

direct marketing: technical and operational challenges

Fördermechanismen für Windenergie:
Standortbestimmung und Perspektiven

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Agenda

1. **Introducing CLENS / innowatioGroup**
2. **Technical view**
3. **Operational view**
4. **Conclusion**

INTRODUCTION

Power Supply, Direct Marketing, Flexibility, Efficiency and Digitalization

We are one of the leading suppliers and service providers for customers and decentral power plants in Europe

- Portfolio management: In 2016 over **11,6 TWh delivered power & gas** for industrial, commercial, public customers and wholesale as **2.800 MW renewable energy** and **combined heat and power plants (CHP)** under management
- One of the leading **virtual power plants** for flexible management of decentral generation, consumption and storage
- Our **24/7 trading & operations cockpit** provides
 - **Market access** to all important trading centers in Europe
 - 24/7 trading desk and control room
 - Analysis, prognosis, modelling
- **Energy Management**: Investments in **energy efficiency** and **flexibility** in the context of **contracting projects**
- **Data-Driven-Services**: Web-based monitoring and analysis of energy data and dynamic energy management
- Over **250 qualified employees** at our locations in Bergamo, Leipzig, Frankfurt and Buenos Aires in **1.500 Million EUR turnover** in 2016



500 MW of steady plants and 2.300 MW Wind-/PV-Systems in our Pool



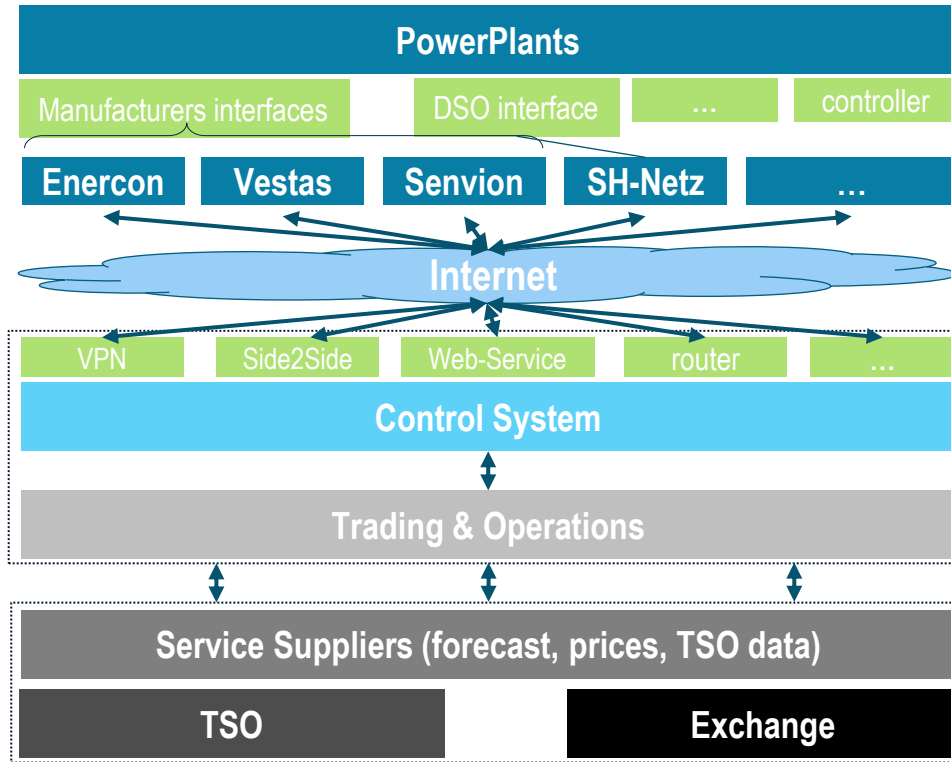
The Trading & Operations Cockpit in Leipzig runs 24/7



TECHNICAL VIEW

To ensure a high dynamic marketing of fluctuating producers visibility and controlability is mandatory

- live-data is needed
 - to improve forecast continuously
 - to react dynamically on deviations to forecast
- reactions can be intraday-trading activity / limiting turbines or PV-moduls
- day-ahead bidding process with limitation of negative prices
- shut down of plants in case of extreme negative auction results



field

sub-level

direct marketer

market / grid

OPERATIONAL VIEW 1/2

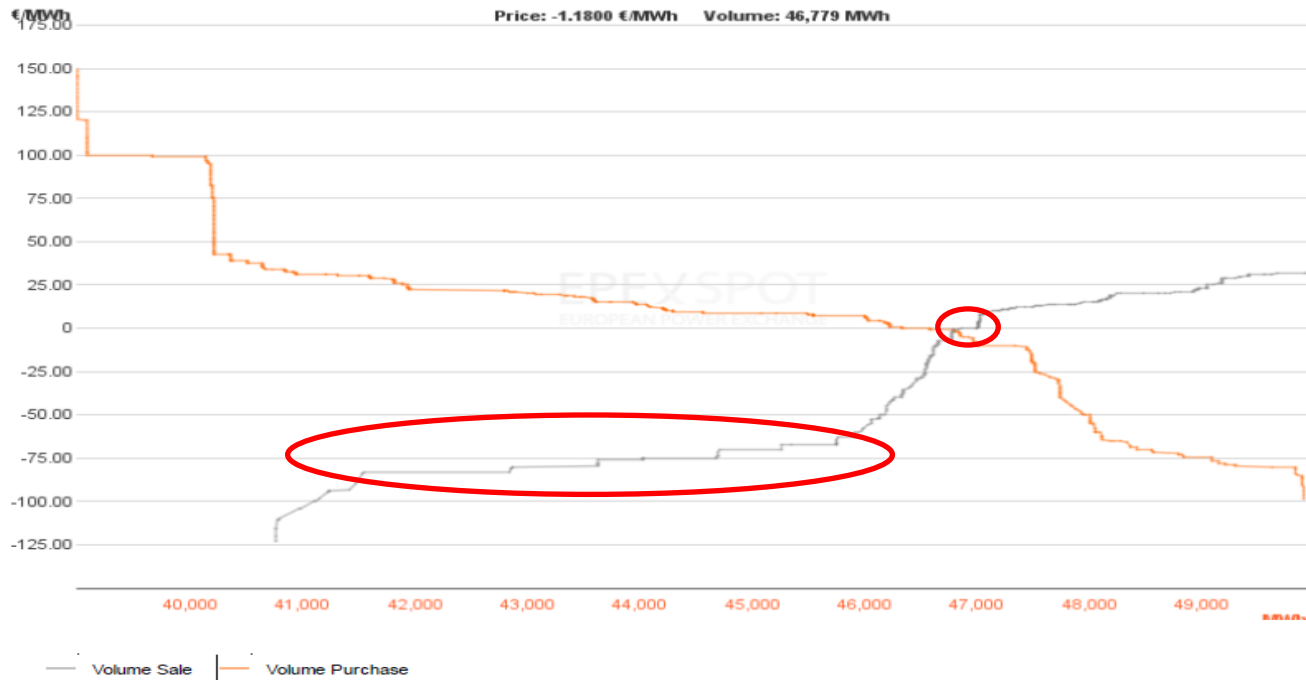
Legal framework motivates marketer to limit production in case of (strong) negative prices

- depends on
 - feed in tariff
 - EEG-regime
- price plateaus DA auction around
 - ~ -70 €/MWh
 - ~ 0 €/MWh
- relevant figure to identify §51 cases is the hourly contract day-ahead market (EPEX60)

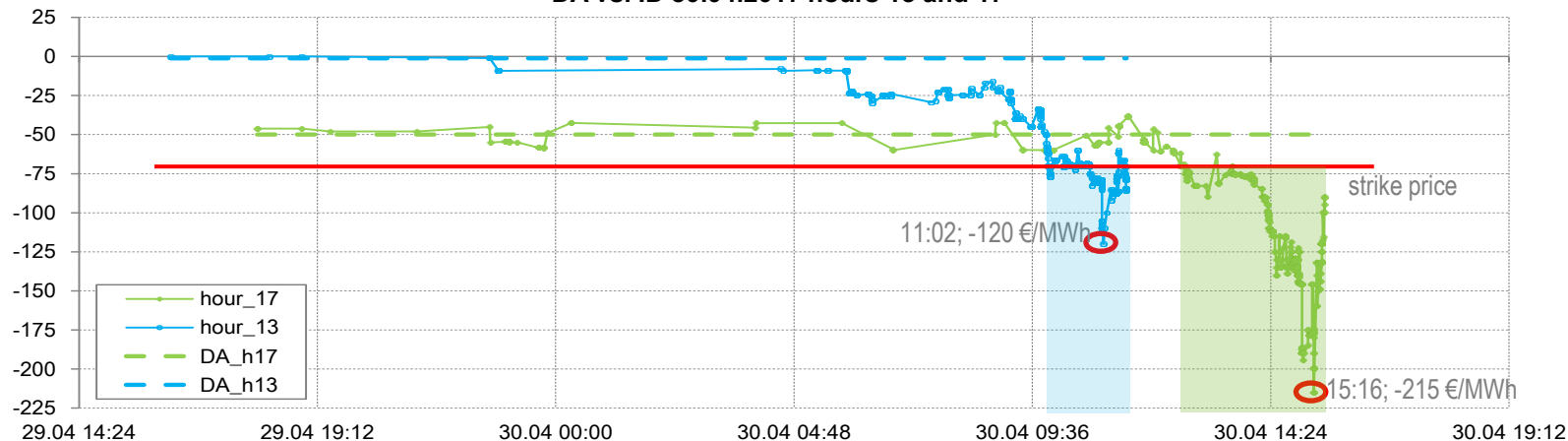
existing plants					
<ul style="list-style-type: none"> • direct marketing optional • independent from market prices 					
savings energy price	savings negative prices	compensation market premium	compensation market value	compensation lost earnings	lost earnings
20 €/MWh	„X“ €/MWh	-70 €/MWh	- 20 €/MWh	-3 €/MWh	-1 €/MWh
„X“ = -74 €/MWh					

„new“ plants (§51 case)					
<ul style="list-style-type: none"> • direct marketing mandatory (no additional revenue) • depends on market prices (§51 EEG) 					
savings energy price	savings negative prices	compensation market premium	compensation market value	saved fee	lost earnings
20 €/MWh	„X“ €/MWh	- 0 €/MWh	- 20 €/MWh	1 €/MWh	-1 €/MWh
„X“ = 0 €/MWh					

OPERATIONAL VIEW 2/2



OPERATIVE EXAMPLE



Hour	DA_price	ID_price	revenue	effect
13	- 01,18	- 120,00	+120 - 01,18 - 70	48,82
17	- 49,97	- 215,00	+215 - 49,97 - 70	95,03

CONCLUSION

main challenges, problems and risks

- triangular relationship between
 - operator (owner of plant and also control unit)
 - sub-level-provider (i.e. manufacturer or DSO)
 - direct marketer (user)
- huge amount of solution to provide “Fernsteuerbarkeit”
 - maintenance of currently > 25 interfaces to different sub-level-providers
- unsolved liability
 - no service level agreements between operator and sub-level-provider
 - performance risk on direct marketer
- risk at direct marketer to forecast a 6h-cluster with negative prices (§51 EEG)

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