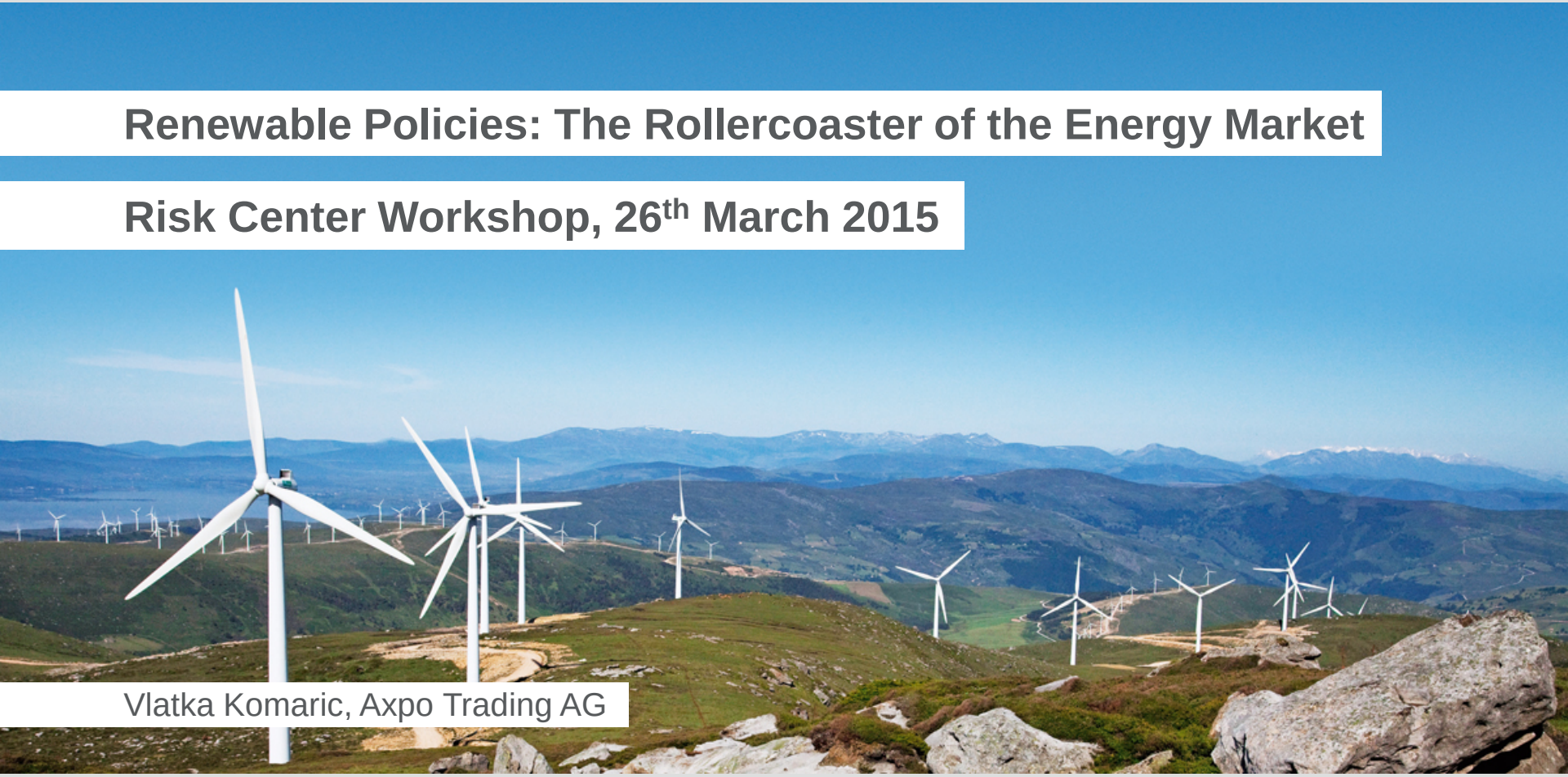
Renewable Policies: The Rollercoaster of the Energy Market

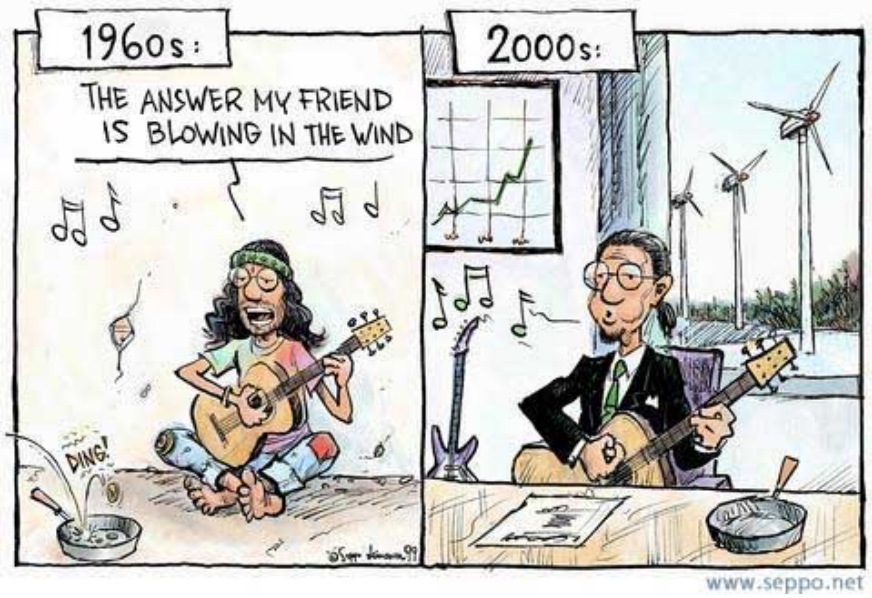
Risk Center Workshop, 26th March 2015



Vlatka Komaric, Axpo Trading AG

Agenda

1. European Energy Target: The birth of the renewable bubble
2. An outline of changes and challenges of the conventional energy market caused by renewable energy deployment
3. What is the future?



The birth of the renewable bubble in the EU

20% GHG emissions

Green House Gas (GHG) emission reduction by 20% (Index 1990=100)

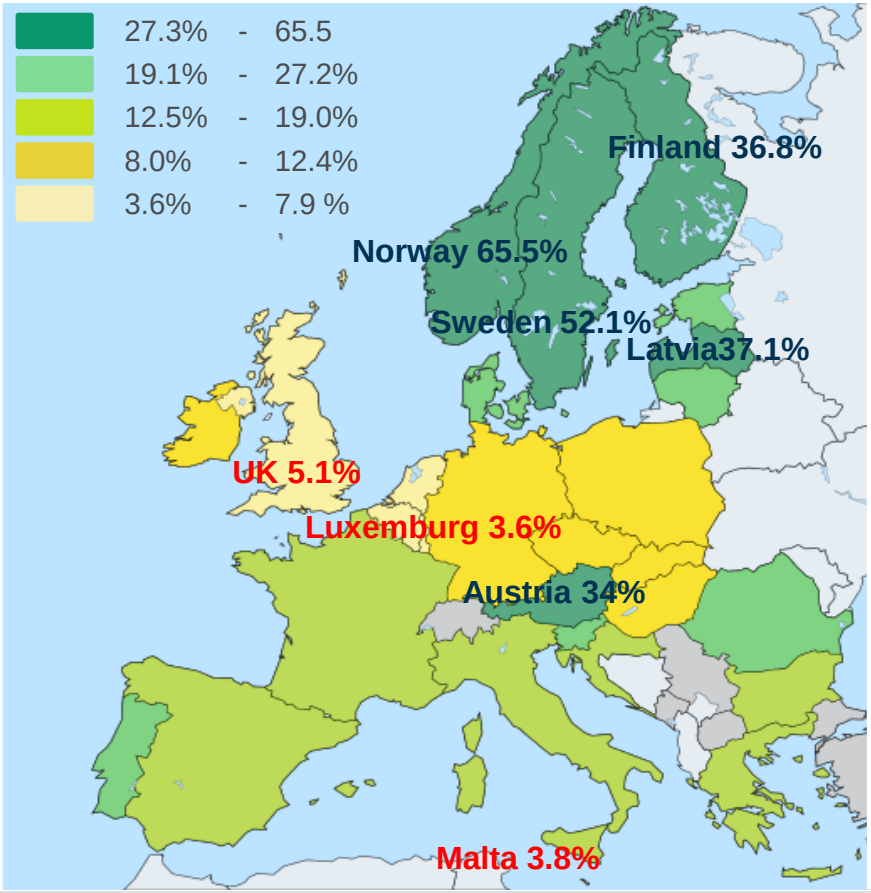
20% energy efficiency

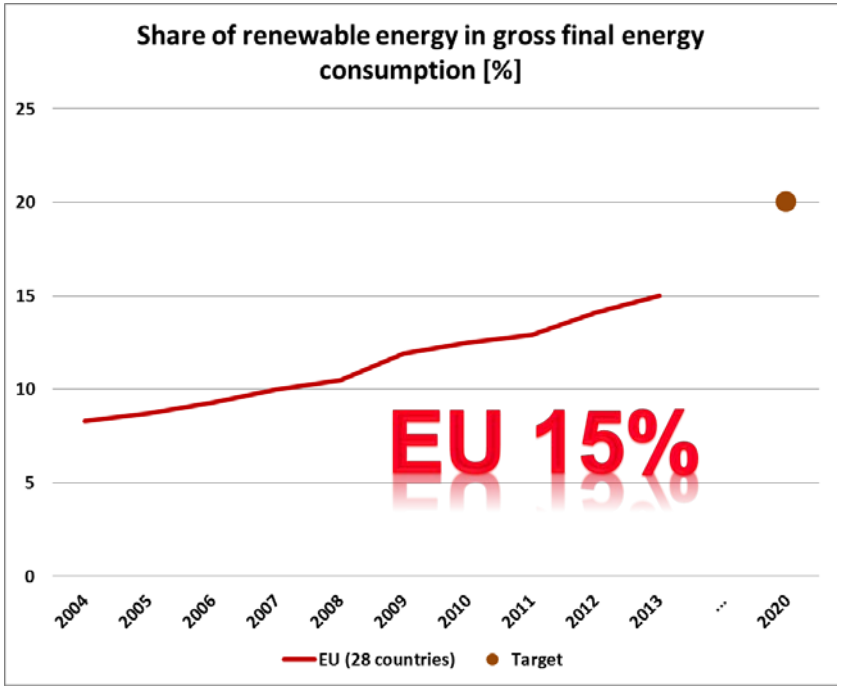
Moving towards a 20% increase in energy efficiency

20 % share from renewable sources

Increasing the share of renewables in final energy consumption to 20%

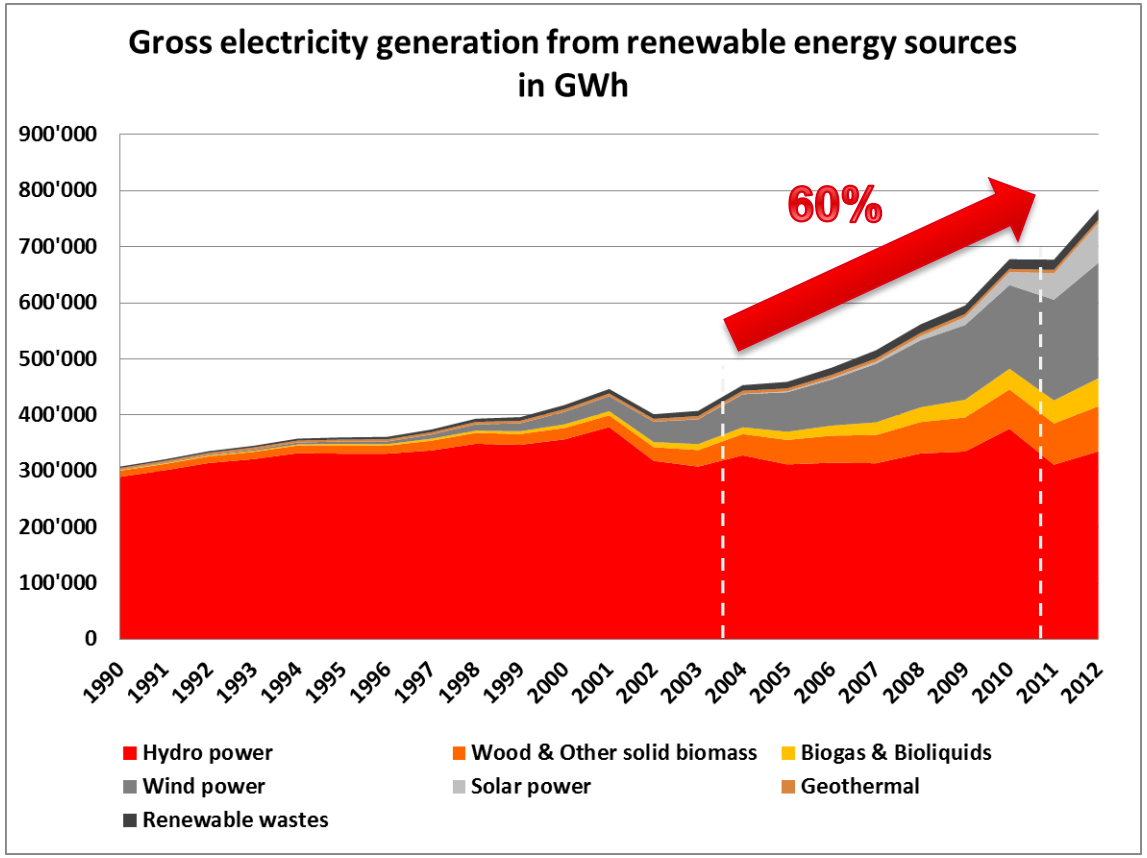
Is the target going to be reached and who are the winners?





Source: Eurostat, data from 2013

The root cause of the renewable bubble



Shrinking investment costs

and

support schemes

for renewable energy

Uncontrolled increase in renewable production regardless of demand or connection to the grid

Source: Eurostat, data from 2012

Getting lost in the different support schemes across Europe

Feed-in-Tariffs (FIT)

based incentives that guarantee long-
ariffs
ndent

Not market driven

Quota Obligation

ntity based incentives where all players
e to produce/consume a specific amount
renewable power

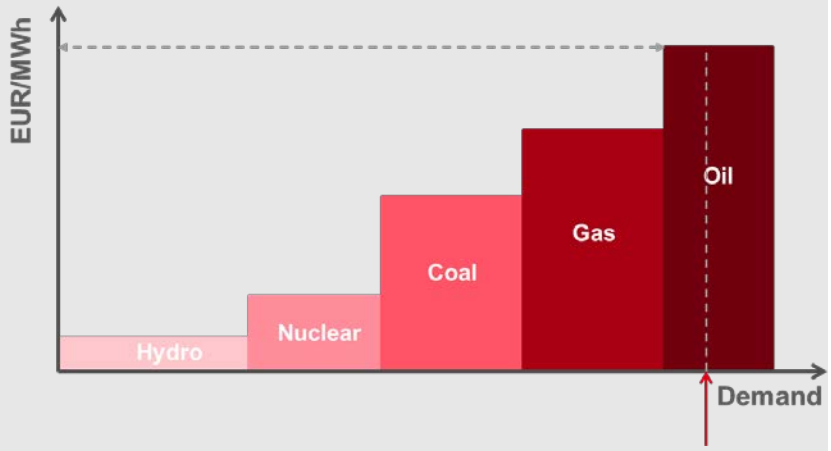
he actual production/consumption of renewable energy is proven through certificates

Market driven

Source: Fraunhofer RE-Shaping

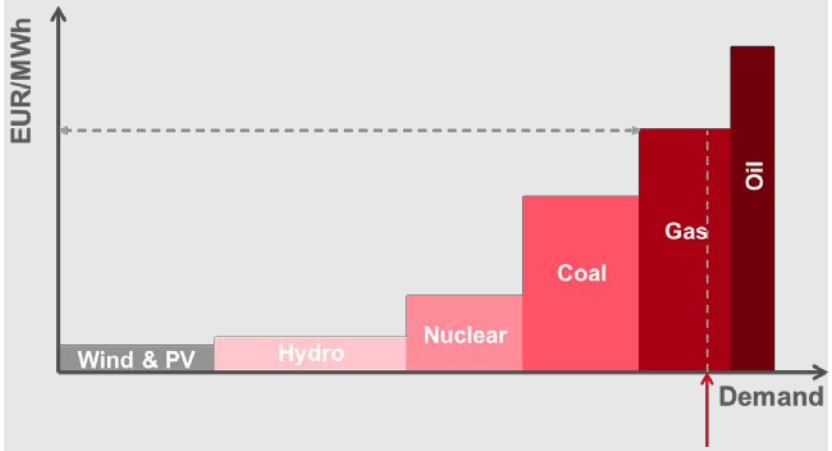
Renewables shifting the conventional power plants aside

Conventional Market



Price defined by market signals

Market Today

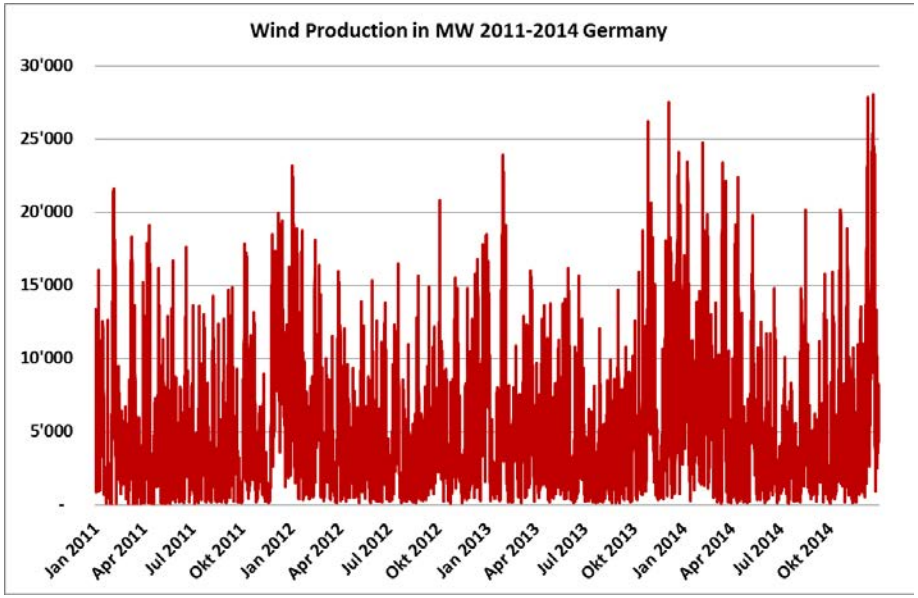


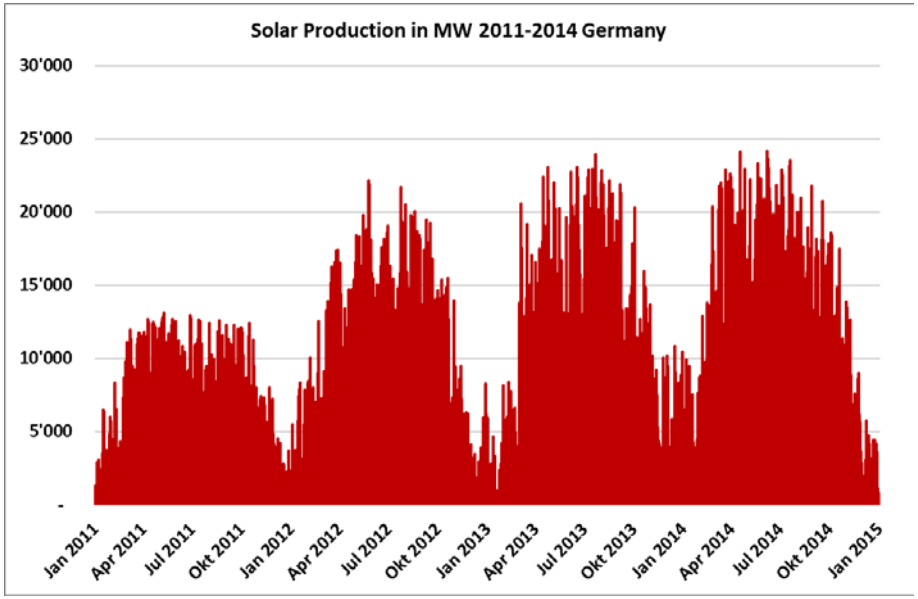
Price defined by policies

What is going to happen with the conventional thermal plants?

Source: fictive numbers for illustration

Why are conventional power plants still needed?





Volume variability is hard to predict and balance !

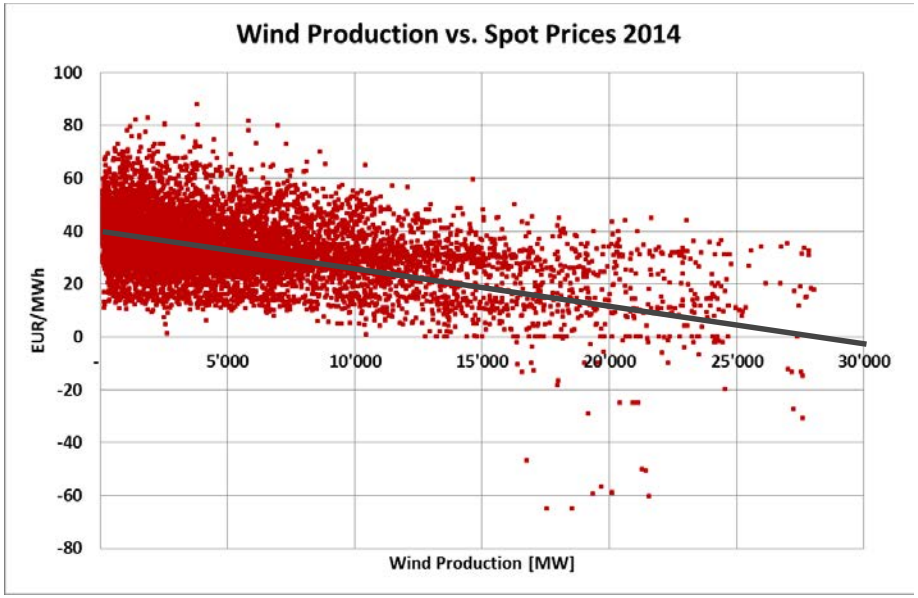
Source: MeteoGroup, Axpo Trading

Oops ... the wind is not blowing ....

Variability in daily generation profiles is challenging the system operator to intervene and ensure security of supply !

Source: MeteoGroup, Axpo trading

… now the wind comes and … the prices drop…



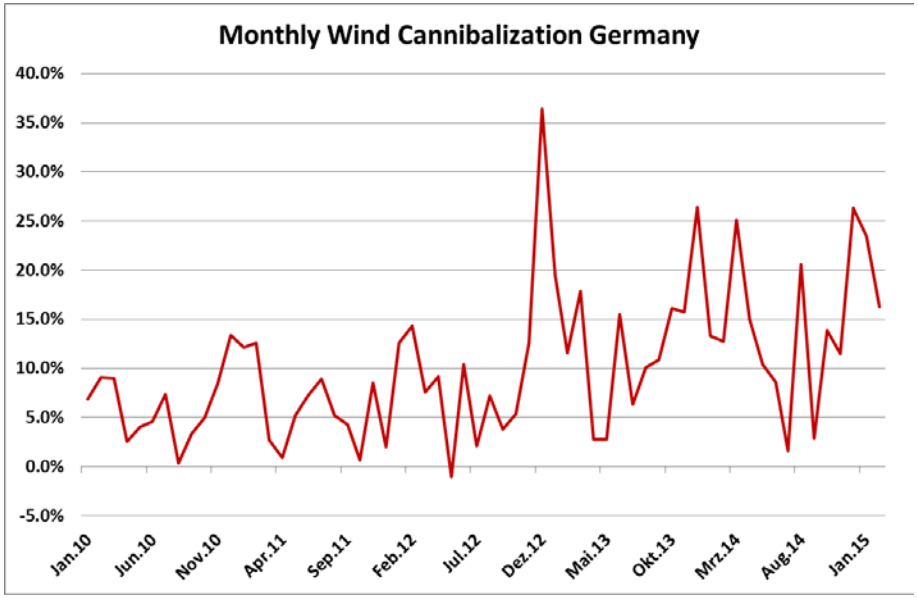
$$WE = \frac{\frac{1}{\sum_{i=1}^{n} W_i} \sum_{i=1}^{n} W_i * P_i - \frac{1}{n} \sum_{i=1}^{n} P_i}{\frac{1}{n} \sum_{i=1}^{n} P_i}$$

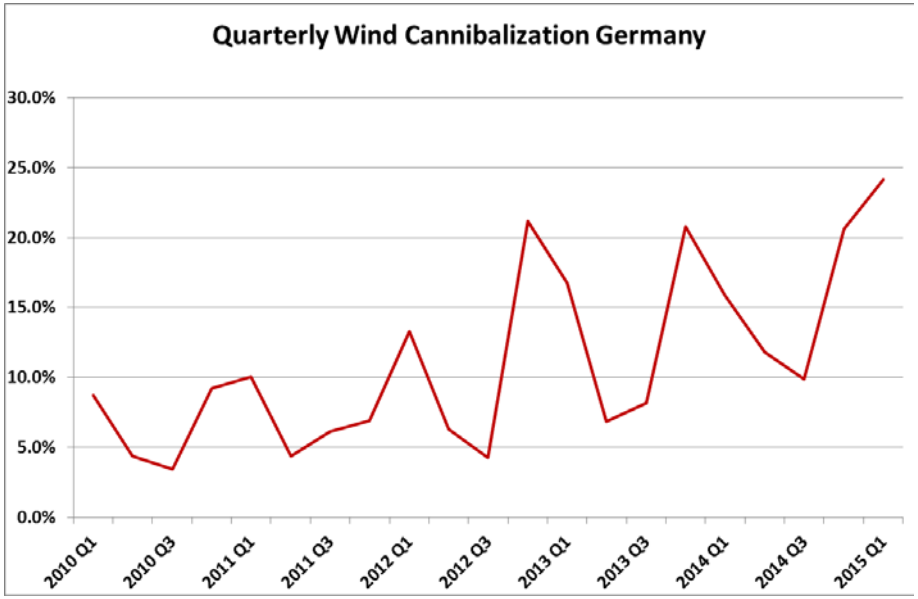
WE : Wind Effect
n : number of hours for the period in question (year, quarter, month)
Pi: Hourly power price
Wi: Wind volume produced in hour i

Wind Price-Cannibalization Effect

Source: MeteoGroup, Axpo Trading

… whereas the price effects are depending…

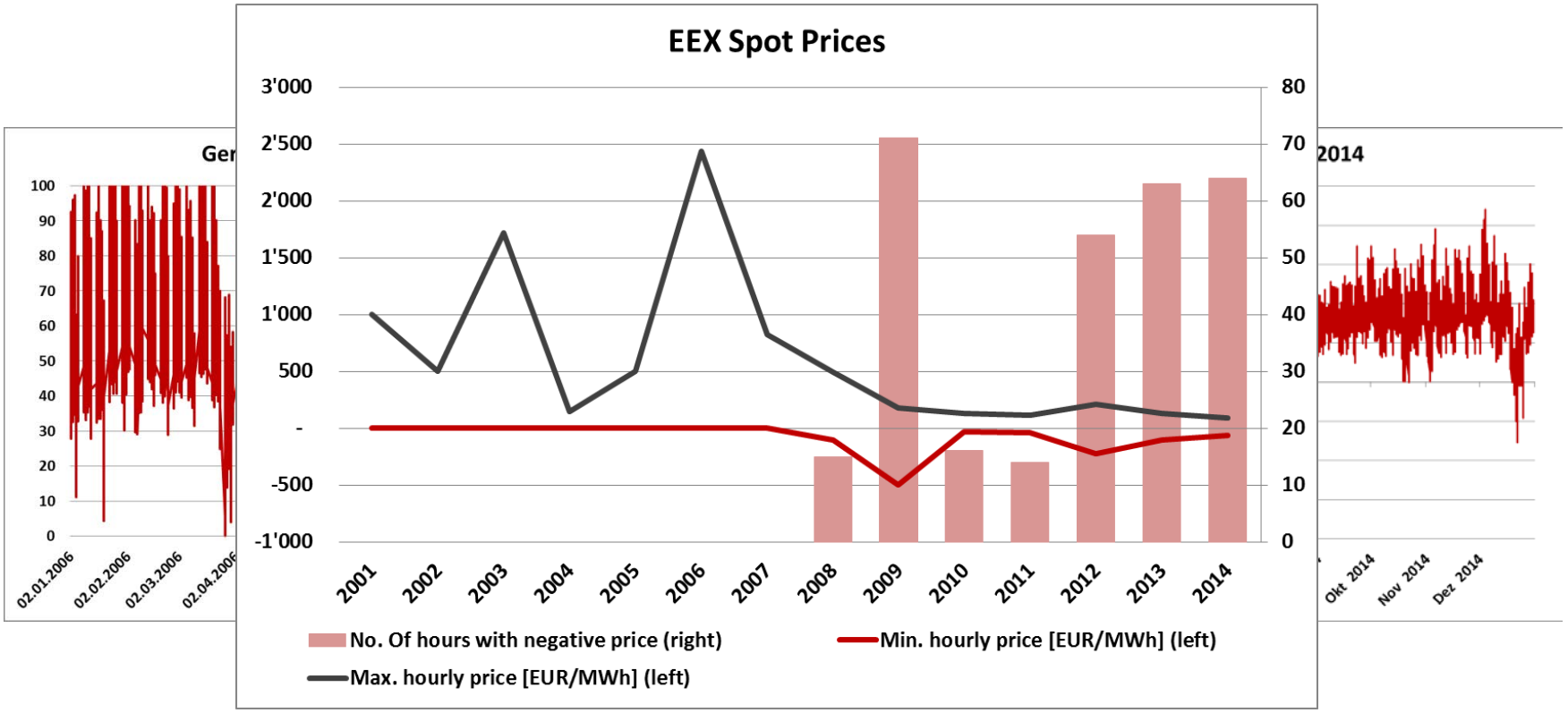




Different wind effect for different granularities

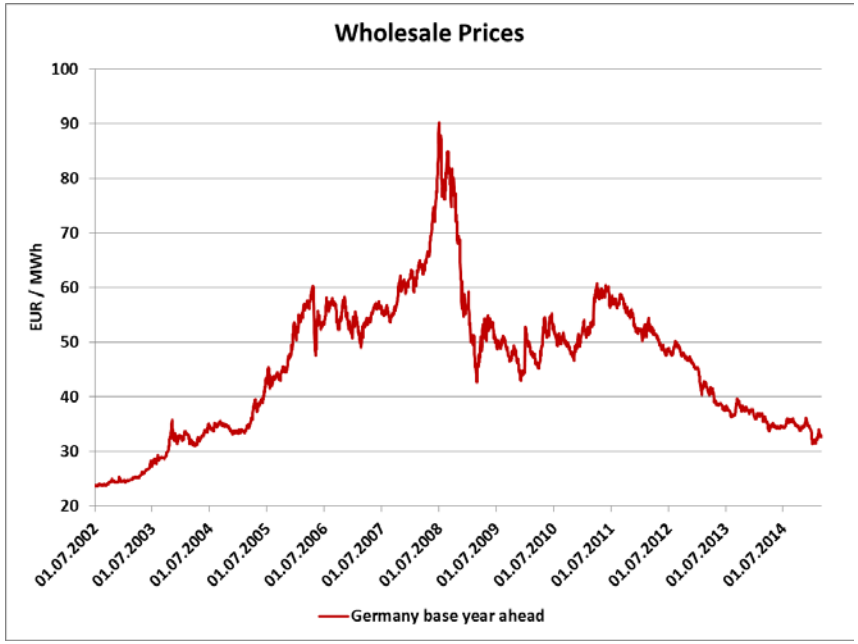
Source: MeteoGroup, Axpo Trading

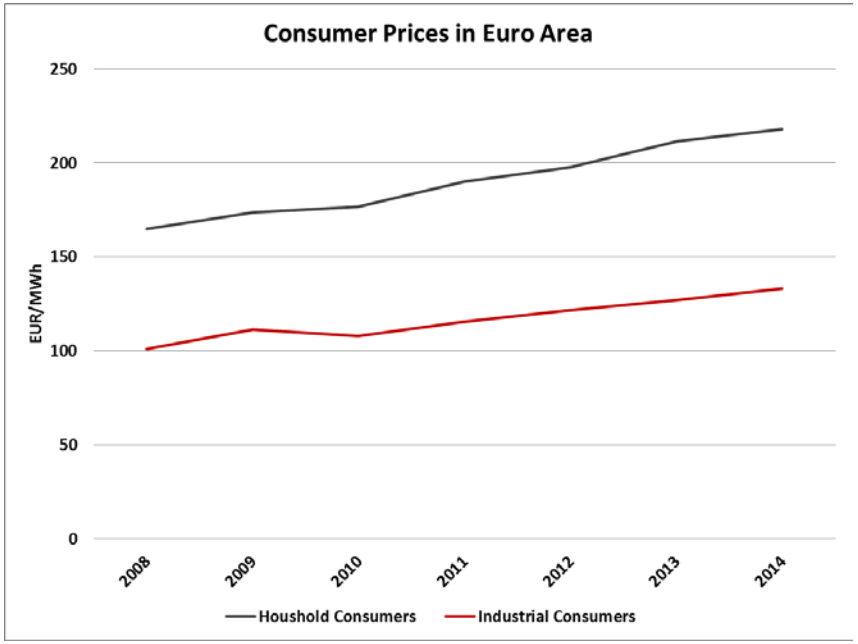
Price shift in the intraday market



Source: EEX, Axpo Trading

The price paradox ….

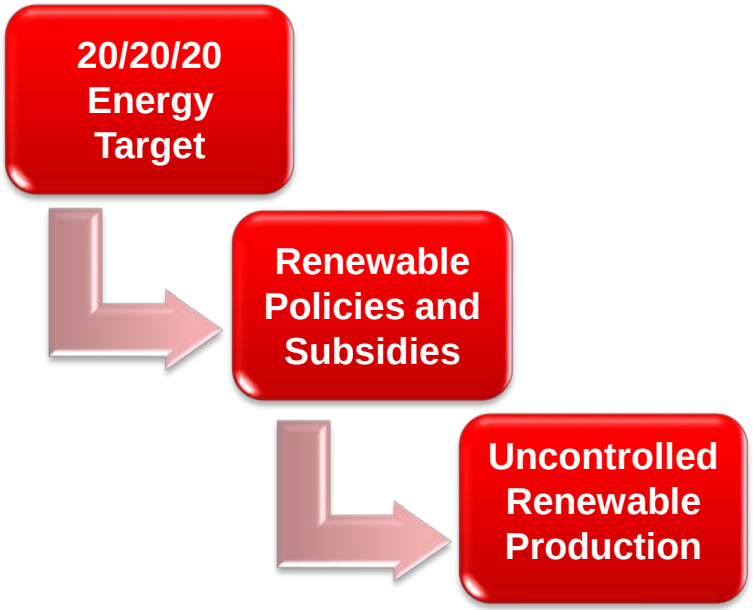




- Oversupply of non-dispatchable capacity has led to serious pricing distortions and depressed power prices in wholesale electricity markets.
- Low wholesale prices are not translating into low prices for the end consumer

Source: EEX, Eurostat

Wrap up



- Uneconomic use of conventional power plants
- Distortion in the energy price behavior such as seasonality, negative prices, peak/off-peak spread, wind effect etc.
- Challenges on grid connections, balancing, forecasting
- Prices are exposed to sudden “shocks” due to political decision and change in regulation

Where is the bubble going?

Is the “windmill mania” going to continue?

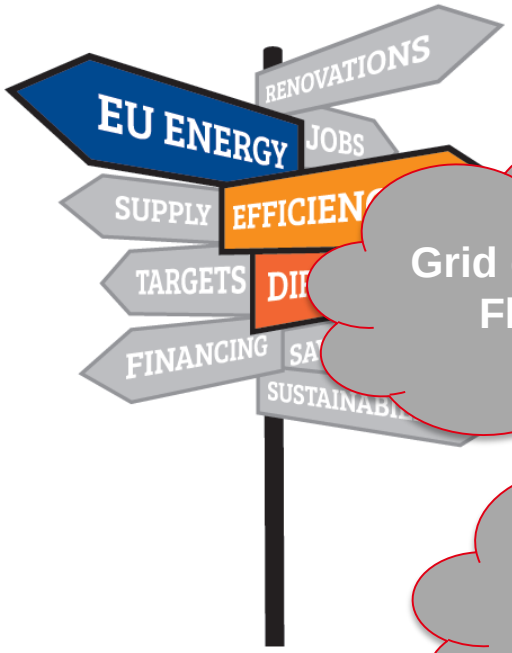
What support schemes? If any

EU 2050 target?

Grid connection? Flexibility?

Where is the end of the rollercoaster?

Does the demand curve really ask for more capacity in the market?



Many Thanks for your Attention

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Literature

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7. Gustav Resch, Mario Ragwitz: Quo(ta) vadis, Europe?