



Workshop on System Services from Wind power

France Energie Eolienne

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“Provision of frequency response services by wind”

A study by Pöyry for France Energie Eolienne

- Objectives of the study:
 - Identify & assess the barriers to (future) participation of Wind energy to frequency balancing services
 - Technical barriers?
 - Economic barriers?
 - Regulatory barriers?
 - Submit recommendations to ease wind energy contribution to the different balancing mechanisms:
 - Frequency Containment Reserve (FCR – Primary Reserve)
 - automatic Frequency Restoration Reserve (aFRR – Secondary reserve)
 - manual Frequency Restoration Reserve (mFRR – Tertiary reserve & balancing mechanism)
 - Replacement Reserve (RR – Tertiary reserve & balancing mechanism)
 - A large panel of participants
 - Several workshops with members of FEE (producers, turbines manufacturers, aggregators) during 6 months
 - Questions have been addressed via forms to different market players
 - RTE (TSO) and ENEDIS (DSO) have been met as well



State of play of French rules for frequency response services

As of June 2018

IN FRANCE, PROCUREMENT AND OBLIGATION TIMESCALES ARE AN ISSUE, AS IS SYMMETRY OF RESPONSE REQUIREMENTS

	FCR	aFRR	mFRR	RR
Procurement lead-time	<p>-</p> <ul style="list-style-type: none"> Week ahead 	<p>✓</p> <ul style="list-style-type: none"> Days (running notification) / hours (adjustments to running schedules) 	<p>✗</p> <ul style="list-style-type: none"> Annual contracting round but contracted periods can be split Offers in BM procured days / hours ahead 	<p>✗</p>
Length of commitment	<p>-</p> <ul style="list-style-type: none"> Week long 	<p>?</p> <ul style="list-style-type: none"> Min of 30 mins based on submitted running programme 	<p>✗</p> <ul style="list-style-type: none"> Year (although ability to split by month and WDWE periods), 30 mins for BM 	<p>✗</p> <ul style="list-style-type: none"> Year (although ability to split by month and WDWE periods), 30 mins for BM
Size	<p>✓</p> <ul style="list-style-type: none"> 1MW 	<p>✓</p> <ul style="list-style-type: none"> 1MW 	<p>-</p> <ul style="list-style-type: none"> 10MW 1MW in BM 	<p>-</p> <ul style="list-style-type: none"> 10MW 1MW in BM
Symmetry	<p>✗</p> <ul style="list-style-type: none"> Symmetry of standard product* 	<p>✗</p> <ul style="list-style-type: none"> Symmetry of standard product* 	<p>✗</p> <ul style="list-style-type: none"> Upward only** Non-symmetry for non contracted BM offers 	<p>✗</p> <ul style="list-style-type: none"> Upward only** Non-symmetry for non contracted BM offers

* Asymmetry possible on secondary market for FCR and aFRR but highly illiquid













** Secondary market available to re-trade contracted commitments



“Wind friendly” reserve arrangements: best practices in Europe

As of June 2018

ARRANGEMENTS ELSEWHERE ARE BETTER SUITED FOR RES,
PROVIDING INSIGHTS FOR CONSIDERATION IN FRANCE

	FCR	aFRR	mFRR
Procurement lead-time	 <ul style="list-style-type: none"> D-1 auction 	 <ul style="list-style-type: none"> D-1 auction 	 <ul style="list-style-type: none"> D-1 auction
Length of commitment	 <ul style="list-style-type: none"> 4 hour blocks 	 <ul style="list-style-type: none"> 4 hour blocks 	 <ul style="list-style-type: none"> Ranging from 1 hour to 8 hour blocks across countries
Size	 <ul style="list-style-type: none"> Ranging from 0.3MW to 1 MW across countries 	 <ul style="list-style-type: none"> 1MW 	 <ul style="list-style-type: none"> Ranging from 1MW to 5MW across countries
Symmetry	 <ul style="list-style-type: none"> Separate upward and downward products or mixture of symmetric / asymmetric 	 <ul style="list-style-type: none"> Separate upward and downward products 	 <ul style="list-style-type: none"> Separate upward and downward products

Benchmark has been made among the following countries:

- Belgium
- Denmark
- Germany
- Ireland
- Great Britain



Cross-border initiatives should reduce some barriers

As of June 2018

BUT SOME BARRIERS LINKED TO TIMESCALES ARE BEING REDUCED BY CROSS BORDER INITIATIVES

	FCR	aFRR (PICASSO)	mFRR (MARI)	RR (TERRE)
Procurement lead-time	✓ • 8am D-1 better than current	✓ • Gate Closure of <=60mins before real time (uncontracted)	✓ • <=30 minutes	✓ • Gate Closure of 55-60mins before real time
Length of commitment	✓ • 4 hour products more workable	✓ • Validity Period of 15 mins or max 1 hour	? • Validity Period to be considered in next phase*	✓ • Defined by BSP within 15-60min
Size	✓ • 1MW	✓ • 1MW	✓ • 1MW	✓ • 1MW
Symmetry	✗ • Symmetry of standard product (but views to be sought in future)	✗ • Symmetry of standard product	✗ • Upward only	✓ • Non-symmetry via Balancing Mechanism (TERRE is symmetric)

* Minimum provision is for 5 mins but not maximum duration agreed to date



Barriers can be removed in changing market & regulatory rules

MODIFYING PRODUCT CHARACTERISTICS AND PROCUREMENT ARE A MUST TO REDUCE BARRIERS. IMPROVING INTERACTION WITH RES SUPPORT WOULD ALSO HELP EARLY PARTICIPATION

1

Allow separate upward and downward products

1. Allowing asymmetric products will increase and diversify the pool of providers available to TSOs to secure reserve requirements, facilitating security of supply and more efficient procurement of services
2. Reduces reliance on illiquid secondary market and de facto need for aggregation (improved transparency and liquidity of secondary market also helpful)

2

Make capacity procurement as close to real time as possible (day-ahead or preferably later)

1. Day (hour)-ahead wind forecasts are accurate enough for producers to commit to frequency reserve service provision (when wind conditions are favourable)
2. Shorter procurement timescales increase the pool of potential resource from which TSOs can undertake efficient procurement

3

Shorten duration commitment

1. Shorter block (1, 2, 4, 6 hour) commitments will increase compatibility with wind (and more generally intermittent renewables) generation patterns
2. Shorter commitment periods increase the pool of potential resource from which TSOs can undertake efficient procurement

4

Explore accommodation of frequency service provision in RES support¹

1. Address participation constraints (regulatory, economic) linked to RES support
2. Allow for remuneration of TSO instructed reserve provision through adjusting basis for market premium payment (avoids opportunity cost bidding)
3. Ensuring RES (like other technologies) is no worse off if providing reserve

MARKET RULES

REGULATORY RULE

In case of a downward participation in France, the market premium is lost for RES under support scheme → Opportunity Cost !

1. This issue is common, with support arrangements not taking account of impacts of reserve provision on basis for support payment.



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END OF PRESENTATION

THANK YOU FOR YOUR ATTENTION!

QUESTIONS?