

# Status of Geothermal Energy in Germany



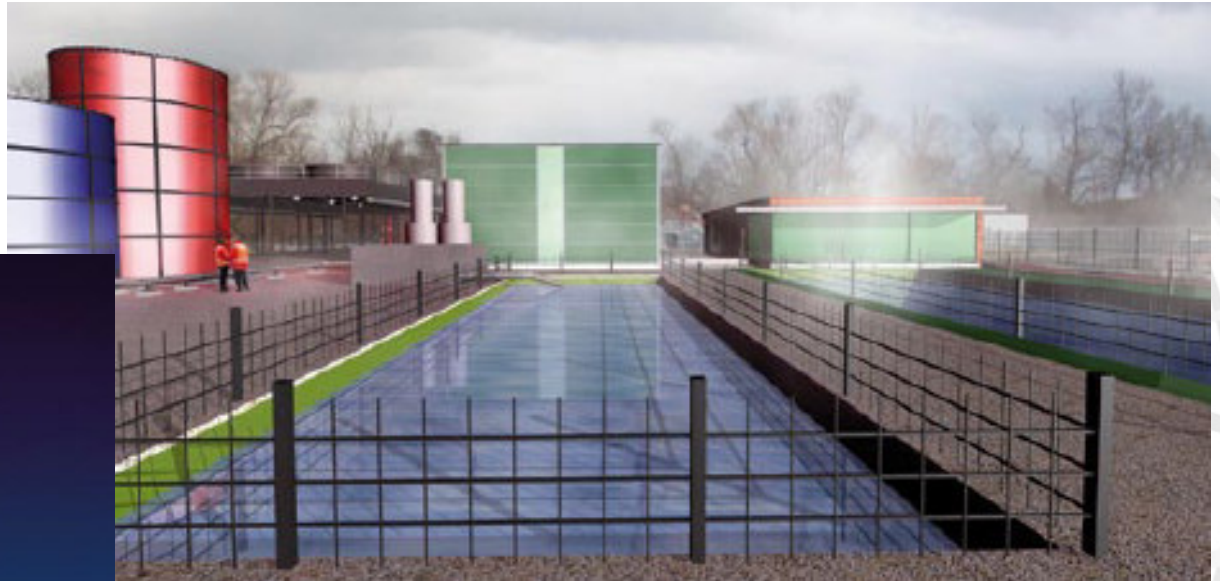
**Dr.-Ing. H. Kreuter**



- **New plants produce heat and electricity !**
- **Political framework with positive changes !**
- **More drilling in progress !**
- **R&D challenges**



# Landau



Karlsruhe, 01.08.2007

**GEO THERMISCHE VEREINIGUNG E.V.**  
BUNDESVERBAND GEOTHERMIE



Horst Kreuter / [www.geothermie.de](http://www.geothermie.de) / 2007

# Landau



# Unterhaching



Karlsruhe, 01.08.2007

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# Unterhaching



# Political Framework: Funding and Risk Mitigation Power

- EEG (feed in tariff)
- Risk mitigation (MAP)

## Heat

- MAP funding
- MAP risk mitigation

MAP = Market Stimulation Program



## Feed in Tariff

## Government plan

Renewable Energies Law (EEG)  
Tariff in Cent/kWh:

### Geothermal Energy

0	-	5	MW	15
5	-	10	MW	14
10	-	20	MW	9
>		20	MW	7

Renewal  
1.1.2009

16

11

Petroth. Bonus: 2 Cent

Heat use Bonus: 2 Cent





## Feed in Tariff

## Proposal GtV-BV

Renewable Energies Law (EEG)  
Tariff in Cent/kWh:

Renewal  
1.1.2009

### Geothermie

0	-	5	MW
5	-	10	MW
10	-	20	MW
	>	20	MW

20

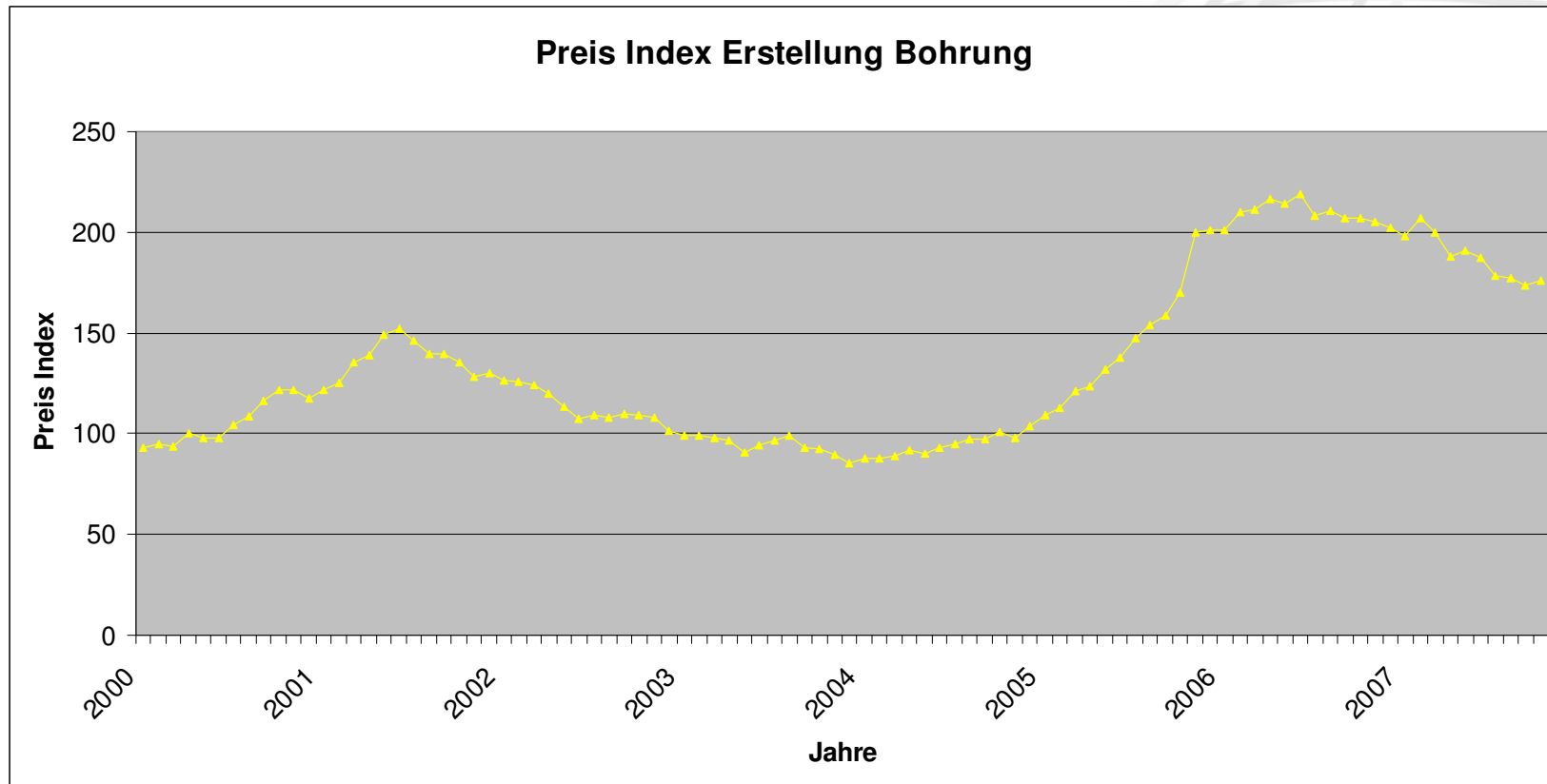
12

Petroth. Bonus: 6 Cent

Heat use Bonus: 3 Cent



# Drilling Prices



# MAP (Funding)

## Basic regulations

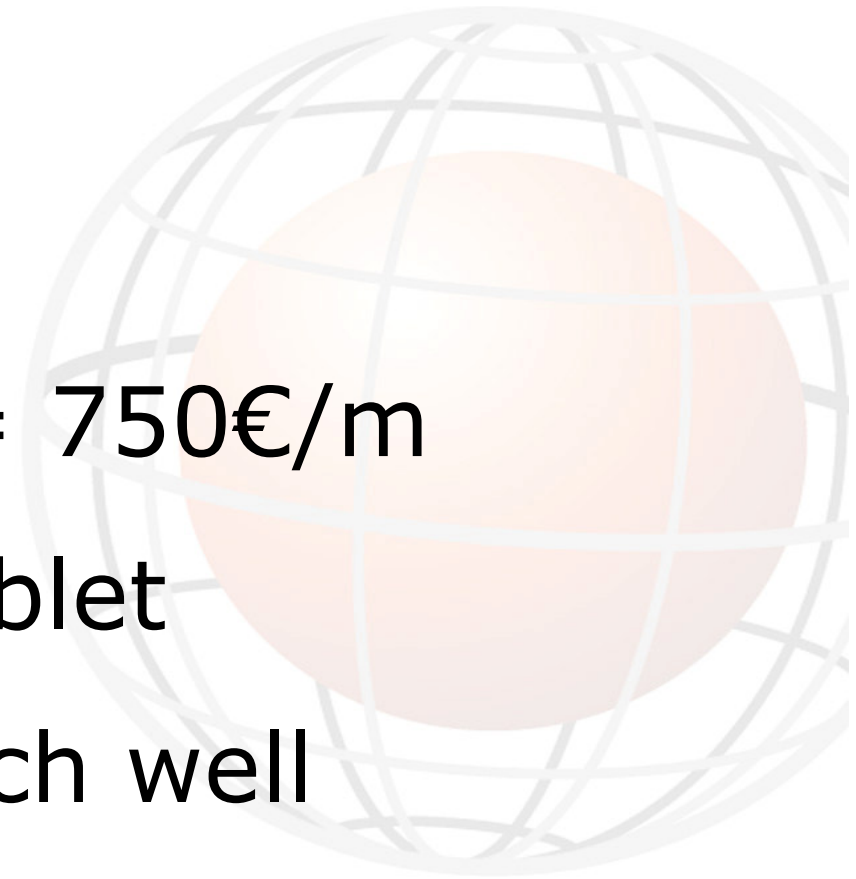
- Only heat projects
- Deeper than 400m
- Max. 80% of fundable costs
- Rest of 20% not from public funds
- Cummulation of different funds



# MAP (Funding)

## Drilling

- Depth: i.e. 2500m = 750€/m
- For each well of doublet
- Max. 2 Mio. € for each well



# MAP (Funding)

## Plant

- 200 €/kW<sub>th.</sub>
- Max. 2 Mio. €



# MAP (Funding)

## District heating distribution lines

- Prerequisites like size, portion >20%
- 60 €/m length
- Max. 1,5 Mio. € only heat projects
- Max. 1,0 Mio. € heat and power projects



# MAP (Risik Mitigation)

## Exploration risk

- Revolving fond
- BMU, KfW, Münchner Rück
- Prerequisites not clear yet
- Start ?



# MAP (Risk Mitigation)

## Drilling risk

- Coverage of extra costs
- 50% of extra costs
- Max. 50% of drilling costs
- Max. 1.25 Mio. €
- For each well





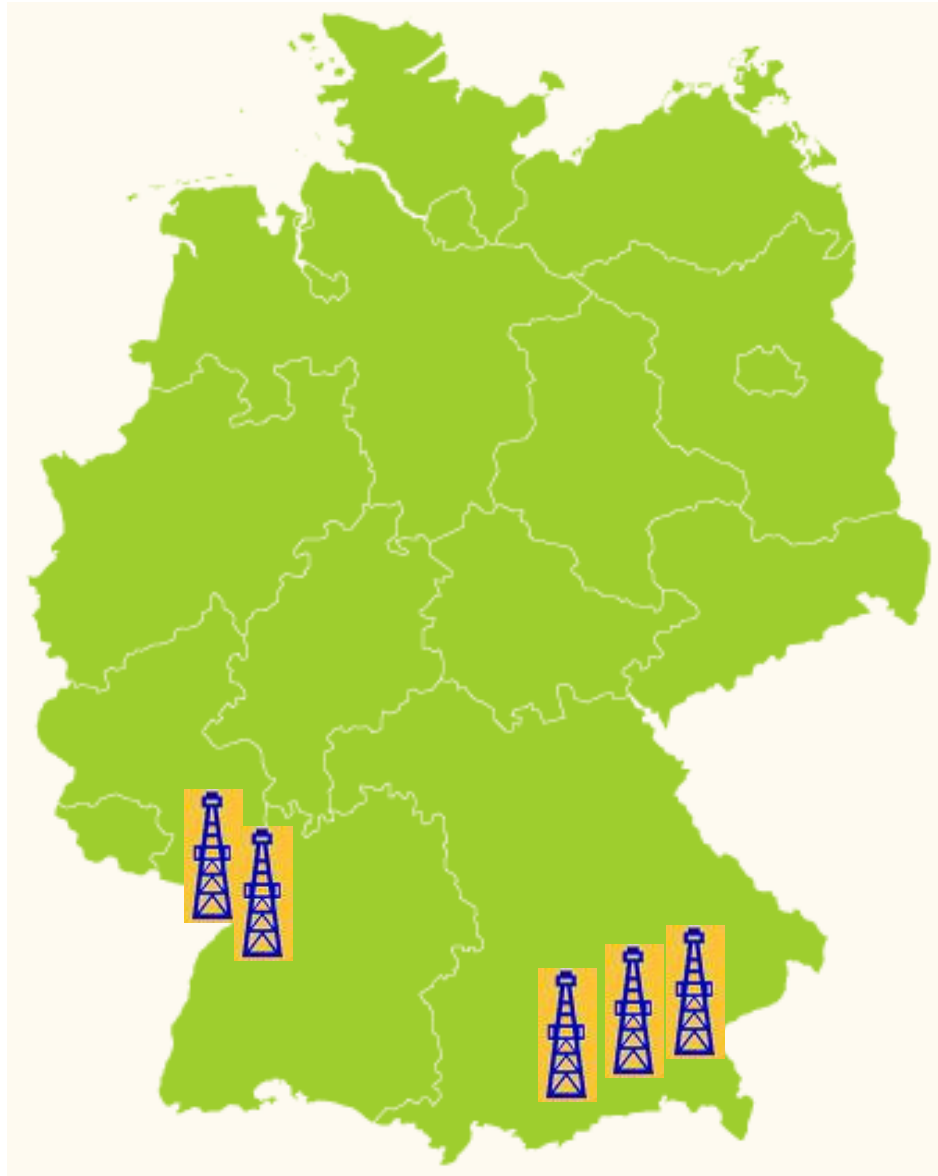
# Power plants



- Neustadt-Glewe
- Landau
- Unterhaching
- Bruchsal



# Drilling

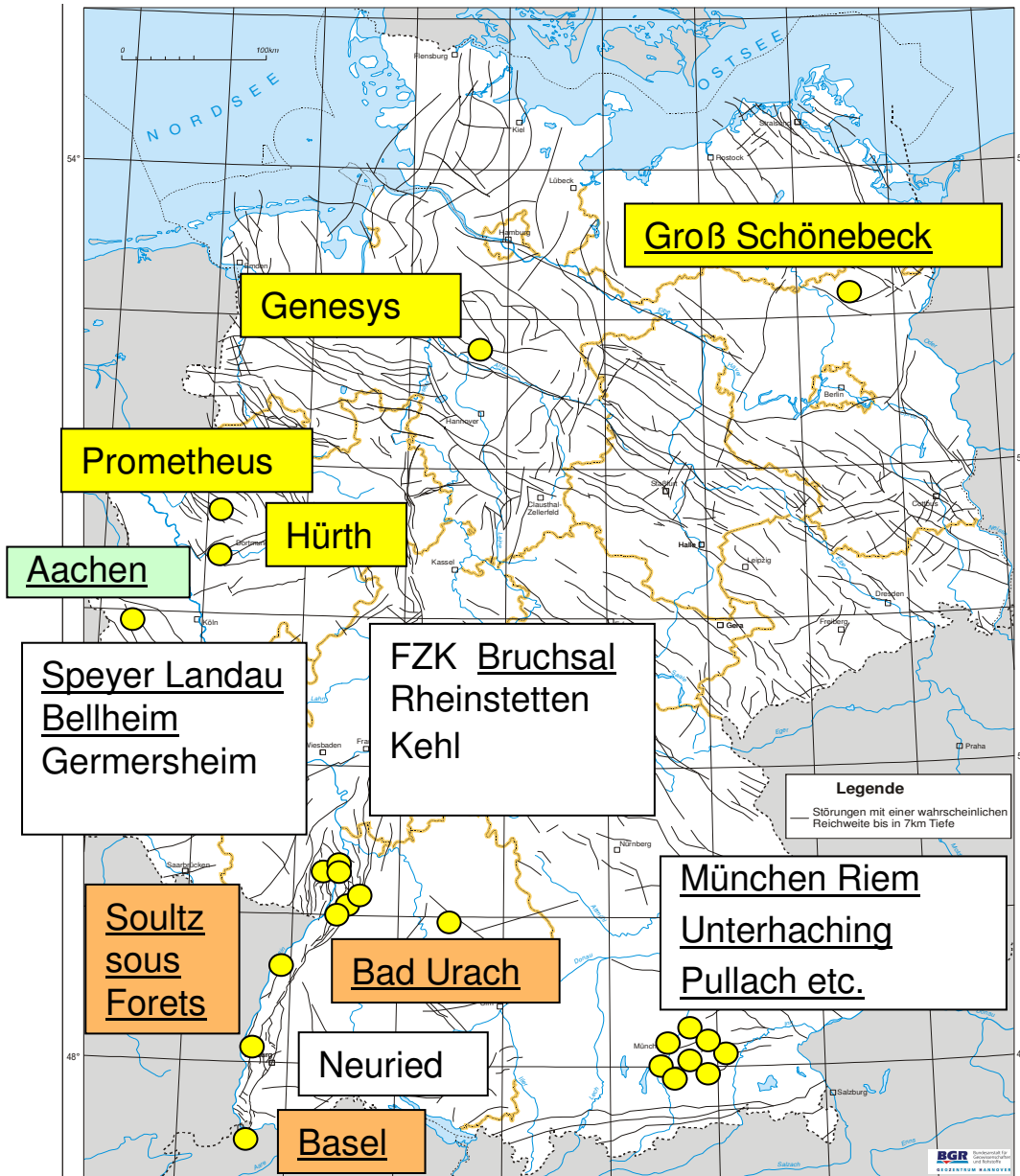


- Sauerlach
- Mauerstetten
- Dürnhaar
- Insheim
- Kandel



# Geothermal projects

# Germany



- Enhanced Geothermal Systems
- HDR...
- Tiefe Sonde
- Hydrothermal
- R&D projects



# R&D Challenges

- Efficiency
- Risk Reduction
  
- Pumps
- Drilling Technology
- (Drilling Experts)

