

# Nordic Balancing Market

7 Dec 2016, Martin Møller

# Nordic Power Market - Denmark, Sweden, Norway & Finland

## 4 Countries – 12 price zones

### Day-a-head



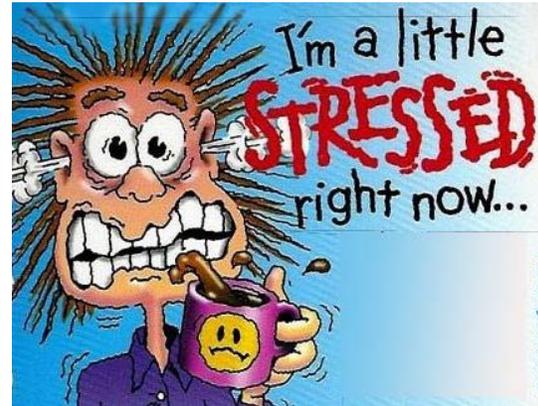
GCT: 12-36 hours  
 Sold Volume 2015:  
 355.000 GWh (98%)

### Intraday

2.19	+5.04	+3.01	9	98.17	76	55.69	516.00	24	17.05	17.05	17.05
4.18	-1.35	-4.57	45	12.08	11	298.17	125.95	39	12.29	98.92	98.92
3.04	-7.02	-3.72	87	86.53	6	432.16	12.08	102	58.79	58.79	58.79
7.32	+9.03	+3.96	114	13.19	3	175.95	86.53	98	13.19	387.32	387.32
8.54	+14.28	+2.54	98	18.76	2	58.92	13.19	104	158.32	158.32	158.32
2.09	-11.32	-2.13	86	98.65	8	34.18	98.79	15	140.15	140.15	140.15
1.76	+9.45	+1.96	15	8.43	15	458.04	5.07	27	8.19	25.68	25.68
5.68	+8.35	+3.32	24	3.76	19	387.32	32.87	78	3.76	188.18	188.18
3.92	+6.29	+1.03	39	65.12	7	673.54	47.95	21	65.12	382.01	382.01
2.18	-13.84	-3.45	54	17.6	3	552.09	13.29	105	17.6	188.18	188.18
			63	15.31	2	401.76	45.96	89	15.31	188.18	188.18
					9	215.68		68	5.07	382.01	382.01

GCT: 60 min  
 Sold Volume 2015:  
 4.000 GWh (1%)

### Balancing Market

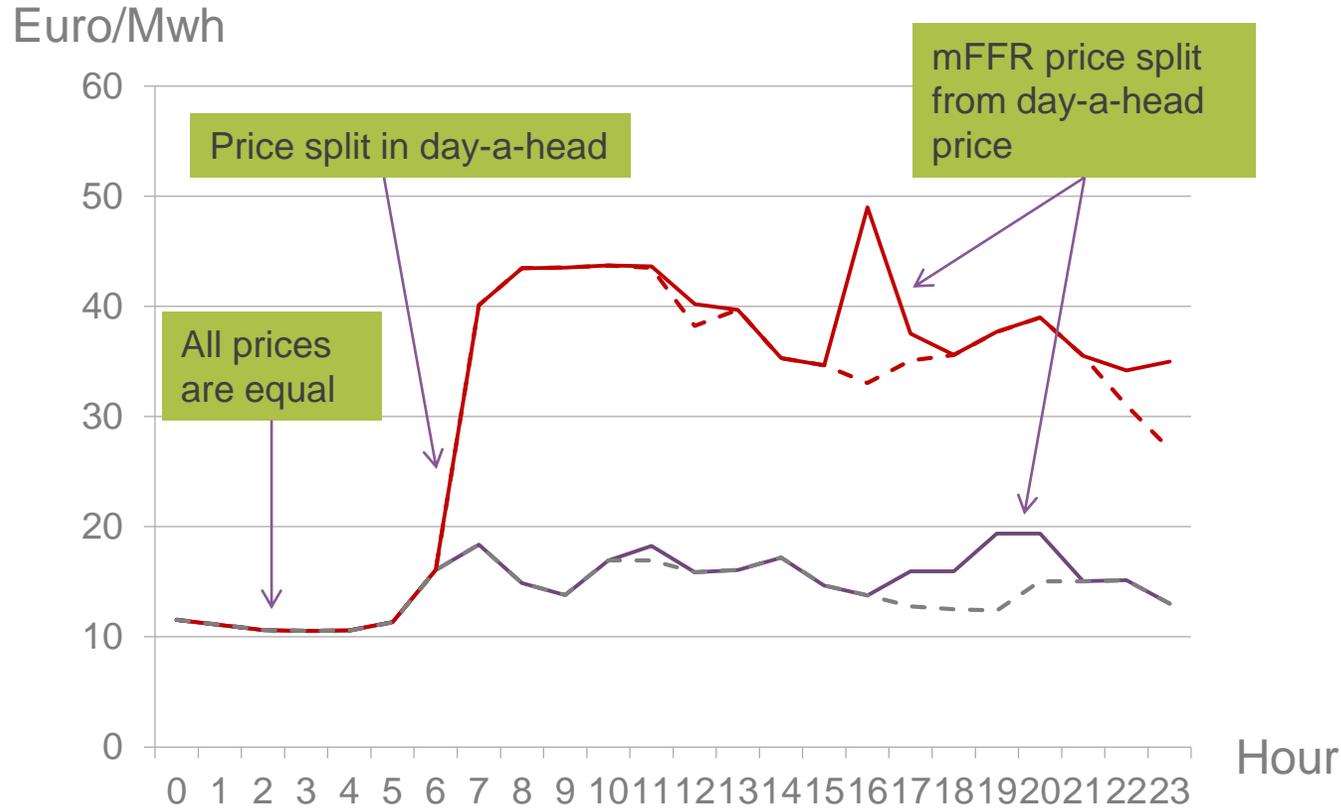


GCT: 45 min  
 Activated Volume 2015\*:  
 3.600 GWh (1%)



Note: \*The volume is the total activated volumes from both mFRR, aFRR and FCR-N. The GCT of 45 min only applies for mFRR

# The Nordic Balancing Market is based on cross zonal marginal pricing – price split in case of congestions



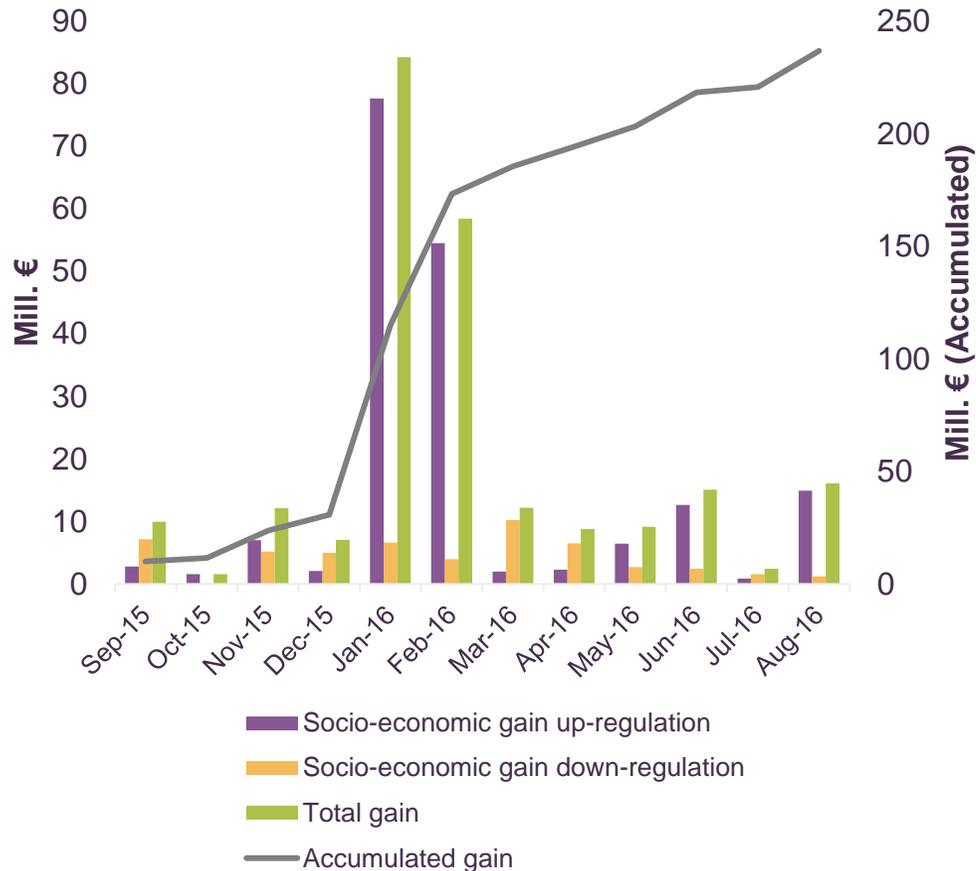
- NO2 (FRR-M) Up
- DK1 (FRR-M) Up
- - - DK1 (spot)
- - - NO (spot)

Example on how mFRR prices can change when an area gets congested

# Nordic experience with cross border marginal pricing for mFRR

- Introduced in 2003 – before pricing was based on ad-hoc bilateral agreements between TSO's
- Significant increase in cross border trade when the cross border marginal pricing was introduced
- Fair to all BSP's – No complaints in 13 years on this issue
- No incentive for TSO's to shoot first – one price per ISP

# Economical benefits from a Nordic mFRR CMOL are large



# Key principles for an efficient mFRR balancing energy market

- **No discrimination - all shall be allowed to participate with voluntary bids**
- **Easy to submit bids and possible to update price close to real-time (respecting TSO and platform needs)**
- **Price shall always be attractive for all BSP's (cross border marginal pricing)**
- **Consequence for not delivering according to requested is in general the imbalance price**
- **Imbalance price shall in general not be artificially increased significant higher than the balancing energy price (else BSP/BRP's may withhold unnecessary flexibility to protect themselves for imbalances)**

# The Pilot – 5 was refocused in December 2015 – but is now refocusing again

In Dec. 2015 the Pilot project 5 decided to refocus on the creation of a Nordic mFRR CoBA and on the CoBA-CoBA exchange principles.

- Drafting a dedicated mFRR CoBA agreement between DK, FI, NO and SE, and ensuring equal treatment of connections to and from all external Nordic borders
- Towards Germany, focus was on developing CoBA-CoBA exchange models. Difficult to establish a market for exchange of balancing energy, as voluntary balancing bids is still not allowed in Germany
- Towards Baltic, focus is on developing CoBA-CoBA exchange models as a first step, and merging of Nordic and Baltic CoBA as a possible next step
- Towards Poland, No ongoing actions



The project is however now re-focusing again, and is taking part in the discussions of creating a European mFRR reference Project as the CoBA's has been cancelled

# The RPM pilot – 5 is very active in the discussions for creating a European mFRR reference project



- The Nordic would like to join the boat, and take part in a mFRR project that can become the EU mFRR reference project.
- The RPM-Pilot would be happy to provide the learnings obtained from more than 10 years of experience for operating a mFRR energy platform across 4 countries.
- Hence the focus for the RPM Pilot-5 Project is now dedicated to a EU wide mFRR market and not on a Nordic CoBA

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