

# Upstream gas & oil: Competitive advantage in high price commodity markets

Investor and Analyst Conference  
London, August 10, 2006

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# Forward Looking Statement



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- Projections of revenues, income, earnings per share, capital expenditures, dividends, capital structure or other financial items;
- Statements of plans or objectives for future operations or of future competitive position;
- Expectations of future economic performance; and
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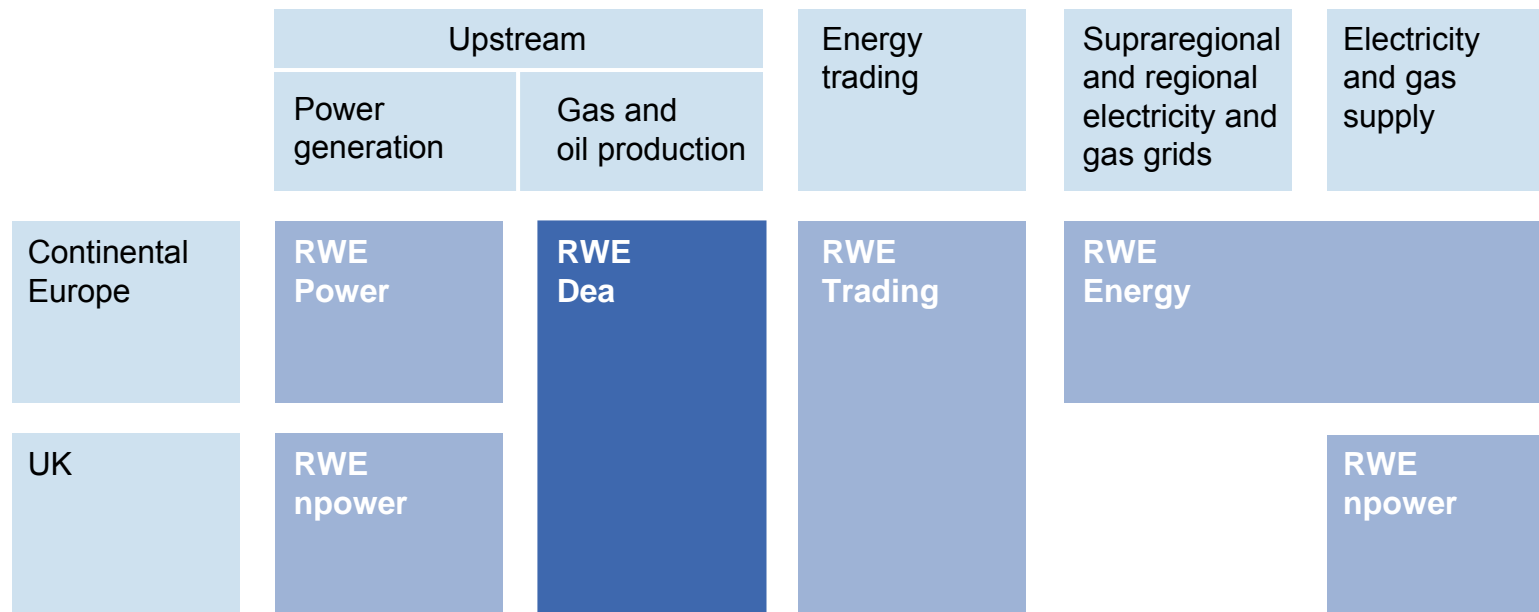
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# RWE Dea – well positioned for strong organic growth

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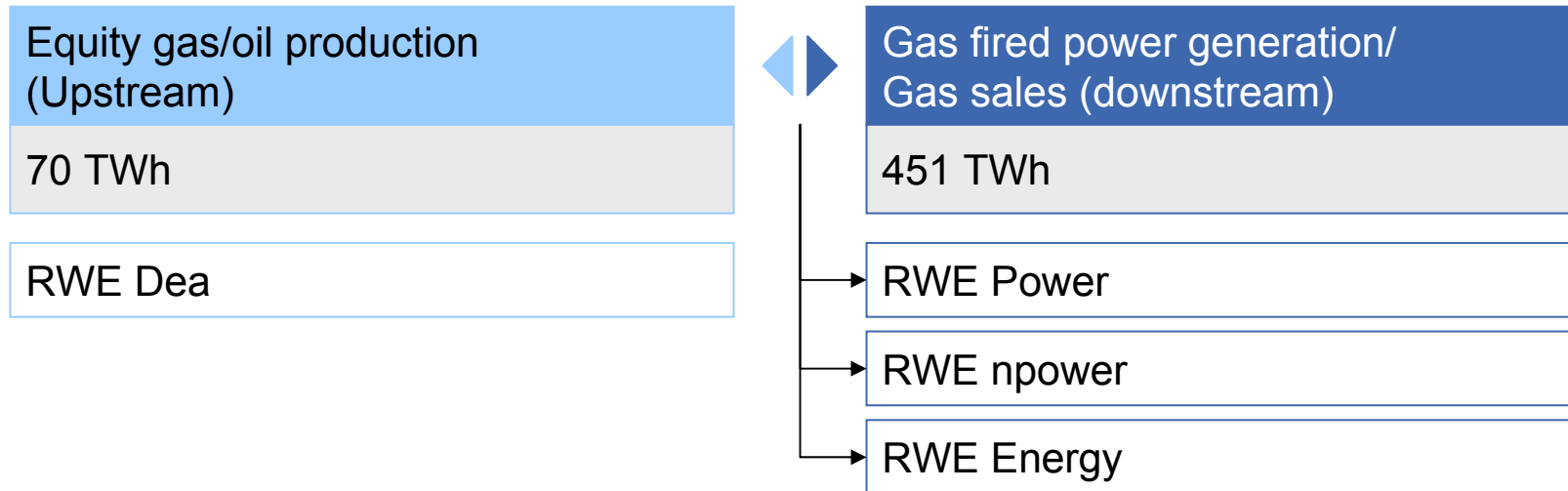
Georg Schöning  
Chief Executive Officer RWE Dea

# RWE Dea's role in the RWE Group



- Financial hedge for RWE against fuel price volatility in power generation and gas supply especially in the UK
- Diversification of our gas procurement portfolio
- Strong contributor to RWE's organic growth
- Highest ROCE within the RWE Group

# Hedging gas demand of power generation and downstream

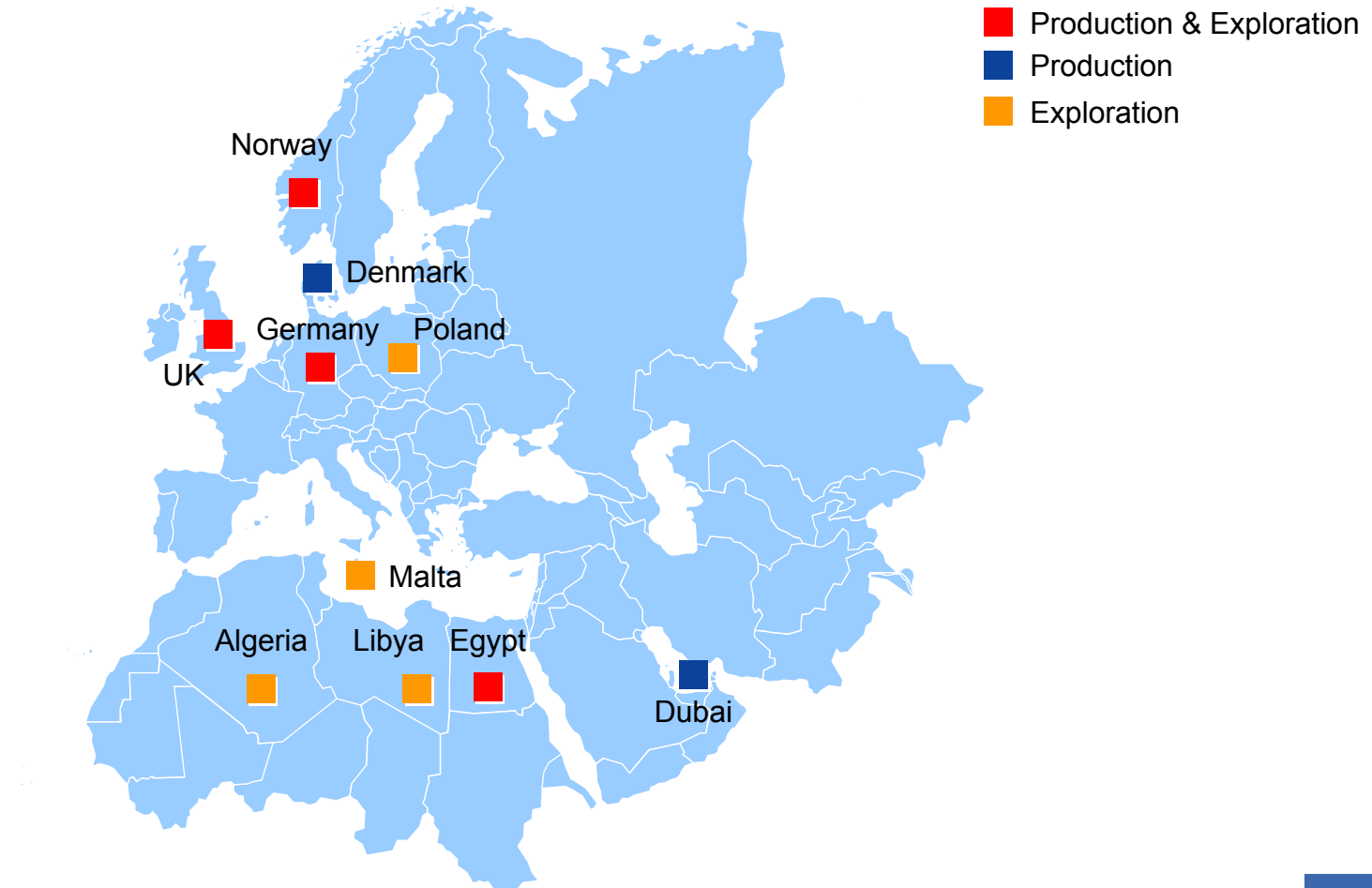


## Hedging

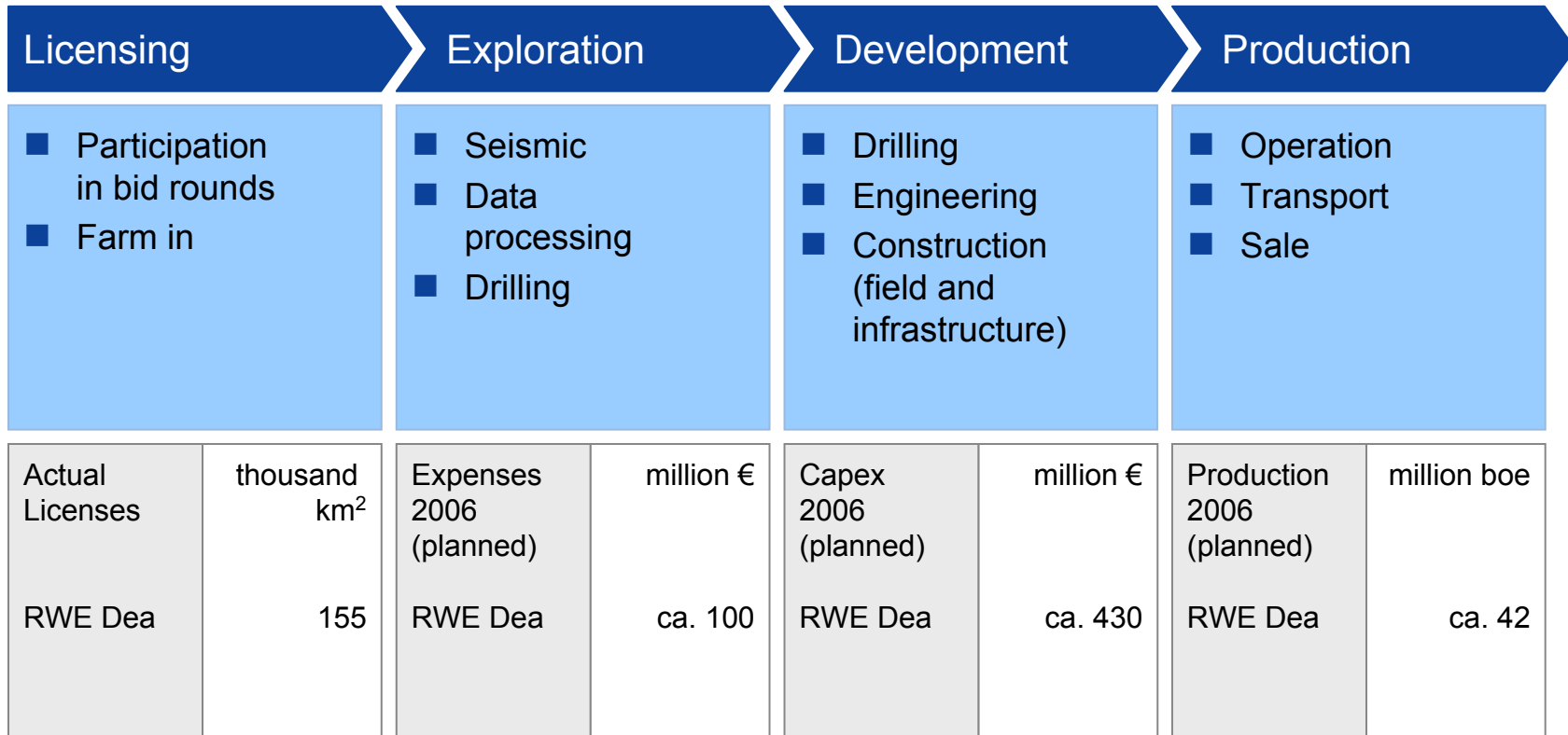
Target to increase current hedging position (15%) by organic growth

# Regionally diversified portfolio

## Overview of RWE Dea's upstream gas & oil activities



# Value chain of upstream business



# Classification of reserves & resources

← Range of uncertainty →

**P 90**  
90% chance of more than the estimate

**P 50**  
50% chance of more than the estimate

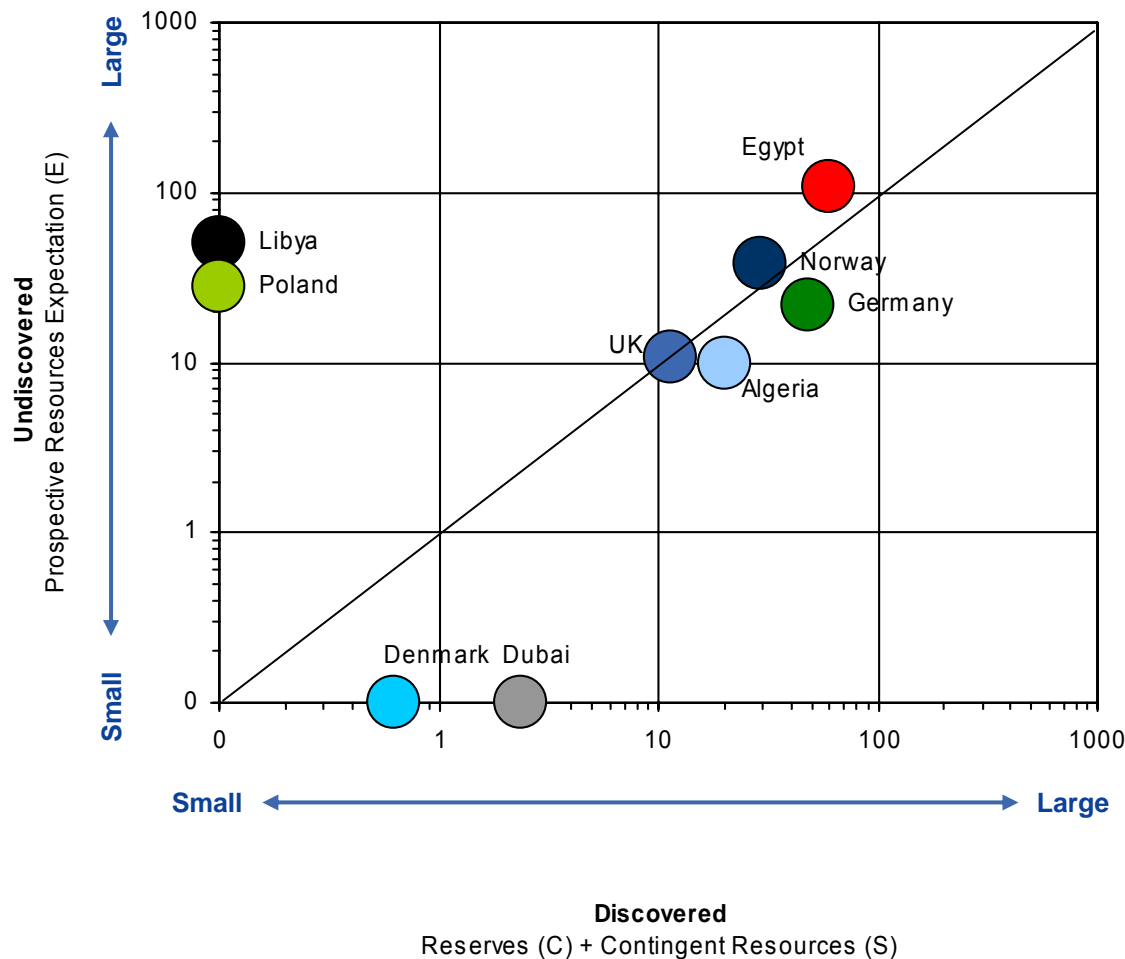
**P 10**  
10% chance of more than the estimate

			P 90 90% chance of more than the estimate	P 50 50% chance of more than the estimate	P 10 10% chance of more than the estimate	
<b>Reserves</b>	Commercial	C1	<b>1P</b> Proved	<b>2P</b> Proved + Probable	<b>3P</b> Proved + Probable + Possible	On pro- duction
		C2				Under Develop- ment
		C3				Planned for Develop- ment
<b>Resources</b>	Sub- commercial	S1	Low estimate	Best estimate	High estimate	Discovered (Contingent)
		S2				
	E1	Low estimate	Best estimate	High estimate	Undiscovered (Prospective)	
						E2

◀▶ “C-Reserves” in this presentation covers blue area

◀▶ “S-Resources” in this presentation covers grey area

# Balanced mix: RWE Dea's resource portfolio

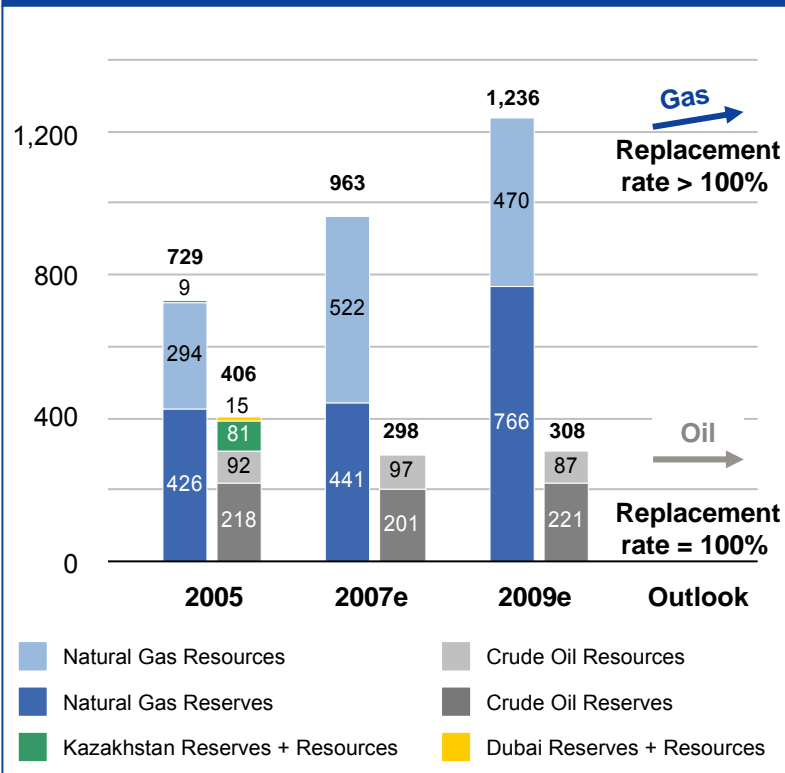


## Opportunities for growth

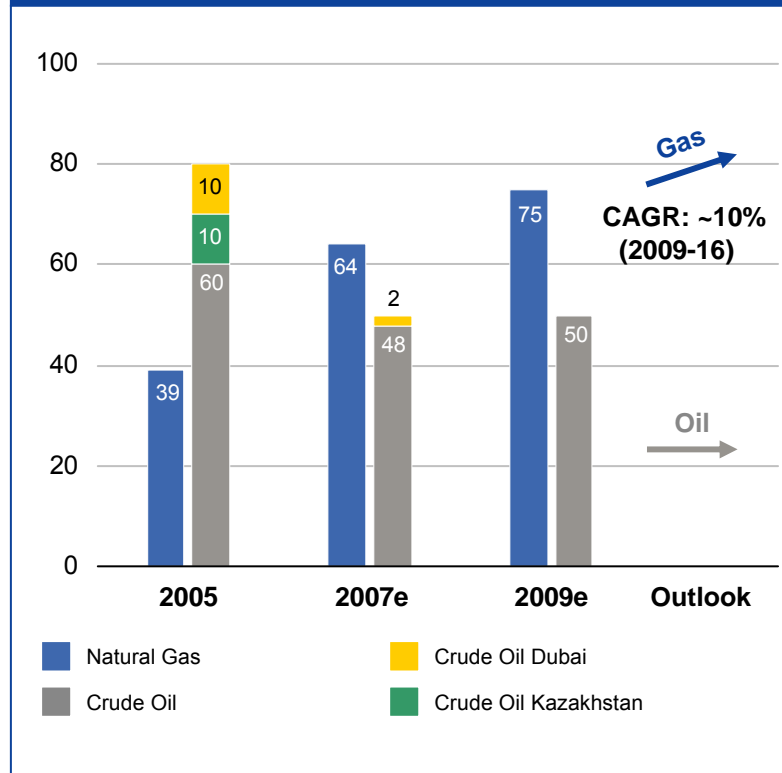
- **Egypt, Algeria, Libya**  
growth potential concentrated in North Africa
- **Norway**  
limited growth potential based on large single opportunities with long lead times
- **Germany**  
no significant growth potential, due to maturity
- **UK**  
mainly mature region

# Strong production growth beyond 2009

RWE Dea – Reserves & S-Resources (P50)  
in million bbl oil equivalent – end of year status

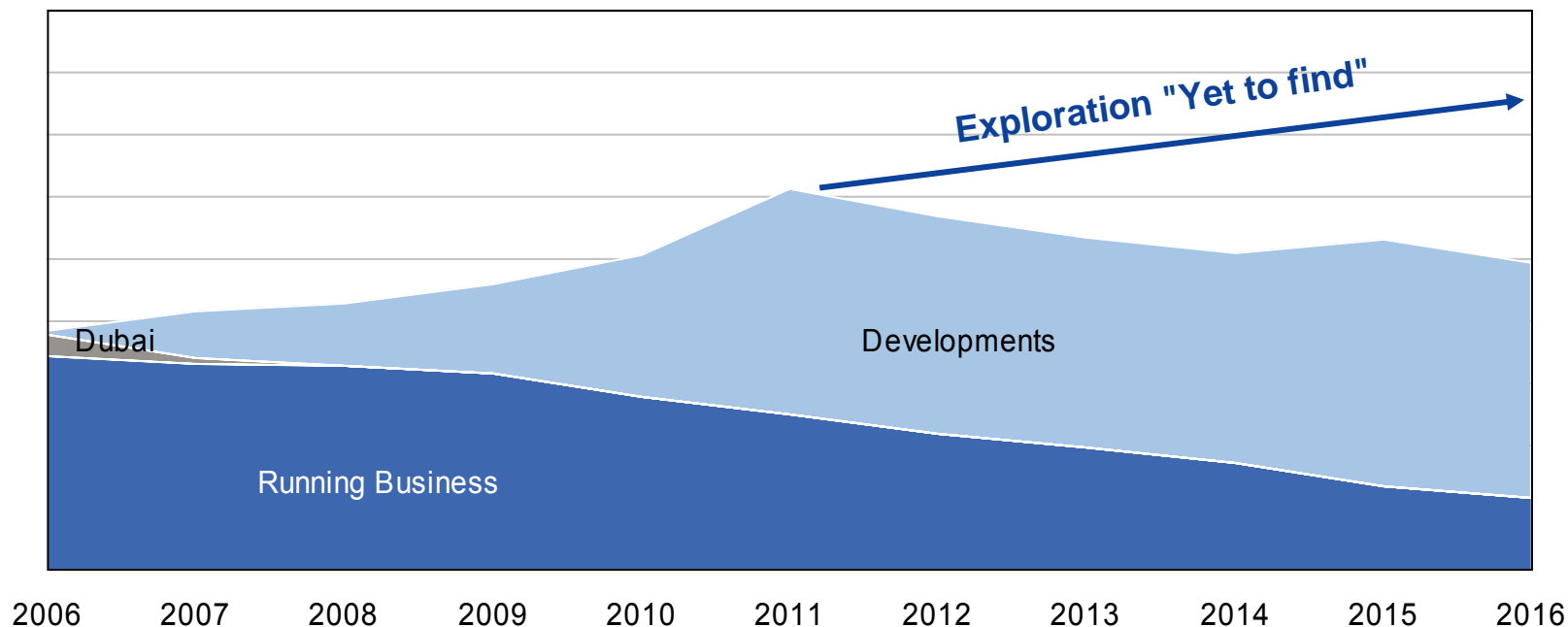


RWE Dea – Gas and Oil Production  
in thousand bbl oil equivalent/day



Reserves = proved + probable  
Resources = S1 + S2

# Production forecast



## Running Business:

- Germany (oil/gas)
- Norway (oil)
- UK (gas)
- Egypt (oil)

## Development e.g.:

- Norway (gas)
- UK (gas)
- Egypt (gas domestic /LNG)
- Libya (oil/gas)

## Exploration:

- Core areas
- CEE<sup>1)</sup> / Eastern NV<sup>2)</sup>

<sup>1)</sup> Central and Eastern Europe

<sup>2)</sup> Eastern New Ventures (Russia and Caspian Region)

# RWE Dea's key performance indicators



Indicators	RWE Dea		Worldwide Industry Average <sup>1)</sup>
	2000 – 04	2001 – 05	2000 – 04
Reserve Life (P90) [Years]	12.6	12.5	13.4
Reserve Replacement Rate (P50) [%]	213.0	172.0	168.0
Reserve Replacement Costs (P50) [\$/bbl]	3.2	3.7	6.0
Production Costs [\$/bbl]	3.6	4.1	5.4

<sup>1)</sup> Source: Herold Global Upstream Performance Review – 2005 Final Report

# Investment in organic growth: RWE Dea's capex plan per region

in million €	Outlook 2006	Average 2007 – 10 p.a.	
Germany	ca. 60	ca. 50	Gas: Further production wells and compression facilities Oil: Further production wells at offshore field Mittelplate Storage: extension of storage capacity
Europe/CIS <sup>1)</sup>	ca. 230	ca. 150	UK: Southern North Sea Norway: Barents Sea; Norwegian Sea CEE / Russia: new ventures
North Africa	ca. 140	ca. 400	Egypt: offshore Nile Delta Libya, Algeria
<b>RWE Dea</b>	<b>ca. 430</b>	<b>ca. 600</b>	

<sup>1)</sup> CIS: Commonwealth of independent states  
(Soviet union succession states)

**Additionally ca. €100 million p.a. exploration expenses**

# RWE Dea: Outlook 2006 and beyond



million €	2005	2006 Forecast
Revenues	1,578	↗
EBITDA	642	↗
Operating Result	445	↗
ROCE	42%	↗
Added Value	308	↗

## Profit growth

Target compound average growth rate of operating result ~10 % p.a. from 2006 to 2009 based on oil price assumption of 70 \$/bbl<sup>1)</sup>

<sup>1)</sup> based on 1€ = 1.25 \$

# Summary of issues and actions

## Increase reserves & resources

- Growing organically by successful exploration in existing and new licenses
- Targeting new strategic areas (CEE<sup>1</sup> / Eastern NV<sup>2</sup>)

## Increase production

- Bring on stream resources
- Increase investment up to € 600 million p.a. (+ € 100 million exploration expenses)

## Performance

- Maintain capability to manage projects
- Keep costs under control

## Strengthen RWE gas value chain

- Participate in LNG projects
- Deliver LNG into RWE systems

<sup>1</sup>) Central and Eastern Europe

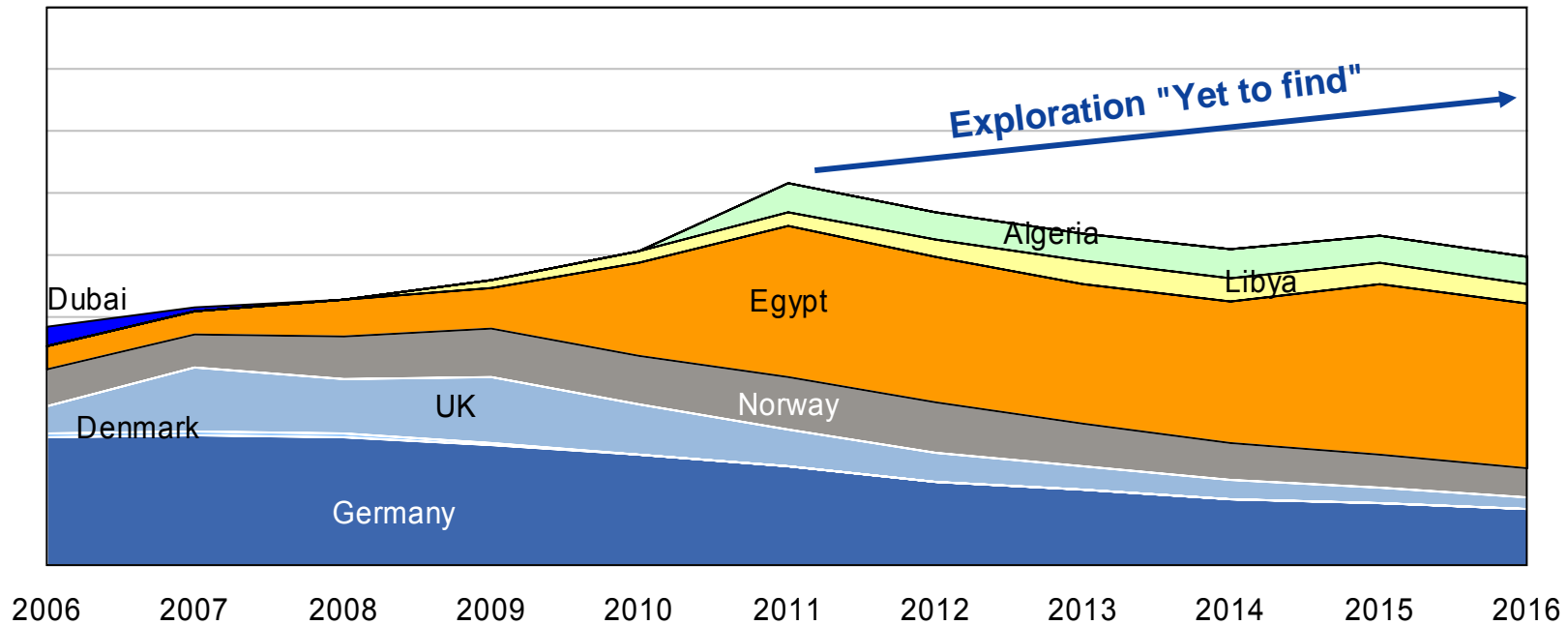
<sup>2</sup>) Eastern New Ventures (Russia and Caspian Region)

# RWE Dea's operational areas and key competencies

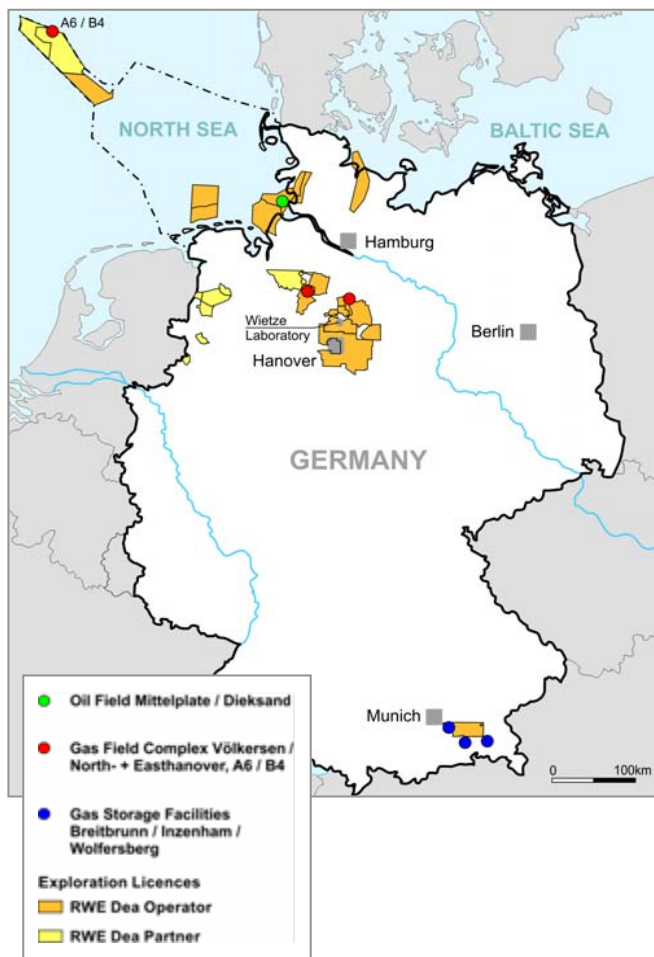
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# Phasing of production by countries



# Operational areas in Germany

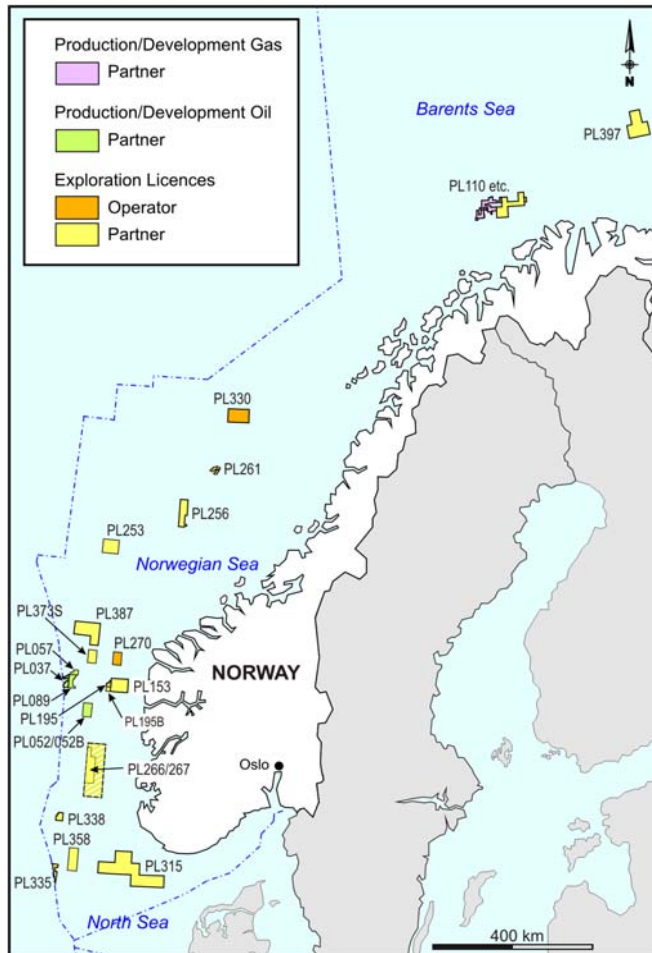


License Area	18,700 km <sup>2</sup>
Number of licenses	50
Reserves & S-Resources (P50) as of 31.12.2005	300 million boe
Production 2005	
Gas	34,169 boed
Oil	21,651 boed
Total	55,820 boed
Number of operatorships	
Production	14
Exploration	14
Underground storage facilities	3
Storage capacity	2 Bcm

## Outlook

- Extend present production
- Drill out gas- and oil-exploration potential
- Extension of storage capacity

# Operational areas in Norway



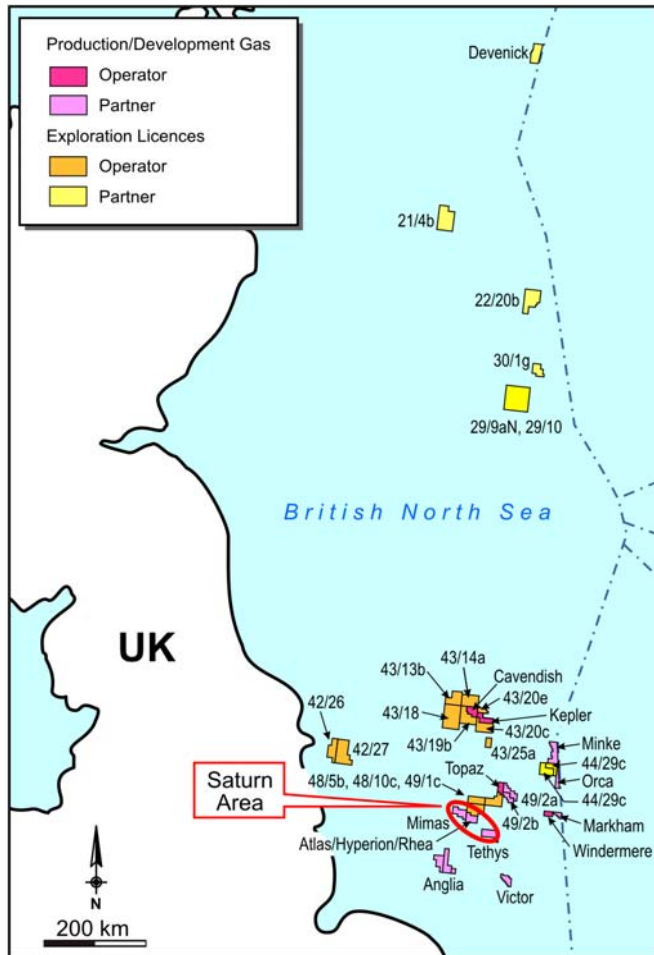
License Area	20,500 km <sup>2</sup>
Number of licenses	39
Reserves & S-Resources (P50) as of 31.12.2005	181 million boe
Production 2005	
Gas	859 boed
Oil	22,340 boed
Total	23,199 boed
Number of operatorships	
Production	-
Exploration	2

## Outlook

- Production start Snøhvit LNG 2007
- IOR<sup>1)</sup> projects Snorre
- Reserve replenishment through exploration

<sup>1)</sup> Improved oil recovery

# Operational areas in UK



License Area	3,100 km <sup>2</sup>
Number of licenses	32
Reserves & S-Resources (P50) as of 31.12.2005	72 million boe
Production 2005	
Gas	4,097 boed
Oil	113 boed
Total	4,210 boed
Number of operatorships	
Production	4
Exploration	6

## Outlook

- Significant production increase in 2006
- Thereof to go on stream end of 2006 / beginning of 2007: Cavendish (operated), Mimas, Tethys, Rhea
- Development of 9 fields by 2010
- Reserve replenishment through exploration

# Operational areas in Poland



License Area	12,700 km <sup>2</sup>
Number of licenses	3
Reserves & S-Resources (P50) as of 31.12.2005	-
Production 2005	-
Number of operatorships	
Production	-
Exploration	3

## Outlook

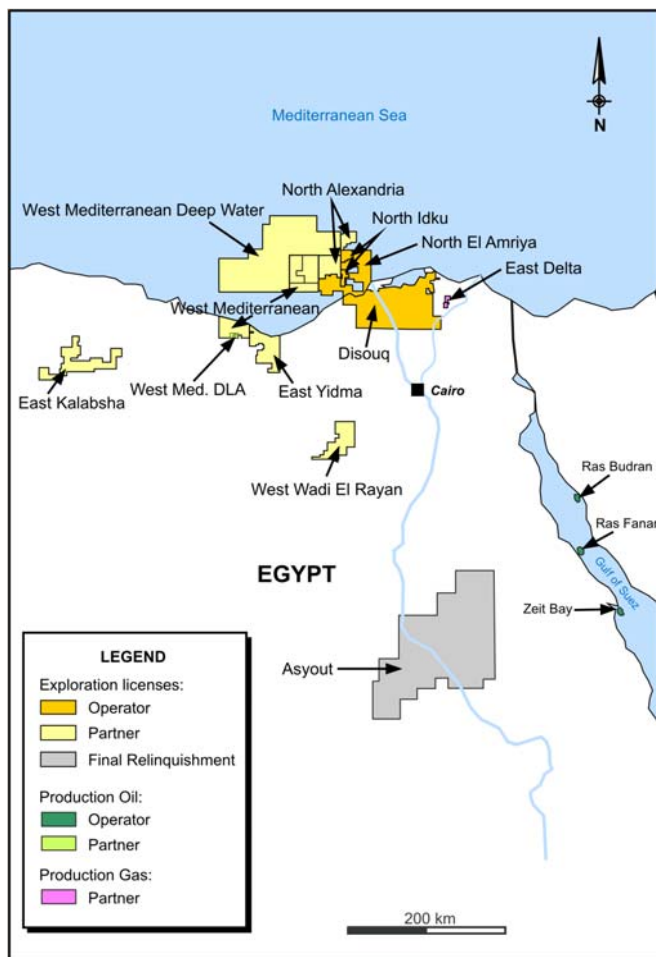
### Poland Central

- Interpretation of 3D and 2D seismic data
- Generation of prospects for exploration drilling

### Poland South

- Drilling of two wells 2006/07
- Acquisition of 3D seismics
- Generation of prospects for exploration drilling
- Efforts to strengthen acreage position

# Operational areas in Egypt

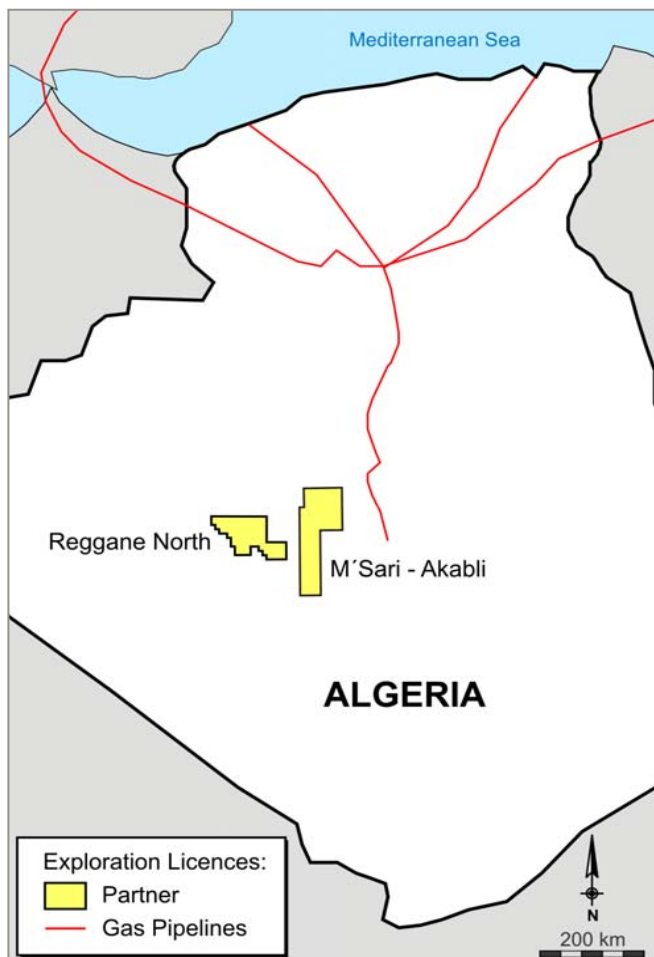


License Area	46,500 km <sup>2</sup>
Number of licenses	16
Reserves & S-Resources (P50) as of 31.12.2005	376 million boe
Production 2005	
Gas	169 boed
Oil	12,358 boed
Total	12,528 boed
Number of operatorships	
Production	4
Exploration	3

## Outlook

- Intensifying exploration and appraisal activities on gas in the highly prospective West Nile Delta
- Commencing development activities with the target of producing first gas in 2009 / 2010
- Participation in gas liquefaction (LNG) project planned
- Maintaining oil production in the Gulf of Suez and the Western Desert is targeted

# Operational areas in Algeria

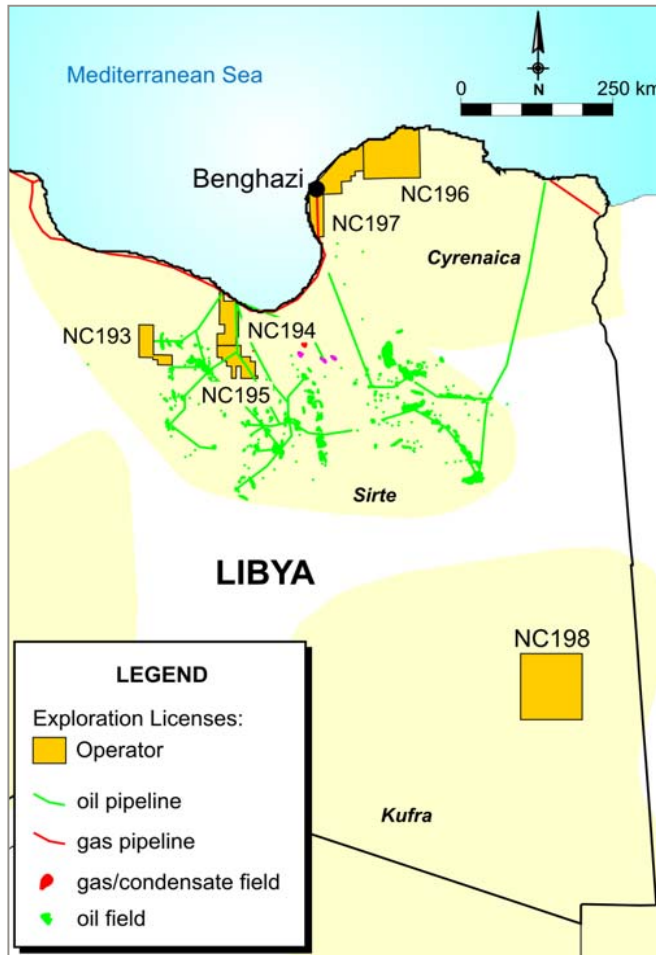


License Area	20,200 km <sup>2</sup>
Number of licenses	2
Reserves & S-Resources (P50) as of 31.12.2005	96 million boe
Production 2005	-
Number of operatorships	
Production	-
Exploration	-

## Outlook

- Intensifying exploration and appraisal activities on gas in the highly prospective concessions in the Ahnet basin
- Preparing for development activities with the target of producing first gas in 2011
- Evaluating engagement in gas liquefaction (LNG) project

# Operational areas in Libya



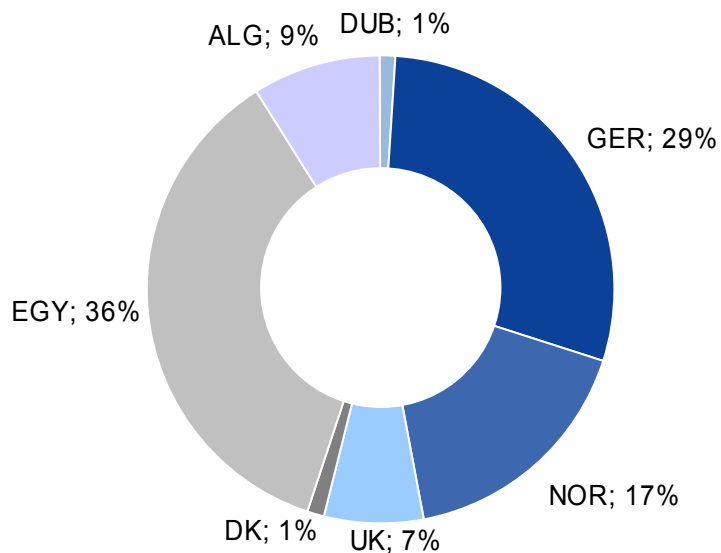
License Area	30,300 km <sup>2</sup>
Number of licenses	6
Reserves & S-Resources (P50) as of 31.12.2005	- million boe
Production 2005	-
Number of operatorships	
Production	-
Exploration	6

## Outlook

- Intensifying exploration and appraisal activities
- Preparing for fast development in case of exploration success

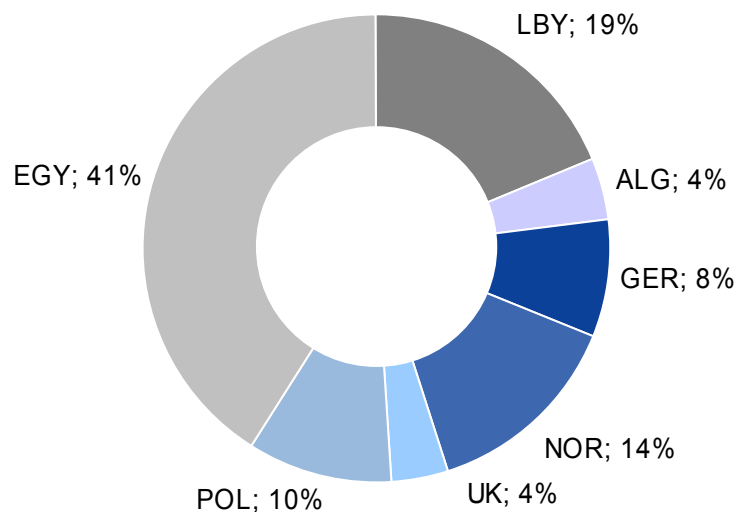
# Asset resource contribution 2005

GER 29% – EUR/CIS<sup>2)</sup> 25% – NA<sup>3)</sup>/ME<sup>4)</sup> 46%



**Discovered Reserves + Resources (C+S)<sup>1)</sup>**  
 (RWE Dea share)  
**Total 1,045 million boe**

GER 8% – EUR/CIS 28% – NAME 64%



**Undiscovered (risked) Resources (E)**  
 (RWE Dea share)  
**Total 1,679 million boe**

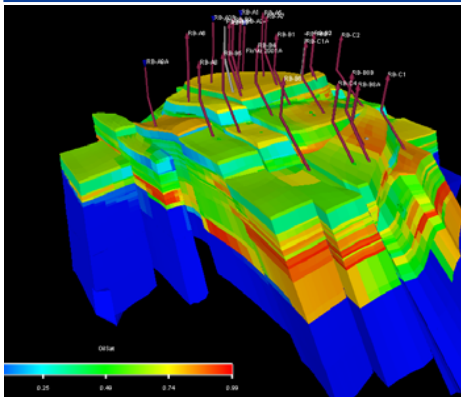
<sup>1)</sup> without Kazakhstan volumes

<sup>2)</sup> Commonwealth of independent states

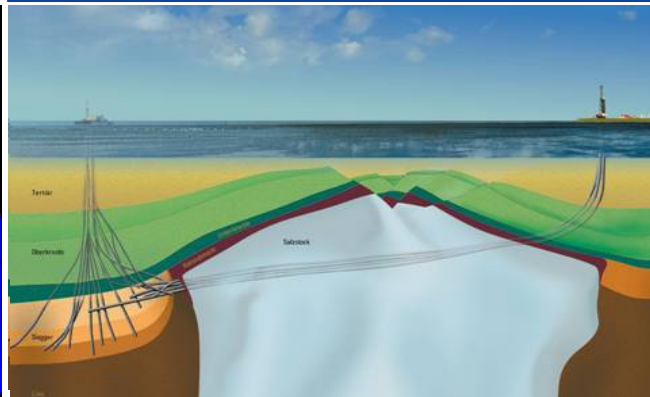
<sup>3)</sup> North Africa

<sup>4)</sup> Middle East

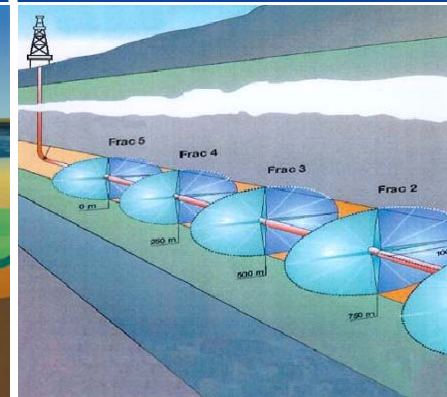
## Reservoir simulation (3D)



## Extended reach drilling



## Frac technology



## Human resources

- 957 <sup>1)</sup> professionals + joint venture companies in Egypt (1.190 professionals)

## Activities

- Operatorship in 34 exploration (41% of total) and 22 production licenses (32% of total)
- Operator of producing fields in Germany (on/offshore), Egypt (offshore) and UK (offshore)
- Partner in producing fields in Germany, Norway Denmark, UK and Egypt

## Technical expertise

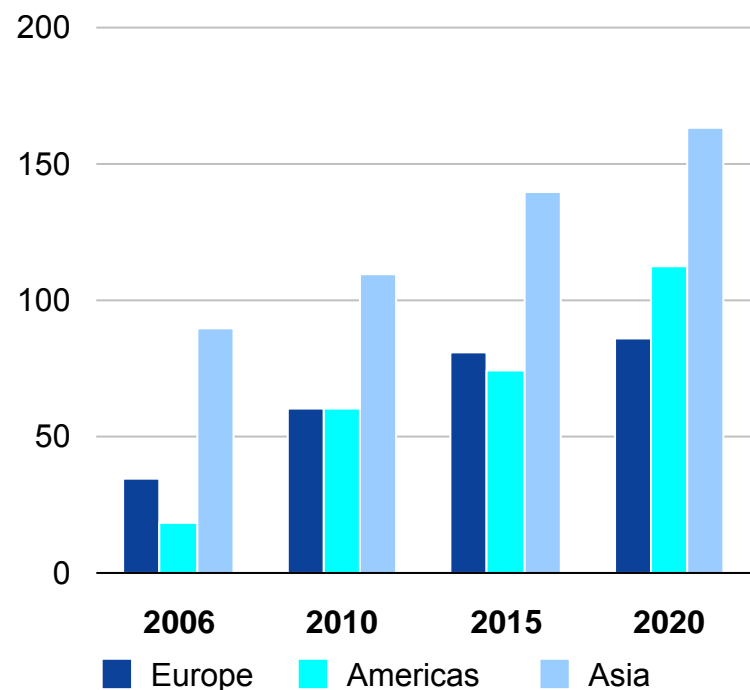
- In house know how of state of the art E & P technologies from formation evaluation, geostatistical modeling, uncertainty estimation to dynamic reservoir modeling
- Laboratory for applied geoscience, core analysis, production chemistry including stimulation and mud design
- Extended reach drilling
- Offshore operation in sensitive National Park environment
- High pressure and high temperature drilling
- Multi frac technology
- Gas storage construction and operation

<sup>1)</sup> Status interim report June 30, 2006

# Diversification of gas supply: We aim to enter into the Liquefied Natural Gas (LNG) market

## Global LNG Demand Outlook

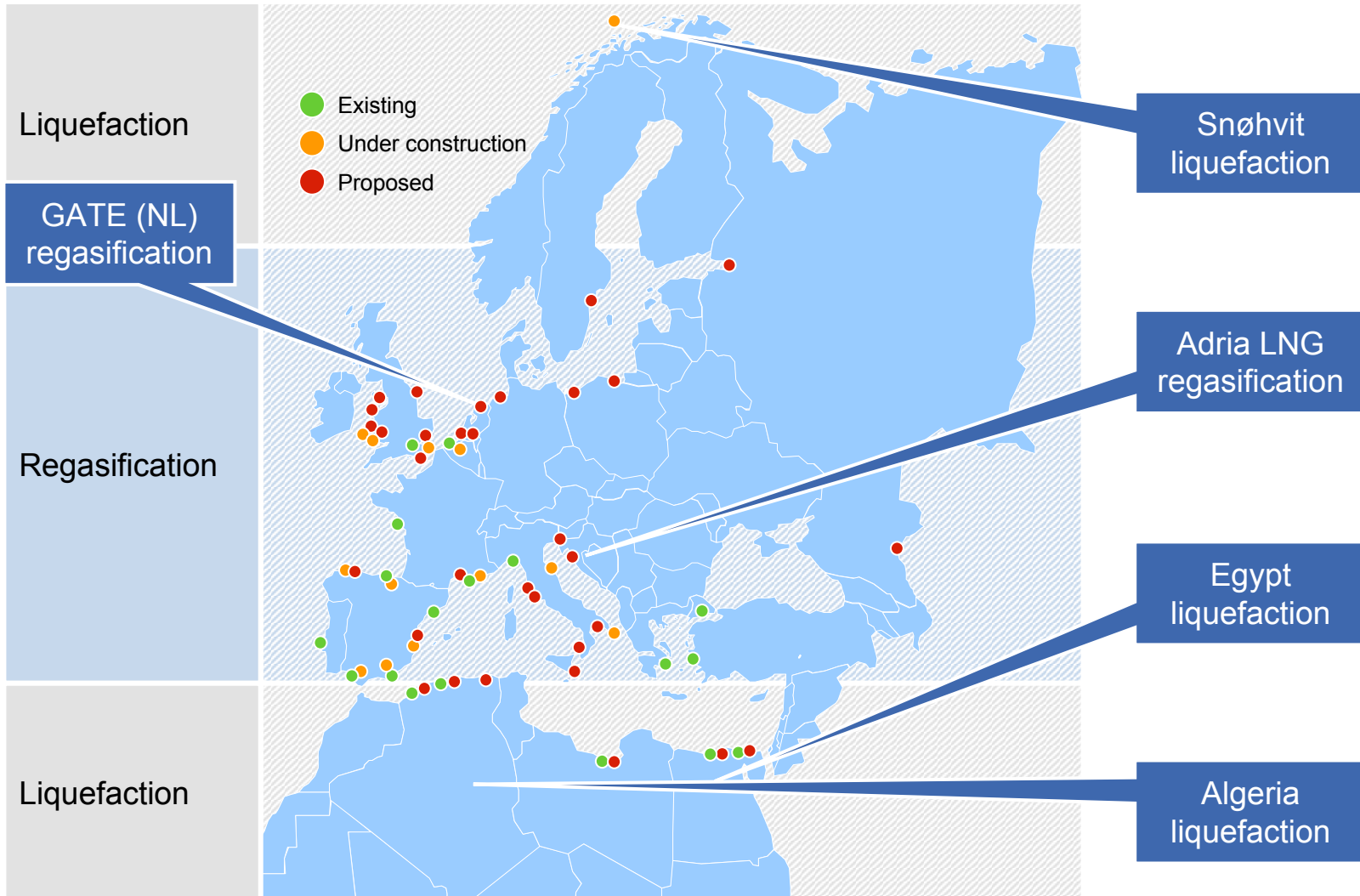
(million tons per year)



Source: Cambridge Energy Research Associates (CERA), 2006

- The regional gas markets in Asia and particularly Europe and North America will converge into a more global marketplace with LNG playing a key role in that process
- We aim to connect RWE production areas in North Africa with our core regions and/ or monetize optionalities of delivering LNG to other gas markets
- RWE Dea evaluates options to enter into liquefaction in Egypt and is interested in building a position in Algeria as well

# LNG will have an increasing influence in RWE's core markets



# RWE's involvement in the LNG value chain



# Upstream oil & gas – Overview of RWE Dea activities

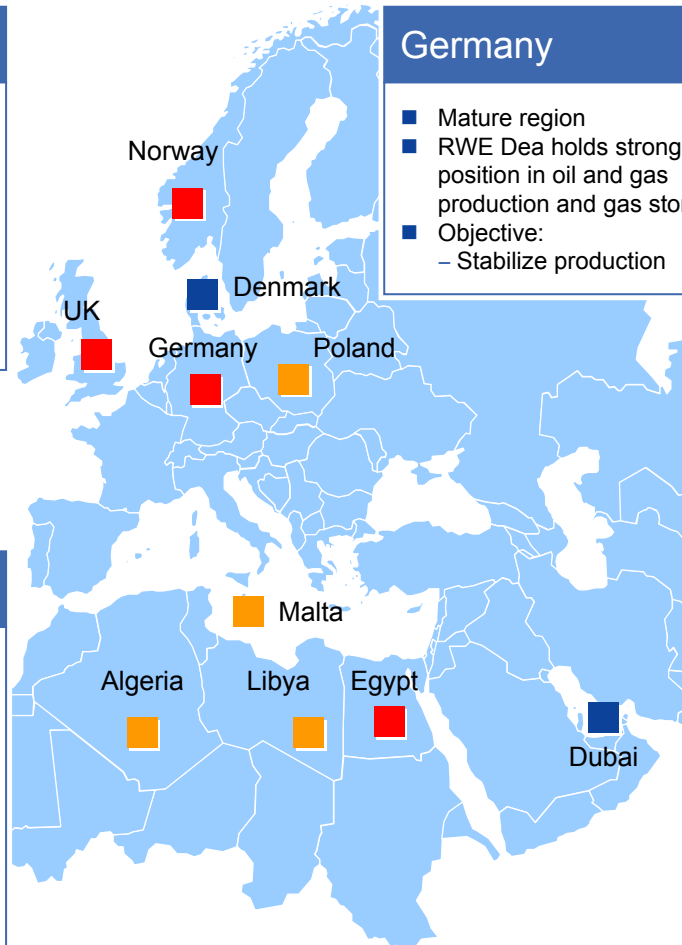
## North Sea/Barents Sea

- Mature region
- RWE Dea holds position in Norwegian oil production and is increasing gas production in UK
- Objective:
  - Bring on stream new gas fields in UK
  - Commence LNG export from Norwegian Snøhvit field

## Germany

- Mature region
- RWE Dea holds strong position in oil and gas production and gas storage
- Objective:
  - Stabilize production

- Production & Exploration
- Production
- Exploration



## CEE<sup>1)</sup> / Eastern NV<sup>2)</sup>

- High potential region
- RWE Dea holds licenses in Poland
- Objective:
  - Identify and assess projects in Russia, Ukraine and Caspian Region to establish an upstream position

## North Africa

- High potential region
- RWE Dea holds outstanding position in gas reserves in Egypt and owns licenses in Libya and Algeria
- Objectives:
  - Boost gas production and LNG export in Egypt by intensive drilling and field development
  - Intensify exploration in Libya and Algeria

1) Central and Eastern Europe  
2) Eastern New Ventures (Russia and Caspian Region)

# Back-ups



# Conversion factors

## Oil

1 barrel (bbl)	= 159 litres = 0.159 cubic metres
1 cubic metre	= 6.29 barrels

## Gas

1 cubic metre <sup>3)</sup>	= 37.24 cubic feet
1 therm	= 100,000 British Thermal Unit (Btu) = 97.6 cubic feet of gas (approx.) = 2.62 cubic metres <sup>3)</sup> (approx.)
1 m <sup>3</sup> oil equivalent (OE)	= 1,032.33 cubic metres of gas

1) 1 € = 1.25 \$

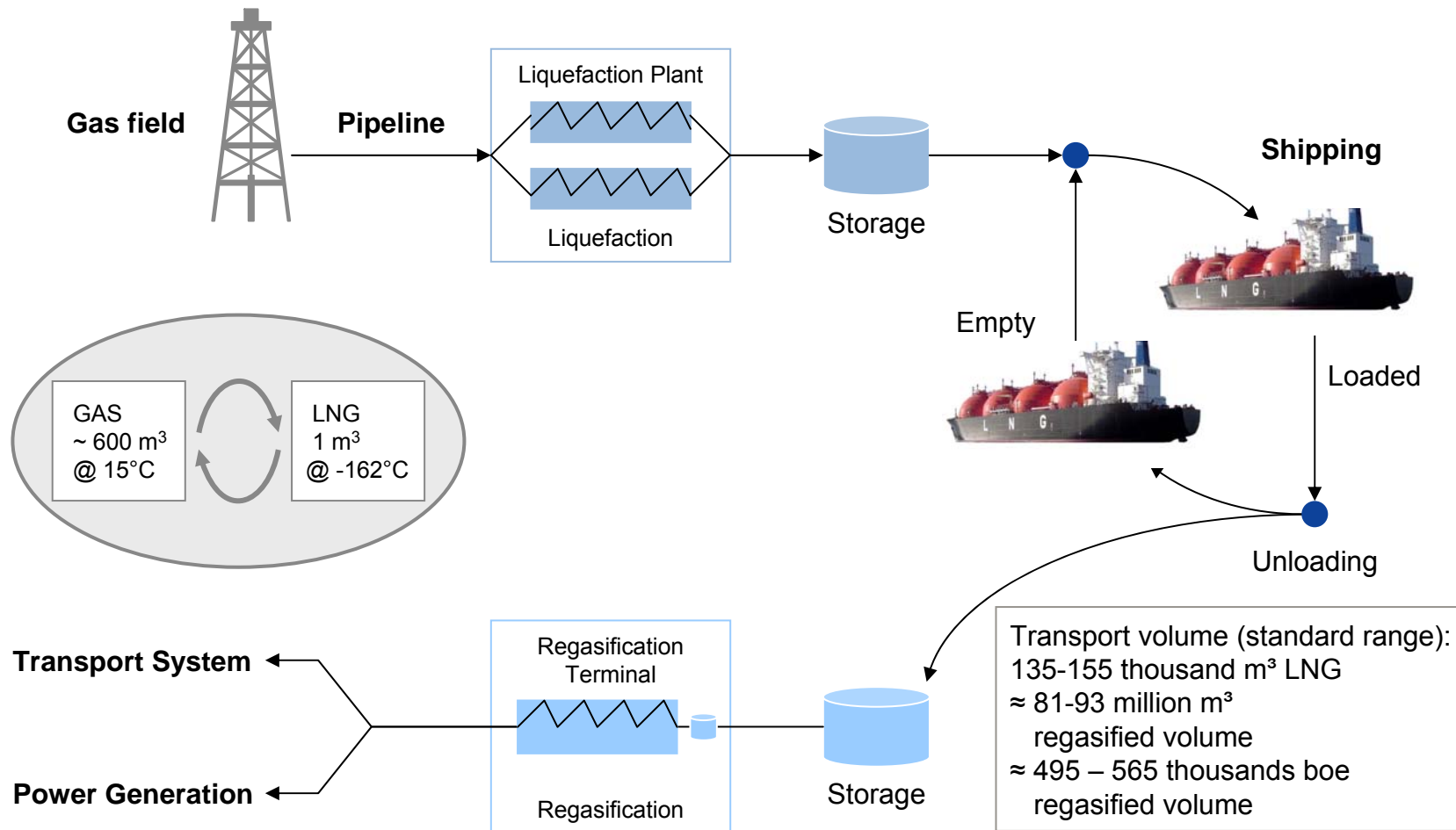
2) 1 € = 0.70 GBP

3) normal metres cubed

## Prices

1 \$/Mscf	= 5.49 P/therms (approx.)
1 \$/Mscf	= 2.68 €/MWh (approx.) <sup>1)</sup>
1 P/therms	= 0.49 €/MWh (approx.) <sup>2)</sup>

# The LNG value chain



- **Frac process:** The process of causing cracks in rock formations in order to increase the flow rate of natural gas and crude oil.
- **Horizontal drilling technology:** A drilling technology where a vertical well is progressively deviated into a horizontal direction. The horizontal section may extend to reach several kilometers.
- **IOR (=Improved oil recovery):** Incremental investment project aiming for further accelerated and increased oil production
- **Production Costs:** Expenses associated with operating and maintaining wells and related equipment and facilities.
- **Reserve:** Clearly identified deposits that can be exploited commercially using technologies that either exist or will exist in the near future.
- **Reserve Life:** The reserve life is computed by taking year end boe proved reserves as the numerator and dividing it by the current year boe production.
- **Reserve Replacement Rate:** Reserve Replacement rates are calculated by taking the total reserve changes for the period as the numerator and dividing by the company's production for the period. This statistic measures the amount of reserves added from all sources as a percentage of the company's production.
- **Reserve Replacement Costs:** Reserve Replacement Costs are calculated by taking total costs incurred (proved and unproved property acquisition costs, exploration costs, and development costs) during the applicable period as the numerator and dividing by the total oil equivalent (boe) reserve changes associated with extensions and discoveries, revisions in estimates, improved recover, and purchases of proved reserves as the dominator. This statistic measures the per boe cost of adding reserves from all sources.
- **Resources:** Deposits in addition to reserves. These are proven and probable deposits that cannot be exploited at this stage, either for technical or commercial reasons.