

# **“Electricity supply: Planned economies or competitive markets?”**

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- 1. Introduction: Recent developments**
- 2. How prices come about in electricity markets**
- 3. The issue of Supply security**
- 4. Dimensions of electricity markets**
- 5. Needs for capacity markets?**
- 6. The international dimension**
- 7. Conclusions**

# 1. INTRODUCTIONN

- **EU-targets of Liberalisation:**

**„Low“ electricity prices for the  
European industry ...**

- **competition („market forces should bring about these benefits...“)**
- **Increase supply security ...**
- **More environmentally benign ....**

## 2. HOW PRICES COME ABOUT

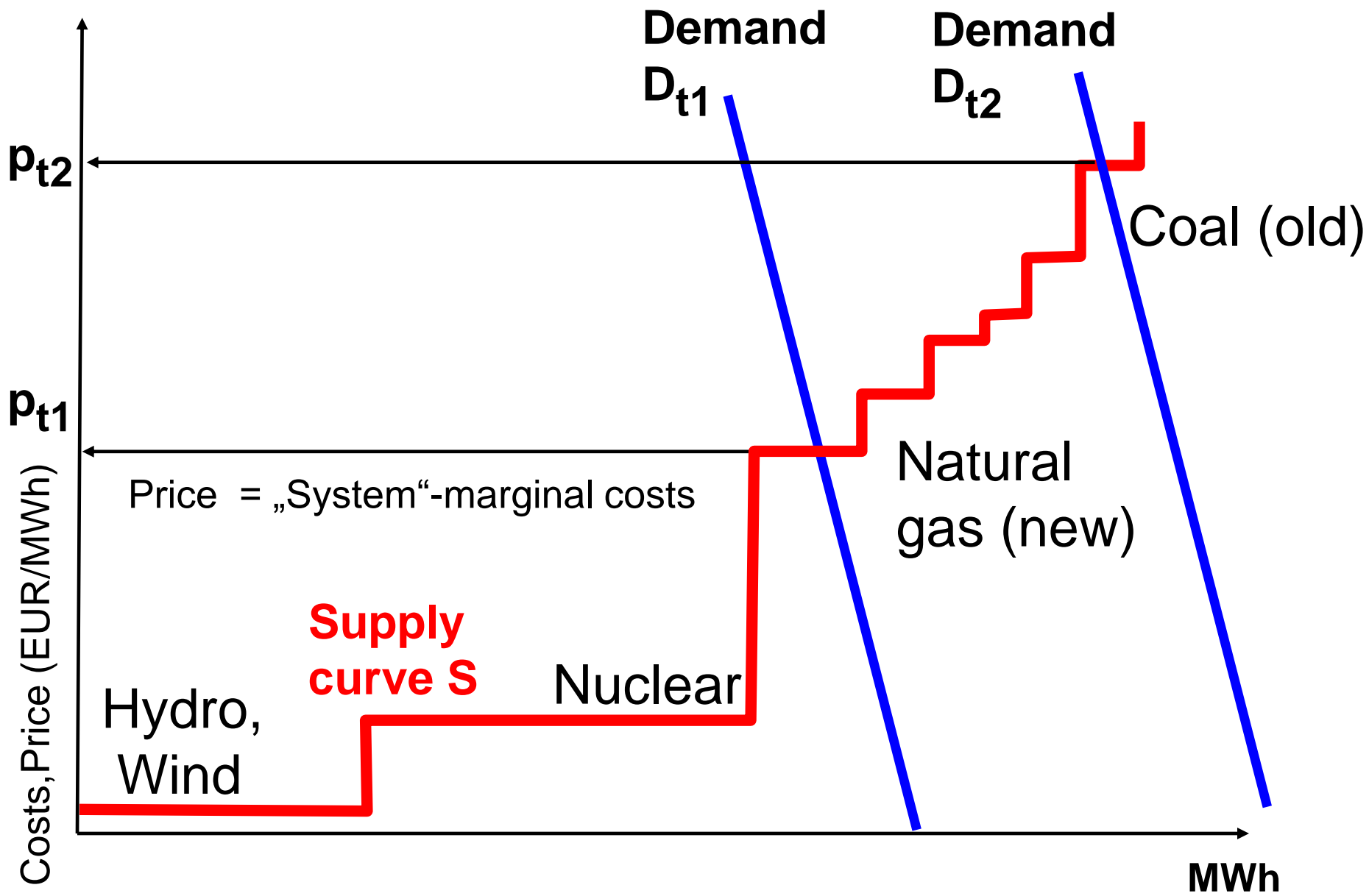
Expectation of:

**prices = Short-term marginal costs:**

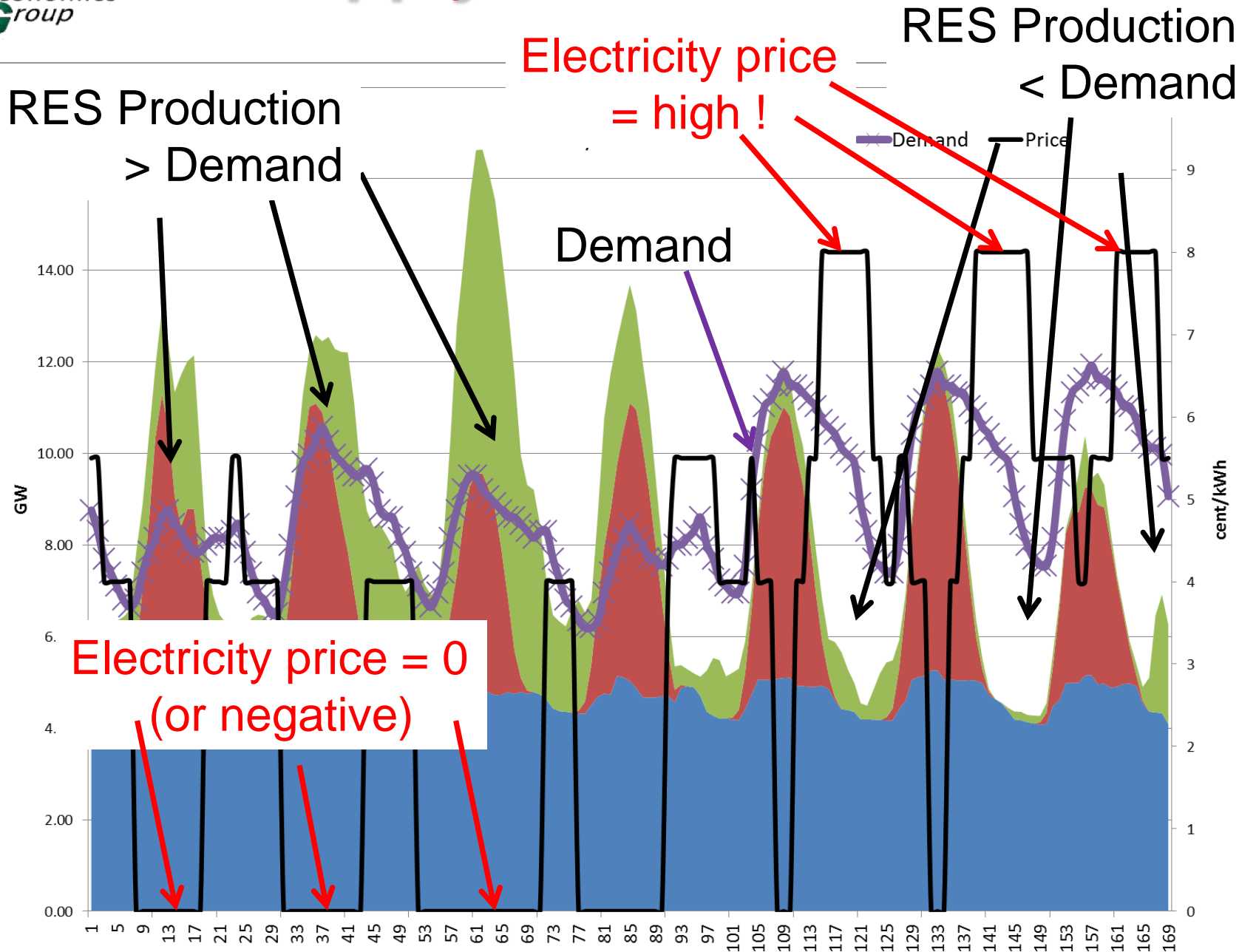
**due to huge depreciated excess capacities at the beginning of liberalisation!**

**Short-term marginal costs = fuel costs**

# BASIC PRINCIPLE OF COMPETITION: PRICE = MARGINAL COSTS



- 1. Prices decrease to Zero at a number of days;**
- 2. Lacking contribution margin to fixed costs**



**Given this price pattern it would be attractive for (some) power plant operators to stay in the market**

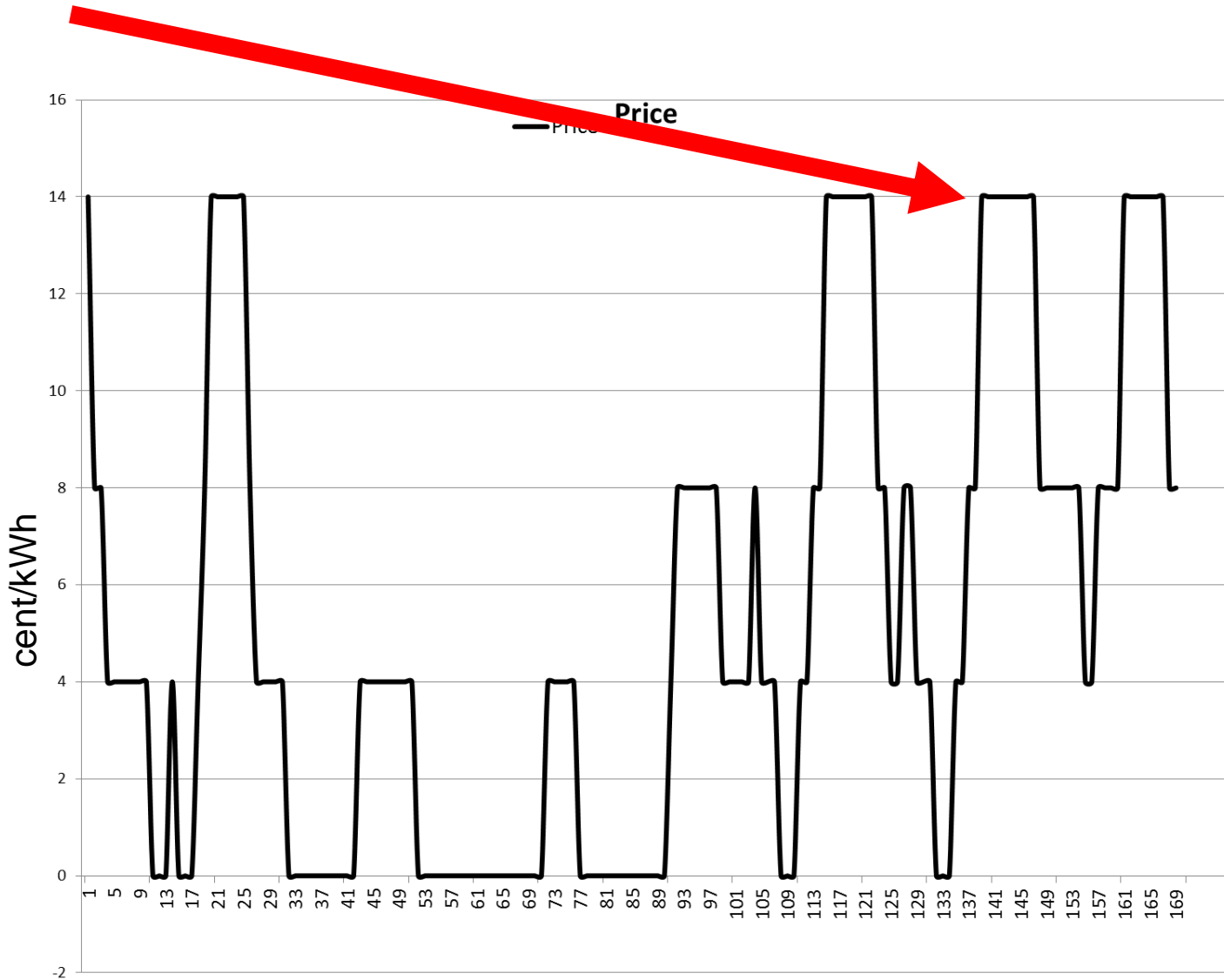


**REVISED ENERGY-ONLY MARKET**



# ARE THESE PRICES TOO HIGH?

$P_{t1}$   
New price spreads  
 $P_{t2}$



**Historical (anachronistic) definition:**

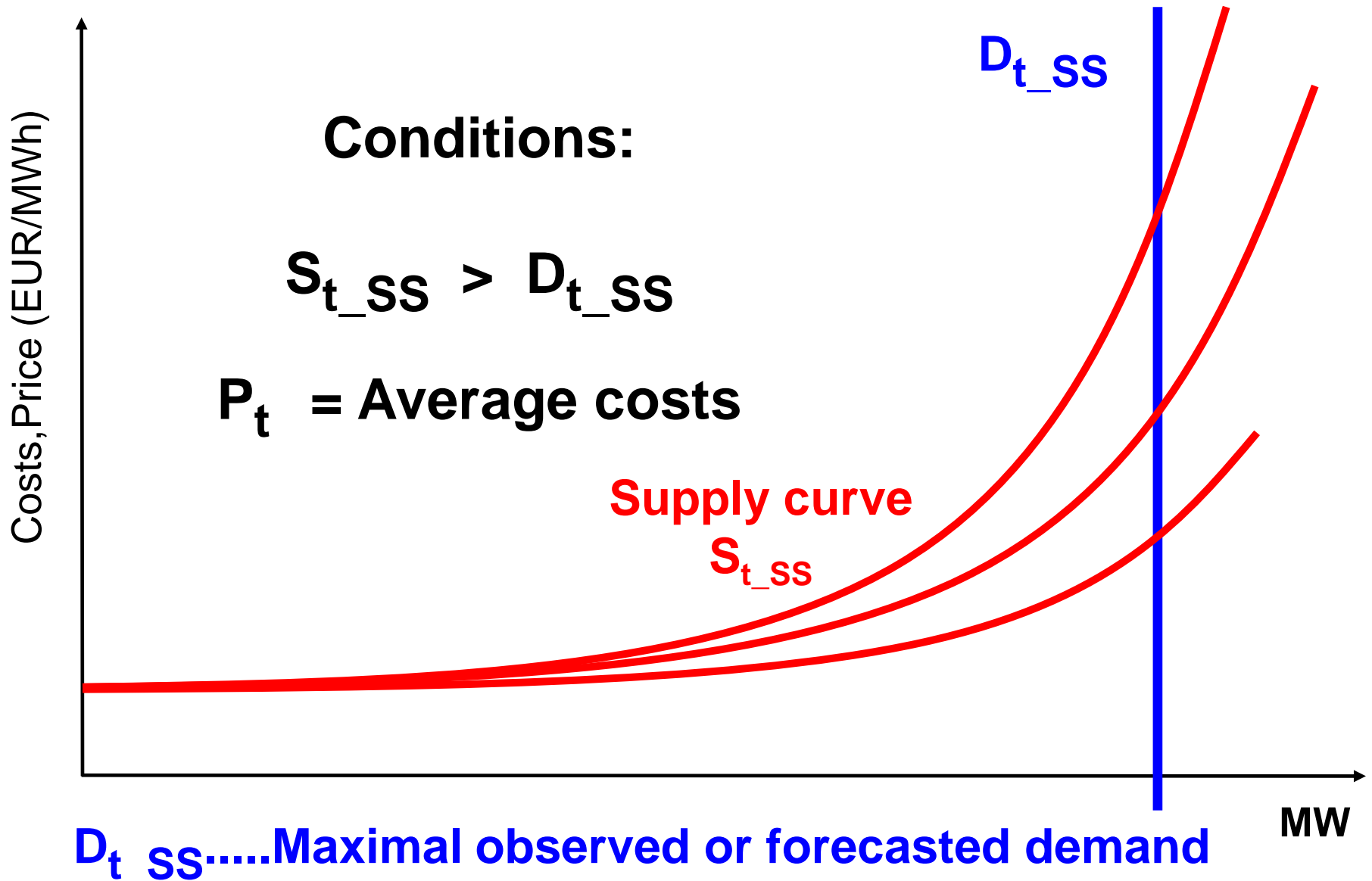
**At every point-of-time every demand has to be met regardless of the costs!**

**(Note:**

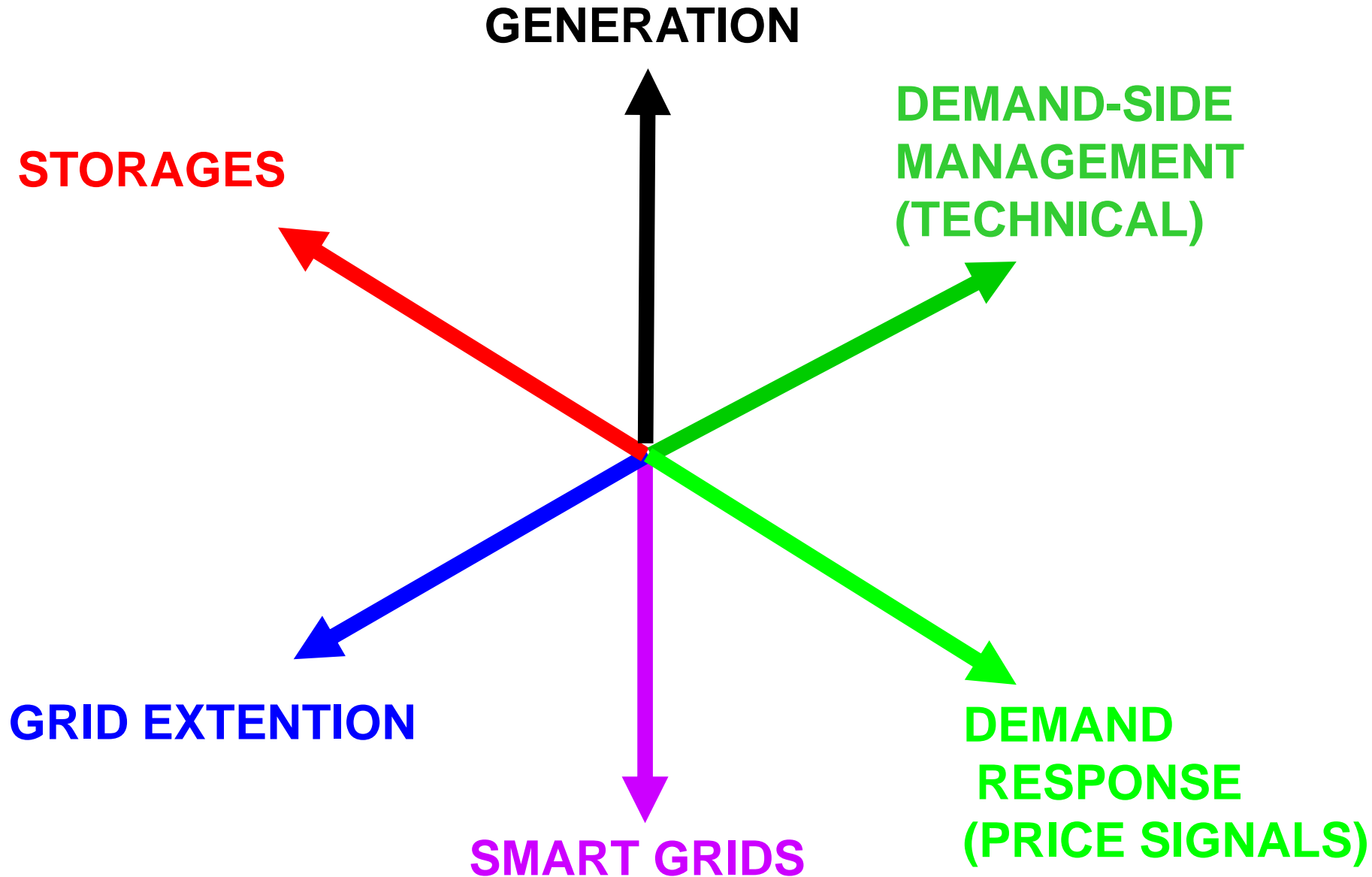
**Supply security is an energy economic term!**

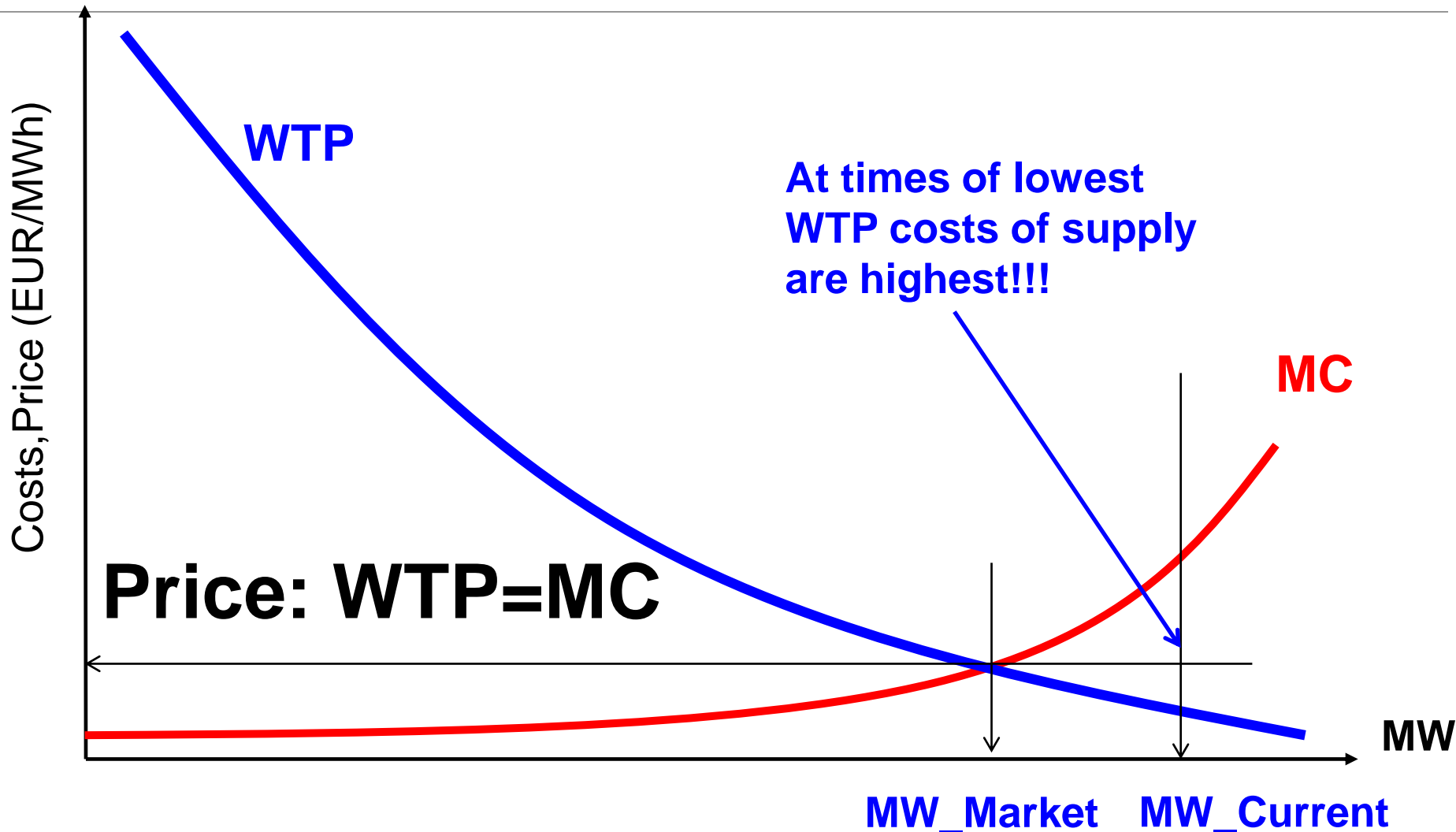
**Supply security  $\neq$  system reliability!)**

# HISTORICAL SUPPLY SECURITY



# 4. DIMENSIONS OF ELECTRICITY MARKETS





**PhD thesis Praktijnjo: A wide range of WTP on the demand-side!**

## CONDITIONS:

The marginal costs of all options must be equal!

$$MC_{\text{Gen}} = MC_{\text{Sto}} = MC_{\text{Grid}} = MC_{\text{DSM}}$$

$$P_t = MC = WTP$$

# 5. NEEDS FOR CAPACITY „MARKETS“?

# WHICH NEW MARKET MODELS ARE DISCUSSED?

|              | P=<br>STMC | P=<br>LTMC | DS<br>contracts | Exist.<br>cap. | New<br>cap. |
|--------------|------------|------------|-----------------|----------------|-------------|
| EOM classic  | <b>X</b>   |            |                 |                |             |
| EOM revised  |            | <b>X</b>   |                 |                |             |
| EOM + DCM    |            | <b>X</b>   | <b>X</b>        |                |             |
| Compreh. CCP | <b>X</b>   |            |                 |                | <b>X</b>    |
| Focused CCP  | <b>X</b>   |            |                 | <b>X</b>       | <b>X</b>    |

EOM...Energy-only market  
 CCP...Centralized capacity payments  
 DCM...Demand-side capacity market



## WHAT GENERATORS OF FLEXIBLE CAPACITY RECEIVE:



### Energy-only markets (EOM)

- Payments for energy (higher!)



### Capacity markets (CM)

- Payments for energy;
- Payments for existing plants;
- Payments for new plants

# OPEN QUESTIONS REGARDING CCP:

**Which quantity of capacity where?**

**How to split in existing and new capacity?**

**How to tune with grid extension?**

**Who plans? On national or international level?**

**E.G. CCP in DE influence operation of  
Austrian and Swiss hydro storages**

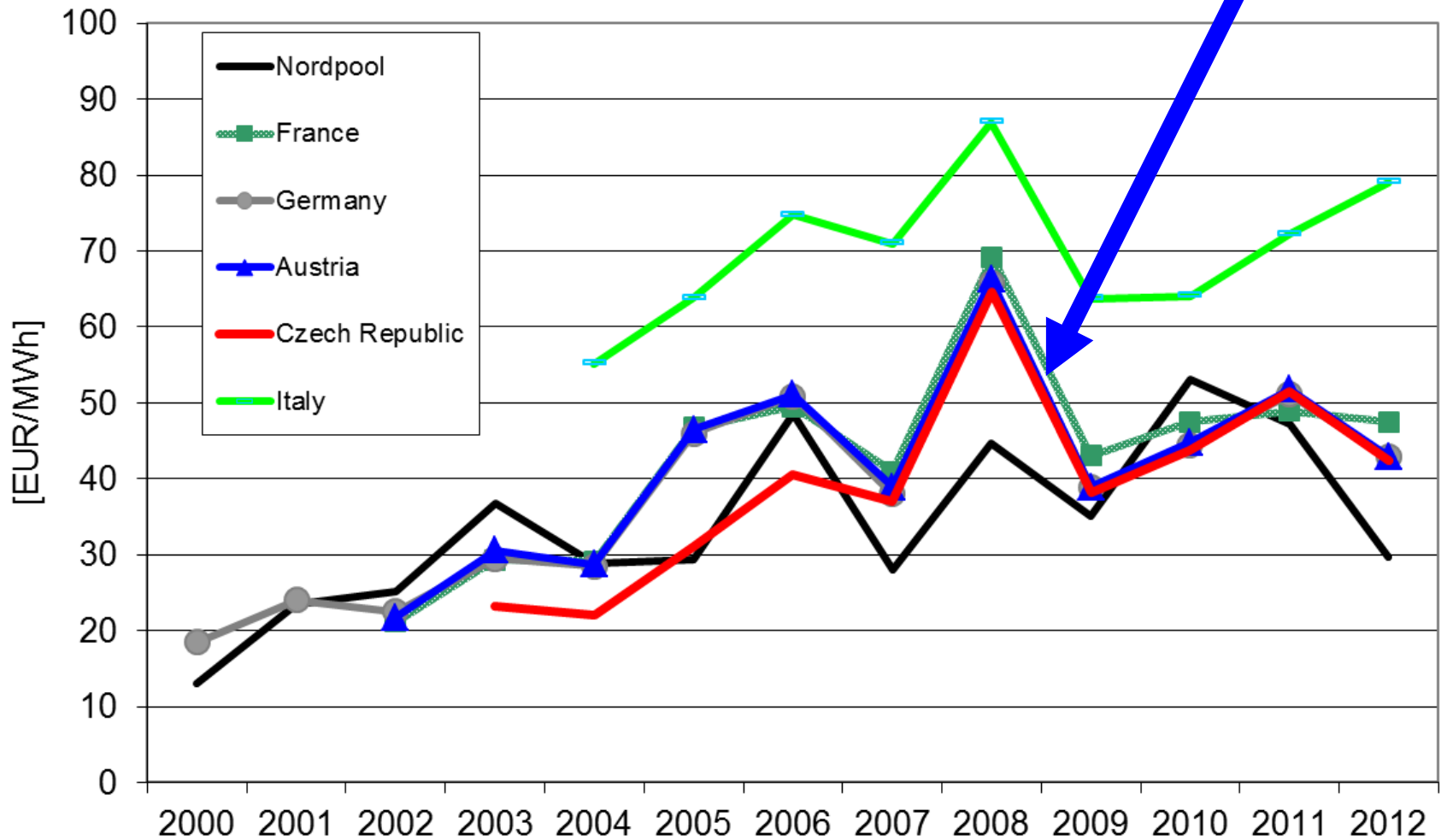
**Capacity MARKETS???** How should  
competition take place in a specific  
region with one supplier?

**Or in France???**

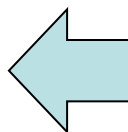
# 6. THE INTERNATIONAL DIMENSION

# DEVELOPMENTS AT SPOT MARKETS

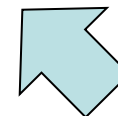
AT, DE, FR, CZ, PL → One market!



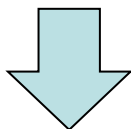
**Financing  
inter-  
national?**



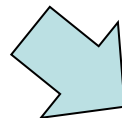
**CCP Inter-  
national**



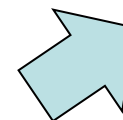
**Grid  
extention  
Nat./Int.**



**CCP  
National**



**Storage  
Internat.**



**Central  
European  
planning  
commission  
!**

**Conclusion: Increasing  
planning leads to higher and  
higher inefficiency in the  
system and increasing costs**

## THE ALTERNATIVE:

# NATIONAL CAPACITY „MARKETS“ ???

Statement EWI Cologne, in favour of CCP:

“If we introduce capacity markets they must really ensure full supply security. That is to say the capacities we need must at least to some extent be higher than expected demand, including a security margin”

(Energy&Management, March 2013)

Now imagine the excess capacity that comes about if all European countries to do this on a national level ....

# 7. CONCLUSIONS

- The still applied concept of Supply security is **anachronistic**
- **National CCP will never work**
- **CCP will be the death of all ideas of competition and head to a strictly planned economy**
- most important now: exhaust the **full potential of the creativity of all market participants especially of the demand-side!**