

Lignite, a major part of the energy landscape today and tomorrow

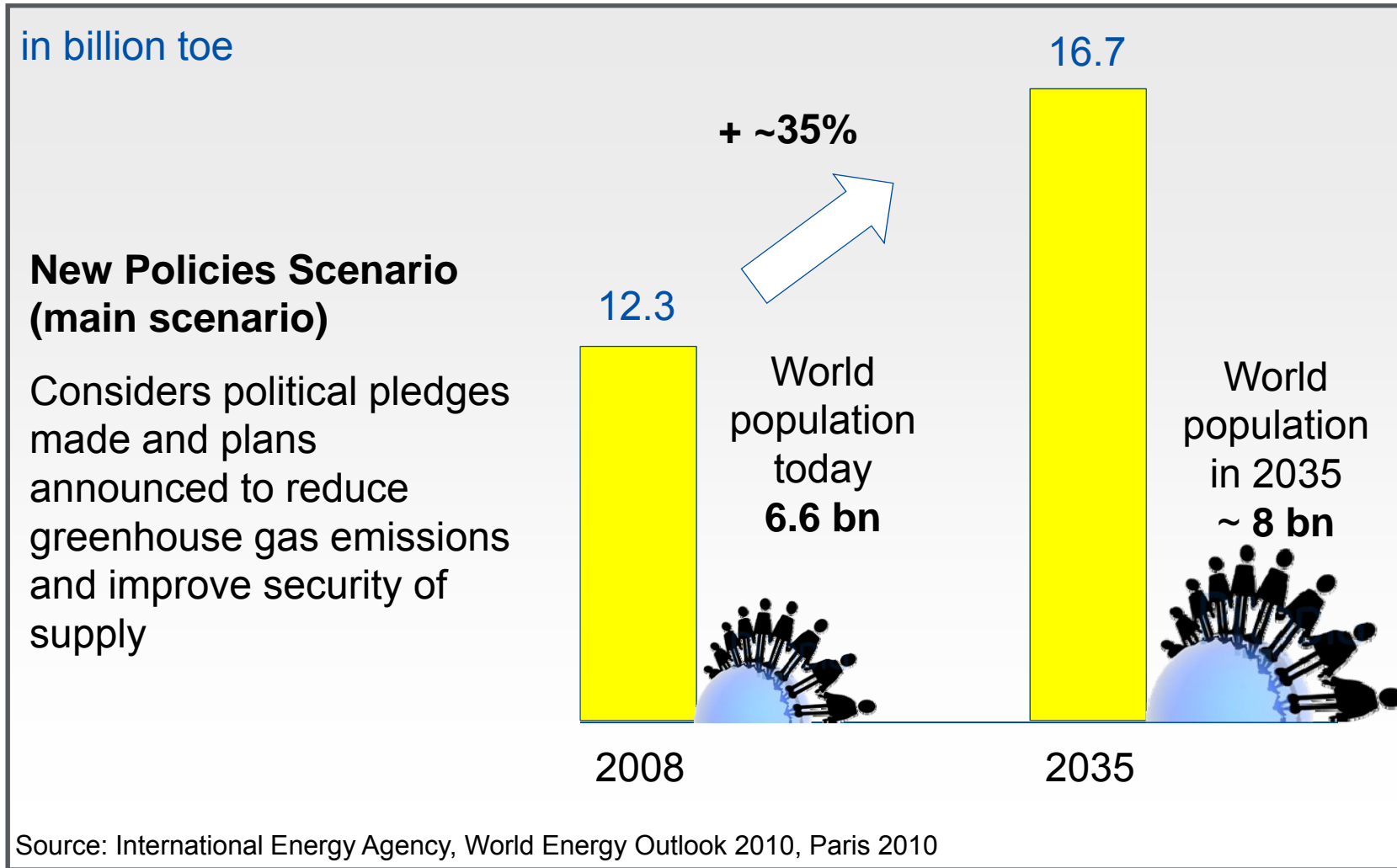
Meeting with European Commission members
on 23 September 2011

Michael Eyll – Vetter, Vice President, Mine Planning
RWE Power AG, Cologne



RWE
The energy to lead

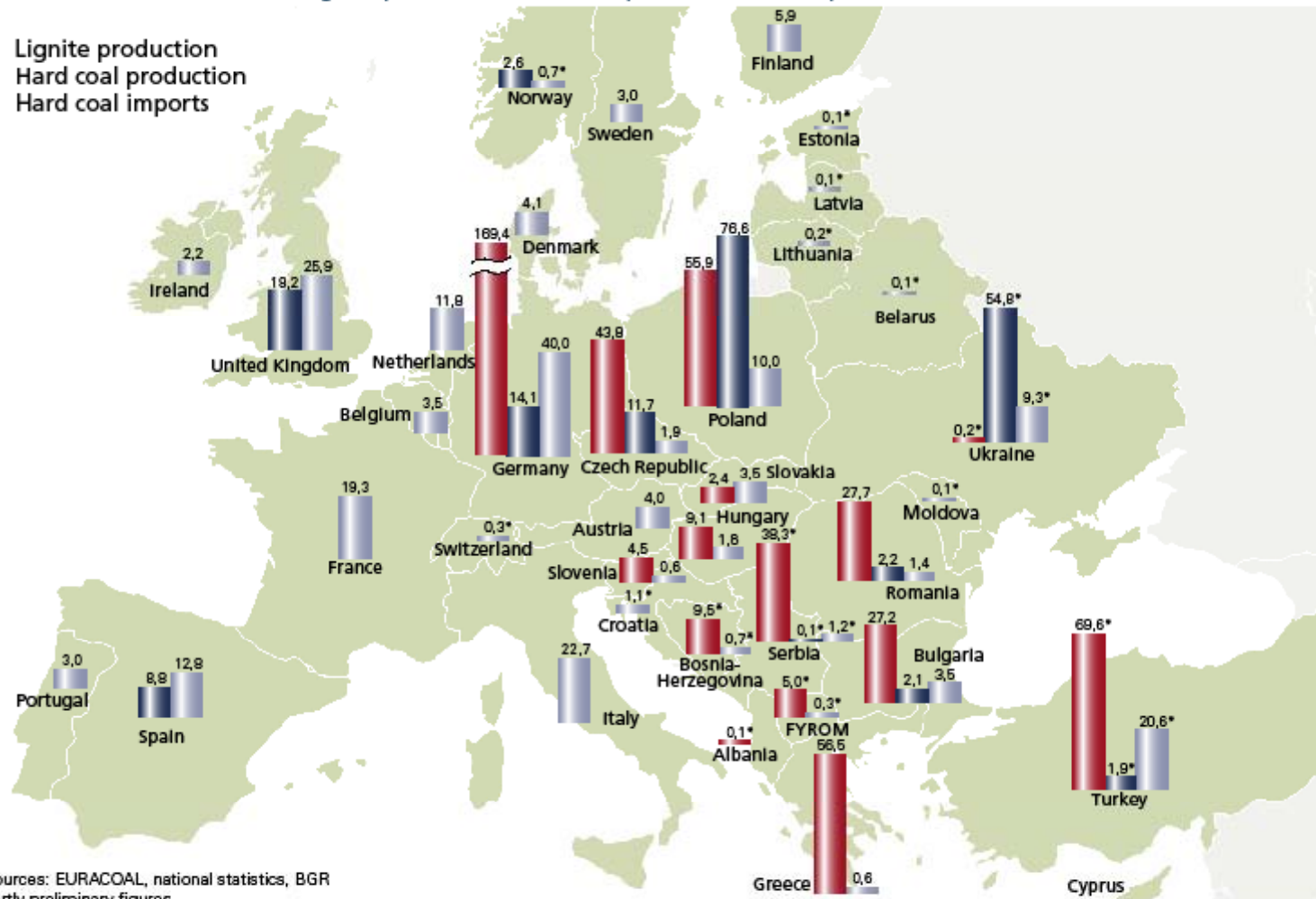
Global primary energy consumption will rise significantly



Coal in Europe

Lignite production, hard coal production and imports in Mt in 2010

- Lignite production
- Hard coal production
- Hard coal imports



Sources: EURACOAL, national statistics, BGR
 partly preliminary figures
 *2009
 Data as at 03/2011

Germany has the second largest lignite reserves worldwide (40 billion tons)



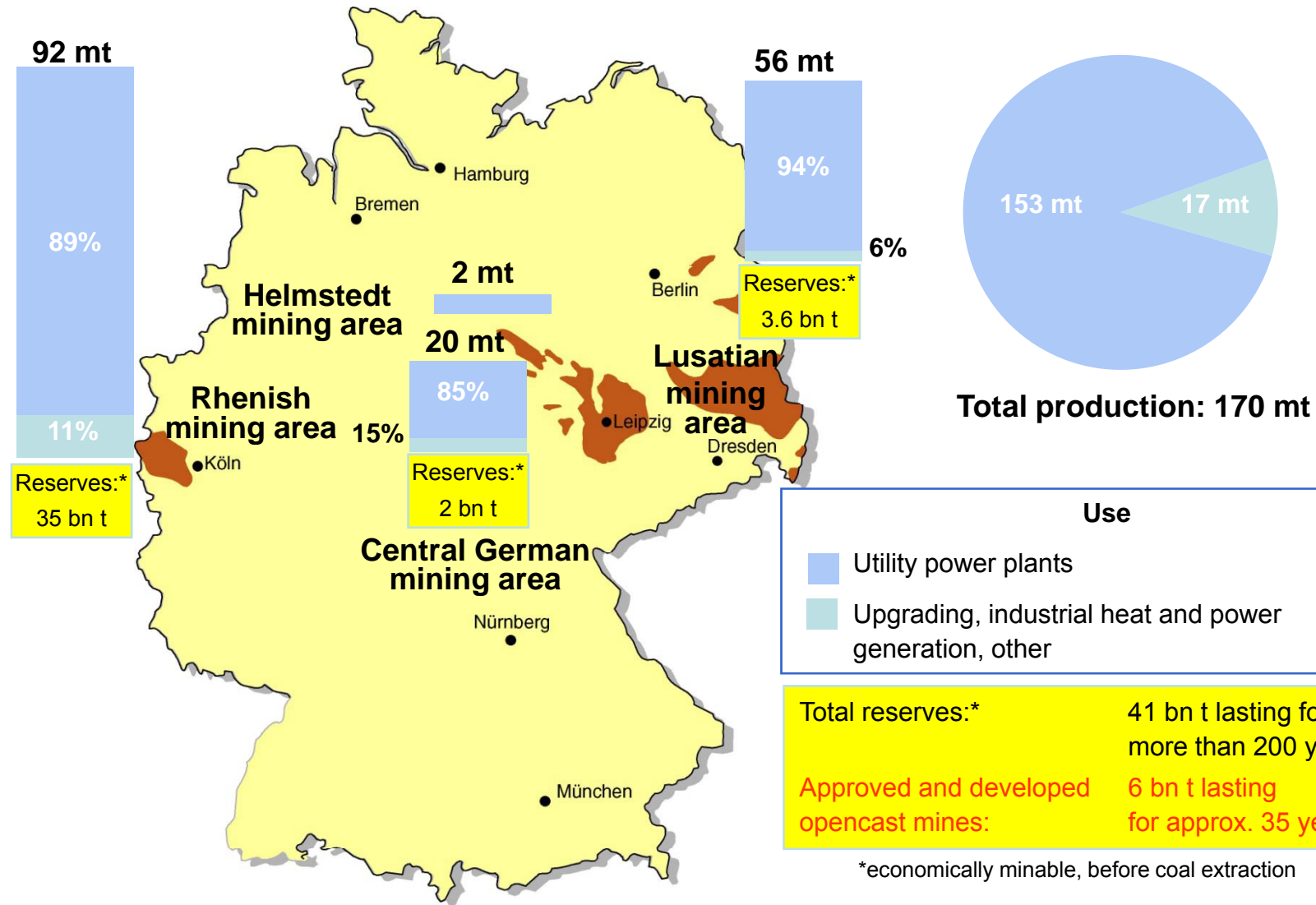
Map showing the world's ten largest lignite-producing countries

- > Global lignite reserves amount to approx. 270 bn t (~ 100 bn tce)
- > Global lignite resources amount to approx. 4,100 bn t (~ 1,300 bn tce)
- > Most of the deposits are located in politically stable regions

Lignite: 10 countries have a share of some 77% in global production. Germany's share amounts to approx. 19 %.

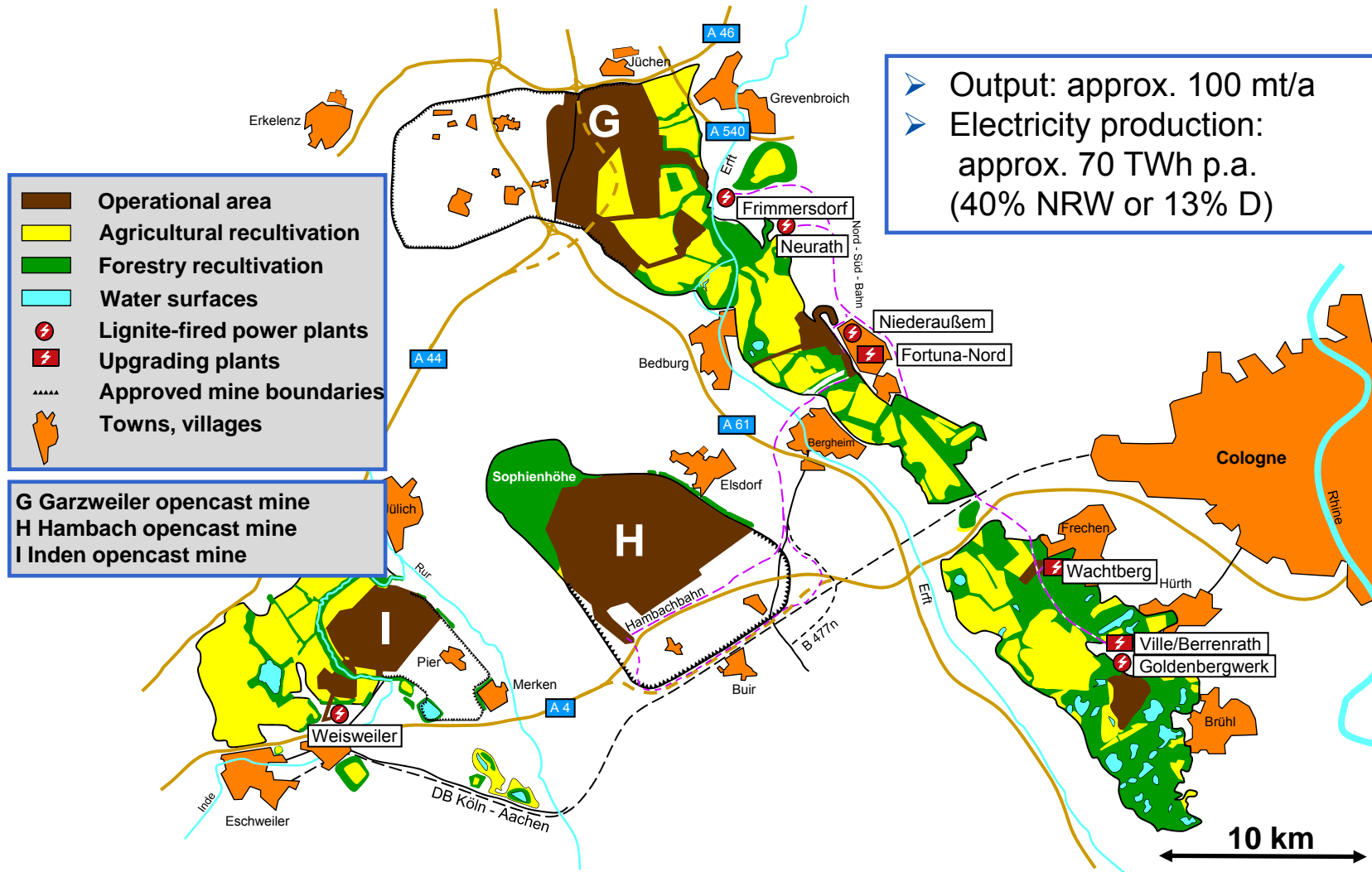
Source: Germany's Federal Institute for Geosciences and Natural Resources (BGR)

Germany has considerable lignite reserves – even by international standards



Overview of the Rhenish lignite mining area

3.3 bn t of approved deposit reserves provide reliable base for long-term energy supply



Performance figures of RWE Power AG in the Rhenish lignite mining area



Opencast mines: 90 - 100 mt of lignite p.a

Garzweiler 35 - 40 mt p.a	Hambach 35 - 40 mt p.a	Inden 20 - 25 mt p.a
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Power plants: over 10,000 MW_n; ~70 TWh/a_n

Frimmersdorf 2,000 MW	Neurath 2,050 MW	Nieder- aussem 3,500 MW	Weisweiler (incl. TGT) 2,600 MW	MESC* - Goldenberg PP 150 MW
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Factories: ~5 mt of upgrading products p.a.

Fortuna-Nord	Frechen	Ville/Berrenrath
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- Total of ~11,600 employees incl. 740 apprentices and trainees
- Contracts worth ~€1.1 billion awarded to 3,500 companies in the region

Holistic opencast mining concept

Mining engineering and recultivation



...from start

...to finish

Worldwide leading recultivation today
based on decades of experience



Water management, environmental protection in practice



Water infiltration and discharge
measures support the ground-
water regime and protect
wetlands



Traffic infrastructure projects strengthen the region

- ↪ Traffic infrastructure deficits that existed prior to mining operations are eliminated.
- ↪ Improved connection of townships to the superordinate road network strengthens the region.



Socially compatible resettlement by close cooperation with the affected municipalities and citizens



Joint resettlement

- ↪ Ensures the preservation of the village community
- ↪ Ensures the preservation of assets
- ↪ Extensive opportunities for information and participation
- ↪ Reduces strains by needs-based offers



Transparency

- ↪ Transparent presentation of processes and services within the course of the resettlements.
- ↪ Analysis of individual compensation claim based on transparent criteria
- ↪ General framework for compensation for owner-occupied properties, applied for the entire mining area.



Location-specific rules

- ↪ Individual soil assessment
- ↪ Extensive information and advice on site



RWE Power, firmly rooted in the Rhenish mining area



Recultivation of the long-distance conveyor belt route:

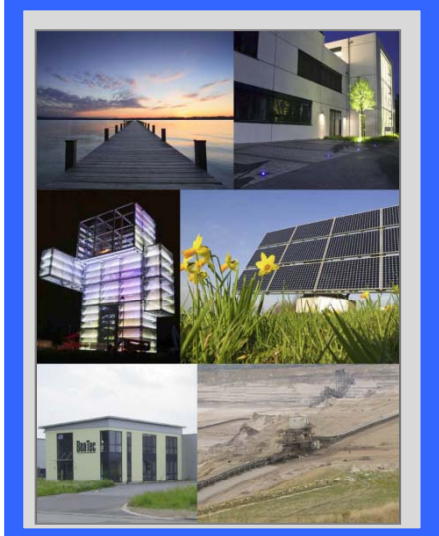
:terra nova

"Time Park" opencast mine rim with forum building:



"INKA" [inter-municipal competence area]

:terra nova science at the Niederaußem power plant



Indeland is...

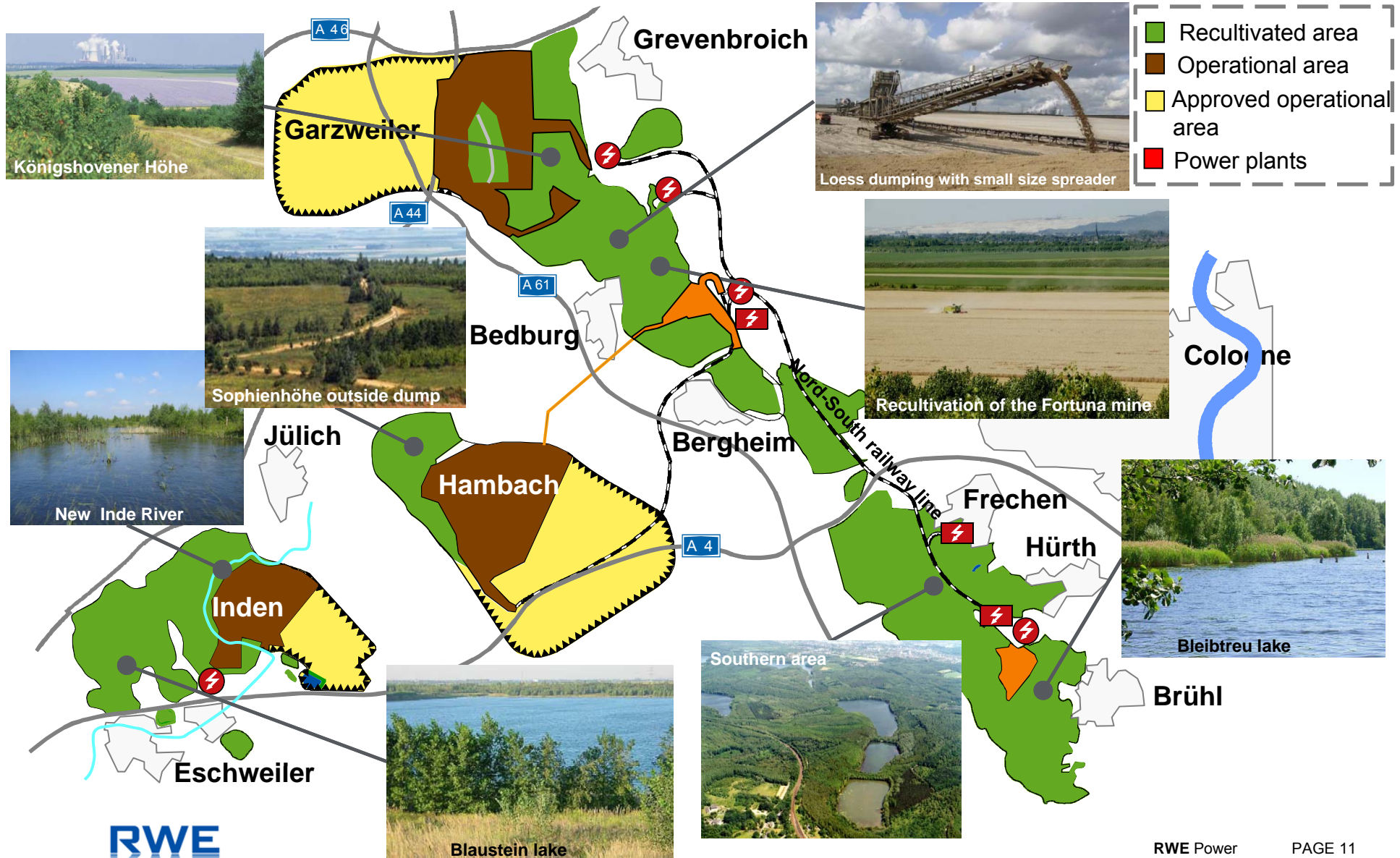


- an alliance between local authorities, policy-makers, RWE Power and the Kathy Beys Foundation

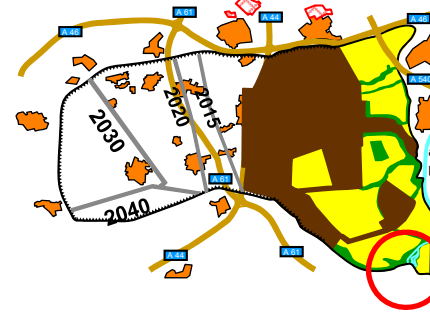
Indeland means...

- developing projects to advance the region's economic structure
- refining and updating the Indeland master plan for the residual lake Inden in a broad-based cooperative process
- setting priorities to implement different types of use for the lake's edge area

Recultivation in the Rhenish lignite mining area focused on agriculture and forestry



Typical reclamation e.g. of the Frimmersdorf mine



The medieval
town centre of
Kaster:

1975 and 2000

- Typical reclamation in the Rhenish lignite mining area creates a richly structured post-mine landscape.
- All traces of mining operations are erased.
- The landscape is visually adapted to the surroundings and to the status prior to the land being used for mining purposes.
- The creation of agricultural land is given preference over reforested areas and water surfaces.

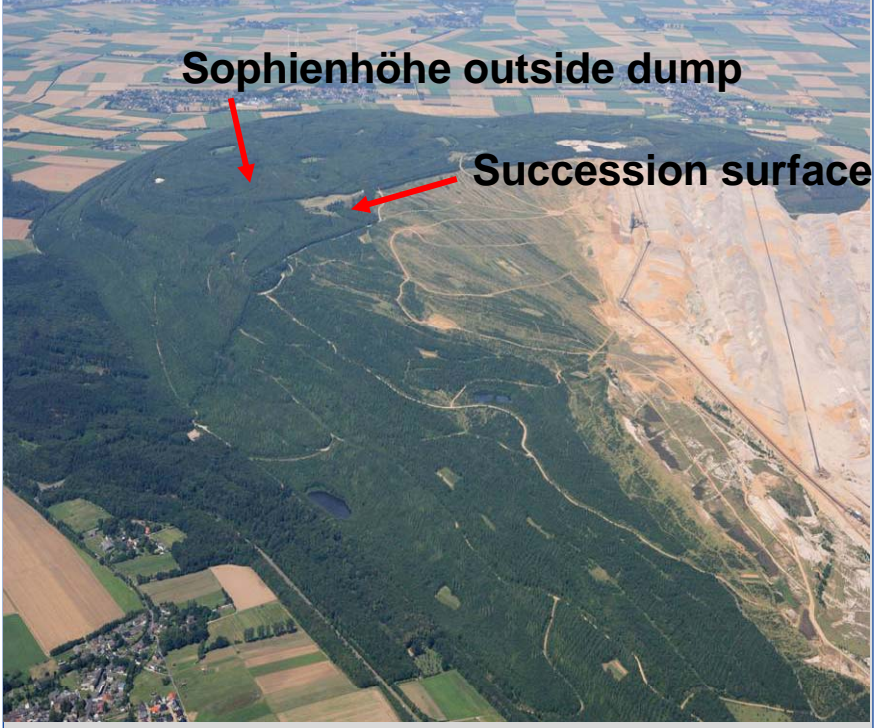
One thing applies to all mining measures: We never lose sight of Nature

Bat and woodpecker populations – examples of environmental protection challenges



Development of protective measures by accredited experts in collaboration with specialist authorities ensures the conservation of animal populations

The world's leading recultivation concepts thanks to continuous further development

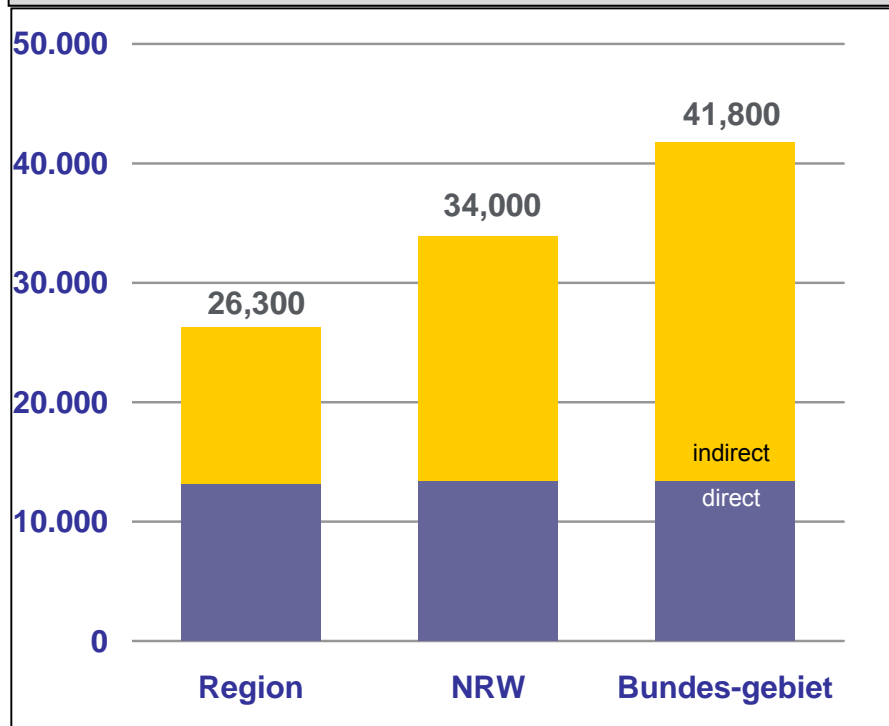


Studies of flora and fauna have identified more than 2,200 animal and over 700 plant species in the recultivated areas

Value-add on site: The lignite mining sector safeguards more than 26,000 jobs in the region



Employment effects of lignite mining sector Number of employees (rounded)



Sources: Our own calculations; EEFA study: Bedeutung der rheinischen Braunkohle – sektorale und regionale Beschäftigungs- und Produktionseffekte, 2010; EEFA expert report: Sektorale und regionale Beschäftigungseffekte durch den Neubau von fünf Kraftwerken auf Basis Stein- und Braunkohle am Standort Nordrhein-Westfalen, 2009.

In 2009, RWE Power paid €169 m in trade tax in NRW.





From 2005 to 2013, the construction of BoA 2/3 will safeguard approx. 2,450 jobs in NRW.

In 2009, RWE Power provided a direct demand stimulus of €1.9 bn.


We award most contracts to competent firms in the vicinity of our mines and plants.



RWE Power as a strong partner of the region, with a focus on industry

<p>Energy landscape</p>	<ul style="list-style-type: none"> ↪ Erection of 4 wind energy plants by RWE Innogy GmbH ↪ Total capacity: 13.6 MW ↪ To be implemented as of 2012 	
<p>Municipality development</p>	<ul style="list-style-type: none"> ↪ Location of businesses for general basic and local supply ↪ Investment volume: approx. EUR 4.1 m 	
<p>Industrial estates</p>	<ul style="list-style-type: none"> ↪ Erection of building machinery works with 600 jobs ↪ Opening of works on 20 June 2011 	
<p>Gardenlands</p>	<ul style="list-style-type: none"> ↪ 30 ha of area under glass are heated using low-temperature heat ↪ Option of CO₂ manuring 	

Lignite mining in the Rhenish area



Spreader

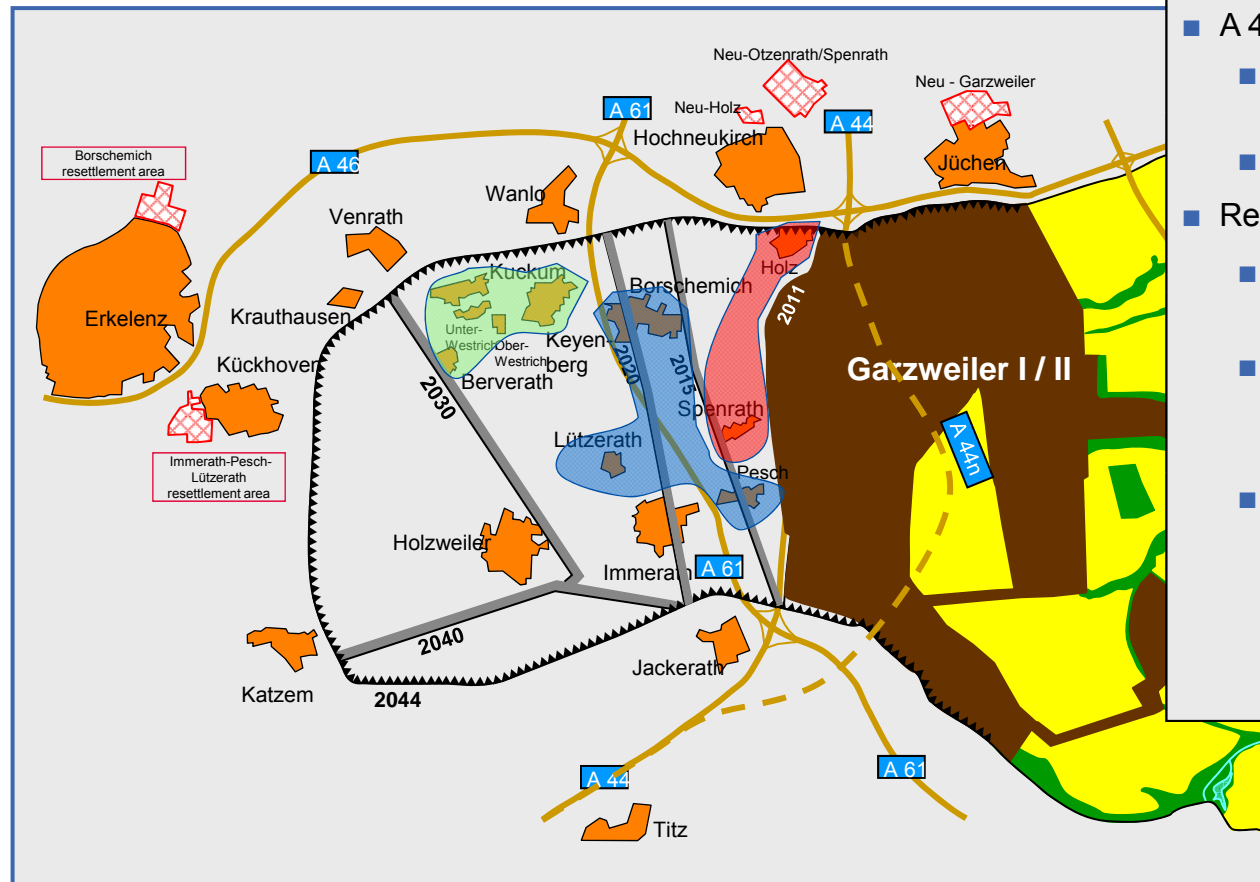
Bucket-wheel excavator

Belt junction

- 3 opencast mines
- 18 bucket-wheel excavators
- 17 spreaders
- 235 km of belt conveyors
- 300 km of railway tracks

→ Production capacity is geared to 100 million tons of lignite per year

Development of Garzweiler opencast mine



- A 44 n (— — — —):

 - Route prepared across a length of 2.5 km
 - Plan approval has been granted

- Resettlement
 - **1st section** Holz, Otzenrath and Spenrath is completed
 - **2nd section** Immerath, Lützerath, Pesch and Borschemich going according to plan
 - **3rd section** Keyenberg, Kuckum, Oberwestrich, Unterwestrich and Berverath: lignite mining plan procedure started after lignite commission's decision was taken at meeting of 21 December 2010.



Operations are dominated by routing for A44n



Power plant fleet renewal and further development of power plant technology and use options as contribution to the reduction of carbon emissions

