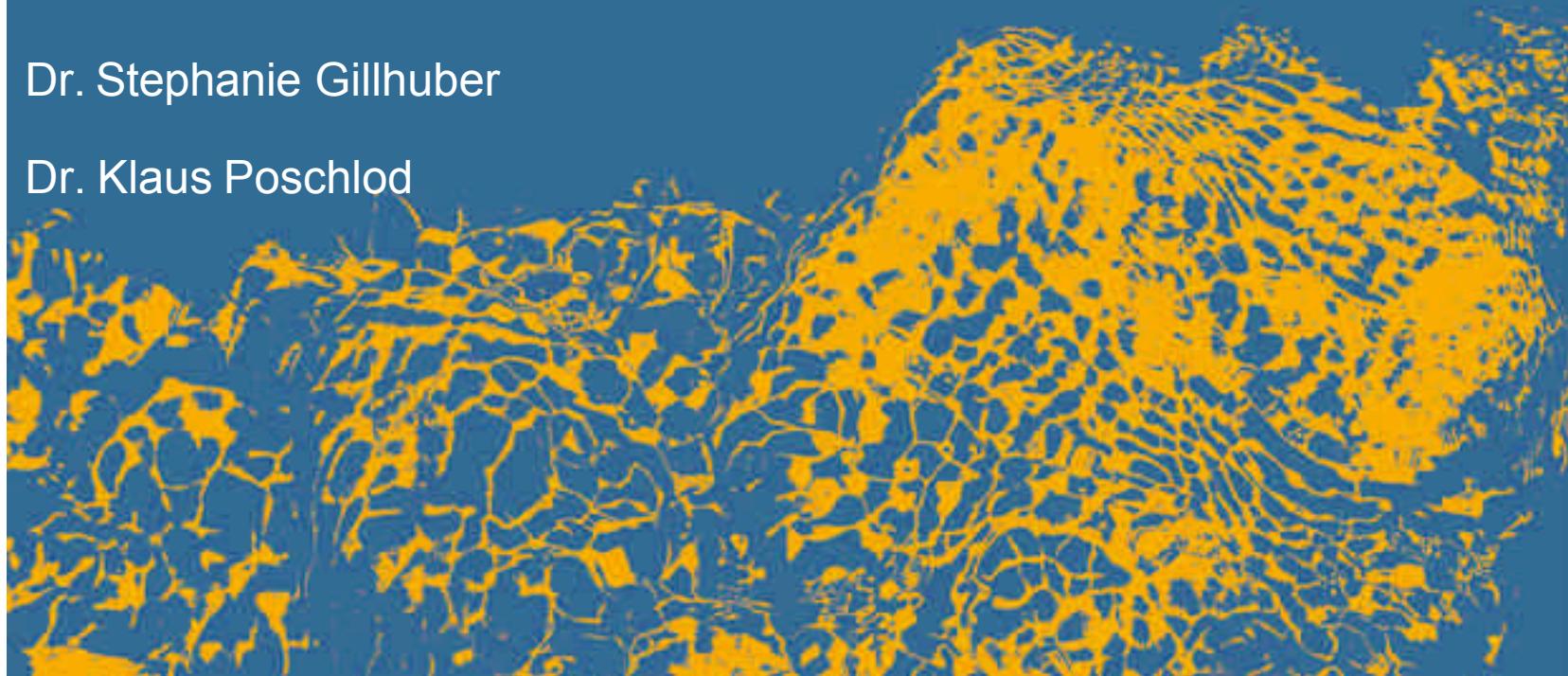




# ENERGY TURNAROUND – CHANCES AND RISKS FOR THE RAW MATERIAL INDUSTRY IN BAVARIA

Dr. Stephanie Gillhuber

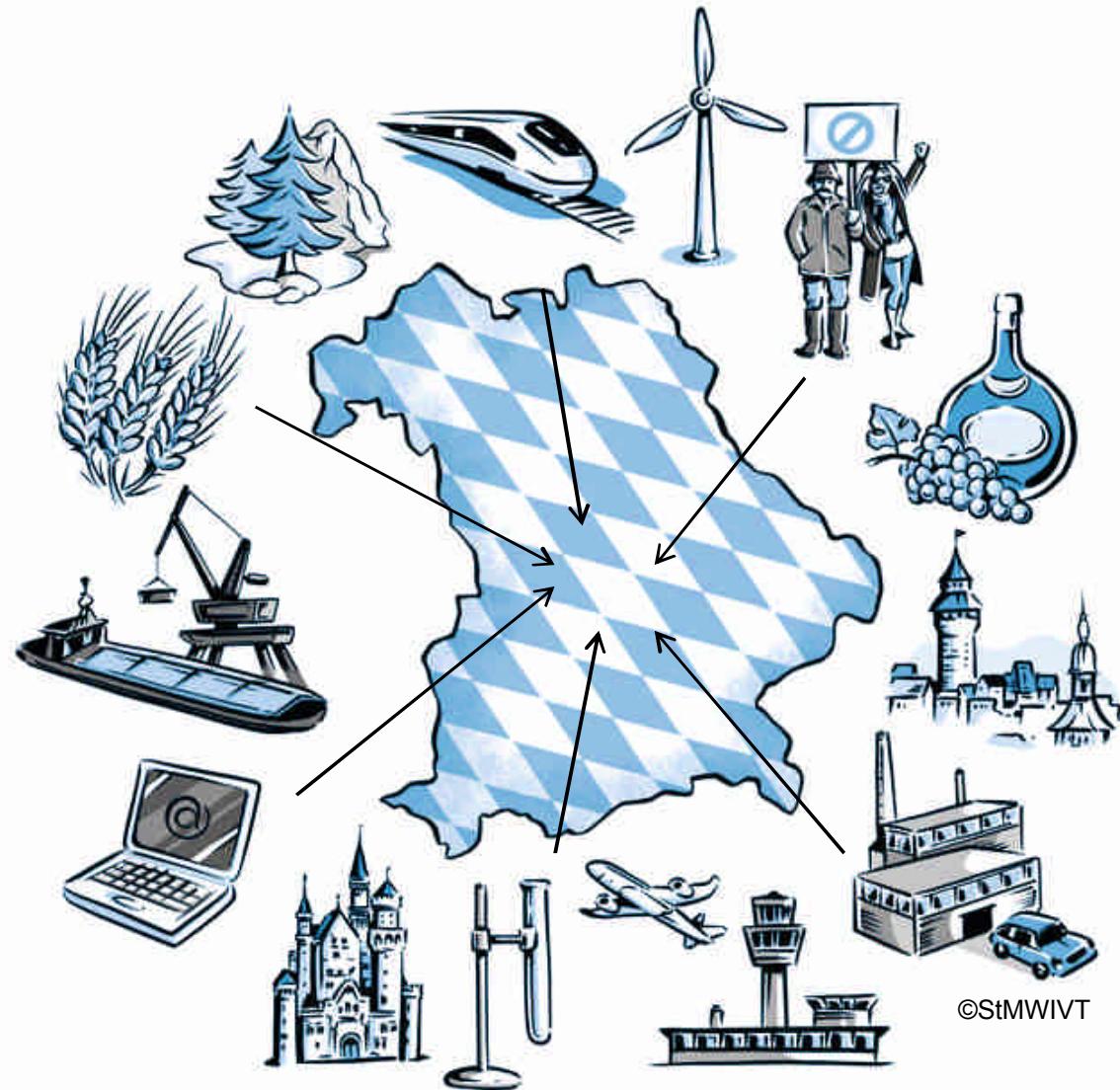
Dr. Klaus Poschlod





## Energy turnaround

- Target 2021:  
more than 50 % electricity should be generated through renewable energy
- energy turnaround will take place mainly in rural areas (biomass, wind power, solar or geothermal energy)



## Areas of Mineral Resources and Competing Uses



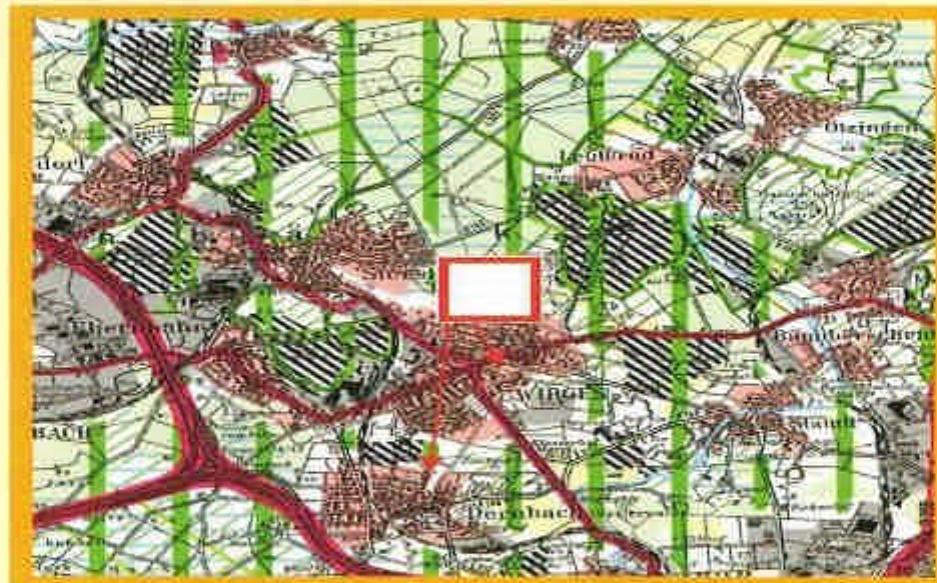
Residential and Industrial Areas



Nature and Habitat Protection



Agriculture



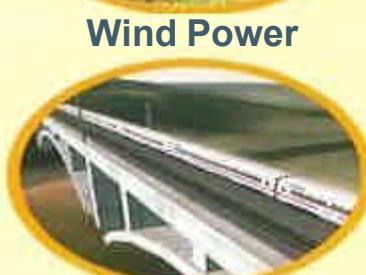
Drinking Water Production



Wind Power



Forestry



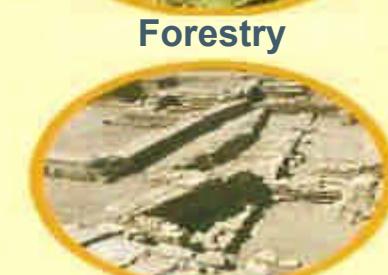
Transport Routes



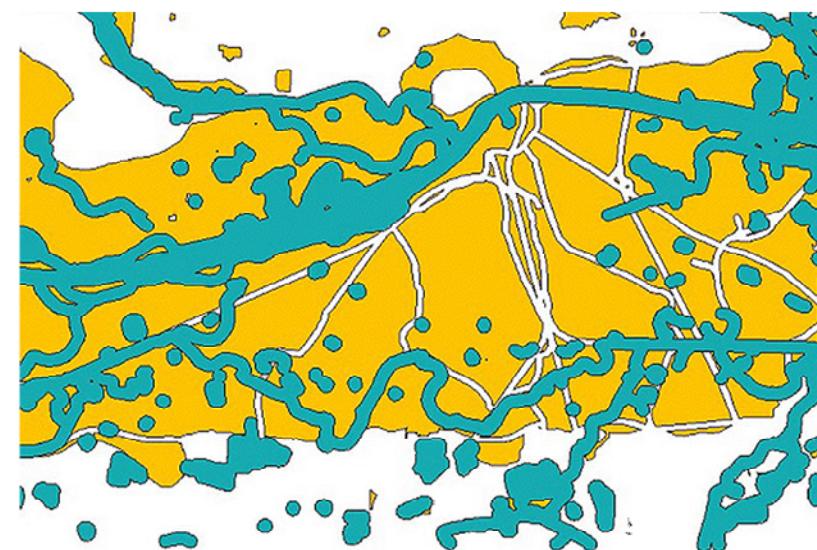
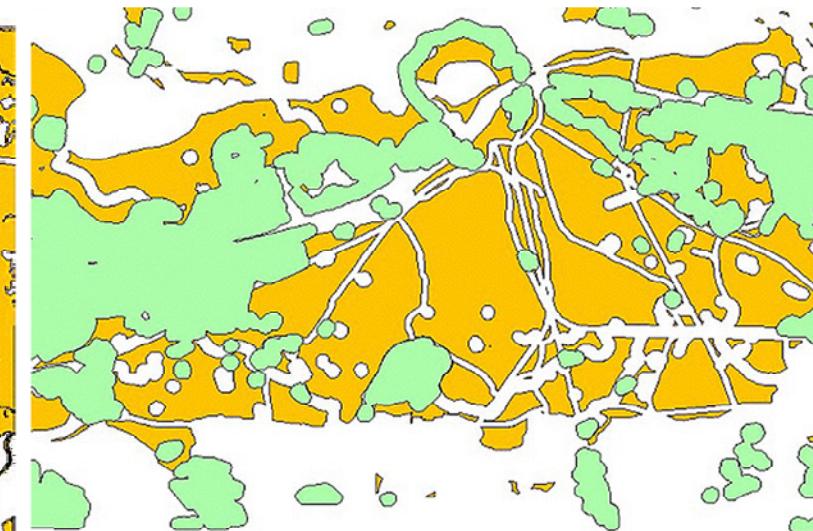
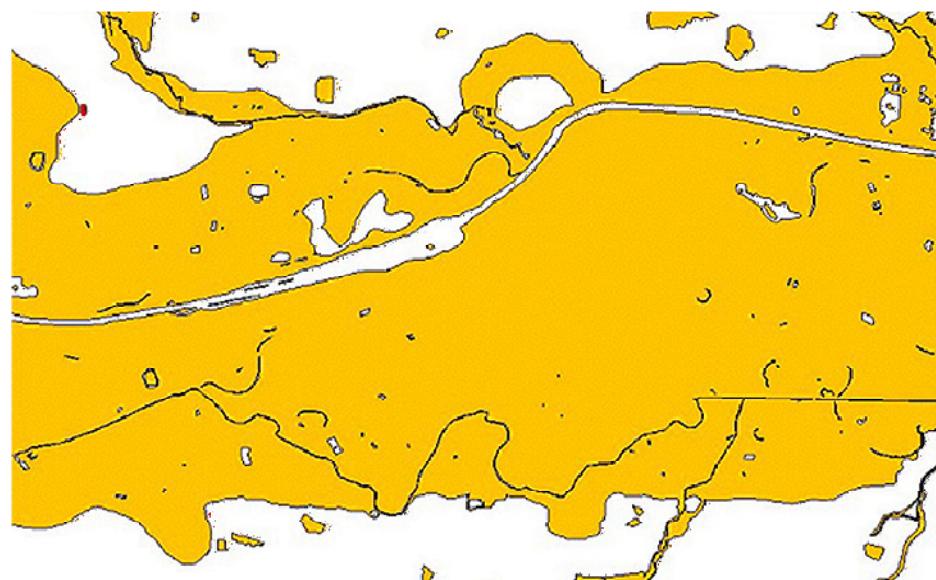
Landscape



Recreation



Archaeology

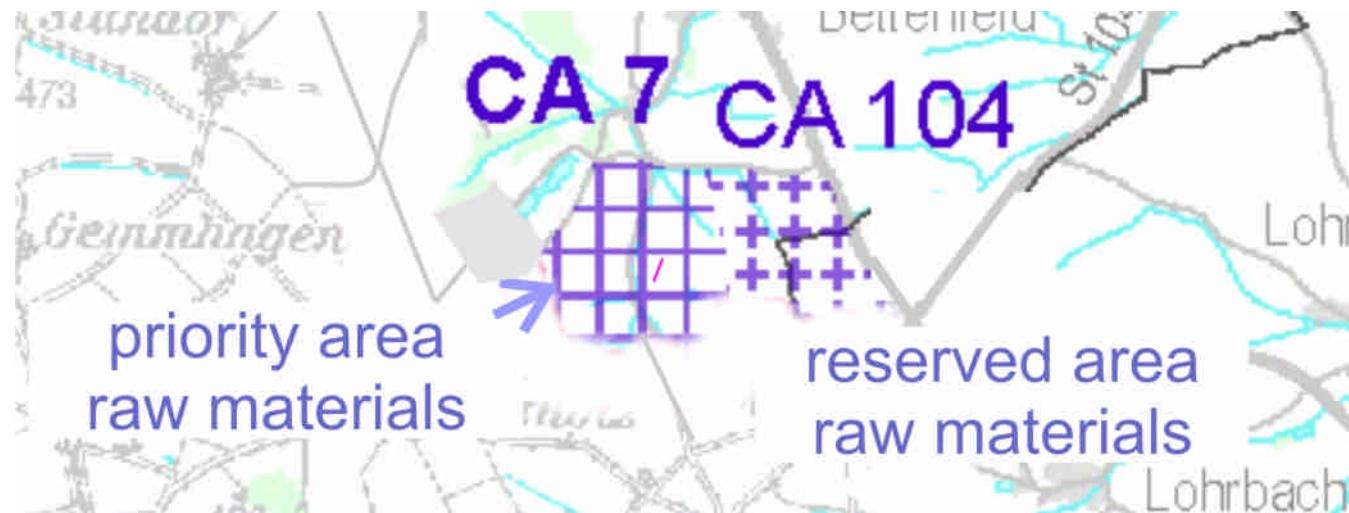




## Land development program (LEP)

One main goal: secure the supply of the raw materials

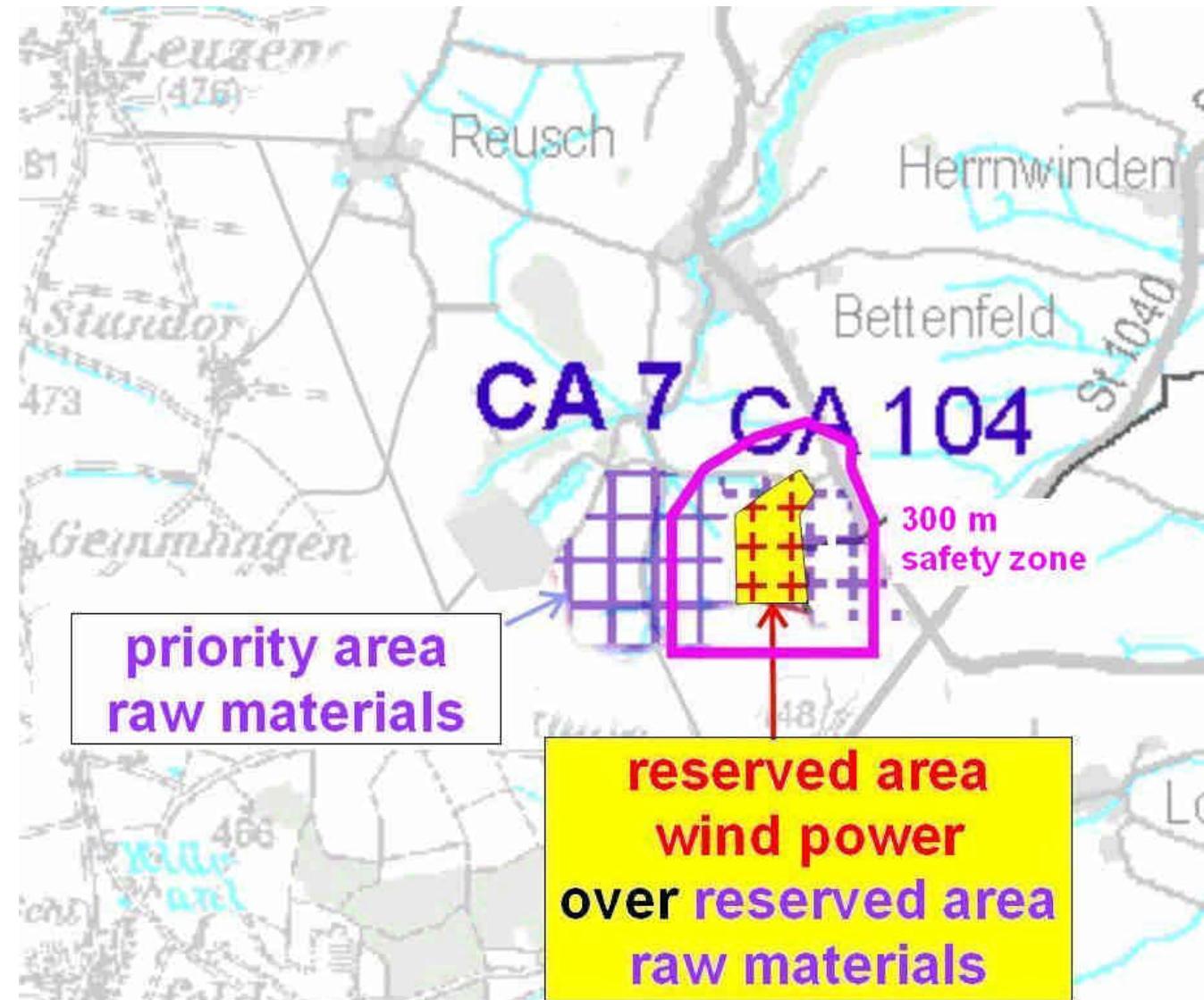
- a shortage of the resources leads to extensive rising prices in the building sector
- production of mineral resources is of **public interest**
- coordination by the dint of regional planning





## Problem:

Reduced priority  
area for raw  
material  
extraction  
through the  
reserved area for  
wind power



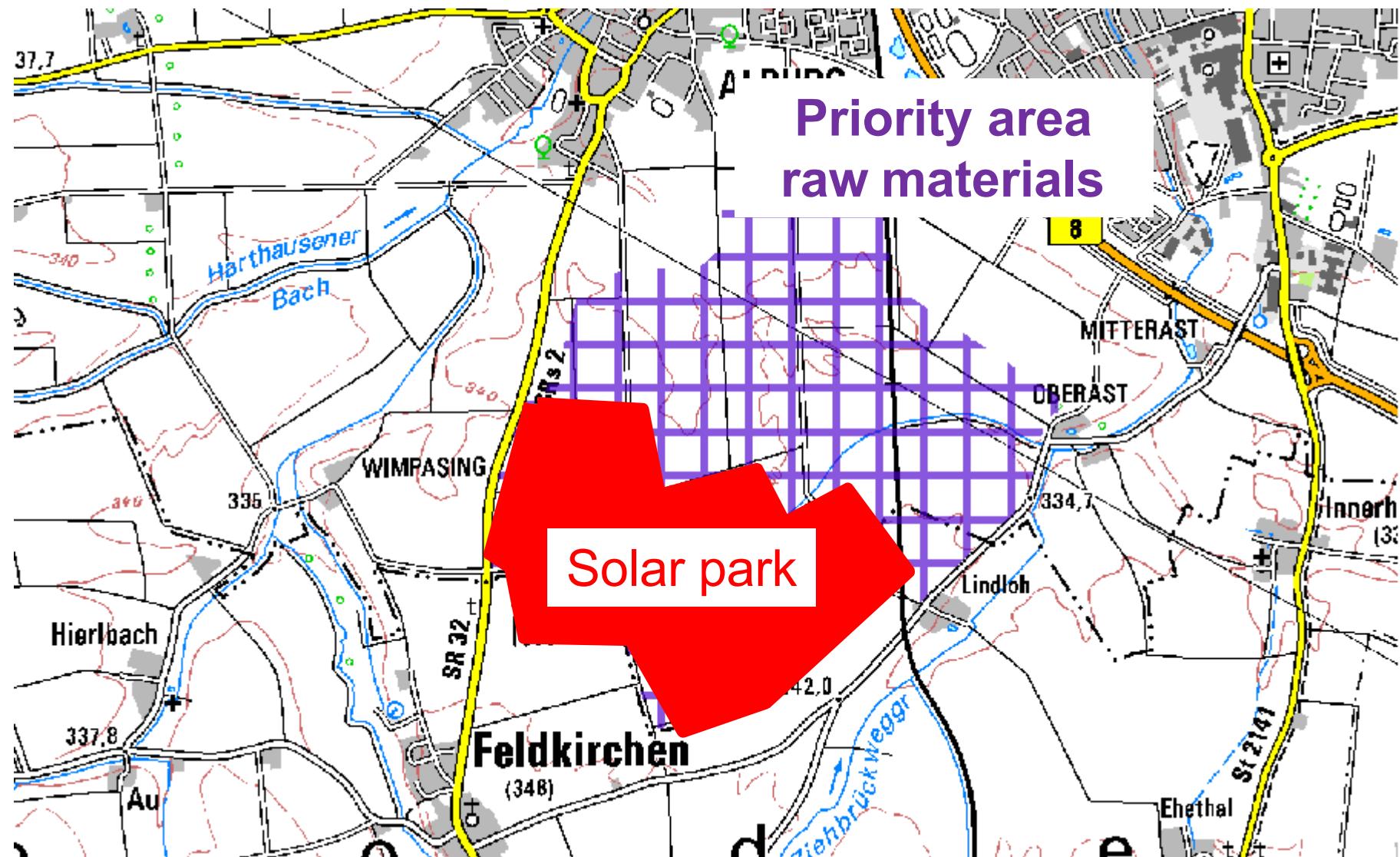


- Overlap planning as a solution?
- Limited durability of wind power plants (~25 years) is a chance?

**NO:**

**There is no legislation!  
Repowering of wind turbines is  
possible**







- No areas in regional development planning for solar panel surface





## Chances

- (Filled) gravel pits are ideal location for solar panels (and for on-shore wind power)  
→ since 10 years in Southern Bavaria (Allgäu)



**Solar park after gravel mining in Southern Bavaria**

Dr. Gillhuber, BIV + Dr. Poschlod, LfU, Geologischer Dienst, 06/ 2012



## Chances

- (Filled) gravel pits are ideal location for solar panels (and for on-shore wind power)  
→ since 10 years in Southern Bavaria (Allgäu)
- Dredging lakes can also be used for solar platforms (East Germany)  
Area of 12 football fields ( $86.000\text{m}^2 = 8,6 \text{ ha}$ )  
→ 6.500.000 kWh p.a.  
→ Energy for 6000 people



© <http://www.perebo.de/2010/06/16/solarsee/>

## ***Floating solar platforms***



## Chances

- (Filled) gravel pits are ideal location for solar panels (and for on-shore wind power)  
→ since 10 years in Southern Bavaria (Allgäu)
- Dredging lakes can be used for solar platforms (East Germany)  
Area of 12 football fields ( $86000\text{m}^2 = 8,6 \text{ ha}$ )  
→ 6.500.000 kWh p.a.  
→ Energy for 6000 people
- Abandoned quarries as a new location for solar panels  
→ projected in Switzerland



Bayerischer Industrieverband  
STEINE und ERDEN e.V.

Bayerisches Landesamt für  
Umwelt



© <http://www.die-energie-bin-ich.ch/strom-aus-dem-steinbruch/>



## Chances

- Another important fact is that big solar panel surface areas also secure raw material areas for the future and other land usages:

The economic useful life is limited to 25 years!



A photograph of a wind turbine against a clear blue sky. The turbine's dark tower and blades are visible against the light blue background. Bare tree branches are visible in the bottom right corner.

The energy turnaround involves risks,  
but we have to work together to use the  
chances for both sides:  
The energy turnaround and the raw  
material industry.

A photograph of a wind turbine against a clear blue sky. The turbine has a dark grey tower and a dark grey nacelle. One blade is visible, pointing downwards and to the left. The background shows some faint, out-of-focus trees.

**THANK YOU FOR YOUR  
ATTENTION !**