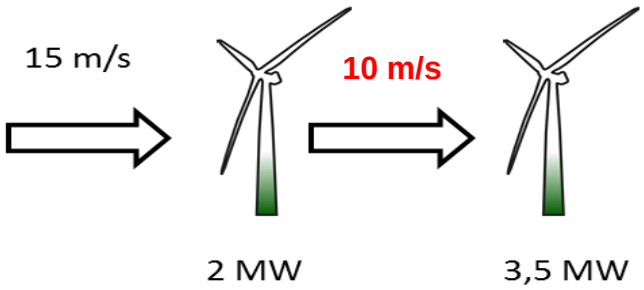
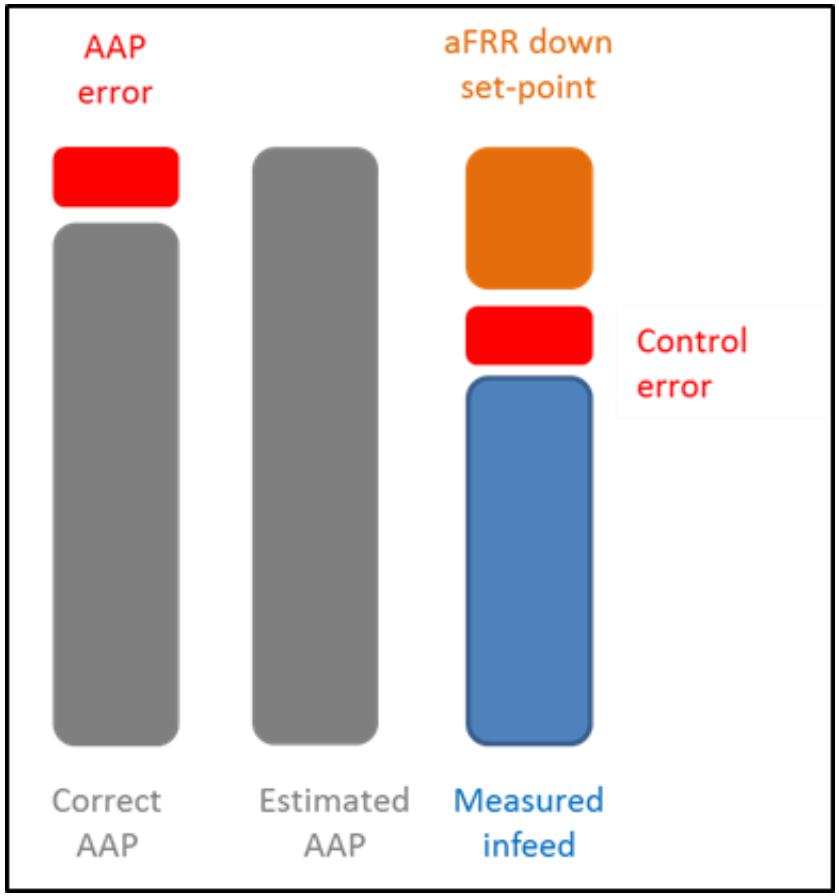
aFRR- delivery by wind: challenges

- ✓ **Loss of green certificates in case of downward curtailment**
- ✓ **Intermittency of wind production / reliability of R2 nominations**
- ✓ **Curtailment on specific windmill can impact (increase) production of other windmills in the park (windfarm effect)**

Non-curtailed conditions	Curtailment of 2 MW on first wind turbine
	

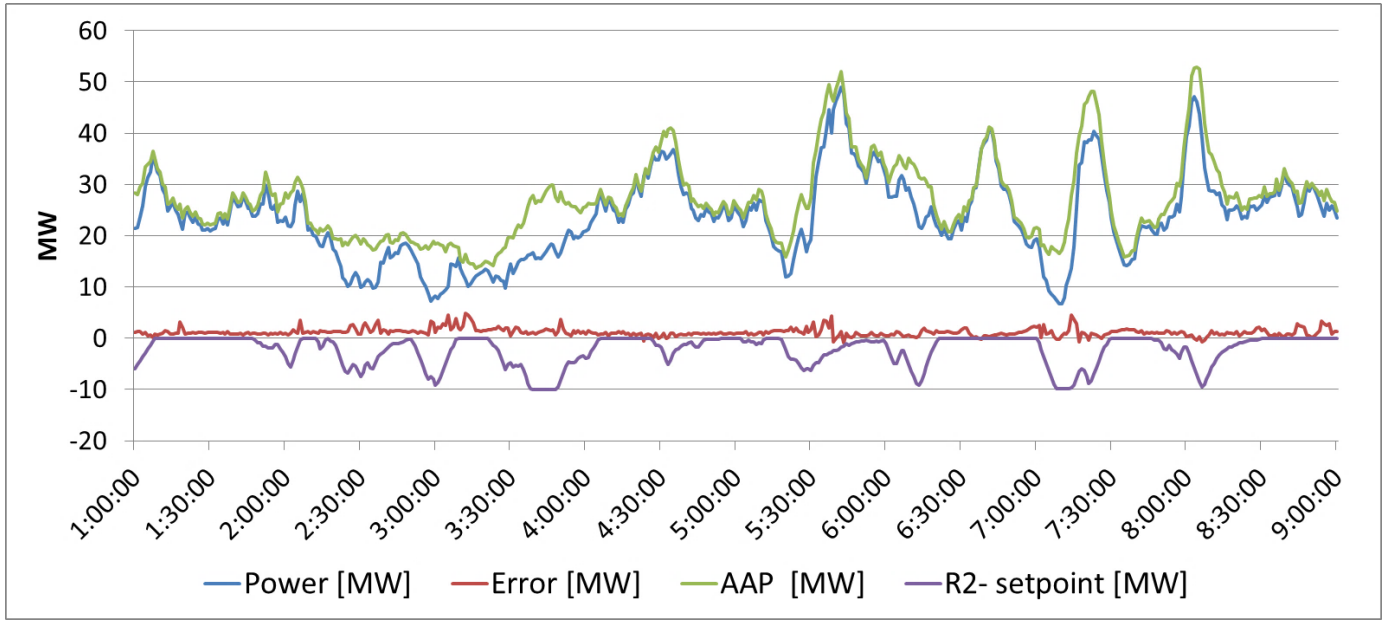
aFRR- delivery by wind: challenges



Quality of delivered service is determined by both the AAP error and the control error which are difficult to identify

Pilot project developed methodology to verify AAP quality under stable wind conditions in case of curtailment (wind farm effect)

aFRR- delivery by wind: technical results



AAP

Infeed

Error

Elia aFRR setpoint

Wind farms are highly flexible (low Pmin, high ramp rates,…) and can follow a set-point

- Promising performance of wind farm of Estinnes in providing aFRR- service to Elia

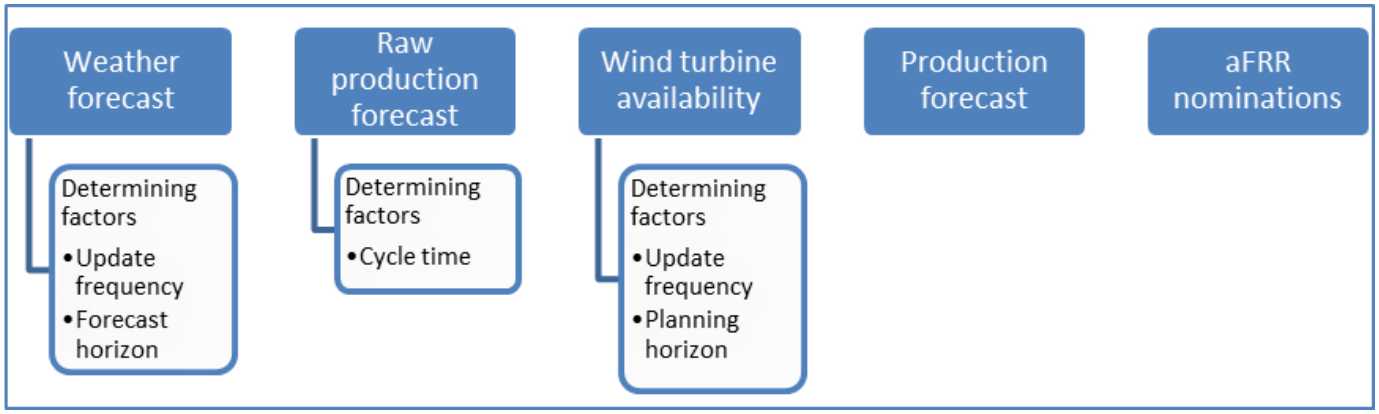
AAP quality, both under curtailed and non-curtailed conditions, is key:

- AAP is starting point for regulation; hence wrong estimation leads to incorrect delivery of the service. In general good performance during tests;
- Wind farm effect (overestimation of AAP during curtailment) to be avoided; and
- Some working points identified for AAP, but improvement towards future expected.

aFRR- delivery by wind: relevance of forecasting

TSOs require a reliable delivery of aFRR- service

- Ex-ante contracted aFRR- volume on a wind farm should be effectively available in RT



Production forecast

- Correction based on observed and expected inaccuracies (unstable clime conditions, unusual turbine behavior,…)
- Safety margin

Adjusted production

Nominated aFRR down capacity

Less reliable forecast at low production levels

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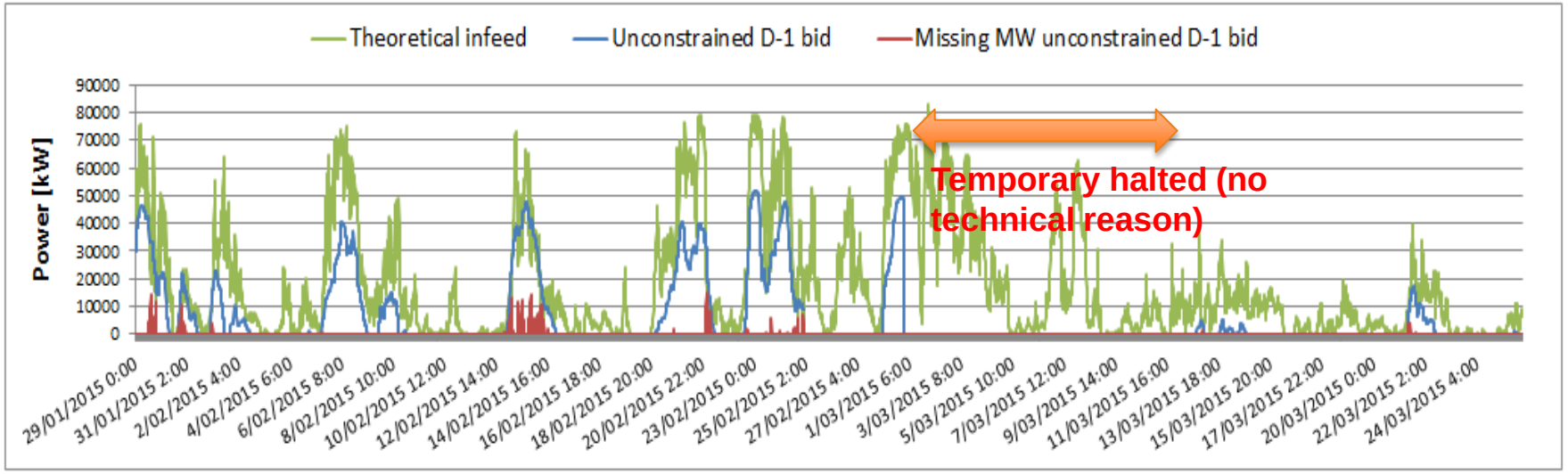
Relevance of forecasting & market results

- **High reliability of D-1 nominations: up to 99% reliable nominations for single windfarm**



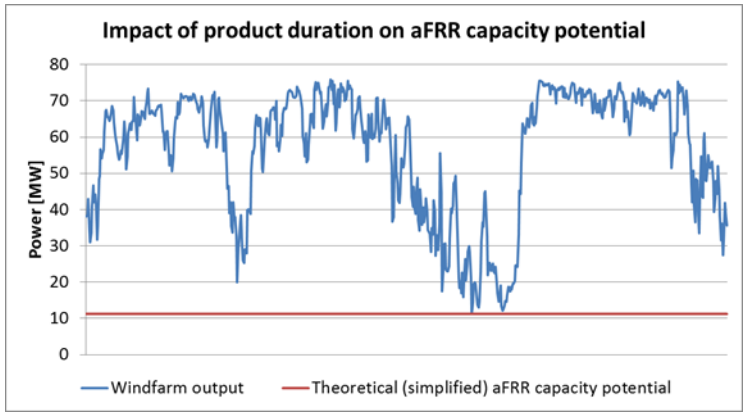
Bidding gate closure time & product resolution

Today in Belgium:

- Monthly procurement of aFRR capacity (obligation to submit aFRR energy bids in D-1)
- Product resolution: peak and long offpeak (incl. WE)
- GCT for aFRR energy bids: day-1 at 15h00

Pilot project shows that higher procurement cycle and lower product resolution would facilitate participation of wind in downward aFRR capacity market:

Weekly wind farm production



Potential of produced energy that could be offered as downward capacity (if perfect forecasting and no minimum power)

	Product duration / product resolution	Peak & long-off-peak	8h blocks	4h blocks
Onshore wind farm	Month	0%	1%	1%
	Week	4%	5%	8%
	Day	**34%**	**50%**	**65%**
BE aggregated offshore production	Month	1%	1%	1%
	Week	6%	7%	11%
	Day	**47%**	**65%**	**78%**

Different cost structure for wind farms to provide aFRR (1)

Cost structure for aFRR capacity	Conventional unit	Wind farm
Opportunity losses / costs for making units available	• Upward aFRR capacity: opportunity losses due to de-rating if unit is in the money • Upward / downward aFRR capacity: must run costs if unit is out of the money	• Upward aFRR capacity: loss of green certificates due to continuous de-rating, less energy sold to market • Downward aFRR capacity: no costs (no de-rating)
Other costs	Wear and tear, account for activation income, back-up costs,...	Wear and tear, account for activation income, back-up costs,...

- **Focus on downward aFRR capacity (loss of green certificates & sold energy to market) for delivery of upward mFRR capacity**
- **Energy based support scheme acts as barrier for participation of wind farms in aFRR- capacity**
  Loss of green certificates cannot (under current market conditions) be priced in in aFRR energy price.
  - Potential solution: merit order activation of aFRR without (or with more flexible) cap and floor on energy prices → impact of negative prices in aFRR (on imbalance price) to be investigated

Different cost structure for wind farms to provide aFRR (2)

Cost structure for activating aFRR balancing energy	Conventional unit	Wind farm
Downward aFRR regulation	In general cost reduction Fuel saving, reduction of CO2 emission,... Impact on plant efficiency Opportunity losses (e.g. less steam output for CHP unit,...)	In general cost increase Loss of green certificates No cost reduction due to fuel saving
Upward aFRR regulation	In general cost increase Increased fuel consumption, more CO2 emission,... Impact on plant efficiency Opportunity losses	In general cost reduction Recuperation of lost green certificates due to continuous de-rating No cost increase for fuel (wind is free)

- **Energy based support scheme acts as barrier for participation of wind farms in aFRR- capacity**
  Loss of green certificates cannot (under current market conditions) be priced in in aFRR energy price.
  - Potential solution: merit order activation of aFRR without (or with more flexible) cap and floor on energy prices → impact of negative prices in aFRR (on imbalance price) to be investigated

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Technical pilot project: general conclusions

Wind farms are highly flexible and can provide ancillaries to the grid

- High ramping / low minimum power / …

AAP method very promising to ensure efficient delivery of aFRR capacity by windfarms

- Pilot project elaborates some testing methods for AAP quality under curtailed and non-curtailed conditions

Pilot project identifies both technical and market aspects that need to be investigated further for provision of aFRR- capacity by windfarms

- How to handle loss of green certificates, transition to daily procurement of aFRR capacity, improvements for AAP calculation,…
- Project sets forward required technical aspects for future participation of wind farms in aFRR markets (nevertheless targets to be set in a next stage in broader consultation)

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Publications

Publication of auction results: new column

Total offered volume per reserve product is the sum of the maximal offered volume (base) of all suppliers.

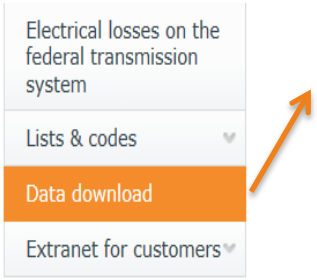
Tendering & Contracting Period	Delivery Period	Reserve Type	Reserve Product	Total Contracted Volume [MW]	Average Price [€/MW/h]	**Total Offered Volume [MW]**	Tariff Period [PEAK, L-OFFPEAK/ BASE]	Symmetry Type	Generation/ Load Type
January 2015	February 2015	R3	R3 Prod	xx	xx	**xx**	BASE	ASYM-UP	Generation
January 2015	February 2015		R3 DP	xx	xx	**xx**	BASE	ASYM-UP	Both

Publication of Frequency / R1 data

Data of the frequency and R1 will be downloadable on the website

- Data will be provided on a **10 second basis**
- Main objective is to enable **future providers of primary reserves** to elaborate a business case based on historical values
- Data will be uploaded by Elia each month (no real time publication foreseen)

Date/Time		Actual Frequency (Hz)	R1 contracté (MW)	R1 demandé (MW)
8/06/2015 0:00	00:00:00.000	50,018	85,000	-7,920
8/06/2015 0:00	00:00:10.000	50,080	85,000	-35,200
8/06/2015 0:00	00:00:20.000	50,100	85,000	-44,000
8/06/2015 0:00	00:00:30.000	50,120	85,000	-52,200
8/06/2015 0:00	00:00:40.000	50,150	85,000	-64,500
8/06/2015 0:00	00:00:50.000	50,200	85,000	-85,000

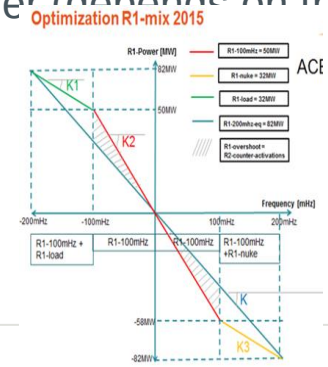


Sub-menu: Frequency / R1-data

- Additional information on the data will be provided on the website to help providers with the calculation of the frequency response to deliver (depends on the R1 product)

R1 demandé en MW pour 1 MW contracté des différents produits R1

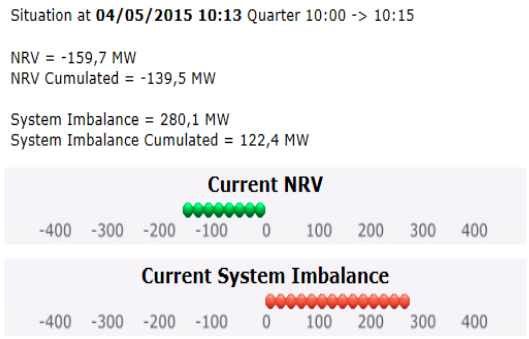
		Frequence Hz								
Contract MW	Produit	49,800	49,850	49,900	49,950	50,000	50,050	50,100	50,150	50,200
1,000	R1 symm 200mHz	1,000	0,750	0,500	0,250	0,000	-0,250	-0,500	-0,750	-1,000
1,000	R1 symm 100mHz	1,000	1,000	1,000	0,500	0,000	-0,500	-1,000	-1,000	-1,000
1,000	R1 upward	1,000	0,500	0,000	0,000	0,000	0,000	0,000	0,000	0,000
1,000	R1 downward	0,000	0,000	0,000	0,000	0,000	0,000	0,000	-0,500	-1,000



Minute publication of SI and NRV

Publication of SI and NRV data **in real-time** on minute-basis (within the quarter-hour).

- Main objective is to increase transparency and stimulate reactiv
- Additional publication to the current system imbalance
- **Table** with detailed information of each reserve (idem URC, usi
- **Graph** with aggregated information : NRV, SI, (aFRR+IGCC), (a
- Historical data of the last 30 minutes will be published
- Download of the data will be possible
- For now, only volumes will be published



	Upward regulation volume [MW]											Downward regulation volume [MW]				
					aFRR		mFRR						aFRR		mFRR	
	SI [MW]	NRV [MW]	SR [MW]	GUV [MW]	IGCC+ [MW]	R2+ [MW]	Bids+ [MW]	R3+ [MW]	R3DP [MW]	ICH [MW]	Inter-TSO Import [MW]	GDV [MW]	IGCC- [MW]	R2- [MW]	Bids- [MW]	Inter-TSO Export [MW]
00:00																

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Short Term Sourcing R3

As European trends is to move towards short term sourcing and this could increase liquidity in the balancing market, the **goal is to move to short term sourcing for balancing products in the next years.**

2016 R3 tendering → 770MW

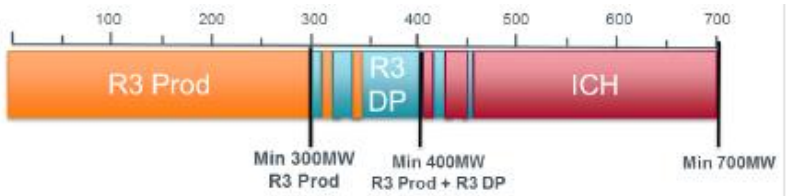
Volumes contracted in the **yearly tendering = 700MW**

- Minimum 300MW R3 Prod
- Minimum 400MW R3 Prod + DP (corresponding to max 300MW ICH)

Volumes contracted in the **monthly tendering = 70MW**

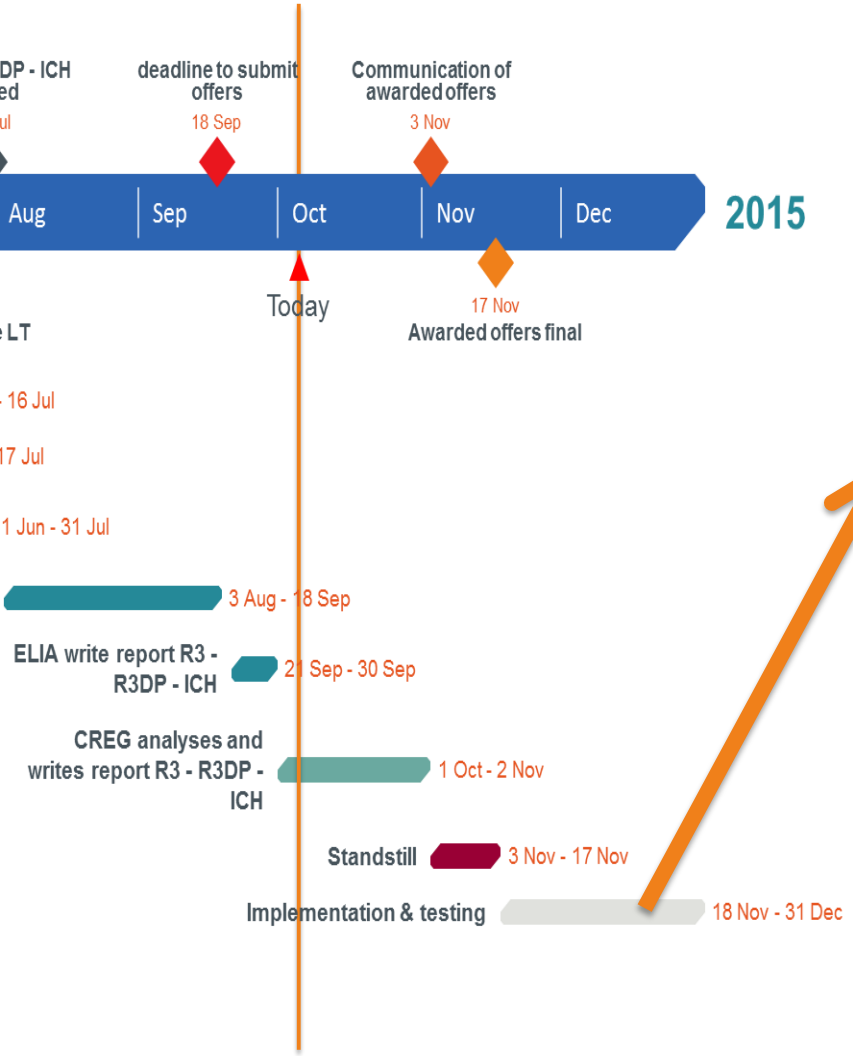
- **Full competition** between R3 Prod and R3 DP

No ICH monthly product



Next years evolutions will depend on experience feedback of monthly auctions, result of Dossier Volumes, etc. → To be discussed in TF Balancing early 2016

STS R3 Timeline



Training sessions STAR

Training session – "experienced STAR users" – 25/11/2016 – 13h00 till 15h00.

- Introduction
- Differences between R3 and R1/R2
- Bidding sheet assistance + Bidding obligations
- Questions & Answers

Training session – "new STAR users" – 26/11/2016 – 13h00 till 17h00.

- Introduction
- Bidding sheet assistance & instructions
- Bidding obligations
- User manual STAR
- Bidding game DEMO **(please take your computer with you)**
- Questions & Answers

Calendar

Auction calendar R1/R2/R3 already online

- Grid data – extranet – STAR
- Tendering organised the week of the 15th (with exceptions)
- R3 auction will take place after R1/R2 tendering on Thursday
- No secondary round for R3

New version of the '**auction rules, bidding instruction and manual**' will soon be published.

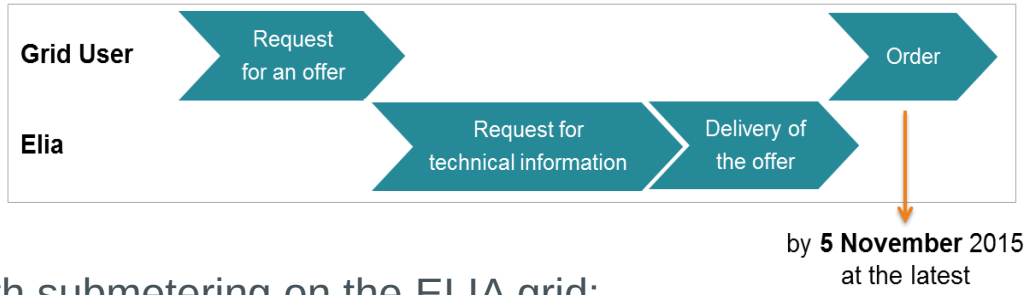
- Interesting reading in preparation of the trainings

Year 2016

Delivery Period	Reserve Type	Starts On	Ends On	Gate (1) Closing Time	Gate 2 Closing Time	Auction status
January 2016	R1 & R2	1/01/2016	31/01/2016	8/12/2015 14:00		
	R3	1/01/2016	31/01/2016	10/12/2015 14:00		
February 2016	R1 & R2	1/02/2016	29/02/2016	12/01/2016 14:00		
	R3	1/02/2016	29/02/2016	14/01/2016 14:00		
March 2016	R1 & R2	1/03/2016	31/03/2016	16/02/2016 14:00		
	R3	1/03/2016	31/03/2016	18/02/2016 14:00		
April 2016	R1 & R2	1/04/2016	30/04/2016	15/03/2016 14:00		
	R3	1/04/2016	30/04/2016	17/03/2016 14:00		
May 2016	R1 & R2	1/05/2016	31/05/2016	12/04/2016 14:00		
	R3	1/05/2016	31/05/2016	14/04/2016 14:00		
June 2016	R1 & R2	1/06/2016	30/06/2016	10/05/2016 14:00		
	R3	1/06/2016	30/06/2016	12/05/2016 14:00		
July 2016	R1 & R2	1/07/2016	31/07/2016	14/06/2016 14:00		
	R3	1/07/2016	31/07/2016	16/06/2016 14:00		
August 2016	R1 & R2	1/08/2016	31/08/2016	12/07/2016 14:00		
	R3	1/08/2016	31/08/2016	14/07/2016 14:00		
September 2016	R1 & R2	1/09/2016	30/09/2016	16/08/2016 14:00		
	R3	1/09/2016	30/09/2016	18/08/2016 14:00		
October 2016	R1 & R2	1/10/2016	31/10/2016	13/09/2016 14:00		
	R3	1/10/2016	31/10/2016	15/09/2016 14:00		
November	R1 & R2	1/11/2016	30/11/2016	11/10/2016		

Submetering

Applicable rules for GU participating in R3PD-submetering



If you have a Delivery Point with submetering on the ELIA grid:

1. Introduce an offer request. If not already done, you are invited to introduce your offer request(s) **without delay.**
2. Please provide the needed information to ELIA.
3. The personalized offer will be sent to you after reception of all the required technical information.
4. the order of the submetering option must be received by ELIA on **November the 5th at the latest**; ELIA will not be able to guarantee a delivery and commissioning of the equipment(s) before 1st January 2016 in case of ordering after 5 November 2015.

If you have a Delivery Point with submetering on the Distribution grid, we invite you to submit your offer request to the DSO concerned.

Activation of R3 DP

Clarification of the contractual provisions

Clarification needed of activation rules → mail will be sent to all providers

- R3 DP is a product with the **specific characteristics** : maximum 2hours activation, max number of activations 40/y or 8/m, 12 hours between two activations.
- However the dispatching need to have flexibility in the offered bids in order to enable a good management of the system balance.
- The volume of R3 DP will potentially increase in the future and from 2016 volumes will be **divisible for activation**

→ Elia could extend an activation if remaining within the 2 hours limit

→ Elia could change the activated volume within the activation

This will be considered as **one single activation** (yearly and monthly teller will decrease)

Note that the **IT tools** will not make the difference between the start of a new activation or the extension of an activation.

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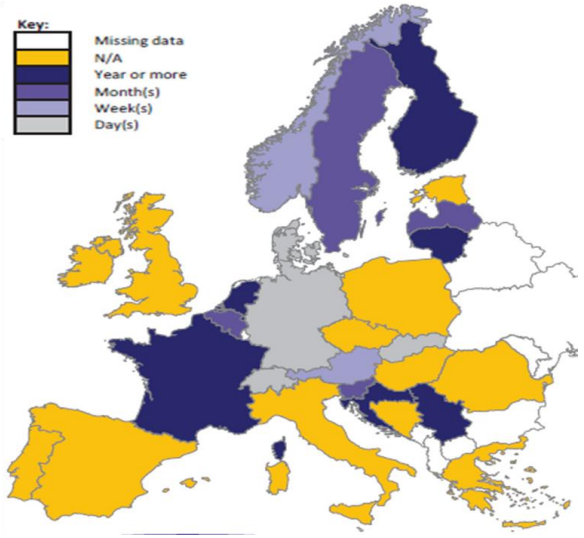
ICH Worshop

Challenges ahead …

EU integration and evolution toward Short term sourcing

- EU trend to STS → NC on balancing
- Evolution of R1/R2 & partial R3 prod/DP to monthly
- Objective to create more liquidity



Evolution of ICH product

Workshop with industrials and aggregators on product design (summer 2015).

Main conclusion of the ICH workshops

- Product characteristics (SLA 2-4-8) + availability: The current product characteristics (average availability and drop to) will be maintained. However a review is needed when transiting to STS.
- Activation price: Discussion on the possibility to have a free activation price (standing order).
- Short term sourcing: Multiple proposals (yearly, monthly, even daily).
- ICH with DSO and submetering: Discussion linked to the ToE-debate.
- 3 minutes ramping: Relaxing the obligation of the 3 min ramping period is proposed by market parties but the impact on quality for the system is important.

ICH proposed product design

ICH currently designed as a yearly product

- Small number of activation (4 or 12 per year)
- Availability requirement on yearly basis to take into account seasonal/monthly/weekly trends

A review of the product design is needed to enable monthly sourcing of ICH

- Note that volumes to be procured on yearly or monthly basis will be discussed in the future taskforces. This will depend on volumes to be procured in 2017 and of the experience feedback of short term sourcing of R3 products (split yearly and monthly will be defined in the **Balancing Rules**).
- Tendering period should be identical to other R3 products to allow level playing field: all R3 products aligned in sourcing cycle.

Allowing ICH to participate in the monthly tendering will increase liquidity

- Feedback from workshop : multiple proposals (yearly, monthly, even daily)
- Points providing Strat Res could offer ICH during the summer
- Additional liquidity on monthly basis due to better forecasting close to real time

ICH proposed product design - activations

For monthly tendering design: change only the number of activations per month

- SLA2: activation duration 2h & ***[new]*** max 4 activations/month & 24h between activation & total duration 8h
- SLA4: activation duration 4h & ***[new]*** max 2 activations/month & 24h between activation & total duration 8h
- SLA8: activation duration 8h & ***[new]*** max 2 activations/month & 24h between activation & total duration 16h

➢ Based on historical assessment of ICH activations, a **minimum of 2 activations/month** is required

	Max duration	Nbr of activation	Duration between activations	Tot duration
A2	2h	12/year	24	24h
A2m	2h	4/month	24	96h
A4	4h	4/year	24	16h
A4m	4h	2/month	24	96h
A8	8h	4/year	24	32h
A8m	8h	2/month	24	192h

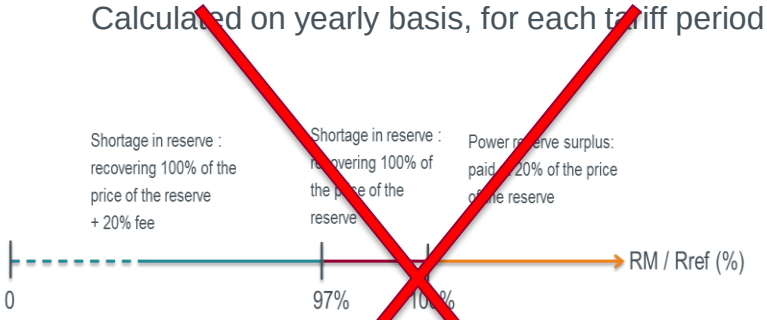
ICH proposed product design - availability

→ Change the availability requirements in order to enable monthly sourcing.

AS IS: only yearly

Availability remuneration: based on average availability

1. Final counting: Comparison of « Average Power Available RM » and « Reference Power Rref ». Calculated on yearly basis, for each tariff period.



2. Exceptional counting. Calculated on monthly basis.

i. (RM - Rref) < 20% Rref : deviation reimbursed at 120%

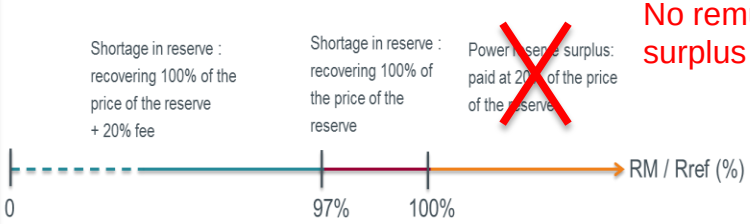
Unavailability limit per occurrence to 8hrs and accumulated unavailability to 87hrs

Availability remuneration: based on average availability

TO BE yearly + monthly

1. Final counting: Comparison of « Average Power Available RM » and « Reference Power Rref ». Calculated on **monthly basis**, for each tariff period and for the **total volume** **(yearly + monthly)**.

No remuneration of surplus availability



2. No exceptional counting needed (as calculation on monthly basis).

Unavailability limit per occurrence to 8hrs per month (corresponding to 96hrs per year)

ICH proposed product design - pool

Assuming yearly and monthly tendering will take place, use the pool principle (identical to R3 DP product):

- The access points are considered as part of **one pool**
- The volume can vary each month depending on the monthly tendering results. The volume to be available and activated is considered as **one total volume** = yearly volume + monthly volume
- The availability and activation control apply on the total volume and be calculated on all points
- The activation is done on the total volume (yearly + monthly) and the number of remaining activations (yearly and monthly) decreases
- Penalty formula for activations :

$$\left(\frac{Yearly\ remuneration}{2*N\_act\_yearly} + \frac{Monthly\ remuneration}{2*N\_act\_monthly}\right) * missing\ MW\ [\%]$$

ICH proposed product design - pool

One shedding limit for the pool (site 1+2)

→ **Additional change to enable pooling effect (alignment with R3 DP)**

Current formula base on one Shedding Limit

	Site1			Site2			Combo Site 1 + 2		
	Pref	SL	Rref	Pref	SL	Rref	Pref	SL	Rref
Qh1	3	25	0	40	25	15	43	45	0
Qh2	50	25	25	40	25	15	90	45	45
Qh3	3	25	0	40	25	15	43	45	0
Avg			25/3 = 8			45/3 = 15			45/3 = 15

New proposal with **Shedding Limits per delivery points**

	Site1			Site2			Combo Site 1 + 2		
	Pref	SL	Rref	Pref	SL	Rref	Rref 1	Rref 2	Rref
Qh1	3	25	0	40	25	15	0	15	15
Qh2	50	25	25	40	25	15	25	15	40
Qh3	3	25	0	40	25	15	0	15	15
Avg			25/3 = 8			45/3 = 15			70/3 = 23

SL per site

No Shedding limit for the pool
Sum of all Rref

Notes:

- In this example the new proposal is better for the supplier but this will not always be the case
- There will be no impact for suppliers with one delivery point !

ICH proposed product design – other changes

Proposal to change the activation price to free price

- Current formula: max [€ 75,00 ; 108% Belpex]
- Feedback workshop : industrial clients and aggregators favourable to a **free activation price** to better reflects the activation costs
- In line with European development. According to the NC on Balancing ‘price of bids shall not be predetermined within a contract’
- Free prices would also allows for right incentives in imbalance prices

Process to define free price

- Standing order price per tariff period (not per Qh)
- Modalities to be further discussed

ICH proposed product design – other changes

Activation time

- Current activation time is 3 minutes. This is one of the major characteristics of this product.
- Most of industrials are able to fulfill this requirement.
- This ensure a good quality for the system, especially when outages of nuclear units occurs.

➢ **Proposal to keep 3 minute ramping**

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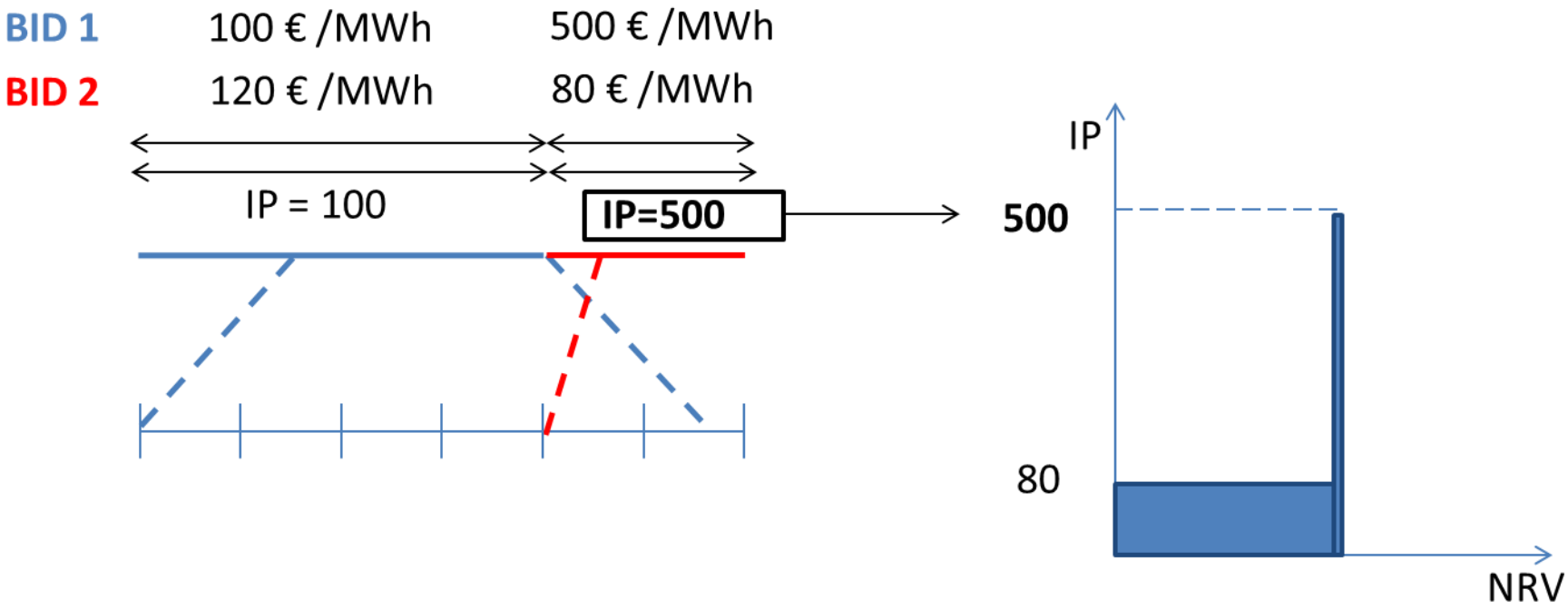
Problem definition



- I bid for BID 1 is **no longer requested but still has an influence on IP** causing too high Incremental Price if price of BID 1 is the marginal price
- This may induce an **artificial price spike in the imbalance prices**. Those imbalance prices will not reflect the selected bids of the quarter j and therefore could create a distorted market signal.

Proposals

In order to mitigate above risk, ELIA proposes, for manually activated bids with adjustment tail only, to no longer consider the price of the activated energy of the quarter hour(s) during which the adjustment tail occurs but to consider

1. the bidprice of the activated energy of the **quarter hour preceding the adjustment tail**.

Other proposals raised during consultation from 14/9 to 28/9:

2. Use **minimum of bidprices of current and previous qh**

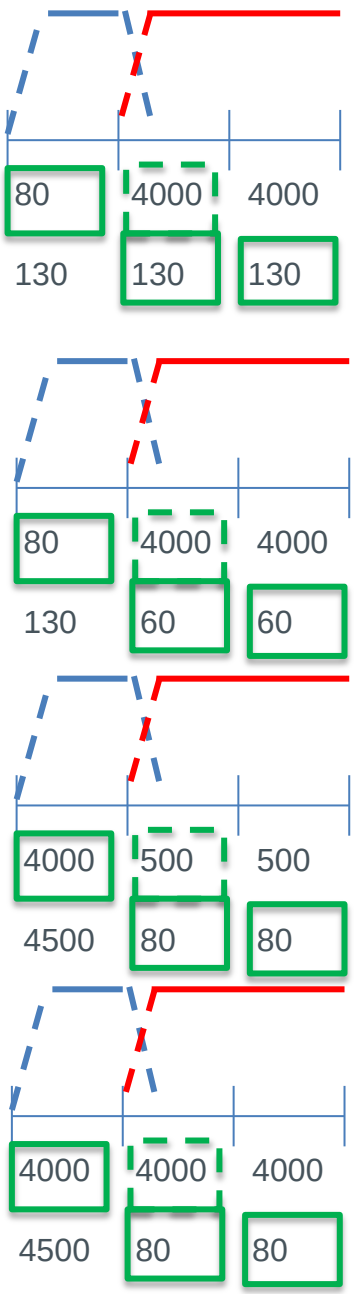
3. **Not to take the bidprice of tail into account**:

   → the price of the tail as such is simply not any longer taken into account for the calculation of the imbalance price;

   → the volume of the tail continues to be taken into account for the calculation of the NRV.

Proposals

	Today	Last price – proposed solution	Min (last & current price)	Tail not valued
A	80 – 4000 – 130 4000 does not give correct signal	80 – 130 – 130	80 – 130 – 130	80 –130 – 130
	80 – 4000 – 60 4000 does not give correct signal	80 – 80 - 60	80 – 60 - 60	80 – 60 - 60
B	4000 – 500 - 80	4000 – 4000 – 80 High price but selected in previous Qh	4000 – 500 – 80 Price lower but quid - Transparency (not published price) - Consistency with case A1 (minimum) - Not in EU direction	4000-80-80
	4000 – 4000 - 80	4000 – 4000 – 80	4000 – 4000 - 80	4000-80-80



Many thanks for your attention!

ELIA SYSTEM OPERATOR
Boulevard de l'Empereur 20
1000 Brussels

+32 2 546 70 11
info@ elia.be

www.elia.be
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