

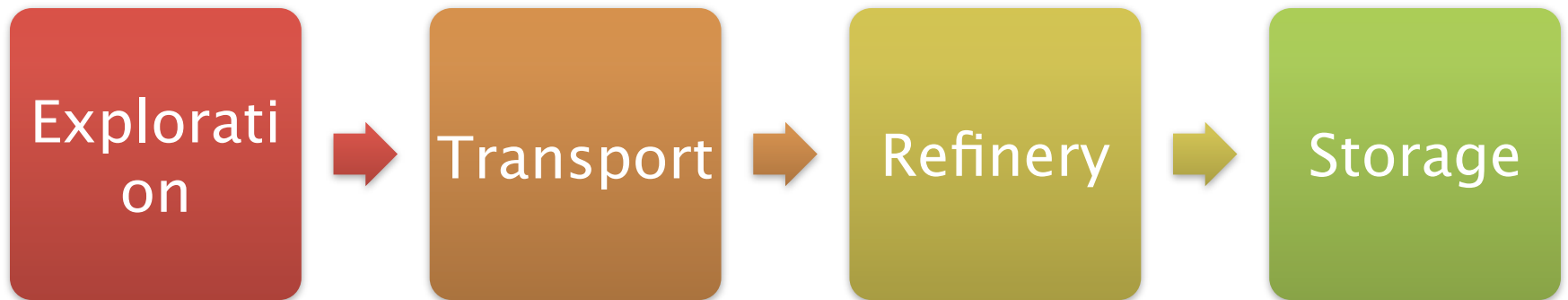
# Commodity Trading Introduction to Markets

28.2.2011

# Introduction

- Your cousin in California has found a oil well, does this serve your desire to ride your Ferrari?

# Value Chain

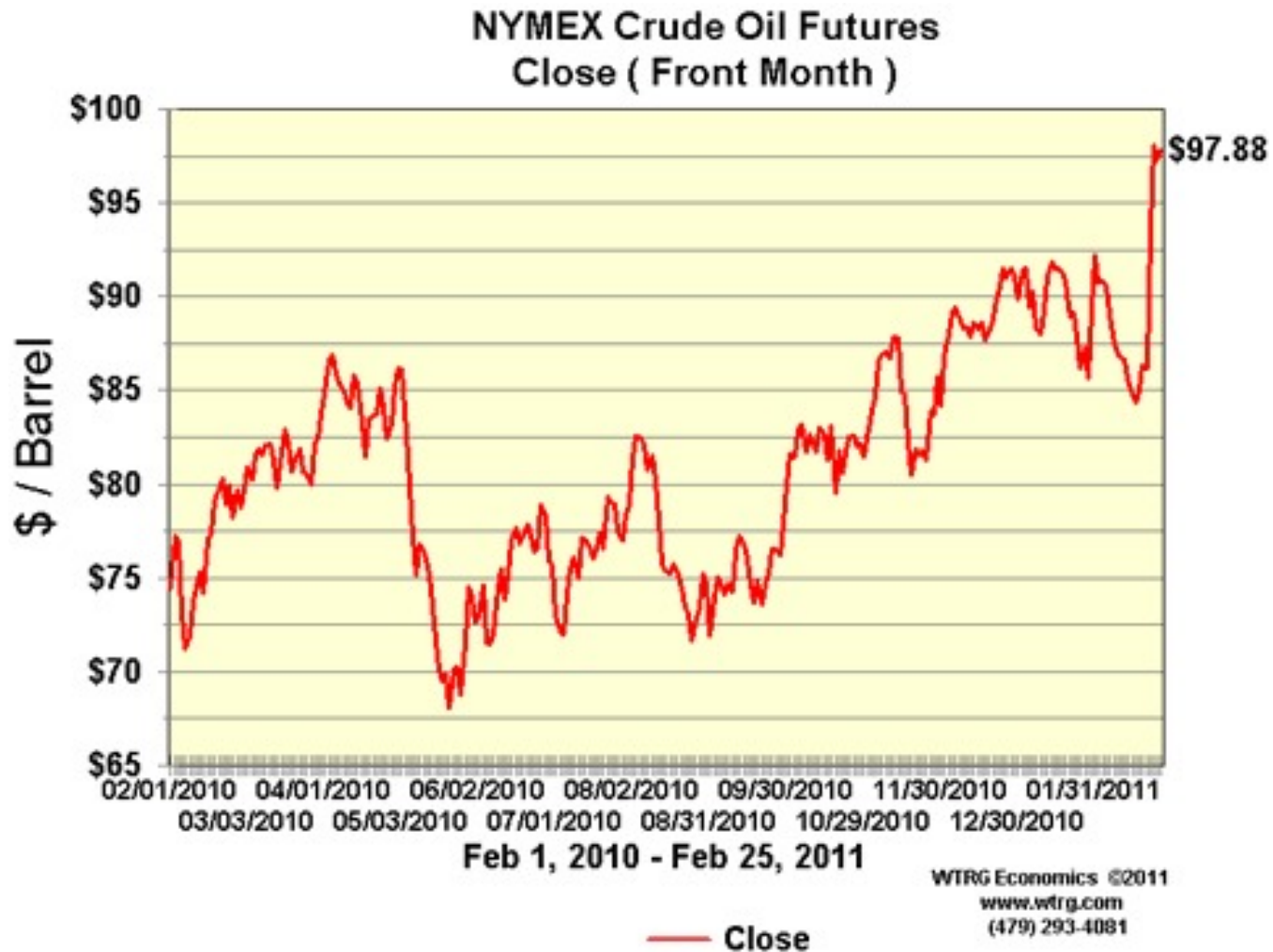


What is about Trading?

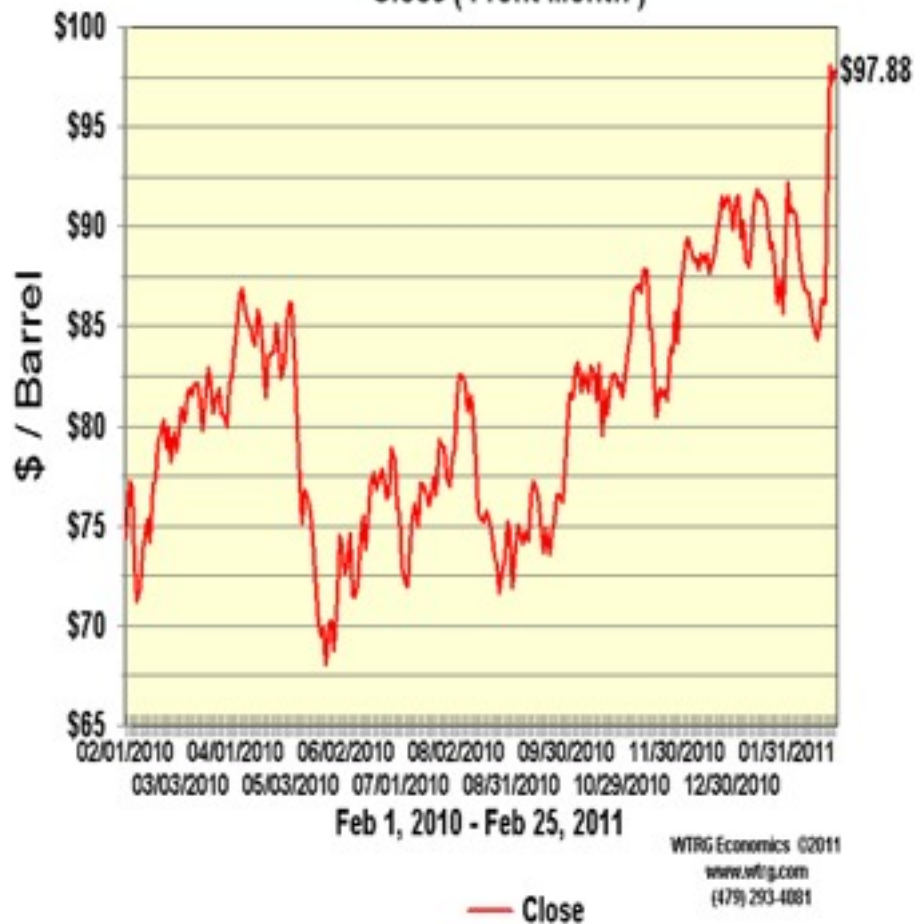
# Value Chain

- Exploration – production
- Refining (processing) – chemical difference
- Transportation – geographical change
- Storage – time difference
- Risk Taking – info time difference (when is which decision taken)
  - Example: Today buy on term end of year – sell tomorrow on term end of year
  - ➔ Trading

# Prices change



NYMEX Crude Oil Futures  
Close ( Front Month )



Brent Crude Oil Futures  
Close ( Front Month )



# Elements of a Market

- Uniform instrument(s)
- Market Participants → Different Interests
- Transparency – Exchanges / OTC Markets

Characteristics of Markets

# Example

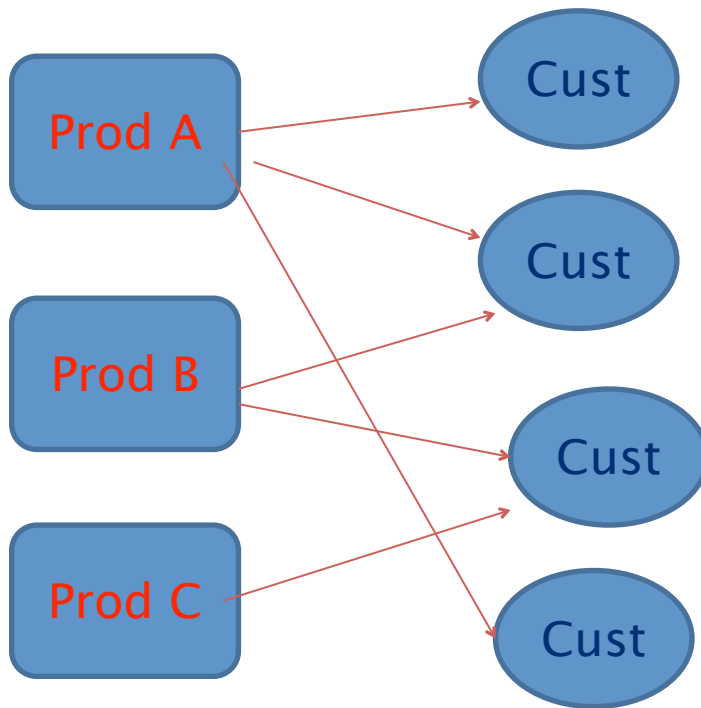
- Trader T bought Dec. 20th, 1000 ounce Gold for 1200\$ per ounce. End of year price is 1300\$, he sells all on Jan 2<sup>nd</sup> for 1290\$.
- When did he make a profit?



# Example

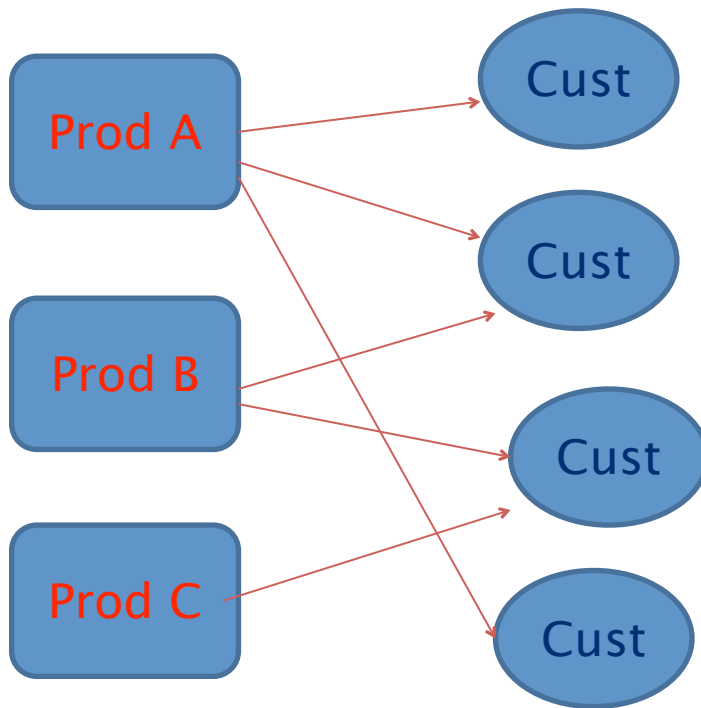
- A Purchasing Manager of a Large Department Store bought Dec. 20th, 1000 Fur Coats for 1200\$ per piece. End of year price is 1300\$, he sells Jan 2<sup>nd</sup> for 1290\$.
- When did he make a profit?

## Unidirectional Market



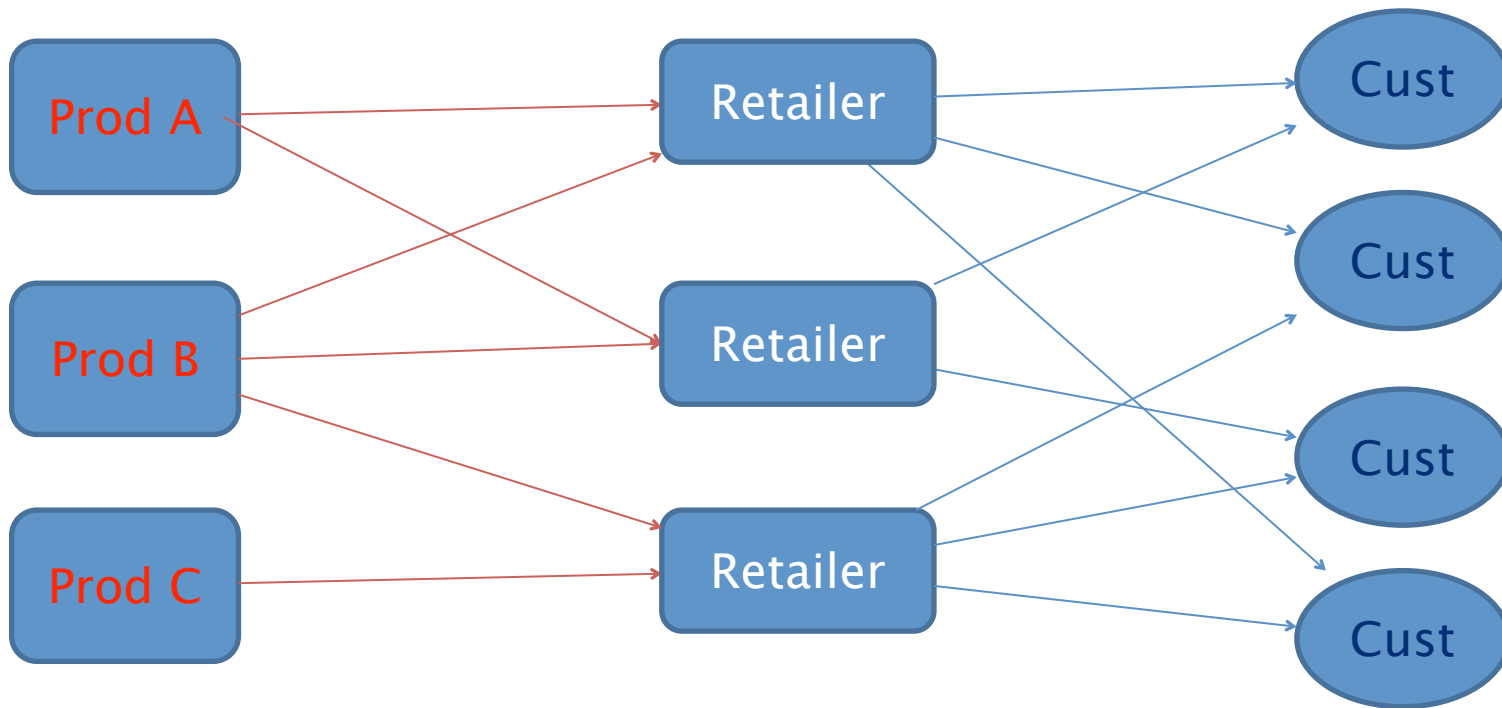
## Multidirectional Market → Trading

# Unidirectional Market



- Producers and customers well defined
- Producer compete over price
- Prices do not move fast
- Intermediates just increase costs  
➔ Transparency wipes intermediates out

# Unidirectional Market




# Multidirectional Market

## ➔ Trading

- Prices move fast
- Players are not just intermediates, but take the risk of price change  
➔ Traders
- Rebates not sustainable
- Prices reliable,  
Transparency
- Often in coexistence with unidirectional Market (Retail market)

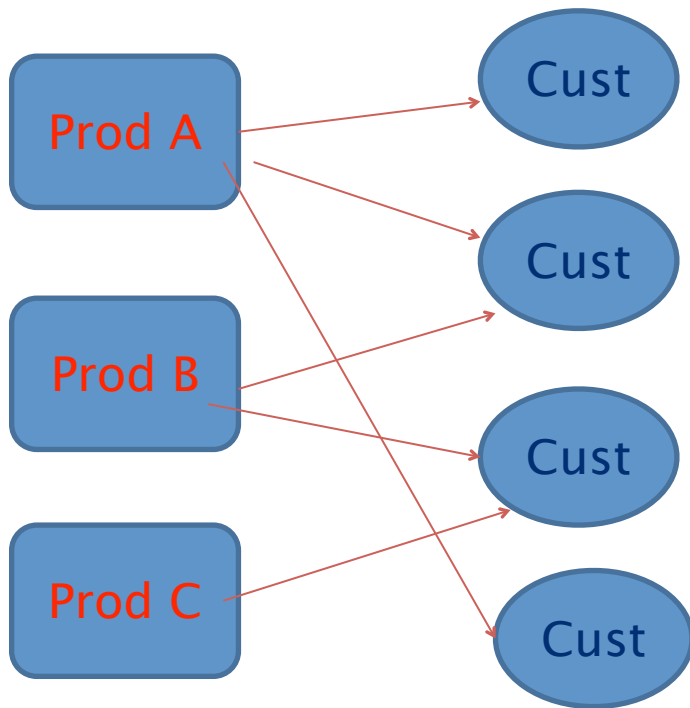
# Circular Market

# Market Participants

- Explorers
  - Refiners
  - Transporters
- 
- Heavy Investments  
→ Hedging
- Distributors → Hedging
  - End Consumer Large / (Small)
  - Traders → Risk Takers
- + mixed strategies

# Market Development

## Unidirectional Market



## Multidirectional Market → Trading





# Example: Electricity in

- Till 1998 Monopol → Unidirectional
- 9 large utilities / ca. 900 „Stadtwerke“(retailer)
- 1998 EU Directive Market Opening
- 1999 large fight for market share → losses
- 2000/ 2001 OTC Market establishes (Enron Open), Exchanges EEX / LPX

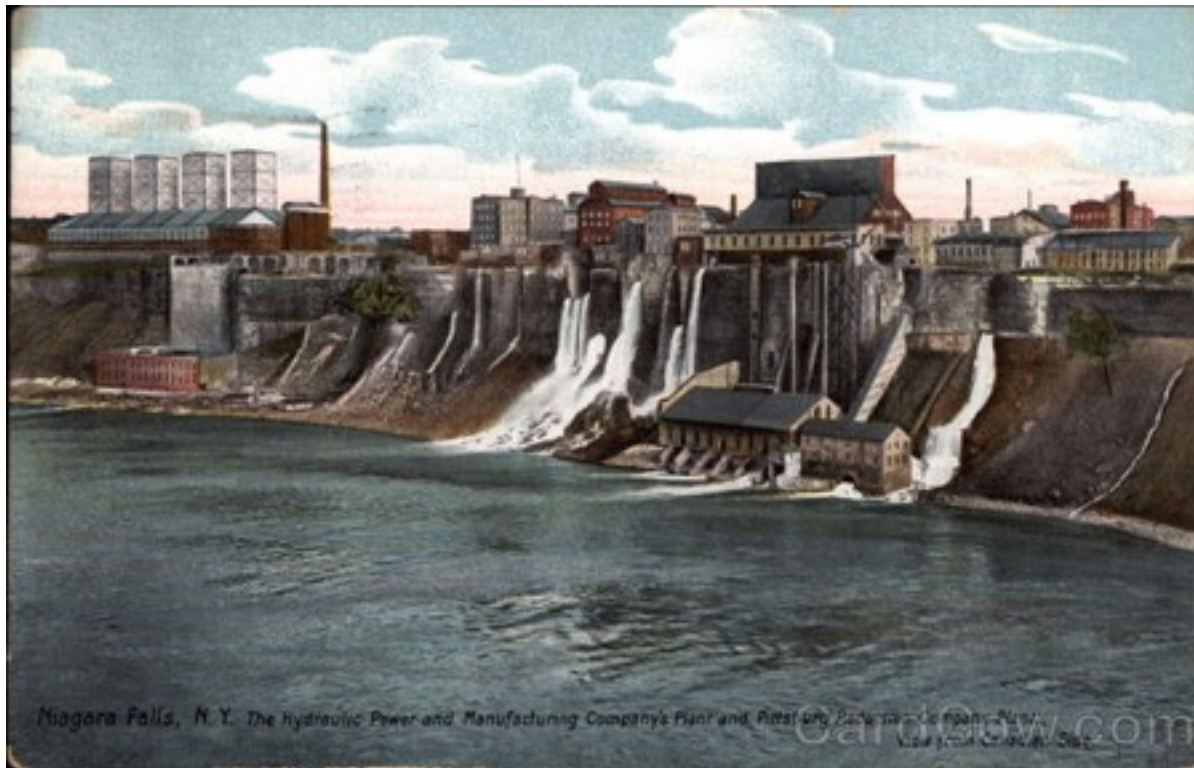
# Underlying market matters

- Every market has its fundamentals
- The change of the fundamentals change value structure and bear opportunities
- Few traders change markets more than once

# 4 classes of major

- Energy ←
- Precious metals
- Base metals
- Agroculture

# Electricity









# Electricity

- Niagara Falls Power Plant ca.1860 primarily for NY City lights in competition with gas lights
- In the 1880ies coal fired power plants







# Gas fired Power Plants



# Nuclear Power Plant

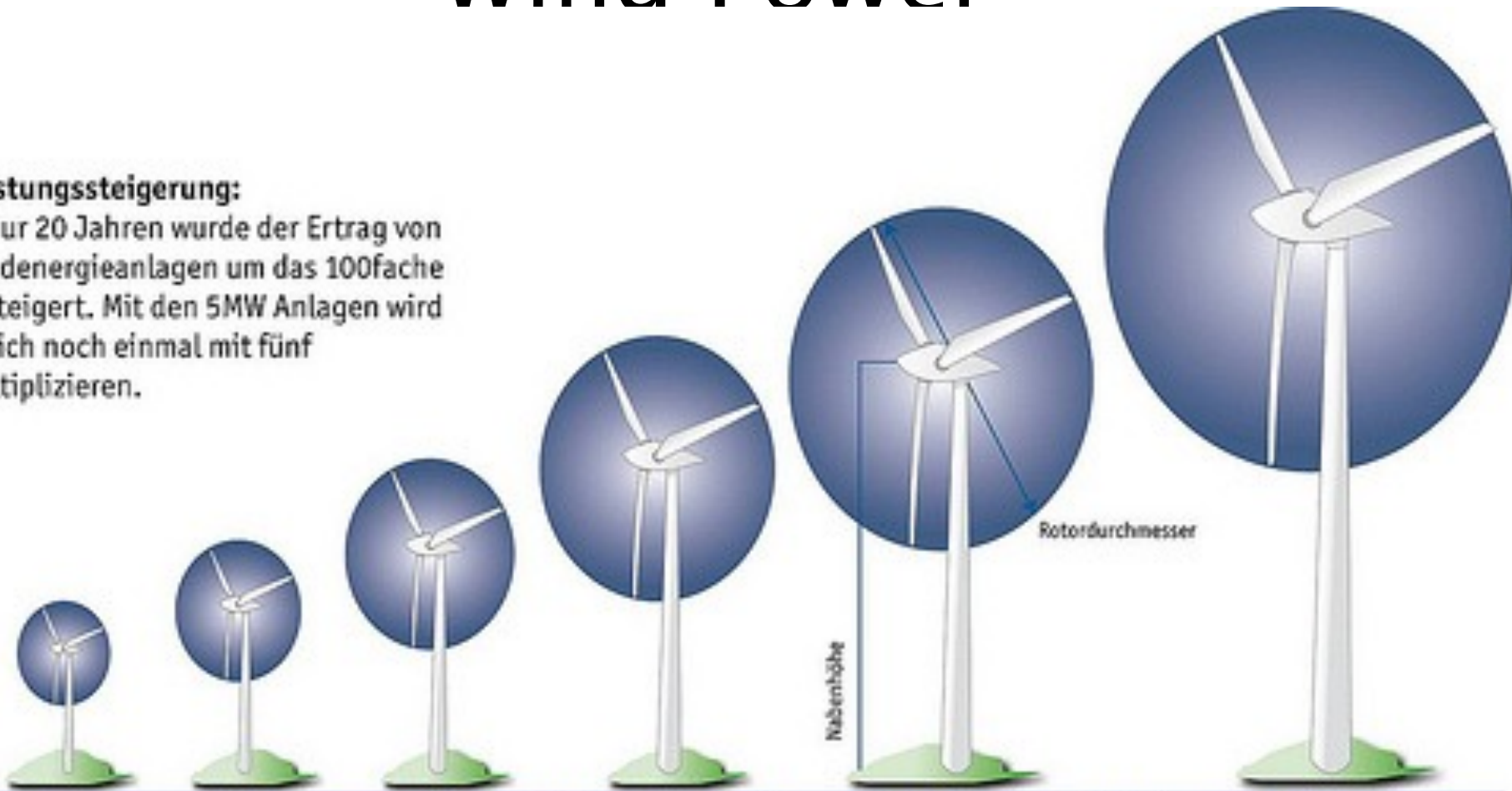




# Wind Power

## Leistungssteigerung:

in nur 20 Jahren wurde der Ertrag von Windenergieanlagen um das 100fache gesteigert. Mit den 5MW Anlagen wird er sich noch einmal mit fünf multiplizieren.



	1980	1985	1990	1995	2000	2005	2008
Nennleistung	: 30 kW	80 kW	250 kW	600 kW	1.500 kW	3.000 kW	6.000 kW
Rotordurchmesser	: 15 m	20 m	30 m	46 m	70 m	90 m	126 m
Näbenhöhe	: 30 m	40 m	50 m	78 m	100 m	105 m	135 m
Jahresenergieertrag	: 35.000 kWh	95.000 kWh	400.000 kWh	1.250.000 kWh	3.500.000 kWh	6.900.000 kWh	ca. 20.000.000 kWh

# Solar Power



# Transportation



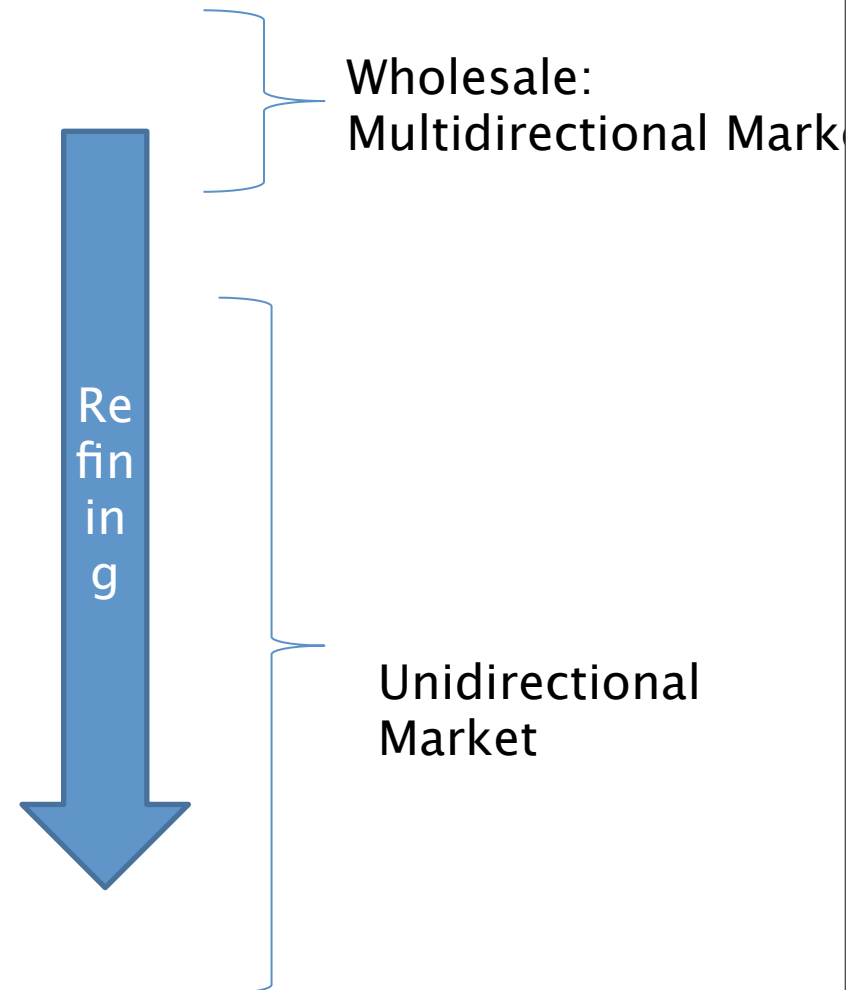
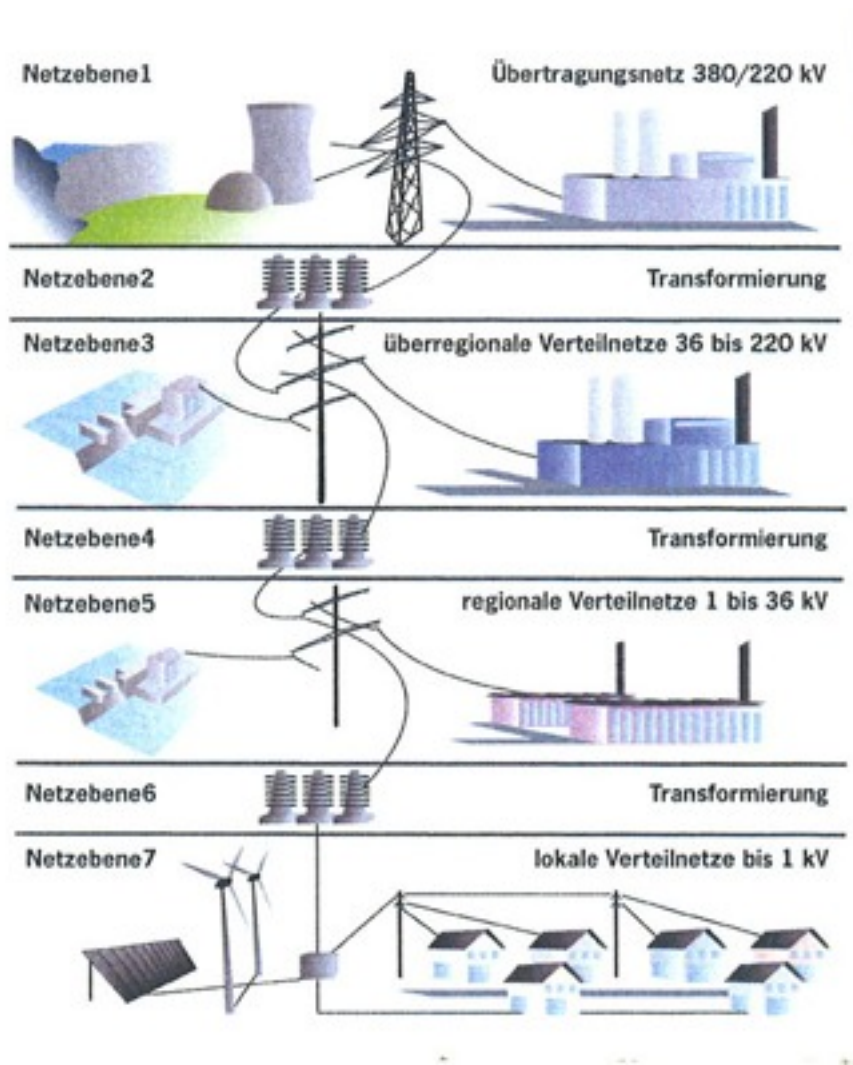
**Physics: Higher Voltage Transportation – Less Energy Loss**

# Transportation

- **Physics: Higher Voltage  
Transportation – Less Energy Loss**
- 1950s: International (Cross Border) Grids (CH-I / CH-D-F)
- 1967 Grids of F-D-CH merge (technically) on 220 kV Level. „UCPTE1“  
14 more countries join
- 2005 EU allows Cross Border Auction



# Different Grid Levels (Voltage)





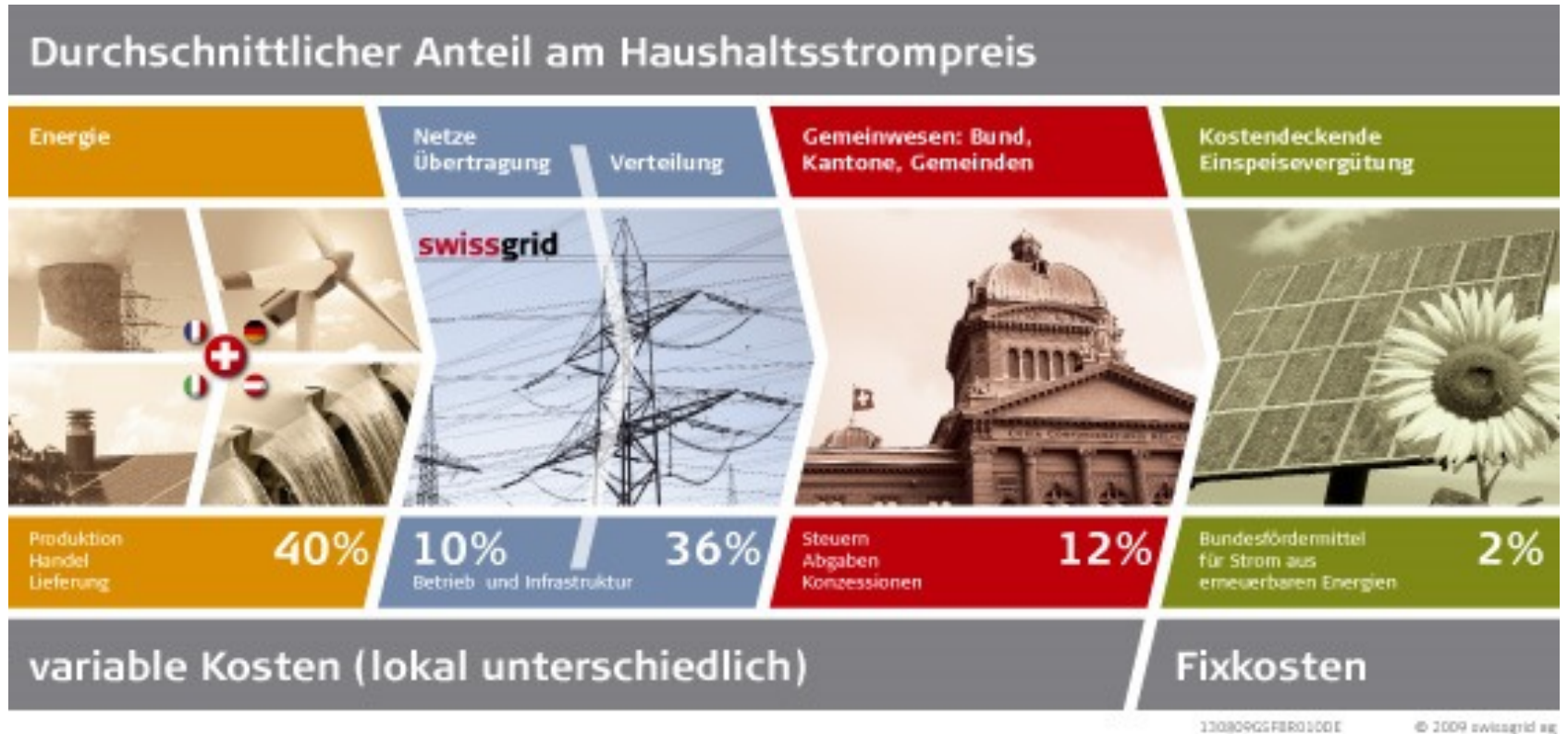
# Storage: Electricity as such is NOT storable – Flexible



# Linth Limmern: Project for x billion Francs, No additional



# Retail Price Composition



# Fact Sheet for Commodities

- Value Chain:
  - Production
  - Transportation
  - Refining
  - Storage
- Demand (why/ generation)
- Markets
  - Standards
  - Exchange
  - Players
- Politics

# Electricity Facts: Value Chain

- Storage: Only indirect (flexible generation)
- Transportation: Over Grids (standardized, Grid-Monopols: TSO) [www.swissgrid.ch](http://www.swissgrid.ch)  
[www.rwe.de](http://www.rwe.de)
- Transportation: limited (ca. 1000km) due to energy loss
- Refining: NO chemical processing but voltage transitors
- Production (Generation): Dependent on fuels, different generation  
EU27: 28% Nuke, 26% Coal, 24% Gas / US: 45% Coal / China 70% Coal

# Electricity Facts

- Demand:
  - dependent on GDP and population (Western Europe, US, 6–7 MWh p.a. per capita)
  - Average EU/ US: 33% Industry, 33% Household, 33% Administration
  - US 4000 TWh / Europe 3500 TWh / China 4000–4500 TWh / Japan 1000 TWh / Russia 1000 TWh
- Market, Standards:
  - Energy – Capacity (maximal Generation) = Energy per time
  - Capacity Unit MW
  - Energy Unit MWh: (1TWh=1'000 GWh=1'000'000 MWh=1'000'000'000 kWh)
  - Price ca. € 50 / MWh
  - Specify Delivery Point and Period (e.g. base load May, RWE Grid)

# Electricity Facts

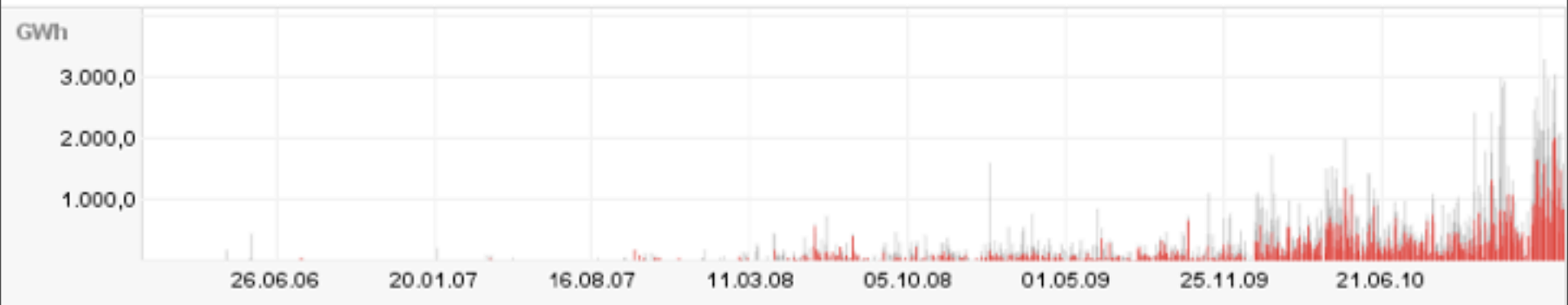
- Market, Exchanges: Regional markets,
  - US: PJM, ERCOT, New England, NY, California, Midwest  
[www.ferc.gov/market-oversight/mkt-electric/overview.asp](http://www.ferc.gov/market-oversight/mkt-electric/overview.asp)
  - Europe: EEX, Nordpool, et al.  
[www.eex.de](http://www.eex.de)
- Market, Players: Utilities, some commodity traders
- Politics: Large political (nationalistic)

# Price Development 5Y

Preis



Volumen



Optionen

Samstag, 4. Juni 2011