

# Permitting Requirements for Large-Scale Projects in Germany

Case study: Atdorf Pumped Storage Plant – Key Environmental Challenges



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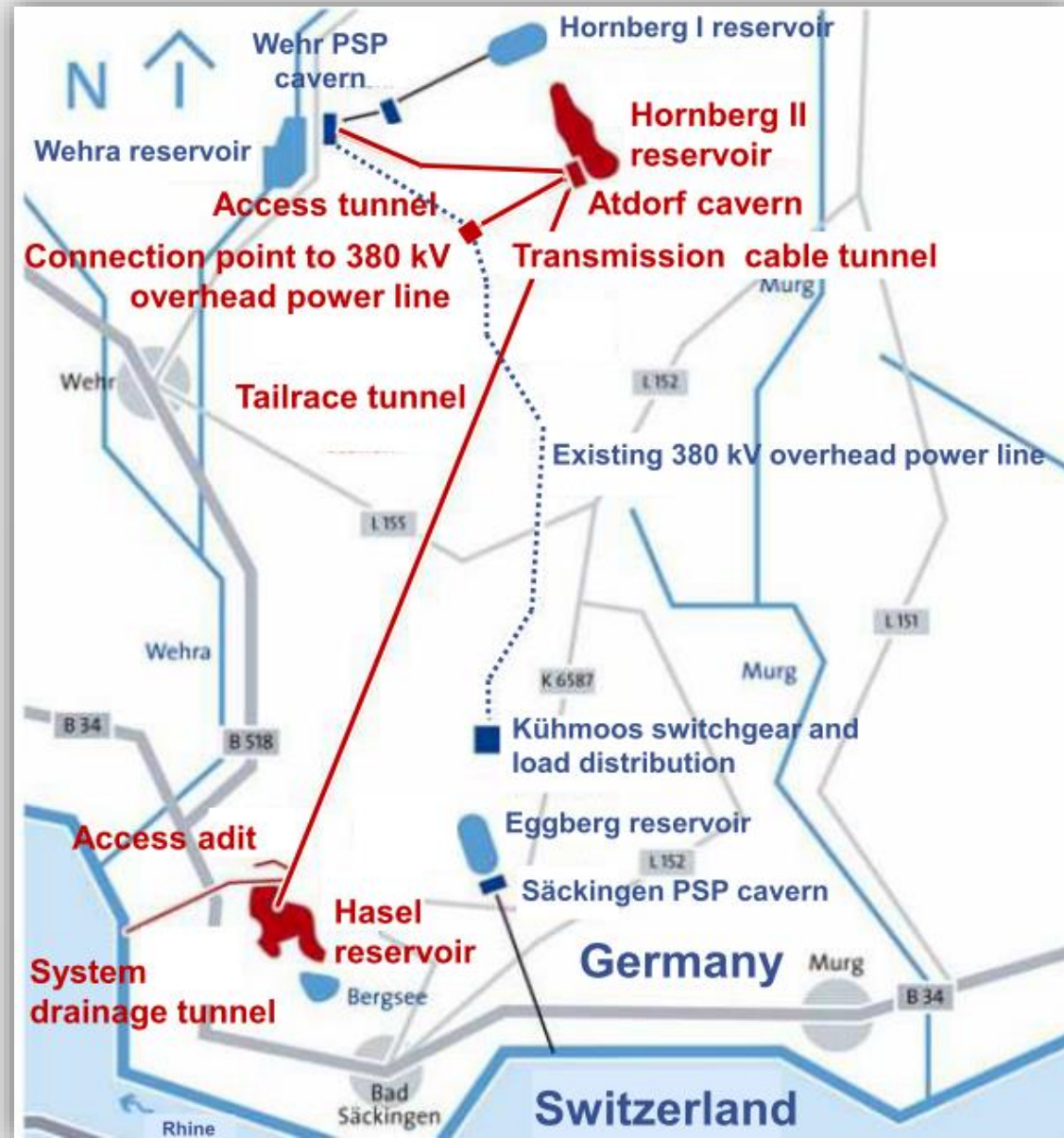
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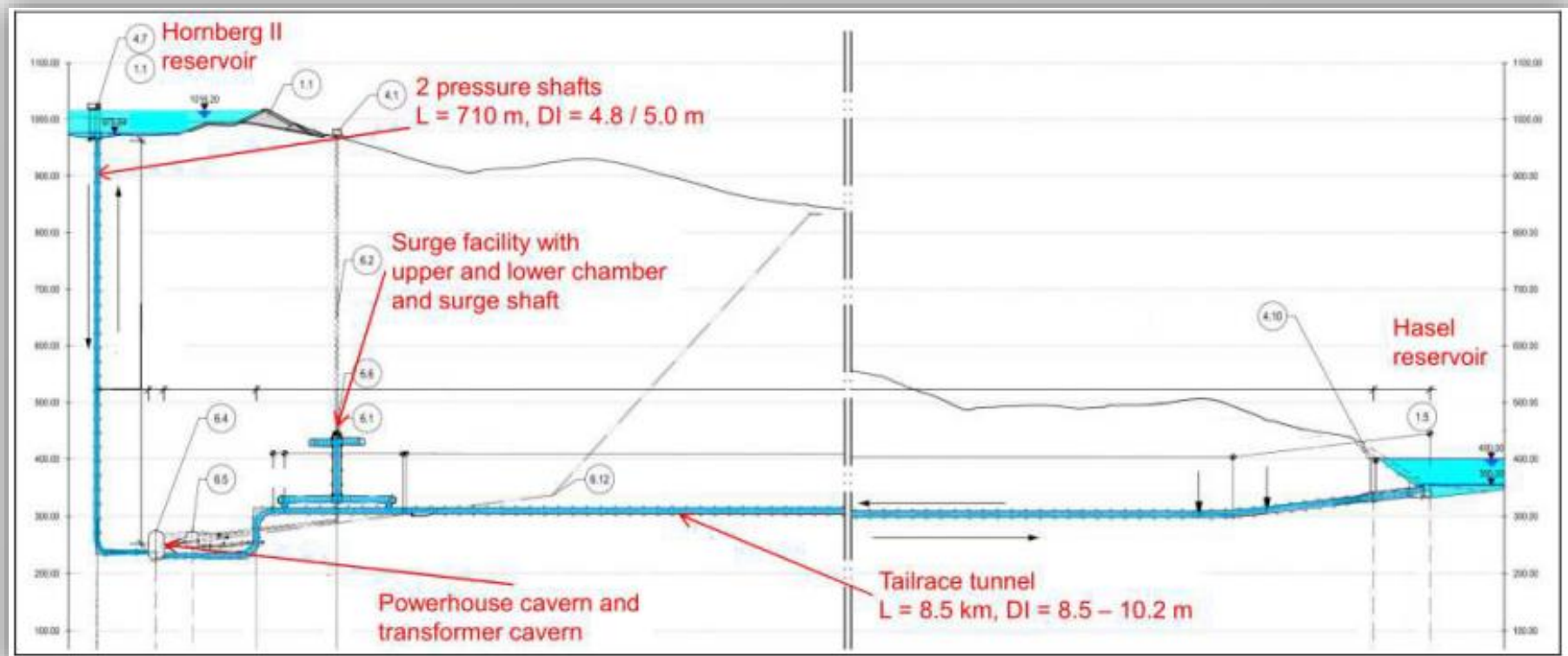
## ■ ad 1) Technical project

- Two new reservoirs, **9 mio. m<sup>3</sup>**
- **1,400 MW**, installed capacity
- ~ **13 GWh**, working capacity
- ~ **200 / 270 m<sup>3</sup>/s**, flow rate (pump / turbine operation)
- 6 Francis pump turbines / asynchronous motor generators



## ■ ad 1) Technical project

- ~ **600 m**, head
- ~ **26 km shafts and tunnels**



## ■ 2) Permit application requirements for large-scale projects in GER

- Stage 1: “***Raumordnungsverfahren***” - spatial planning procedure

Based on conceptual technical layout; scale usually 1 : 5000

- ✓ Determination of general feasibility of the project
- ✓ Checking of project for conformity with spatial planning framework conditions (economic, social, ecological and cultural aspects)
- ✓ Consultation of stakeholders
- ✓ Results of spatial planning procedure to be taken into account in the subsequent planning und approval stages



## ■ Permit application requirements for large-scale projects in GER

- Stage 2: “**Planfeststellungsverfahren**” - consolidated development consent procedure including Environmental Impact Assessment (EIA)

### Required permit application documents:

- ✓ Technical project - detailed technical design, scale at least 1 : 1000
  - ✓ Environmental Impact Assessment report
  - ✓ Appropriate Assessment for Natura 2000 sites
  - ✓ Application documents regarding Strict protection of animal species
  - ✓ Landscape Management Plan
- => Final authority approval - **Development Consent**, covering all approvals necessary for construction and operation

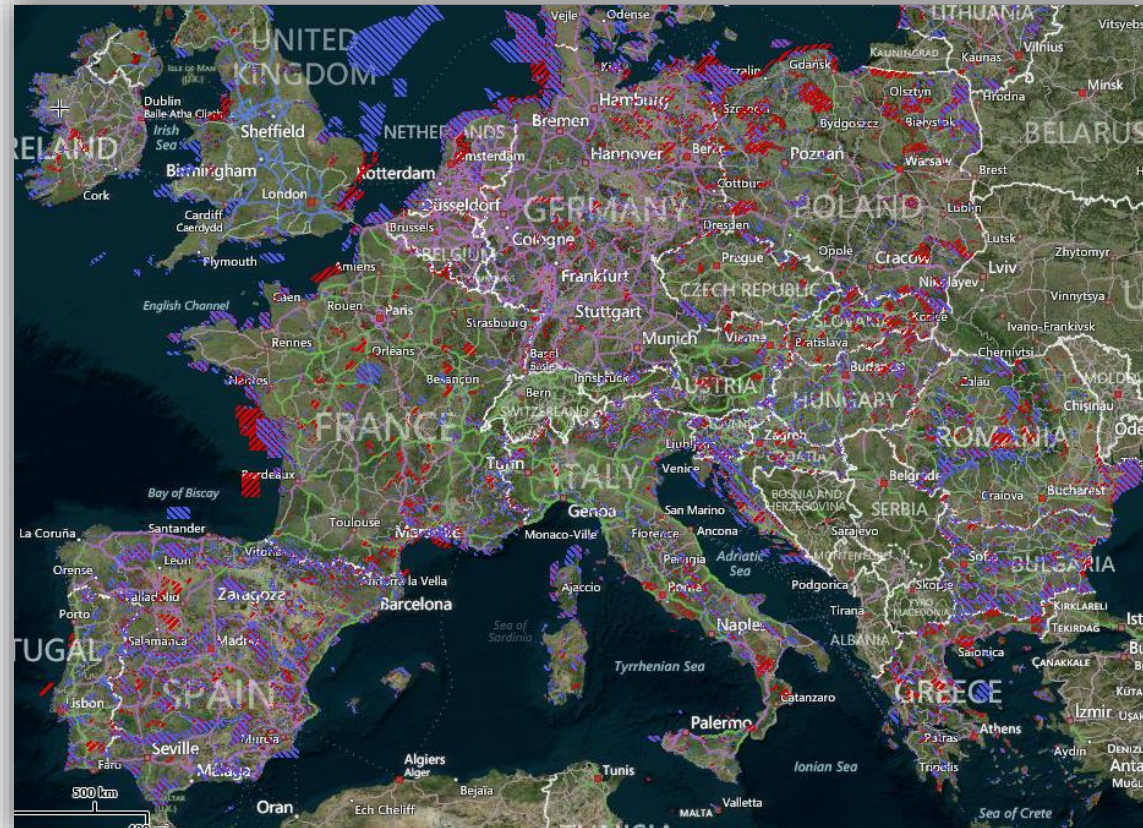


### ■ 3) Interactive technical and environmental project optimisation – several improvement steps

- Minimisation of temporary impact due to construction
  - Avoidance of temporary space requirements in sensitive areas
  - Optimisation of construction sequence and material logistics
  - Reuse of excavation material as construction material
  - Reduction of traffic emissions, noise, dust, vibrations and disturbances
- Minimisation of permanent impact due to space requirements
  - Optimisation of location and design of project components
  - Reduction of space required for disposal of excavation material



## 4) Appropriate Assessment for Natura 2000 sites



**European ‘Habitats’ Directive  
92/43/EEC  
Article 6, paragraphs (3) and (4):**

“Any plan or project not directly connected with or necessary to the management of the [affected Natura 2000] site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, **shall be subject to Appropriate Assessment of its implications for the site** in view of the site’s conservation objectives.”

 Birds Sites

 Habitats Sites



## ■ Appropriate Assessment for Natura 2000 sites

- Standard Data Form for each site:
  - Defines the habitats and species protected at the specific site
- The technical project:
  - Identify the potential effects of the project on the site
  - Check cumulative effects with other plans or projects

=>Assess, if significant impacts are likely to occur (Screening):

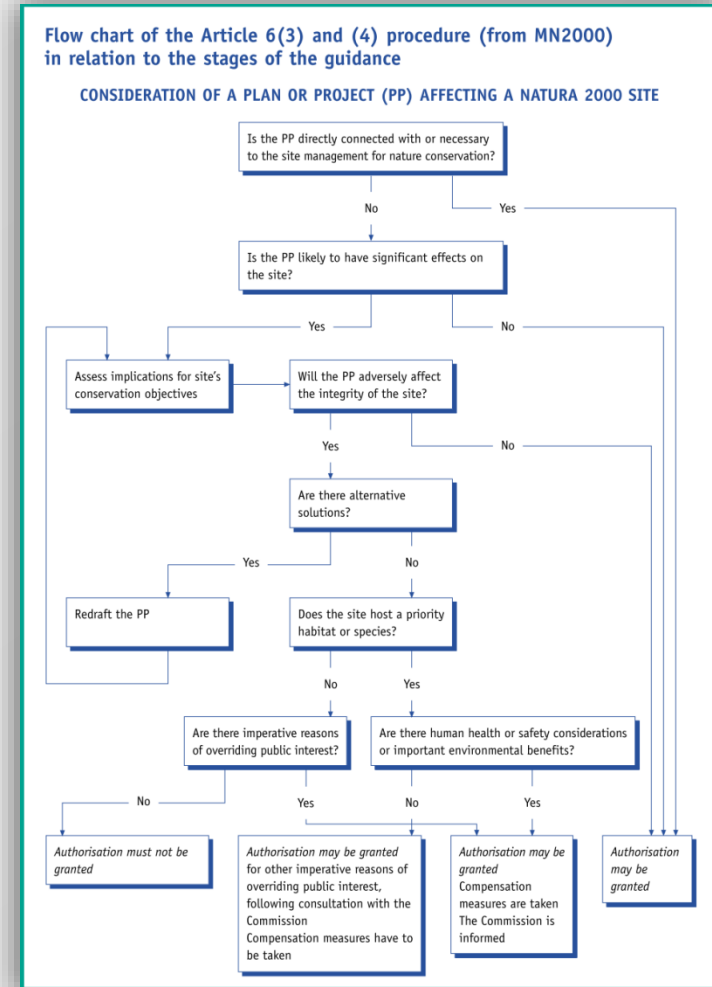
- If NO: authorisation may be granted
- If YES: continue with the next assessment stages



## ■ Appropriate Assessment for Natura 2000 sites

- For Natura 2000 sites affected by the project
  - Stage One: Screening
  - Stage Two: Appropriate assessment
  - Stage Three: Assessment of alternative solutions
  - Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain

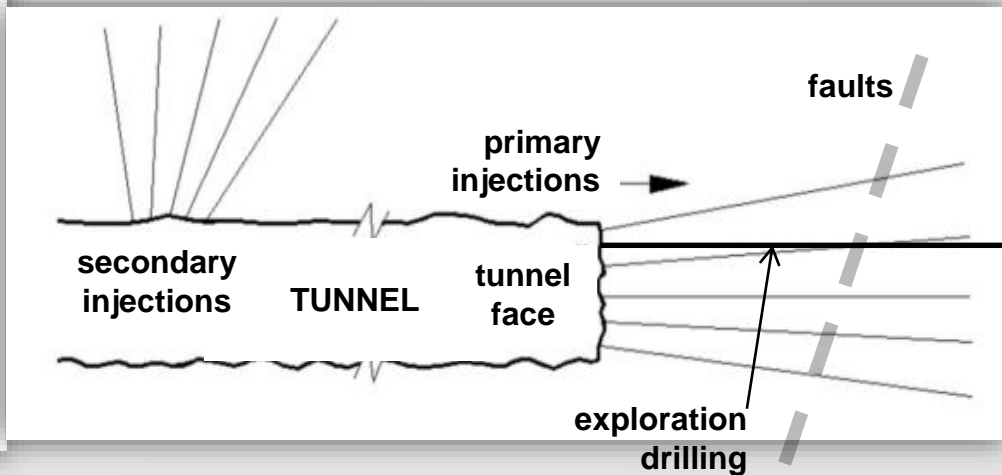
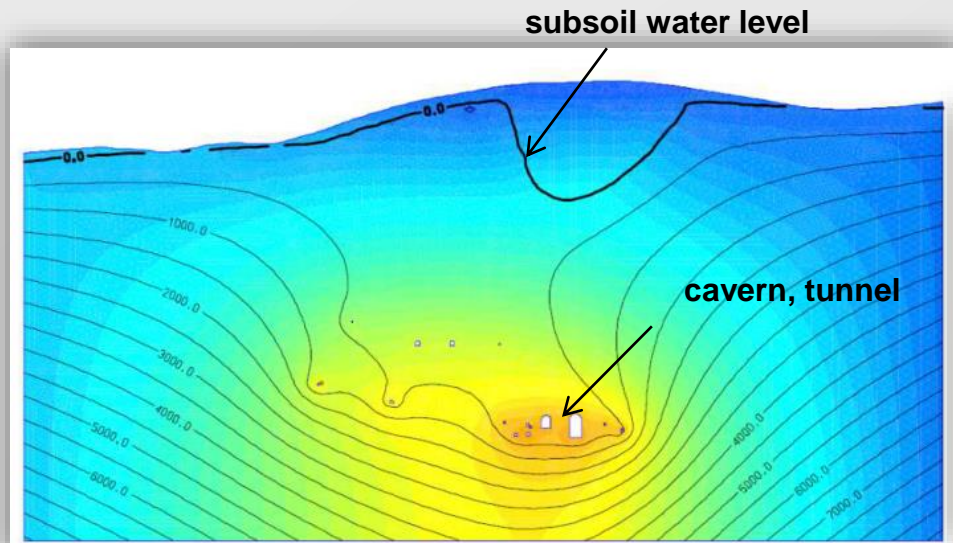
**EC Guidance document:**  
**Assessment of plans and projects significantly affecting Natura 2000 sites**  
**Methodological guidance on the provisions of Article 6(3) and (4)**  
**of the Habitats Directive 92/43/EEC**



## ■ 5) Impact of subsoil structures on water regime

### Systematic sealing of underground structures

- To minimise the impact of construction works on the groundwater regime and thus on the surface water regime including wetlands, springs and rivers



## ■ Impact of subsoil structures on water regime - interactions

- Potential interaction with other environmental factors
  - Impact on species living in surface waters (e.g. fish, crayfish)
  - Impact on water-dependent habitats (wetlands)
  - Impact on species living in water-dependent habitats (e.g. plants, dragonflies)
- Precautionary principle,
- Worst case scenarios
- => Compensation measures /  
Monitoring /  
Risk management



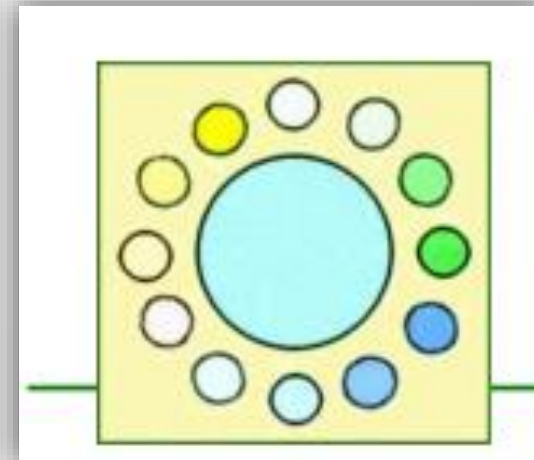
## ■ 6) Impact assessment regarding Strict protection of animal species

- Impact assessment according to Art. 12 and 16 of Habitats Directive, covering the following species:
  - Birds according to EC Birds Directive
  - Species of community interest in need of strict protection according to Annex IV of Habitats Directive
- Field surveys - 104 breeding bird species, 29 other species (mammals, amphibians, reptiles, fish, insects)
  - Impact assessment for each of these species; mitigation measures



## ■ 7) Public participation

- Public information and participation: of essential importance for the project
- Since 2009 **more than 100 information events**
- **Round table discussions**, plenary meetings, numerous preparatory and follow-up workshops
- **> 40 stakeholders** included in independently organised and moderated process => more objective discussions
- Unique process in Germany, financed by the client





**Thank You!**



## ■ Impact assessment regarding Strict protection of animal species

- Field mapping and impact assessment for these species:
  - Field investigations from **2009 – 2014**
  - Investigation area: > **6,500 ha**
  - More than 40 biologists collected survey data
- Planning of measures that „ensure the continued ecological functionality of a breeding site / resting place” (CEF measures):
  - E.g. installation of nest boxes for bats, construction of ponds for toads
- Planning of measures that „maintain or restore favourable conservation status”(FCS measures):
  - E.g. improvement of forest structure and composition by converting the silvicultural forest into a near-natural forest

