

# Neas Energy A/S

---

Agora Energiwende

Renewable Integration and Flexibility

The Danish Energy Transition

Thursday 24<sup>th</sup> September 2015

NEAS  ENERGY

# Neas Energy in brief

---

Neas Energy is an independent energy asset management company that provides physical and financial management of energy for customers with assets operating on liberal energy markets in Europe.

Neas Energys customers includes:

- Power Plants & CHP Plants
- Renewables (Wind, PV and Hydro)
- Utilities & Supply companies

Neas Energy was established in 1998 in Aalborg, Denmark by four local public supply companies to purchase electricity in the newly liberalised energy market.

In 2011 legislative restrictions lead to a sale of Neas Energy to a group of private equity investors including the company management and in 2015 Denmark's largest pension fund ATP and private equity firm Via Venture Partners was included into the group of shareholders.

Based on more than 15 years of experience from liberal energy markets Neas Energy today has activities in all major energy markets in Europe.

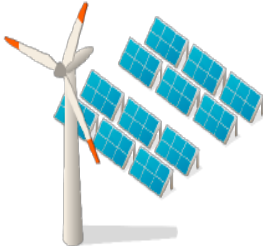
Neas Energy has been a member of the UN Global Compact since 2009.

# Portfolio



1,660 MW

installed capacity  
Combined Heat  
and power



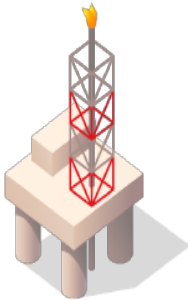
5,800 MW

installed capacity  
Renewables



2.091 TWh

Supply & large  
scale consumption

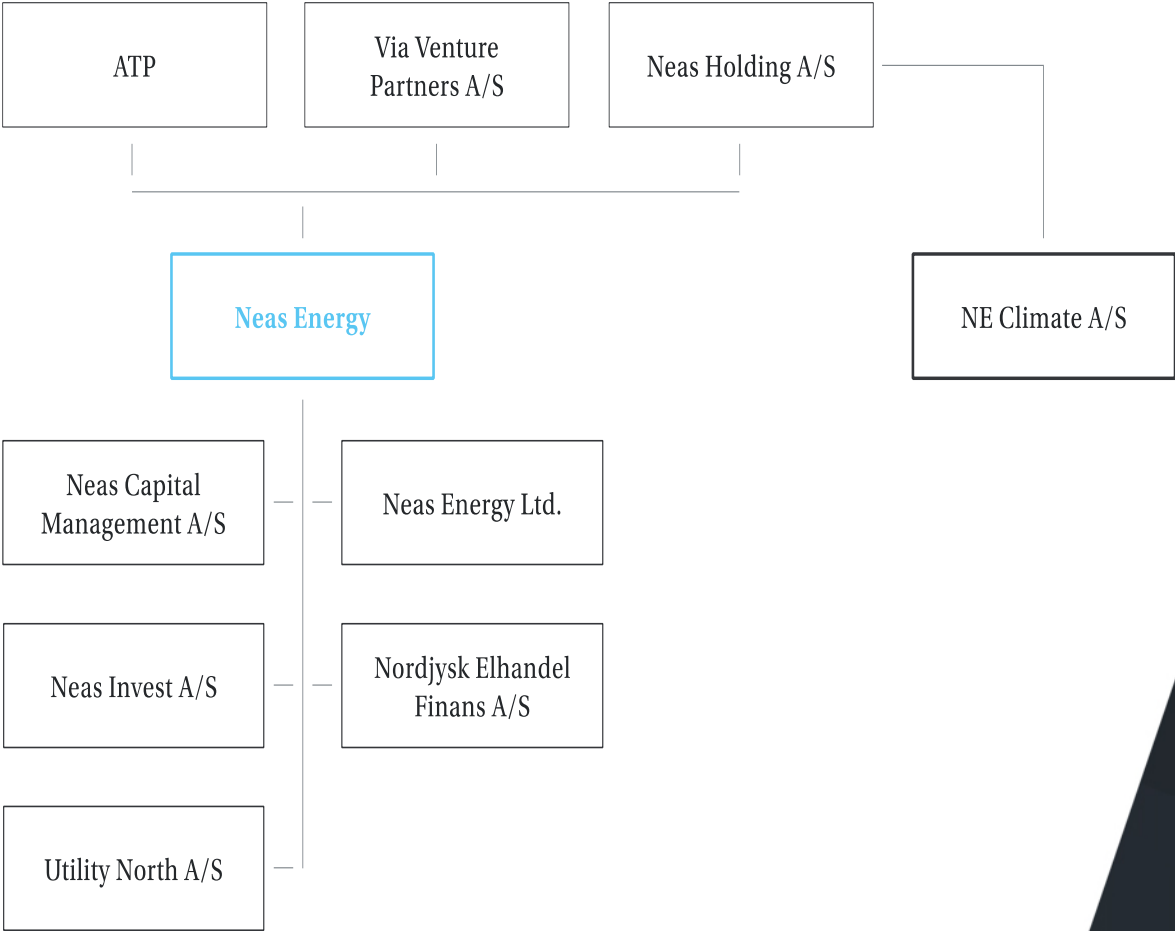


109,353 MWh

Natural gas trading  
turnover daily (avg.)

Renewable energy certificates (EECS, TÜV, Elcerts, RECs, LECs)

# Group



## Core Business

Neas Energy's business model is centered around optimising our clients' assets in energy markets

And delivering complex PPA products to our clients.

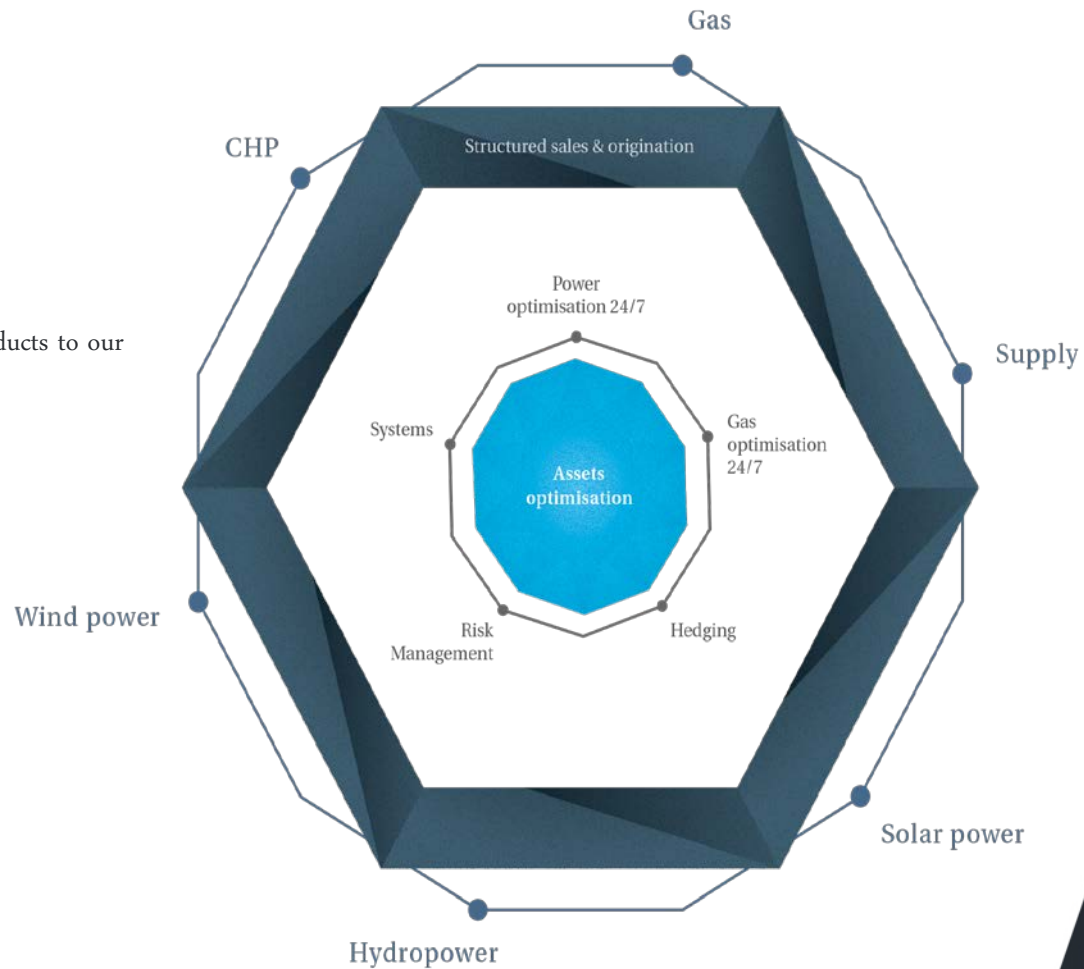
### Clients are:

PV plant owners

Wind turbine owners

CHP owners

Large consumers



# Portfolio - Renewables

Neas Energy renewables portfolio

Denmark – 1500 MW

- Wind

Sweden – 750 MW

- Wind
- Hydro

Germany – 2885 MW

- Wind
- PV

Belgium – 115 MW

- Wind

Netherlands – 45 MW

- Wind

UK – 665 MW

- Wind
- PV

**Total portfolio under management today  
> 5,800 MW.**



# Increasing complexity and demand for flexibility

---

Neas Energy is covering the demand for complexity and flexibility!

- Increasing complexity in the delivery of green energy
- Increasing complexity with heat and mobility
- Increasing number of decentral plants
- Increasing number of volatile production
- European trading opportunities



# Wind & Flexibility – The Danish Case

2011 –

## Project to develop and test participation of wind in the balancing market

- Project funded by Energinet
- Participants
  - EMD
  - Vindenergi Danmark
  - Neas Energy
- **Purpose**
  - Demonstrate that wind can act in the balancing market
    - Tertiary Reserves
  - Develop procedures between TSO and BRP
    - Schedules procedures changed
      - From active generation to active capacity



## Wind & Flexibility – The Danish Case

---

### Background - Overview over markets for flexibility:

- **Market for Flexibility – Regulerkraft (Minuten Reserven)**
  - Capacity market is present – bidding is possible
    - Symetric bids are not necessary
    - Upward bids and/or down wards bids can be placed individually
  - If capacity bids are accepted – bids **must** be placed in RK market
    - **Bids can be changed up to 45 min before delivery**
- **Bidding in RK market is possible also if no capacity bids are won**
  - Every one with available capacity can bin into the RK market
    - **Bids can be placed up to 45 min before the hour.**

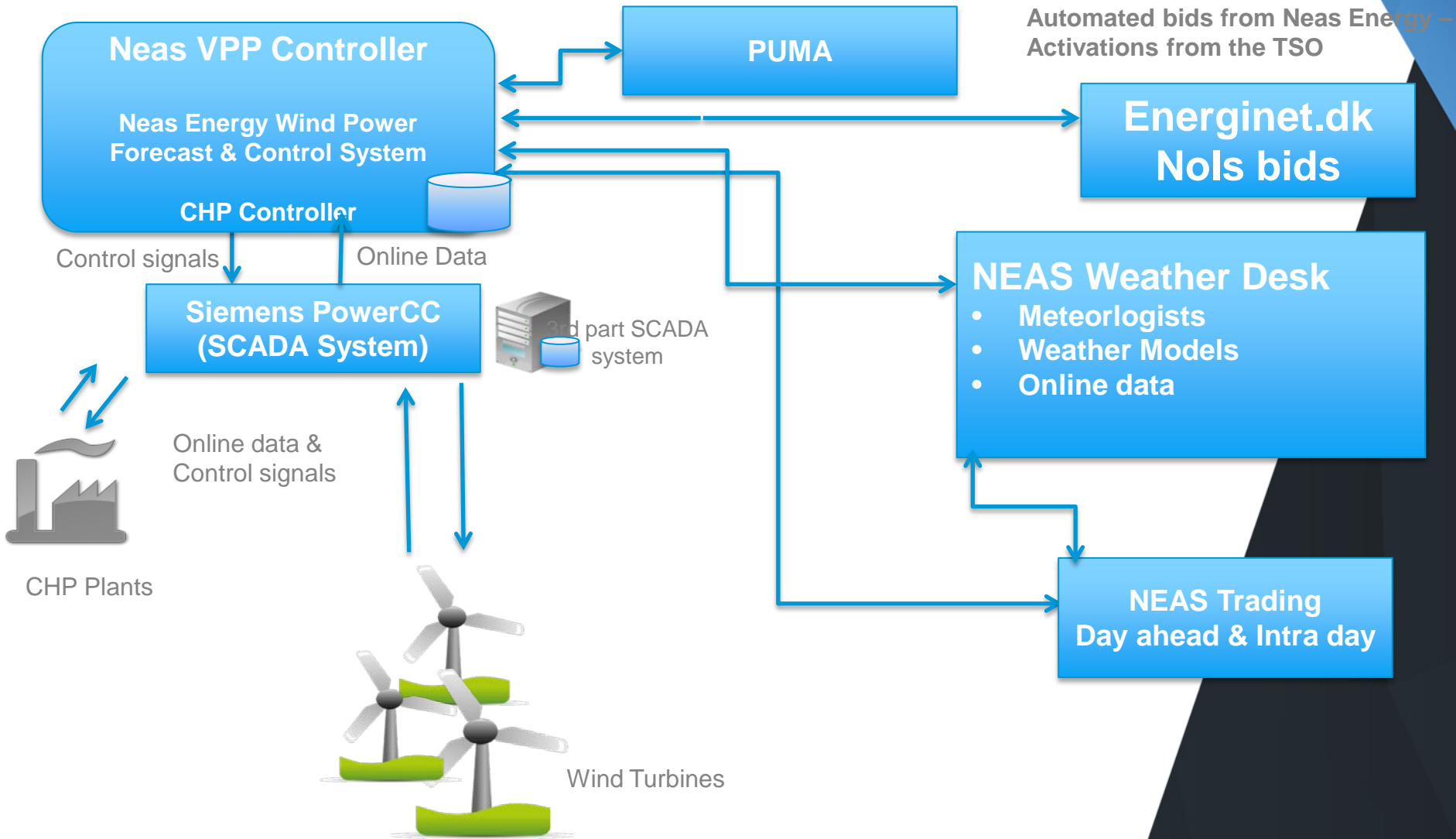
## Wind & Flexibility – The Danish Case

---

2011/12–

- Energinet.dk – introduced new schedule procedures for wind
  - Neas Energy developed procedures to handle procedures
  - Made it possible to aggregate IPP's
  - **Requirements**
    - Automated pooling of wind turbines
      - Minimum 10 MW bids
      - Automated bidding based on
        - Automated Weather Forecast updates
        - Online realtime data

# NEAS – Systems are essential



# Wind & Flexibility – The Danish Case

---

## Procedures

- **Neas Energy**
  - Every hour – 1 hour before bid time
    - All connected WTG's are divided into bids
      - Min 10 MW max 30 MW
      - Each WTG owner decides own bid price
      - Highest bid sets the price for all in the bid
      - Bids are submitted to Energinet

# Wind & Flexibility – The Danish Case

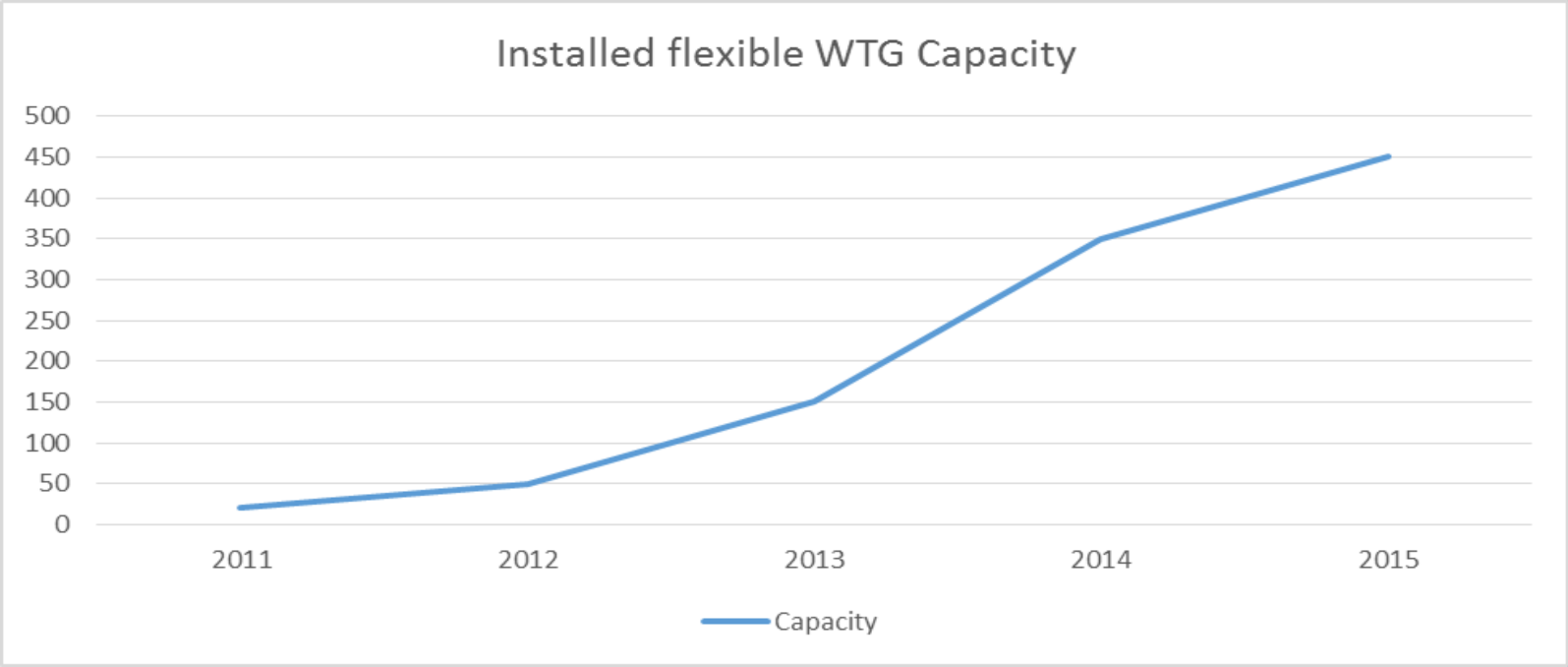
---

## Procedures

- **Energinet.dk**
  - Bids can be activated with 15 min lead time
    - Bids can be activated as DR in "Reguler Kraft"
      - Marginal price settlement
    - Bids can be activated as Special regulation
      - Pay as Bid settlement

# Portfolio Characteristics - Denmark

## Development - Flexible WTG's from IPP's



# Managing Negative balancing Prices

Case: Down ward regulation – 9. August 2014

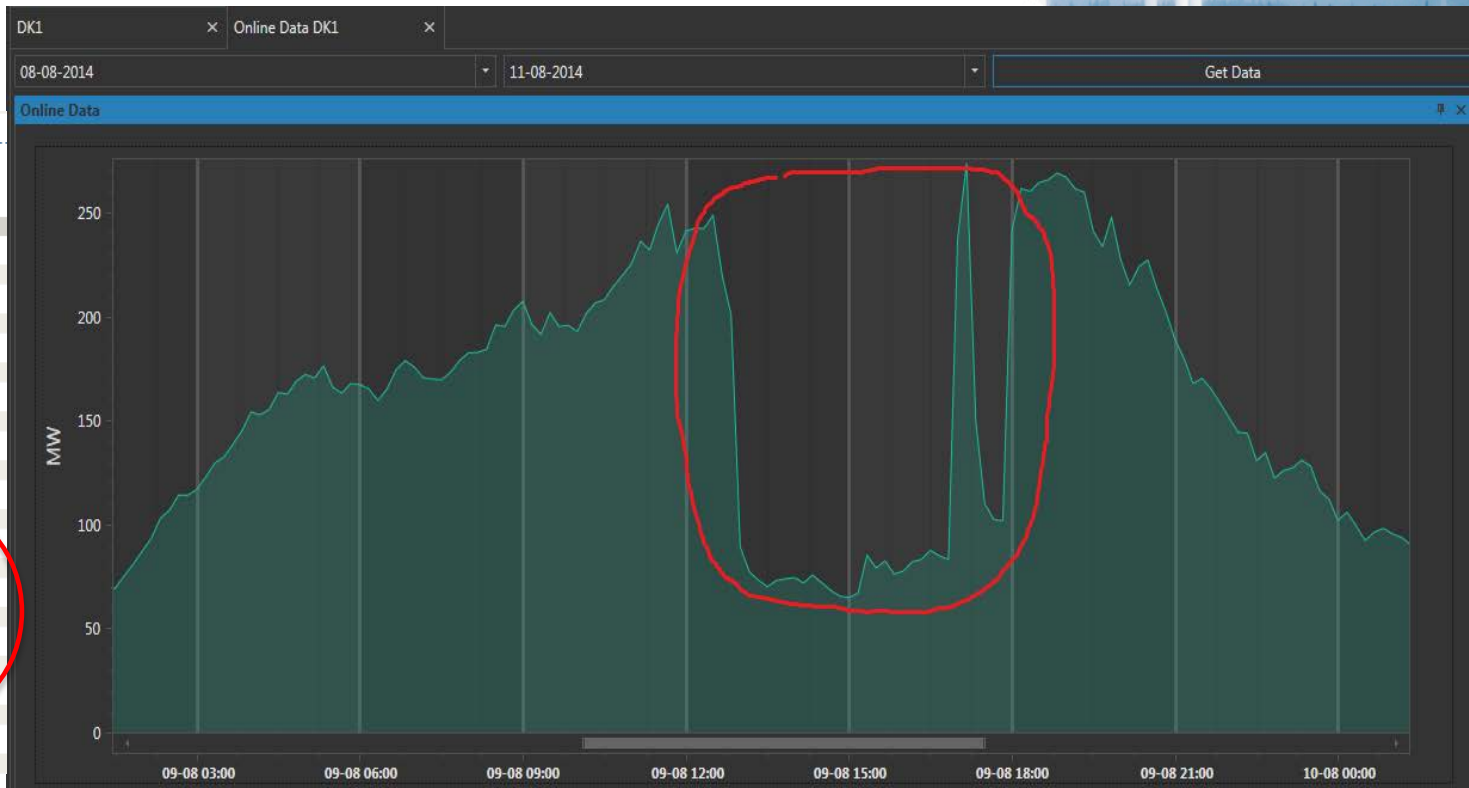


## Regulating prices

ALL NO SE FI DK

DKK/MWh

09-08-2014	DK1	
	Up	Down
00 - 01	248,34	247,34
01 - 02	213,27	213,27
02 - 03	200,90	200,90
03 - 04	196,95	196,95
04 - 05	188,60	138,07
05 - 06	183,38	124,71
06 - 07	179,65	124,71
07 - 08	194,04	138,07
08 - 09	200,15	151,43
09 - 10	204,25	178,16
10 - 11	207,91	178,16
11 - 12	207,31	178,16
12 - 13	200,68	-90,00
13 - 14	189,05	-90,00
14 - 15	186,06	-541,94
15 - 16	200,75	-90,00
16 - 17	200,82	-90,00
17 - 18	191,88	-90,00
18 - 19	225,42	-50,00
19 - 20	240,26	155,93
20 - 21	246,22	182,70
21 - 22	249,20	193,82



# Wind & Flexibility – The Danish Case

---

## Magnitude of DR from Wind in Denmark

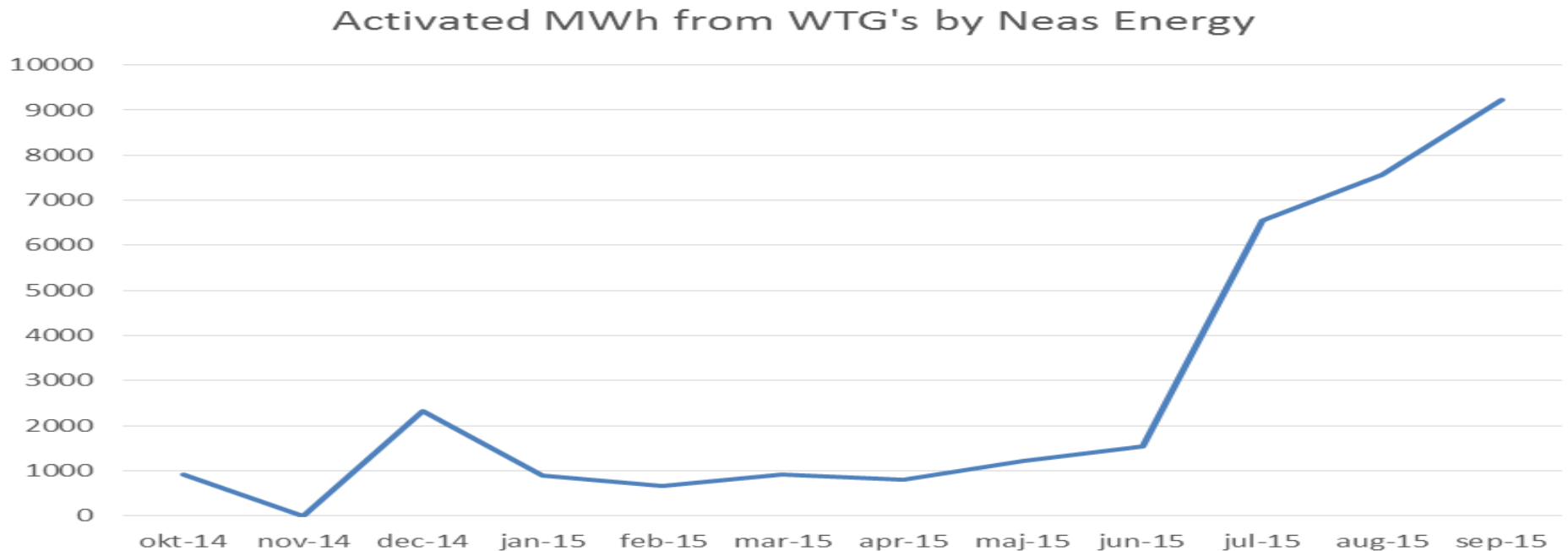
- **Increased usage of Wind**
  - Increased supply of flexibility in downward regulation
- **Record is 22 consecutive hours of activation**
  - **Combination of high wind i Northern Germany and DK**



# Wind & Flexibility – The Danish Case

## Magnitude of DR from Wind

- Magnitude of activations from Wind in DR from Neas managed WTG's
  - 32.000 MWh activated by Energinet.dk last 12 months



# Wind & Flexibility – The Danish Case

---

## Benefits

- **Energinet.dk**
  - Increased supply of flexibility in downward regulation
- **Asset Owners**
  - Value of asset is increased from higher revenue
- **Wind Turbine Owners in general**
  - Increased supply of DR => cost related to balancing is lowered

# Thank you for your attention

---

- **Jens Tang**, Vice President Renewables

E: [jta@neasenergy.com](mailto:jta@neasenergy.com)

P: + 45 9939 5831

M: +45 4094 7951

- [neasenergy.com](http://neasenergy.com)

