

Licensing and Permitting in Lower Saxony (North-West Germany)

**European Unconventional Gas Developments
Environmental Issues and Regulatory Challenges in the EU and the
US**

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Content

- LBEG as a Mining authority
- Natural activities in Germany
- Concessions:
Exploration Licence, Production Licence, Mining Proprietorship
- Permits for activities:
Operations Schedules
- Shale Gas: exploration licences and activities
- Public discussions on shale gas and fracing
- Conclusions



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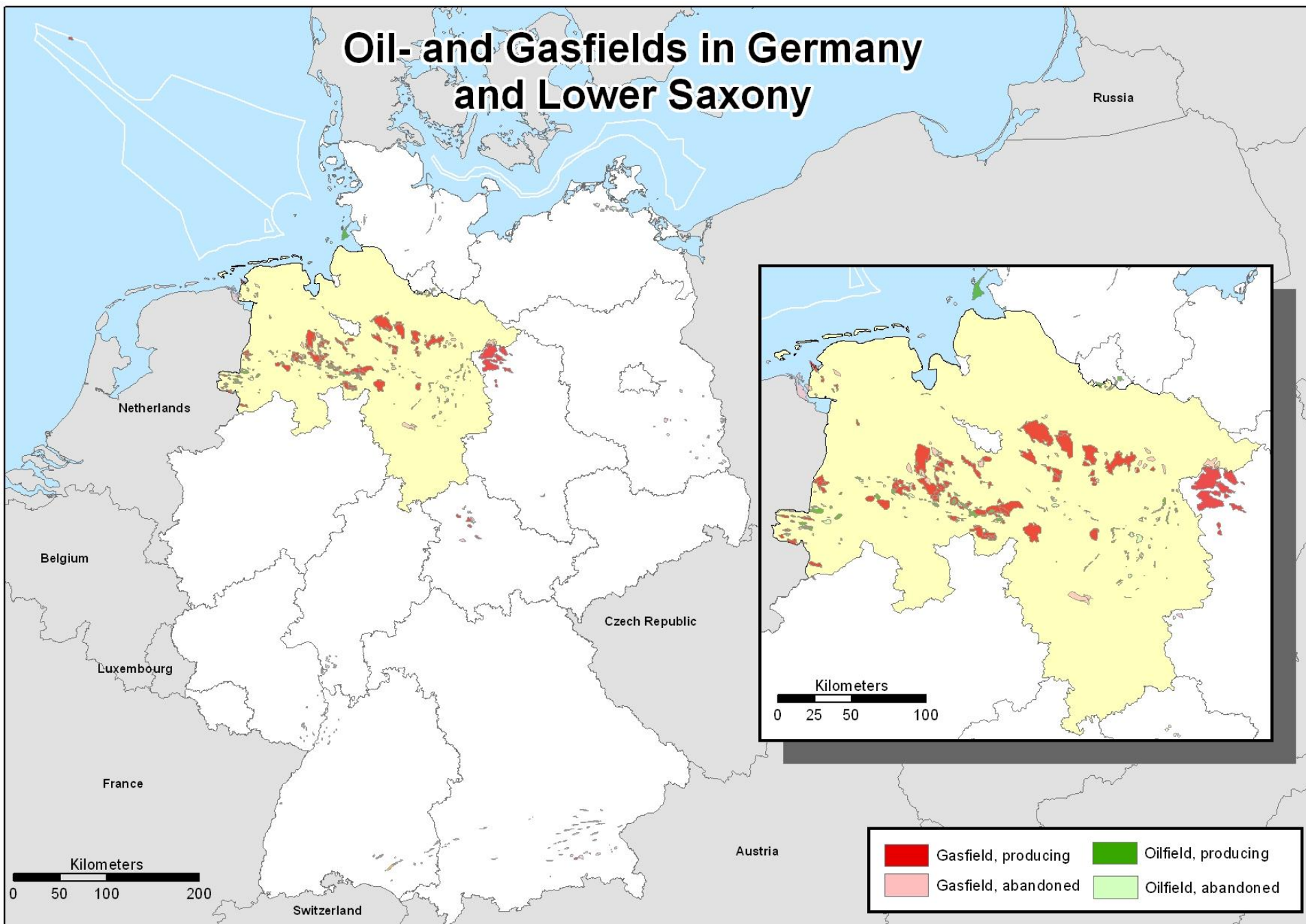
State Authority for Mining, Energy and Geology (LBEG)

- Federal Republic of Germany:
Federalistic country of 16 States
- German Constitution Art. 30:
The exercise of the governmental competence and the fulfillment of the governmental tasks is the matter of the states ..
- Mining Authorities as an authorizing and supervisory body are state authorities
- The LBEG is an authority of the state of Lower Saxony (Niedersachsen)
- The LBEG is the mining authority of the states of Lower Saxony, Schleswig-Holstein, Hamburg and Bremen



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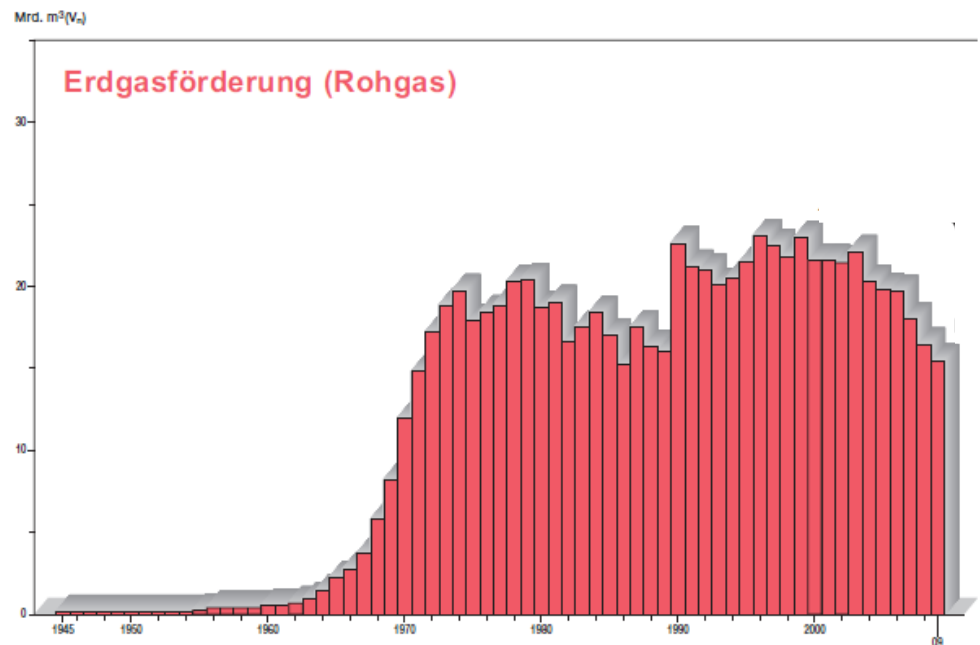
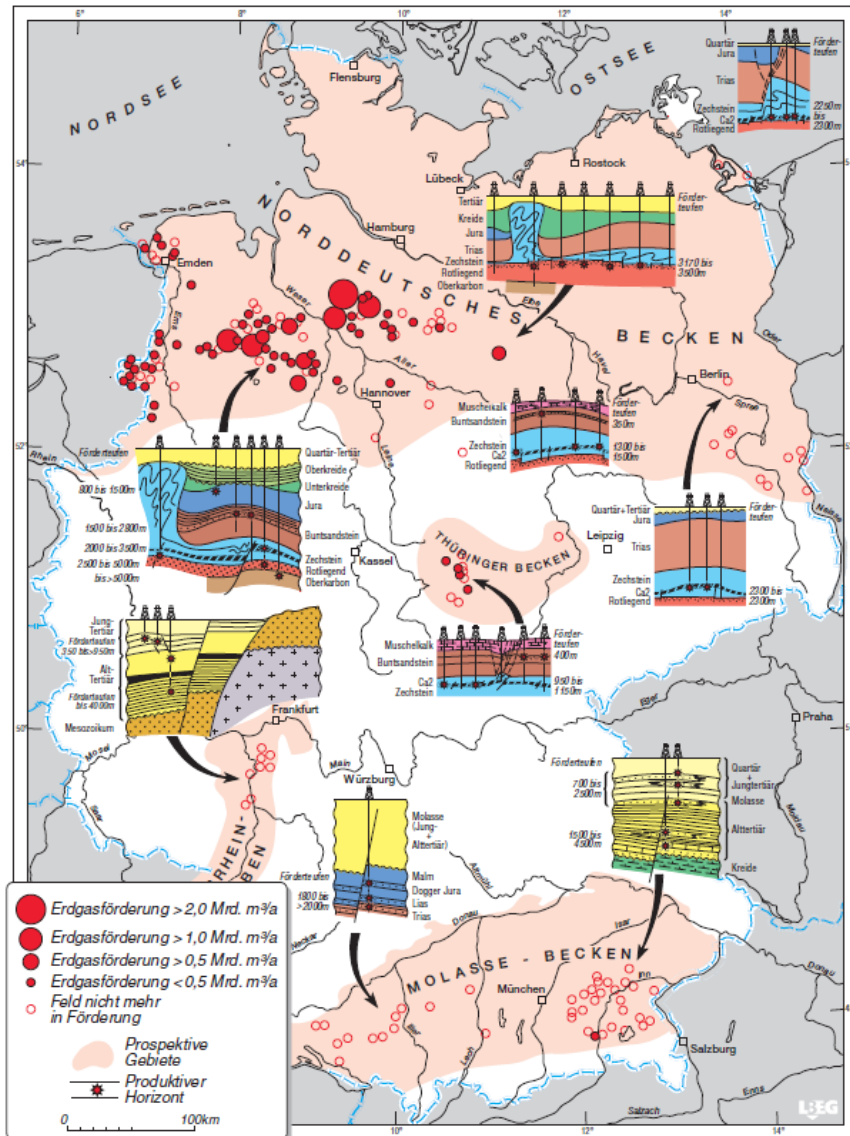
Oil- and Gasfields in Germany and Lower Saxony



Natural Gas in Germany

Natural Gas Production 2009: 14,5 Bill. m³

Natural Gas Consumption 2009: ca. 96 Bill. m³



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Exploration Licence, Production Licence, Mining Proprietorship

- Federal Mining Act
 - Purpose
 - to regulate and advance the exploration, production and preparation of mineral resources
 - to guarantee the safety of operations and the people employed in mining, and
 - to provide better precautions against the hazards to which mining operations may expose lives, health and physical assets of third parties
 - freely mineable resources (bergfreie Bodenschätze)
 - Among others:
Hydrocarbons including the gases obtained in the production process



Exploration Licence, Production Licence, Mining Proprietorship

- Anybody intending to explore for freely mineable resources shall require an
 - Exploration Licence
- Anybody intending to produce freely mineable resources shall be required to be granted
 - a Production Licence or
 - a Mining Proprietorship

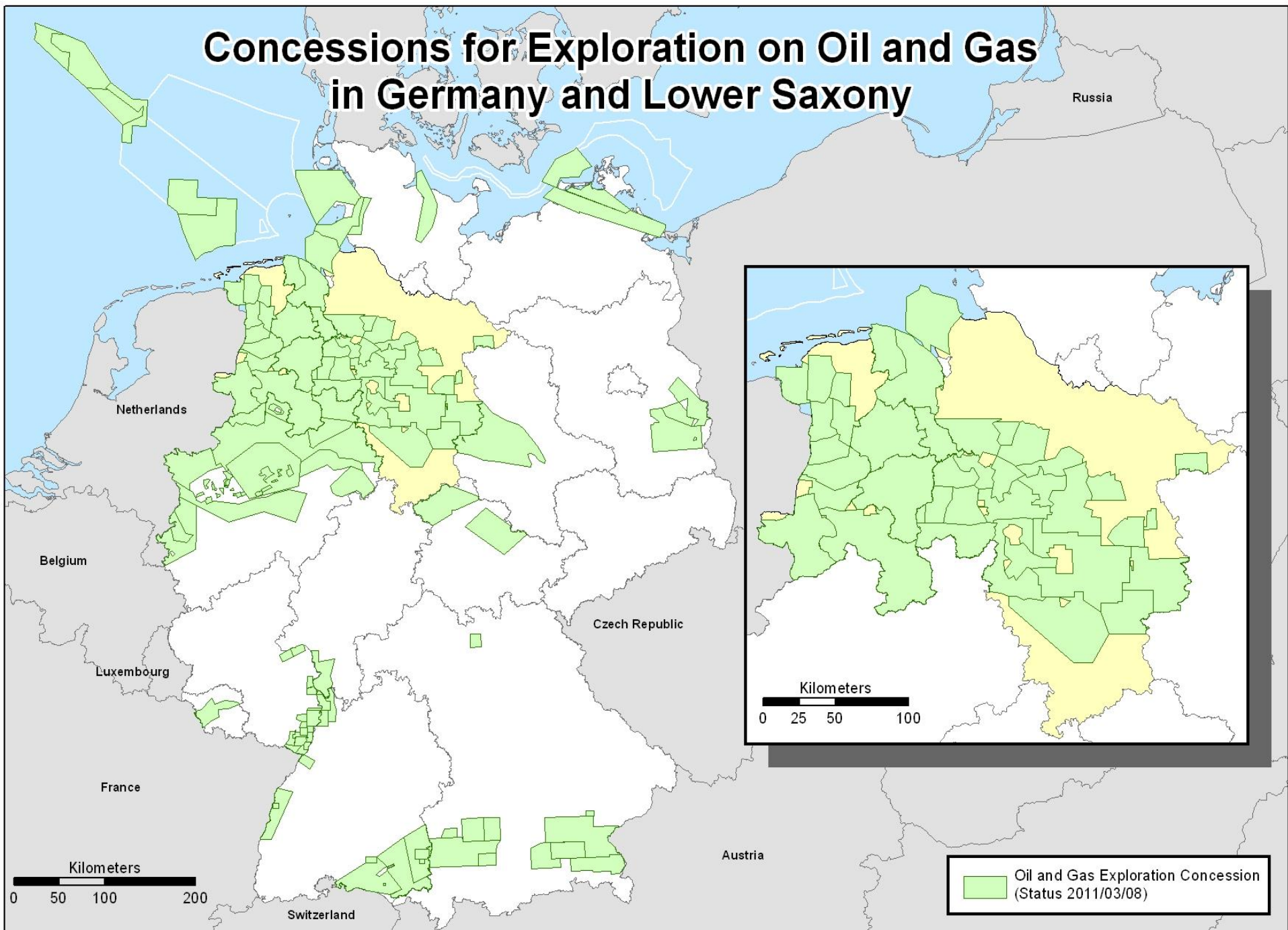


Exploration Licence, Production Licence, Mining Proprietorship

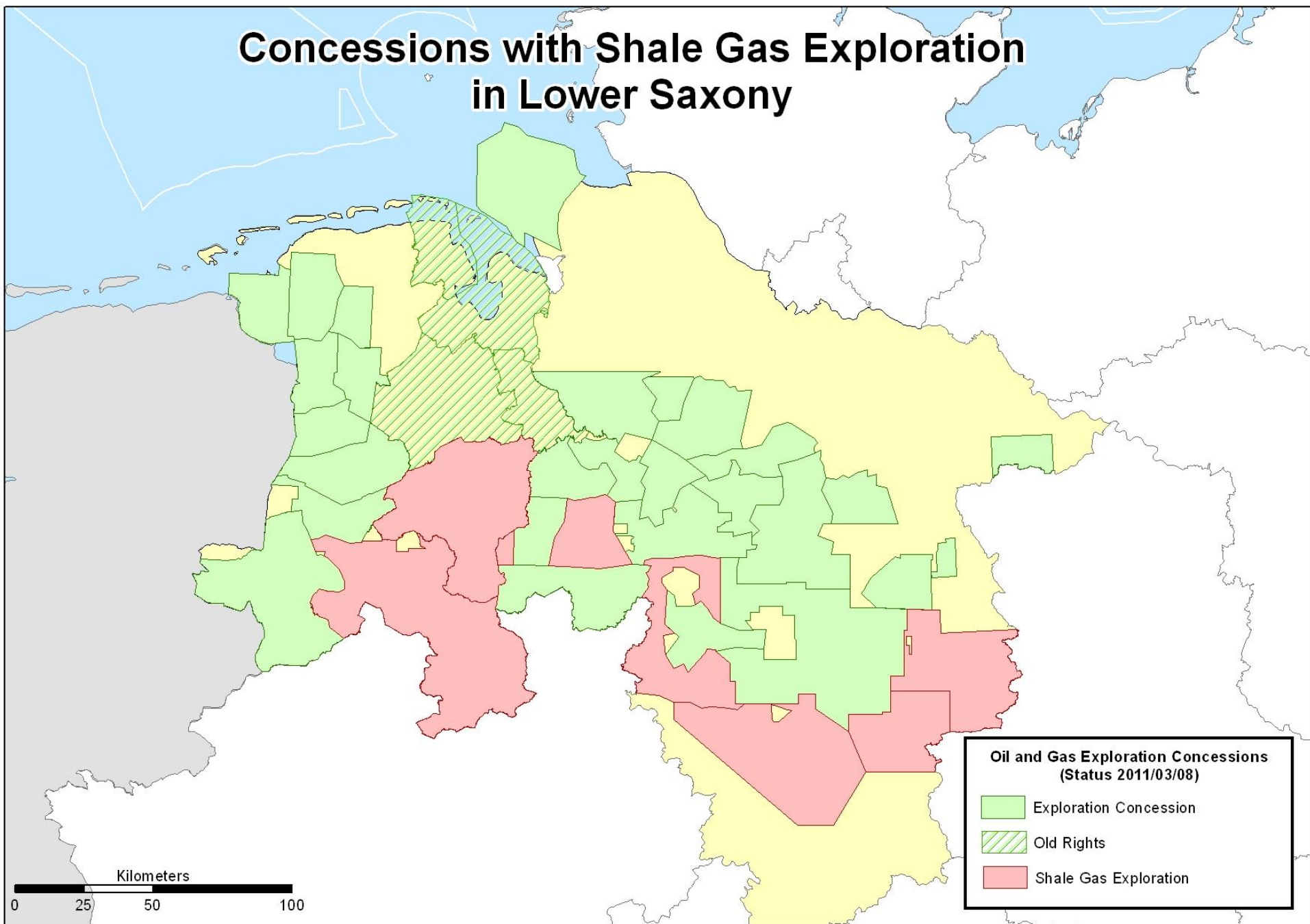
- Licensing: Open Door System
 - grant exclusive rights
 - Application process
 - Causes for Refusal are listed in the Act
 - Field duty and Royalty
- Data Access for Third Parties: Restricted by Law
- Descriptive Data provided by Internet (State Authorities)
- No special License for Shale Gas, CBM or Tight Gas (Licensing on „Hydrocarbons“)
- Field Work (Seismic, Drilling) not regulated by licensing procedure but by operation schedules



Concessions for Exploration on Oil and Gas in Germany and Lower Saxony



Concessions with Shale Gas Exploration in Lower Saxony



Permits for Activities - Operation Schedules

- Application Process for Mining Activities
- Exploration, Exploitation, Preparation

➔ **Installing and Operation of Mining Activities**

- Master Operation Schedule
(not exceeding two years as a rule)
- Skeleton Operation Schedule (longer period)
- Special Operation Schedule (single projects)

➔ **Shutting Down Operations**

- Operation Schedule for Shutting Down Operations



Operation Schedules

- Oil and Gas Exploration and Production:
 - Master Operation Schedule
 - for districts, several oil fields and gas fields
 - Usually no involvement of other parties
 - Skeleton Operation Schedule
 - Usually for single wells as one project
 - Involvement of other authorities concerned and communes concerned (general involvement regulation)
 - Involvement of juristic persons and people concerned (general involvement regulation)
 - Production higher than 500.000 m³/d:
including Environmental Impact Assessment and public hearing
 - Special Operation Schedule
 - Selected activities e. g. drilling activities, fracing activities
 - Usually no involvement of other parties



Federal Mining Act

Operation Schedules

- ➔ Have to be prepared by the operator
- ➔ Have to be proved and granted by the mining Authority



Permit Requirements

- Exploration Licence, Production Licence, Mining Proprietorship
- Required reliability, expert qualification and physical Aptitude of responsible persons of the operator
- **Precaution against hazards for lives, health and for the protection of physical assets, personal employed and third parties present on the enterprises premises**
- No damage or impairment of mineral resources
- **Protection of the surface in the interest of personal safety and public transport**
- Removal of waste in compliance with the regulations
- **Precaution to assure restoration for continued utilization of the surface**
- Precaution to assure safety of other mining activities
- **Dangerous effects to the public are not expected**

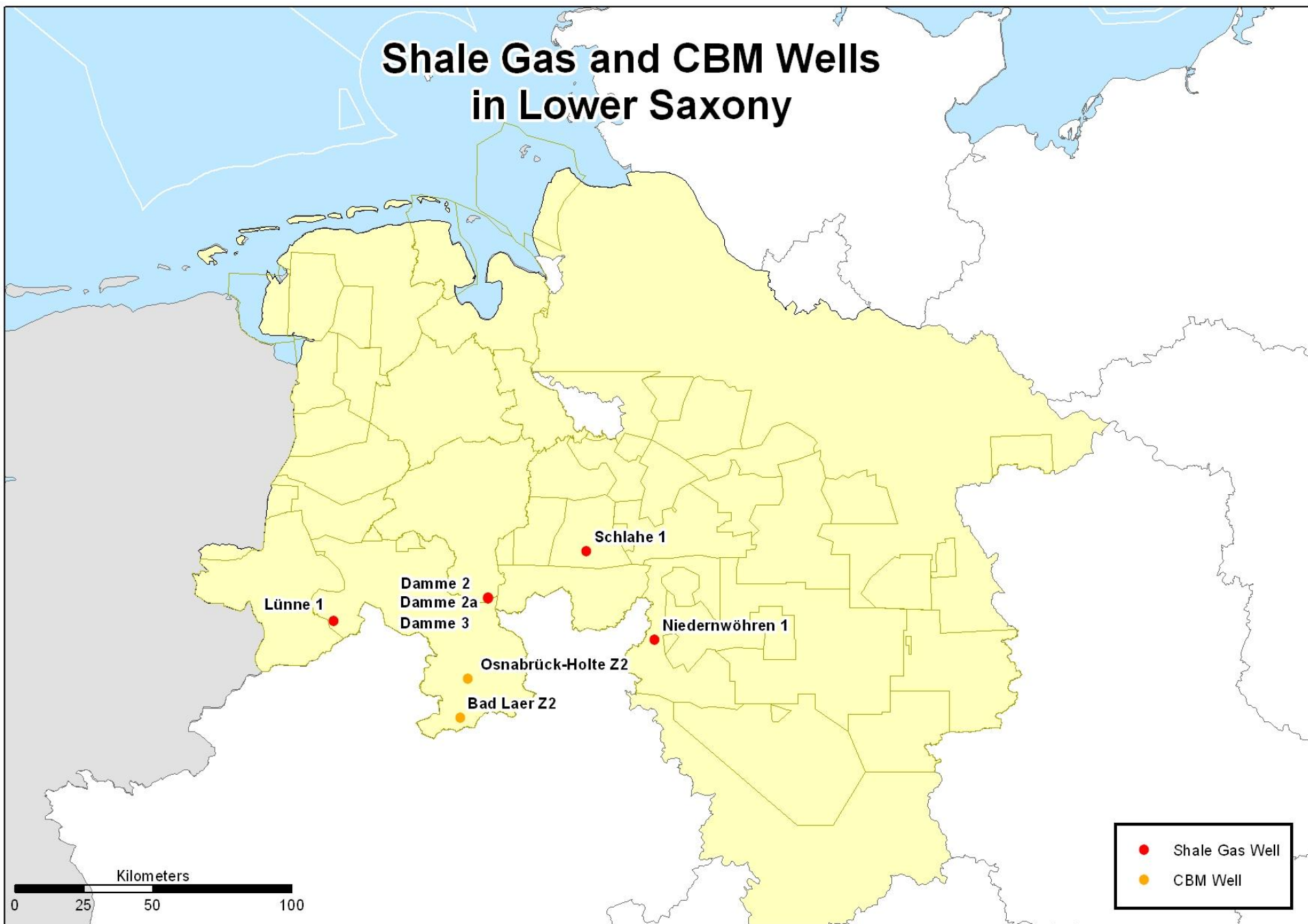


General Prohibitions and Restrictions

- Examination for the granting of operation schedules
 - Prohibition or restriction of exploration or production activities on real estates because of legal provisions
 - Possibility of restriction or prohibition of exploration or production activities if more important public interests are opposed to them



Shale Gas and CBM Wells in Lower Saxony



Shale Gas Exploration

Name of the well	Licence Holder	Well drilled in	Special Operation Schedules for	Situation of the Activities
Damme 2	EMPG	2008	Drilling	drilled
Damme 3	EMPG	2008	Drilling Fracing	drilled, fraced in October 2008
Niedernwöhren 1	EMPG	2009	Drilling	drilled
Nöpke 2	EMPG	-	Drilling	Location preparation finished but no drilling activities
Schlahe 1	EMPG	2009	Drilling	drilled
Lünne 1 und 1a	EMPG		Drilling Drilling of 2nd hole	Drilling of 2nd, horizontal hole
Osnabrück-Holte Z2	EMPG	2010/2011	Drilling	drilled
Bad Laer Z2	EMPG	2010	Drilling	drilled



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Fracing in Germany

- In use since
 - 1955 (Schleswig-Holstein),
 - 1977 (Lower Saxony)
- Unconventional Gas:
 - Tight Gas:
 - Rotliegendes e.g. Gas Field Söhlingen Tight Gas Development in 1990s
 - Carboniferous e.g. Gas Fields Leer, Goldenstedt
- Up to now: no environmental impacts are known
- No interest of the public until 2010
 - 2007: Skeleton Operation Schedule on well on a tight gas layer including EIA and involvement of the public
 - No comments on fracing from the stakeholders



Public Discussions



Public Discussion

- Main claims
 - Stop fracking - „No chemicals in our soil“
 - Ground water protection
 - Environmental Impact Assessment (EIA) and involvement of the public
 - Geological expert judgement of the situation of the impermeable layers above the shale gas layer and the safety of the groundwater
 - Ongoing supervision of emissions (noise, light, air, ground water, surface water, waste water, traffic) by independent third parties before during and after production
 - Continuous publication of emission data
 - Obligatory insurance of the producing operator for the whole project including long lasting effects
 - Constitution of an independent arbitration body for adjustment of losses



Applicable Law

- Mining Act (Claim: Change of the Mining Act)
 - EIA
 - Involvement of the public
 - Assessment of the geological data
 - Security deposit - insurance of the producing operator (public losses)
- Federal Water Act
 - Protection of ground water, surface water
- Federal Immissions Act
 - Regulation and supervision of emissions
- Federal Chemical Act, REACH Regulation
 - use of chemical substances and their potential impacts on both human health and the environment
- Private Law
 - insurance of the producing operator (private losses)
 - independent arbitration body for adjustment of losses (Court of justice)



Conclusions

- Natural gas exploration and production is an important branch of industry in Lower Saxony
- Regulations of the Mining Act
 - Exploration Licence, Production Licence, Mining Proprietorship
 - Activities: operation schedules
 - Covered are:
 - hazards for lives, health and for the protection of physical assets
 - Protection of the surface in the interest of personal safety
 - Precaution to assure restoration
 - Dangerous effects to the public
 - legal provisions and more important public interests
- Shale Gas Exploration Activities in Lower Saxony: 6 wells drilled, 1 fraced
- Public Discussion: environmental impact, groundwater protection, chemicals
- Not only Mining Act is applicable, also Water Law, Emissions Law, Chemicals Law, Public Law

