



# Germany – where next for coal?

Dr. Erich Schmitz, VDKI

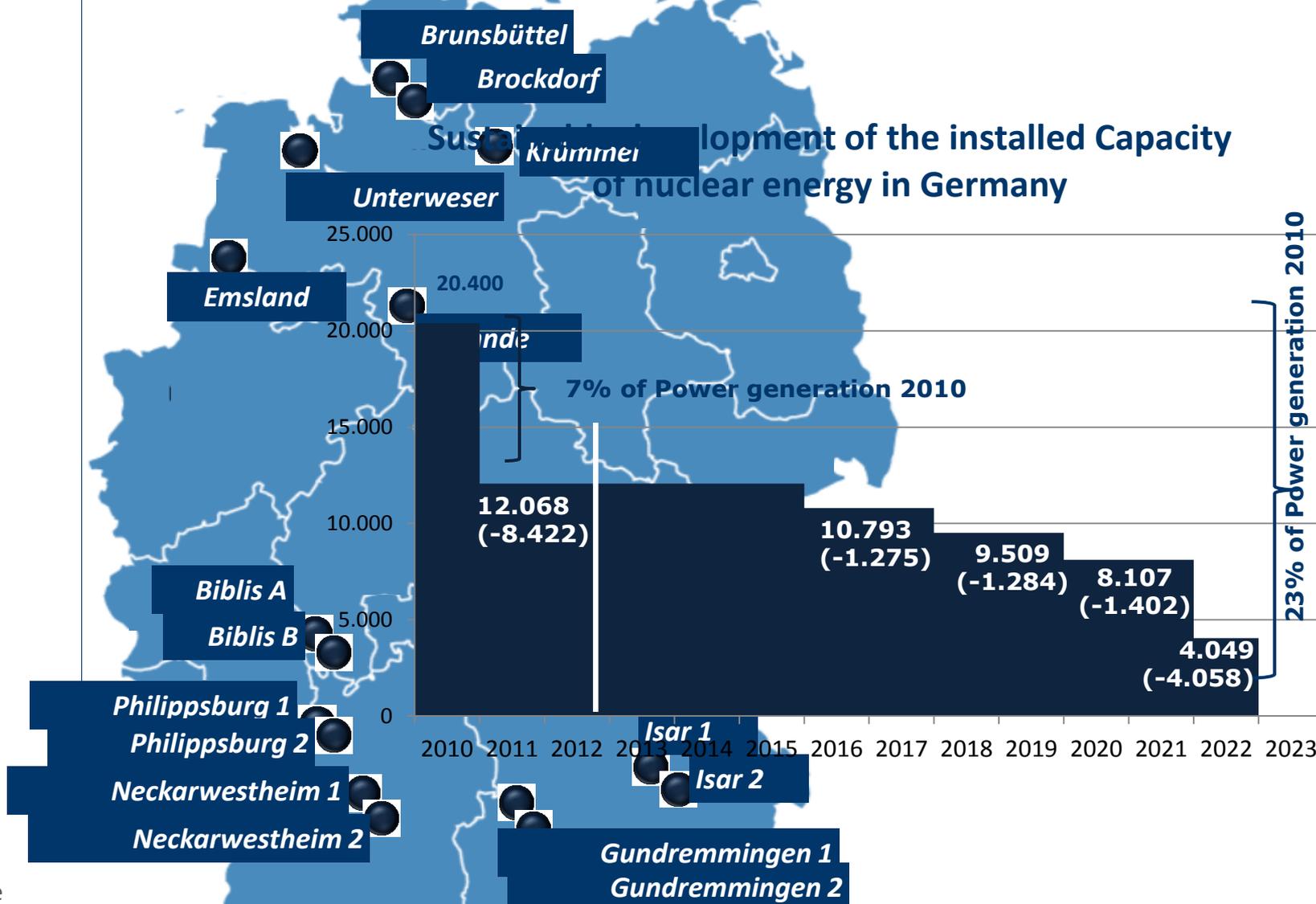


# Key Driver for Coal Imports to Germany

1. Politics
2. Weather
3. Physics
4. Economy

# 1. Politics

1. Shut down of nuclear Power Plants until 2022
2. Shut down of German Hard Coal Mines
3. The Energy Turnaround (Energiewende) –  
Targets and Reality.



Source: bdew.de

# Mine Closures Germany until 2018



**Ibbenbühren**



**Auguste Victoria**



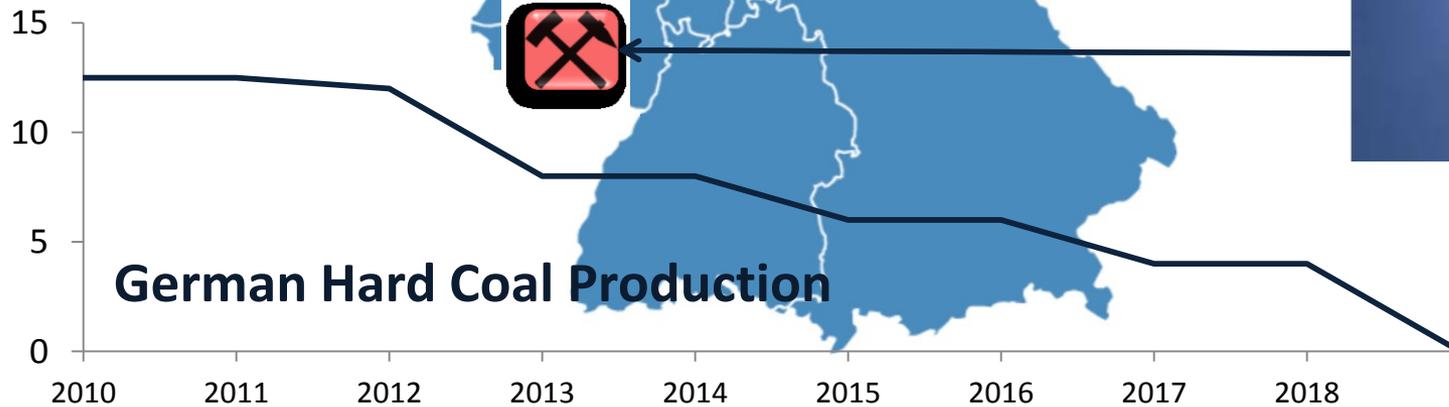
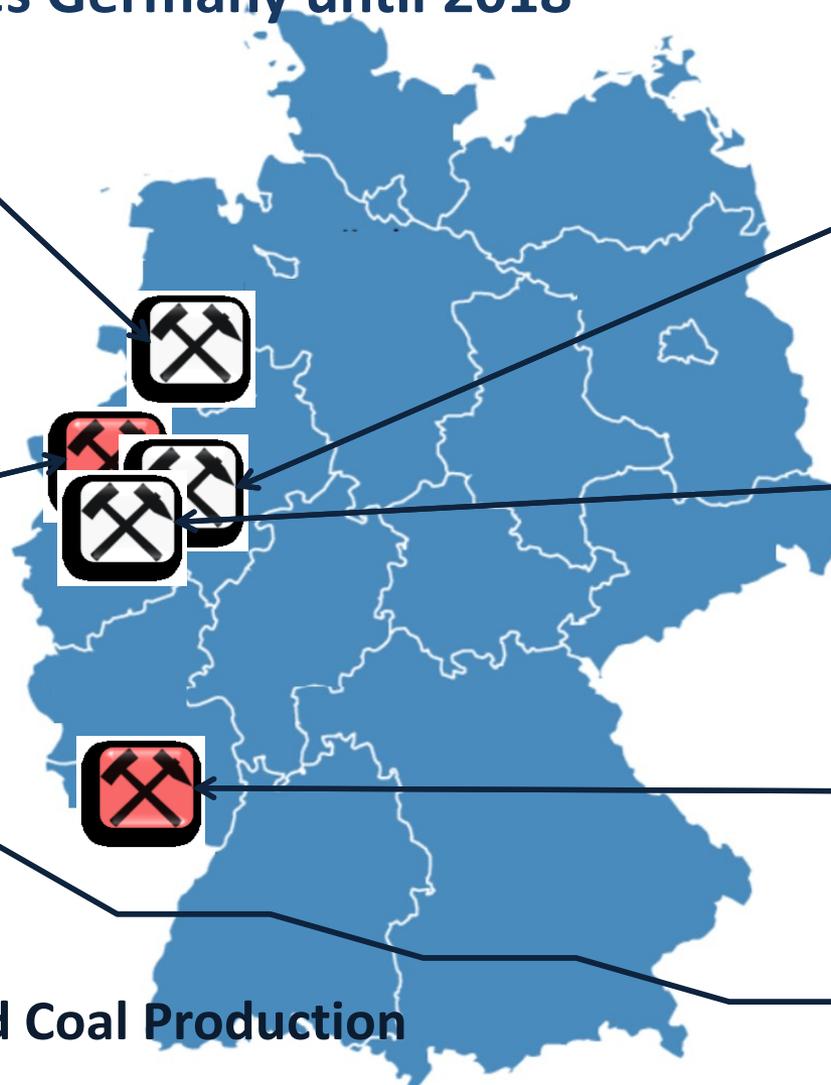
**West**  
to be closed  
31/12/2012



**Prosper Haniel**



**Saar**  
to be closed  
01/07/2012



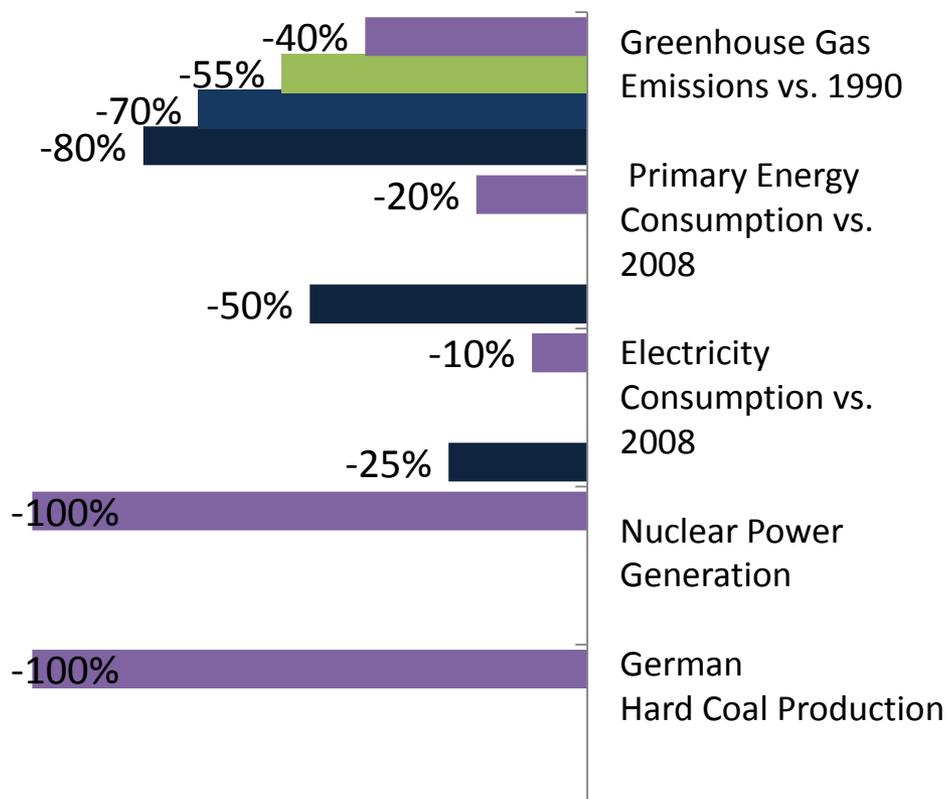
**German Hard Coal Production**

Source: GVSt

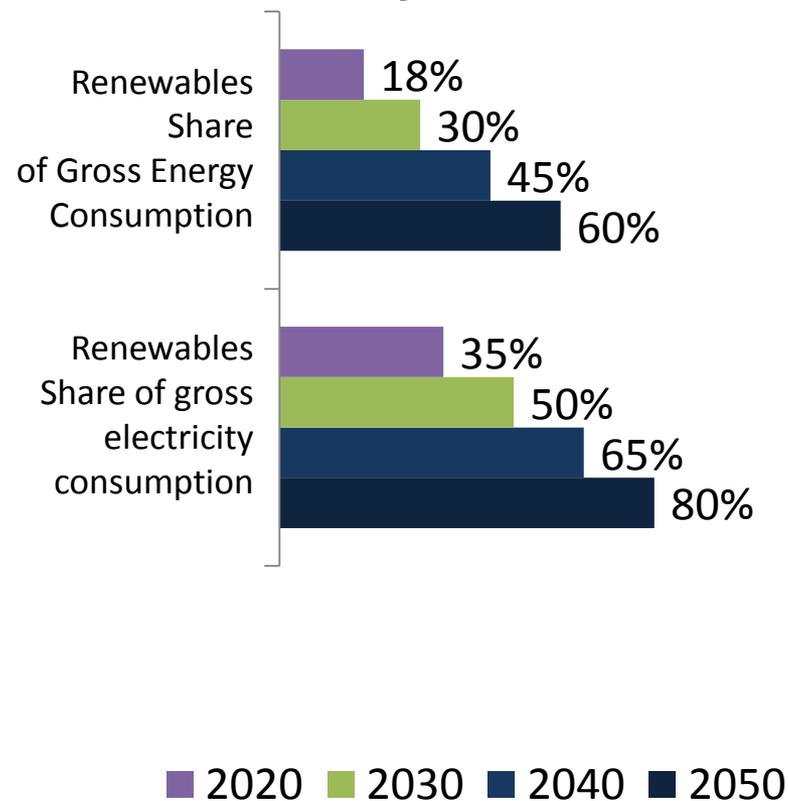
# Energy Turnaround – Germany

## Targets & Assumptions

### Reduction by...

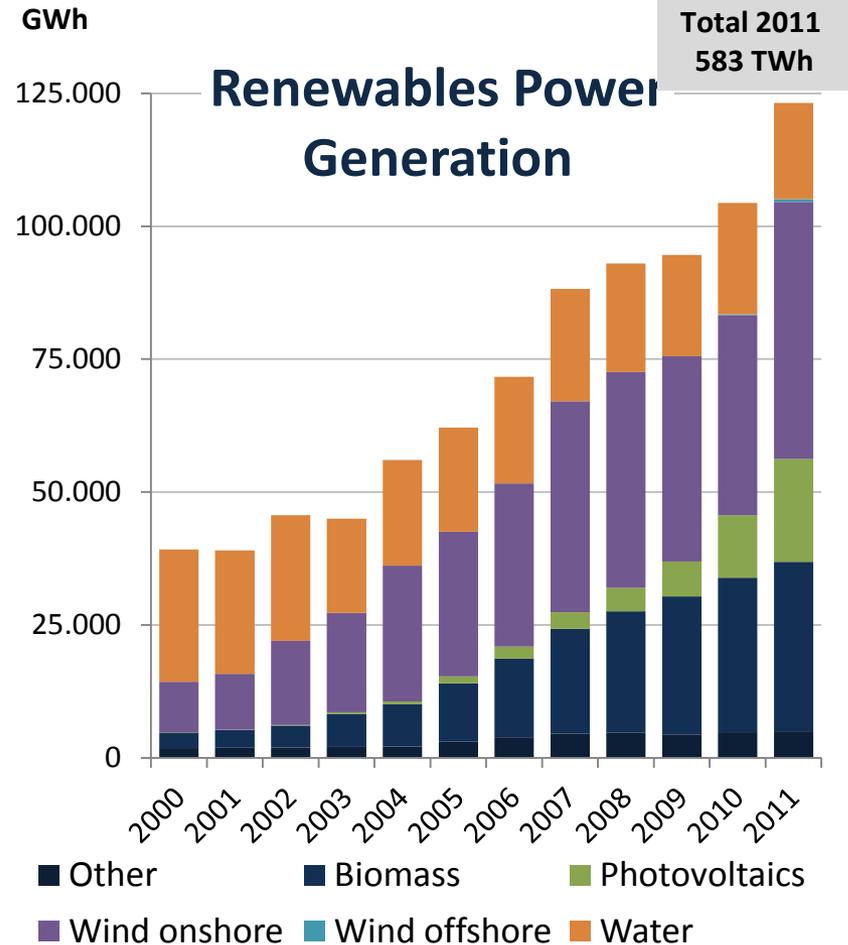
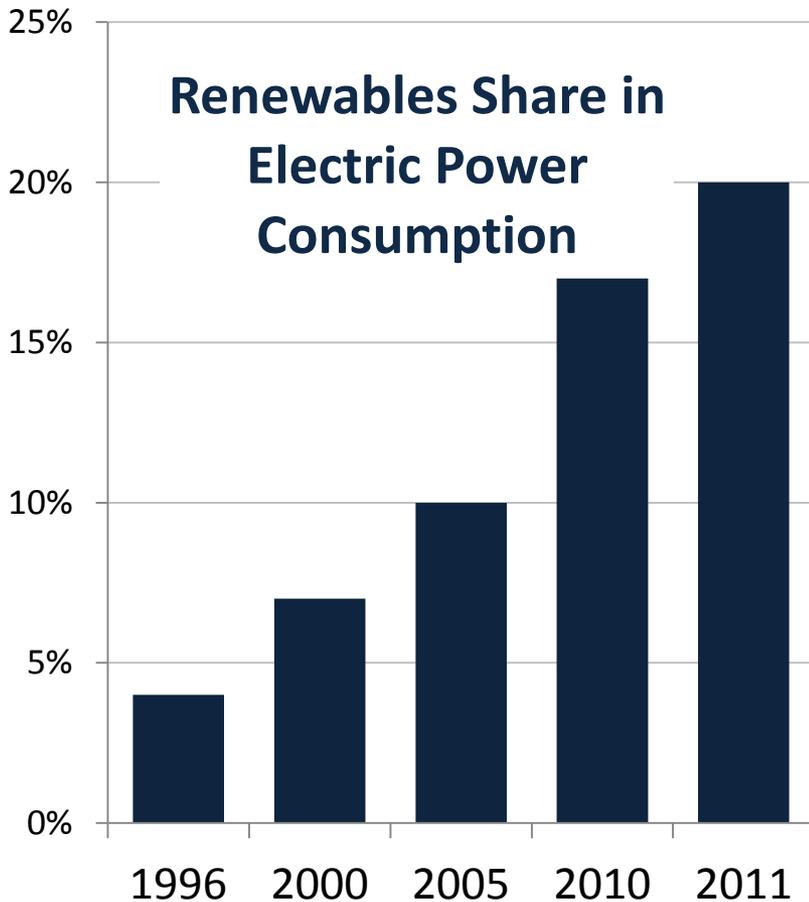


### Increase by ...



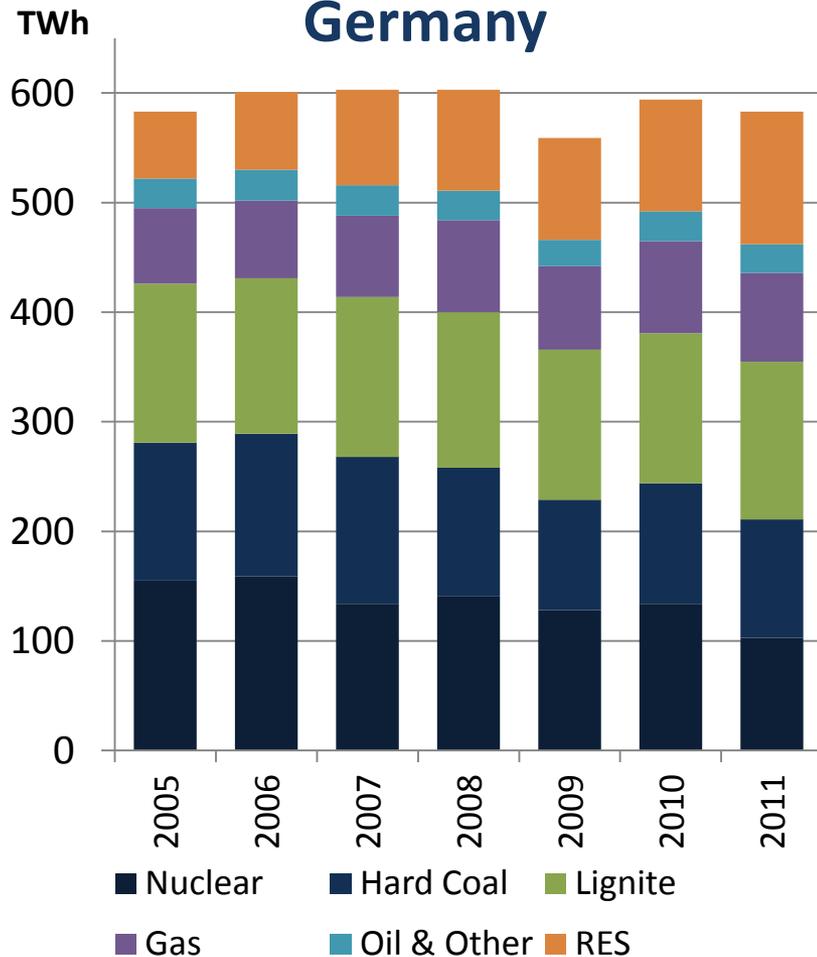
Source: bdew

# Targets vs. Reality

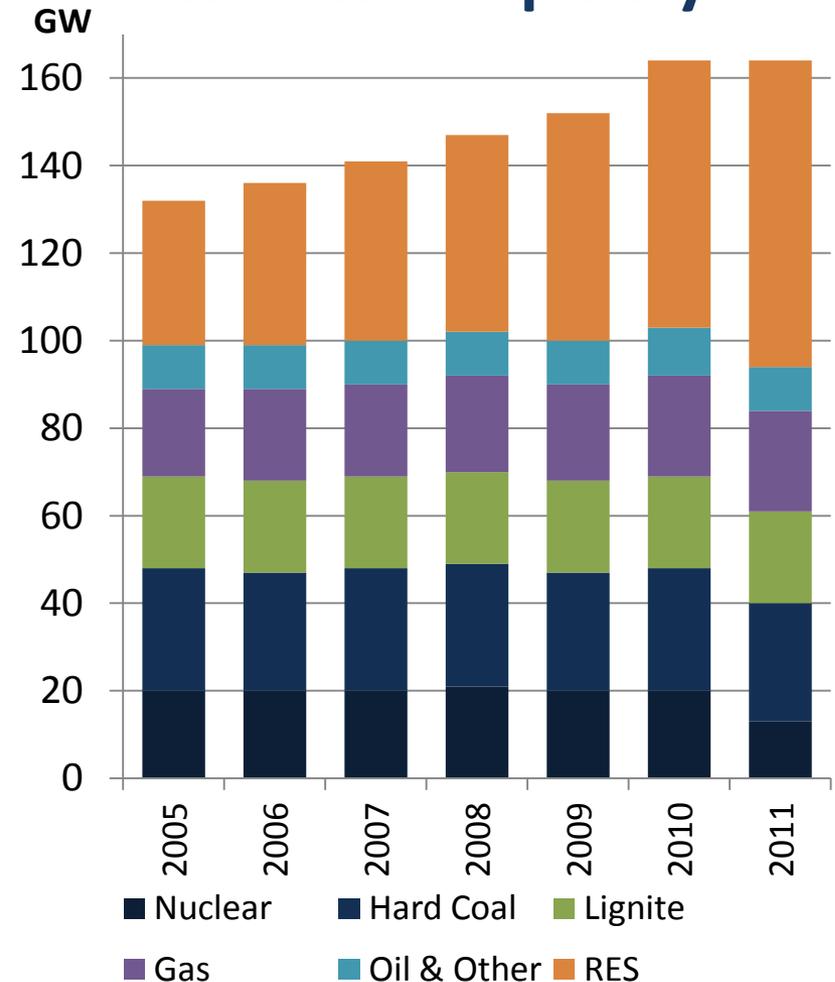


Source: bdew, bmu

## Power Production Germany

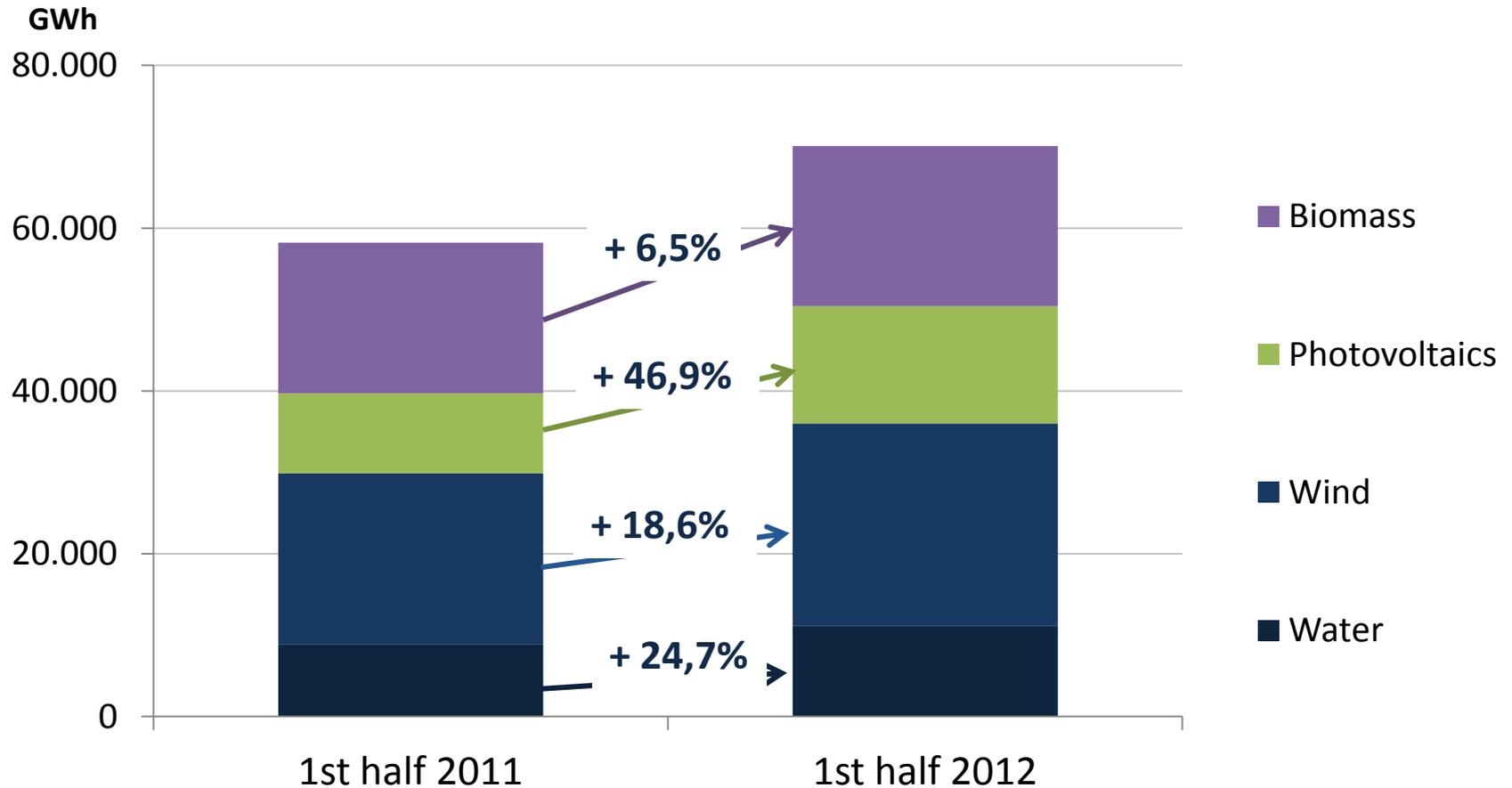


## Installed Capacity



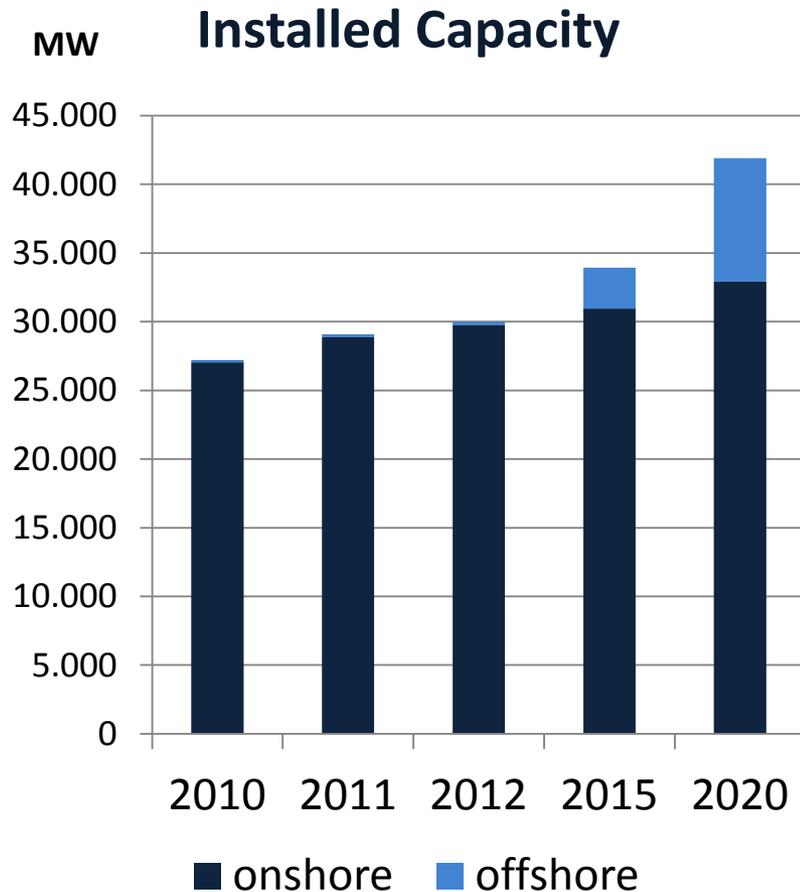
Source: bdew, bmu

# Renewables 2011 vs. 2012

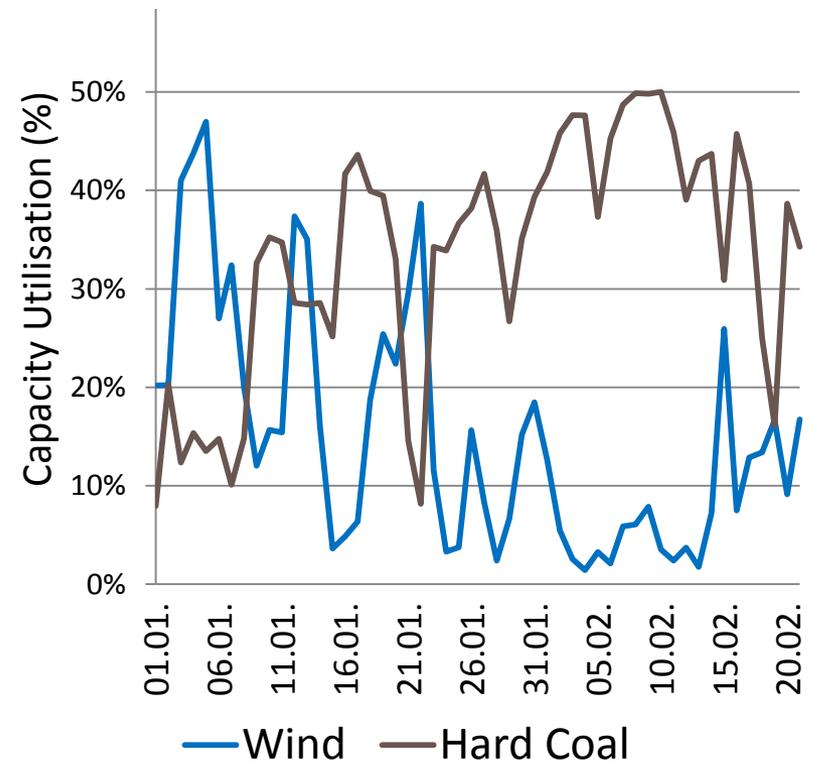


Source: AGEB

# Windenergy onshore / offshore

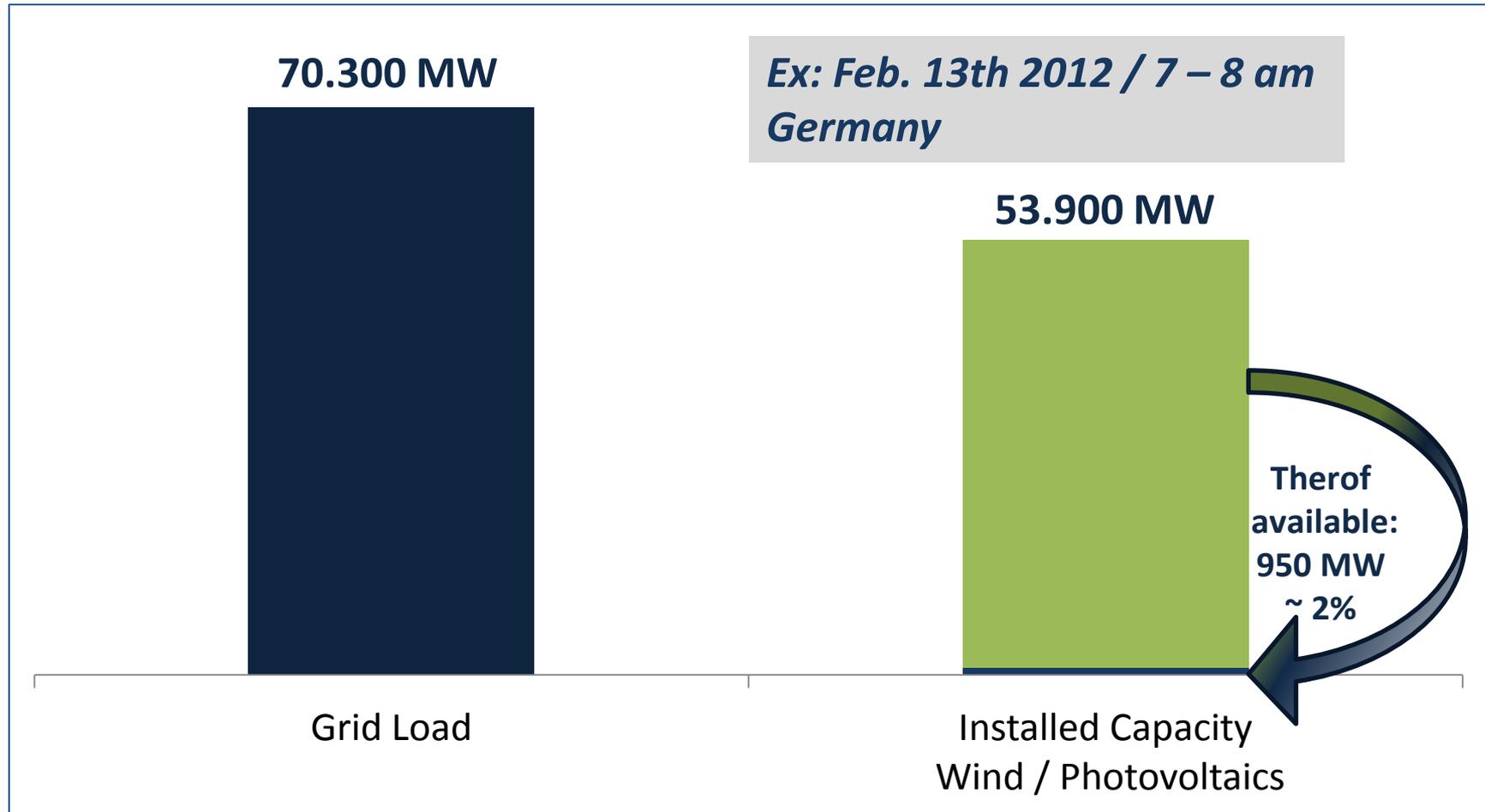


**Capacity Utilisation**  
Hard Coal Power Plants vs. Wind Energy Plants



Sources: bdew, eeg-kwk.net, dewi.de

# Contribution of RES to Cover Load



Source: GKM

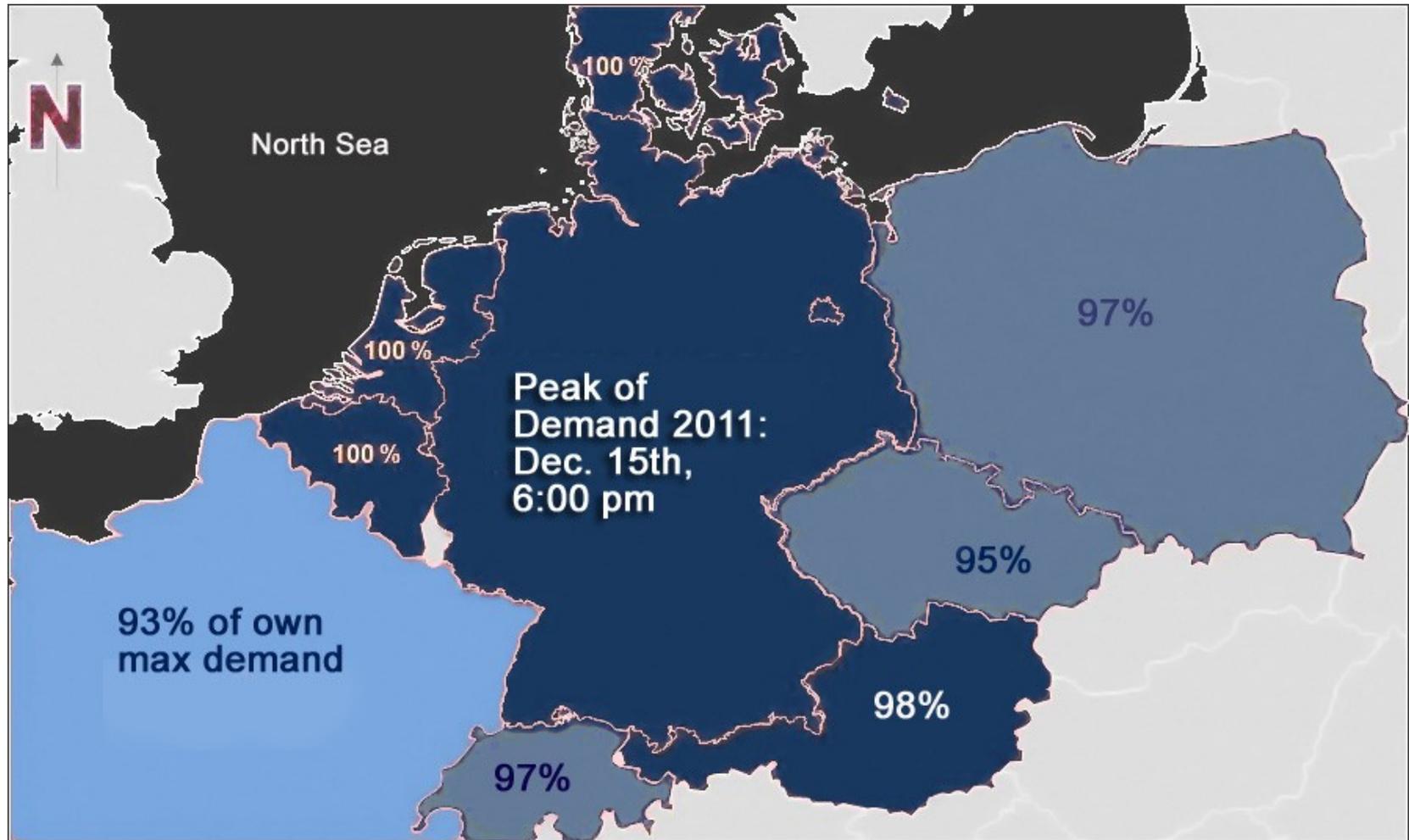
# Net / Grid Requirements / Problems

- Expansion of the network stagnates (just 214 km out of the necessary 1834 km are built by now).
- The development of the offshore windparks – planned as substitute for nuclear power - is significantly delayed.
- Economic and large scale storage is still missing.
- Import of Power is capped by cross-border transmission capacity and missing foreign power station capacity .

 a secure and sufficient delivery of power will only be feasible by thermal power stations.

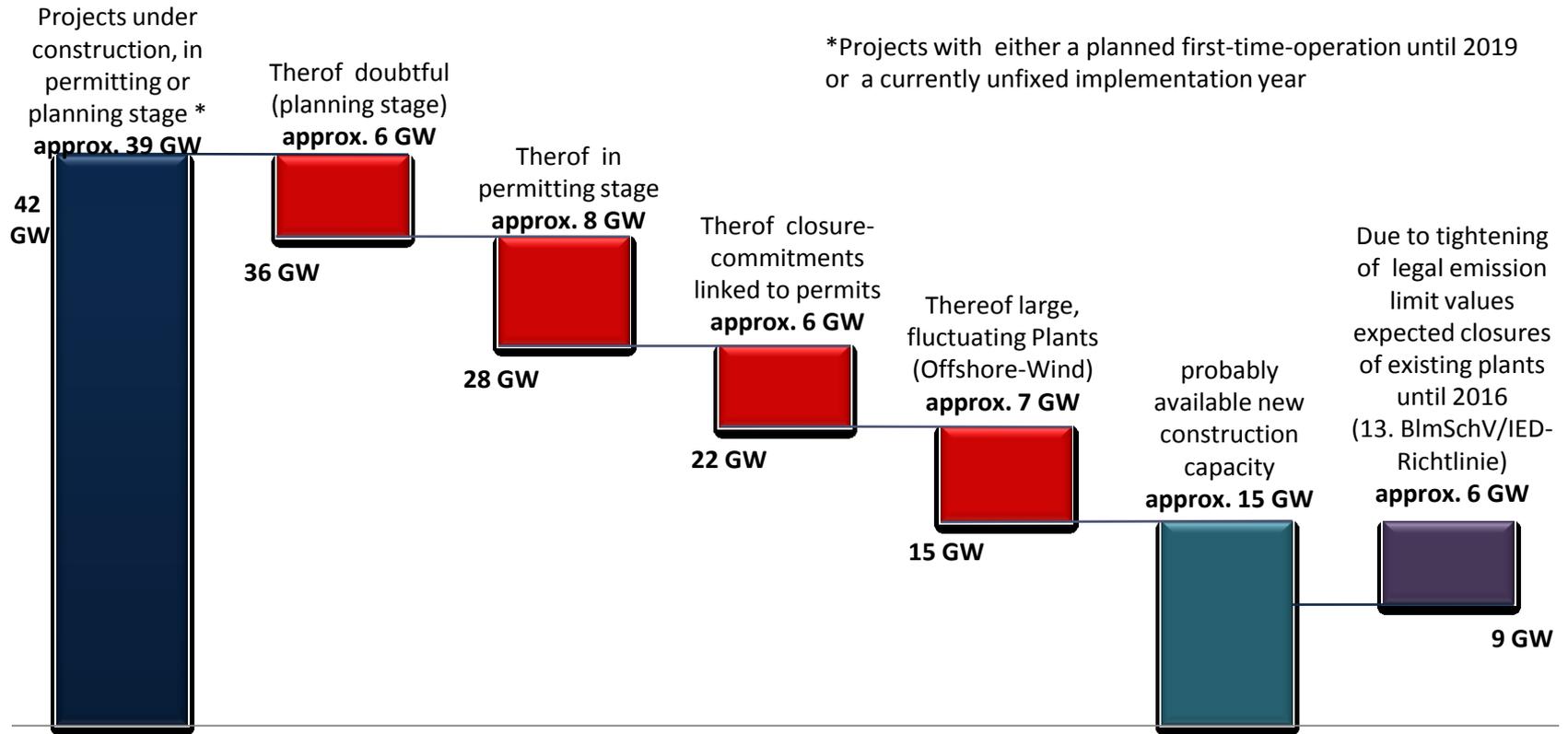
The necessity arises both for the building of new hard coal fired power plants as well as for the continuity of existing ones.

# Peak Power Demand 2011 in Europe



Source: entso-e

# Net-Growth of Installed Power-Station Capacity Germany (Plants >20MW<sub>el</sub>)



Plants currently under construction or planning (>20MW<sub>el</sub>):  
Maximum gross addition: 42GW

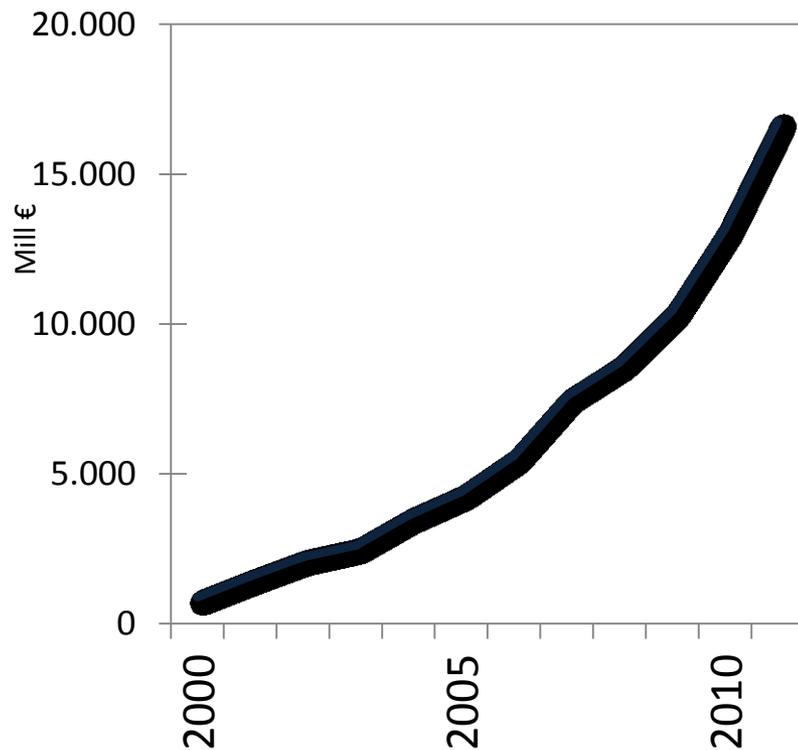


Net-growth of installed capacity in Germany: 9 GW

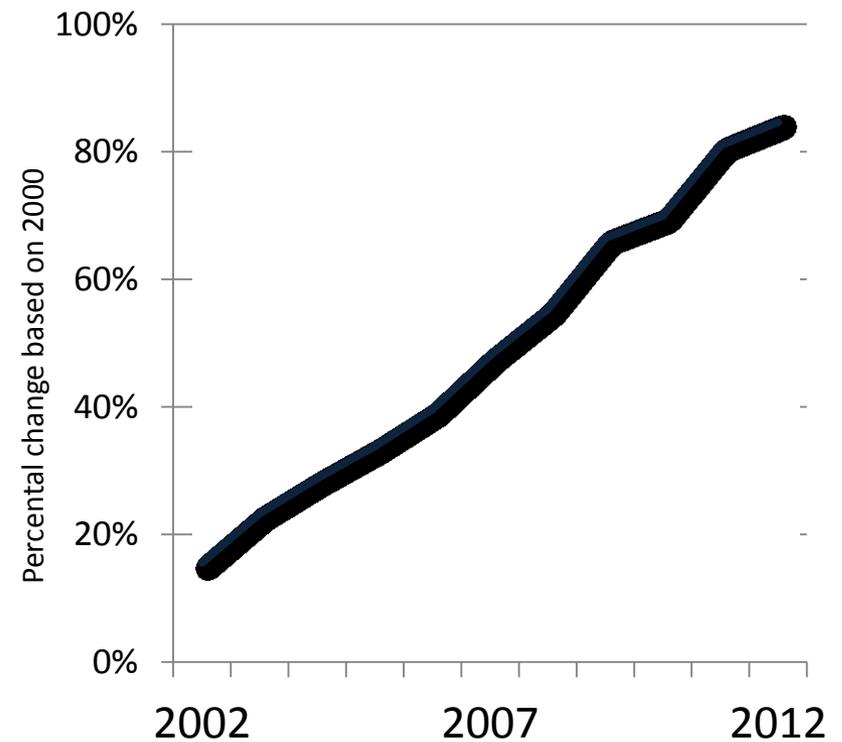
Source: BDEW

# Cost of PV Subsidies

## Feed-in Tariff for Renewables



## Electricity tariff – Households



Source: eeg-kwk.net, bdew

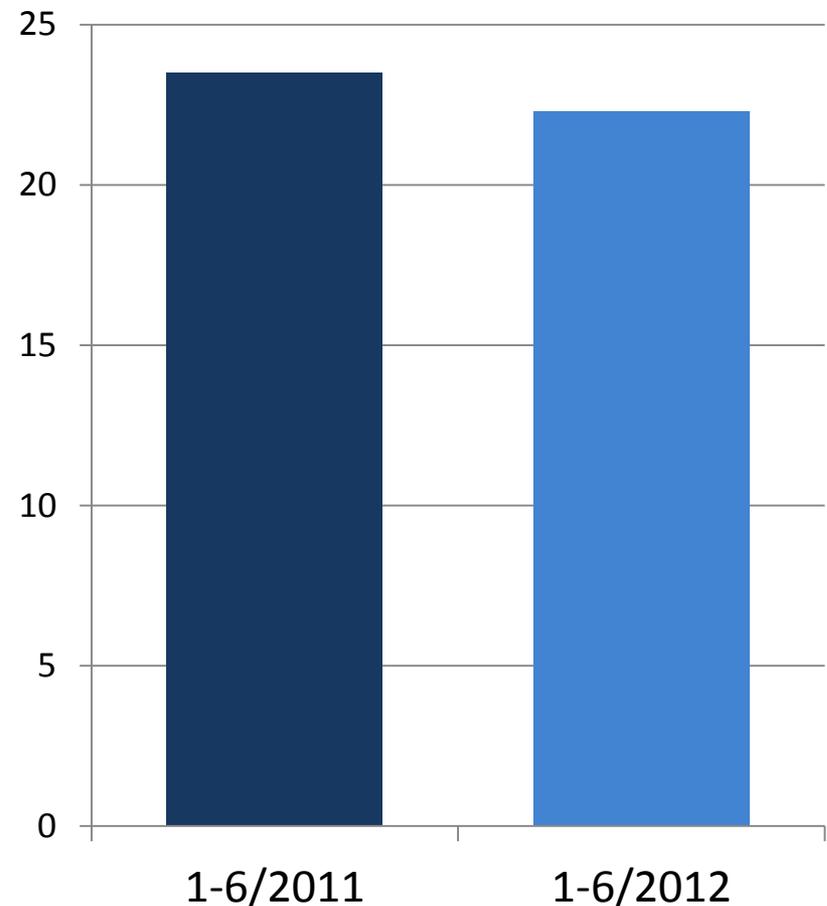
# Capacity Markets

- Investment grants for new power plants
- Strategic Reserve for fluctuating energy from RES
- Market based, non discriminating auctioning of capacity reserve by the grid operators for ancillary services and balancing capacity for the fluctuating energy.

# Conclusion

- The shut down of nuclear power plants, high gas prices and the shut down of German hard coal mines are favoring hard coal imports to Germany
- Coking coal demand is driven by international steel market
- In mid term economic basis for hard coal fired power plants is becoming tight.
- Capacity markets in the future could help existing hard coal fired power plants to make money.

## Hard Coal Imports



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