

APG Report on Balancing 2017/2018

(According to Guideline on Electricity Balancing, Article 60)

a. Specific Products according to Art. 26

There were no specific products available, procured or used in the control area of APG.

b. Analysis of Dimensioning of Reserve Capacity (2018)

General approach: Dimensioning of control reserves is based on 15 min average values of the LFC block imbalance (according to Article 3, SO GL) . The calculation analyses the LFC block imbalance values for the period of 12 months and checks, if these imbalances were covered by the dimensioned FRR for at least 99 % of the time and if the FRCE ranges in accordance with Article 128 (SO GL) were met. In case of non-fulfillment or in case any substantial changes in the general boundary conditions are to be expected, the dimensioning of the FRR will be adjusted accordingly. In addition to the statistical approach, the tripping of the largest power plant and the tripping of largest load within the LFC block APG are taken into account as reference incident and therefore as minimum amount of FRR. In the following table the results of the latest analysis (ACE data 01.08.2017-01.08.2018) are depicted. For the sake of completeness it was also checked to what extent aFRR was able to cover the occurred imbalances.

	dimensioning FRR [MW]		covering 99% of imbalances		covering outage of largest unit
	positive	negative	positive	negative	
aFRR only	200	-200	✗ (88,55)	✗ (90,14)	n/a
Total FRR dimensioning 2017	480	-370	✓ (99,32)	✗ (98,60)	✓
optimal dimensioning without coverage of outage of largest generation unit	447	-395	✓ (99,01)	✓ (99,00)	✗
optimal dimensioning including coverage of outage of largest generation unit	480	-395	✓ (99,32)	✓ (99,00)	✓

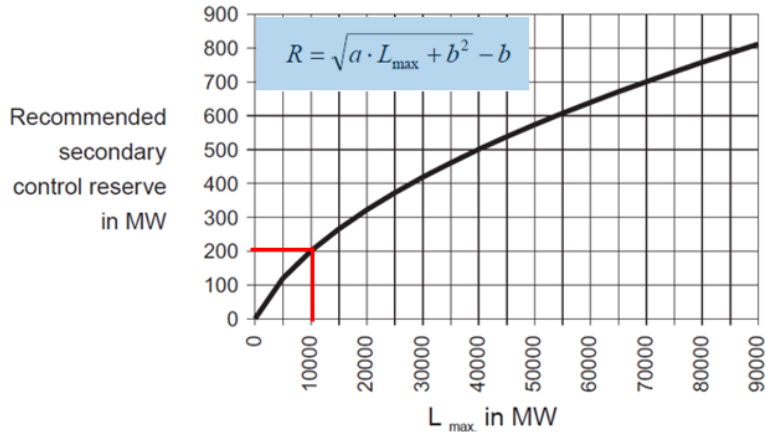
Conclusion for the current dimensioning:

product	positive	negative
aFRR	200	-200
mFRR	280	-195
Total FRR	480	-395

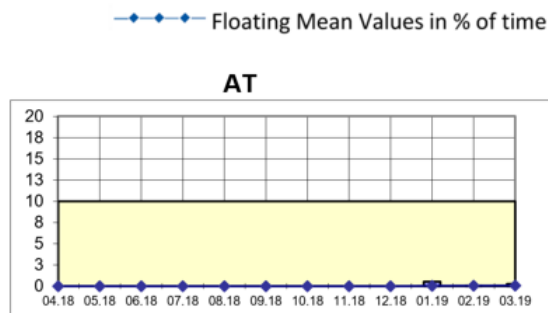
Apart from FRR the amount of FCR to be procured by APG is determined by the agreed process within RGCE (see also SAFA, Policy LFCR). Thus, dimensioning of FCR is not an issue for APG.

c. Analysis of optimal Provision of Reserve Capacity

To determine the optimal separation of FRR in aFRR and mFRR APG uses the recommended empiric approach in SAFA, Policy LFCR (“aFRR minimum amount recommendation”) based on a reference load of 10.000 MW.



Since the dimensioning of aFRR cannot take into account fluctuating maximum load values the reference load was determined to be slightly below the yearly maximum, which should be a good compromise. Experience has shown sufficient performance of imbalance compensation. This can be seen e.g. on the distribution of ACE values on 15min basis for a reference quarterly period against the target (Q1/2019, Representation of Annual Trend of ACE; Sigma 90 on a 15 minute basis; the value of 10(%) should not be exceeded)



d. Cost/Benefit Analysis of specific products
Not applicable (see a.)

e. Opportunities for Exchange / Sharing of Reserves
FCR capacity and aFRR energy are already exchanged within security limits and with reference to the defined minimum amount of reserves, which has to be kept within the LFC-block. The existing co-operations in 2017 and 2018 encompassed therefore mutual FCR cooperation and aFRR optimization of activation (with DE) including imbalance netting. Experience shows that efficiency of procurement has significantly improved by combining the markets involved. But it has also turned out that due to transmission capacity aspects and rarely but nevertheless occurring simultaneous exhaustion of reserves of co-operation partners reduction of common reserves by reserve sharing is too risky. Starting with beginning of 2020 also mFRR optimisation of activation with DE will start (MARI project). This cooperation will be the first XB mFRR optimisation in RGCE. Furthermore XB procurement of aFRR capacity within another cooperation with DE is envisaged to start in February 2020 with corresponding reservation of transmission capacity for ensuring possibility of XB activation of the procured share of aFRR

f. Procurement without Exchange /Sharing of Reserves
APG already performs exchange of balancing capacity for FCR and balancing energy for aFRR. In fact, XB procurement and activation is very complicated and requires massive efforts for implementation. XB procurement of aFRR/mFRR capacity and activation optimisation of aFRR/mFRR was not implemented in Europe in 2017/2018 at all except between AT and DE. Thus, the TSOs of AT and DE were the first ones which implemented respective co-operations.

Sharing of reserves has not been envisaged since experience has shown that that risk of running out of reserves is too high.

- g. Analysis on Efficiency of the Activation
Not yet applicable, as neither AOF according to EBGL Art. 19 – 21 were operational during 2017 / 2018.