

# EU ENERGY



Dr. David Rees

# EU 2020 programme (Lisbon Treaty)

## 1. Employment

75% of the 20-64 year-olds to be employed

## 2. R&D / innovation

3% of the EU's GDP to be invested in R&D/innovation

## 3. Climate change / energy

greenhouse gas emissions 20% lower than 1990

20% of energy from renewables

20% increase in energy efficiency

## 4. Education

Reducing school drop-out rates below 10%

at least 40% of 30-34-year-olds completing third level education

## 5. Poverty / social exclusion

at least 20 million fewer people in poverty and social exclusion

See headline indicators at

[http://epp.eurostat.ec.europa.eu/portal/page/portal/europe\\_2020\\_indicators/headline\\_indicators](http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/headline_indicators)

# Milestones in policy-making

*External aspects of energy policy remain within the competence of EU member states' foreign ministries and a matter of national sovereignty. However,*

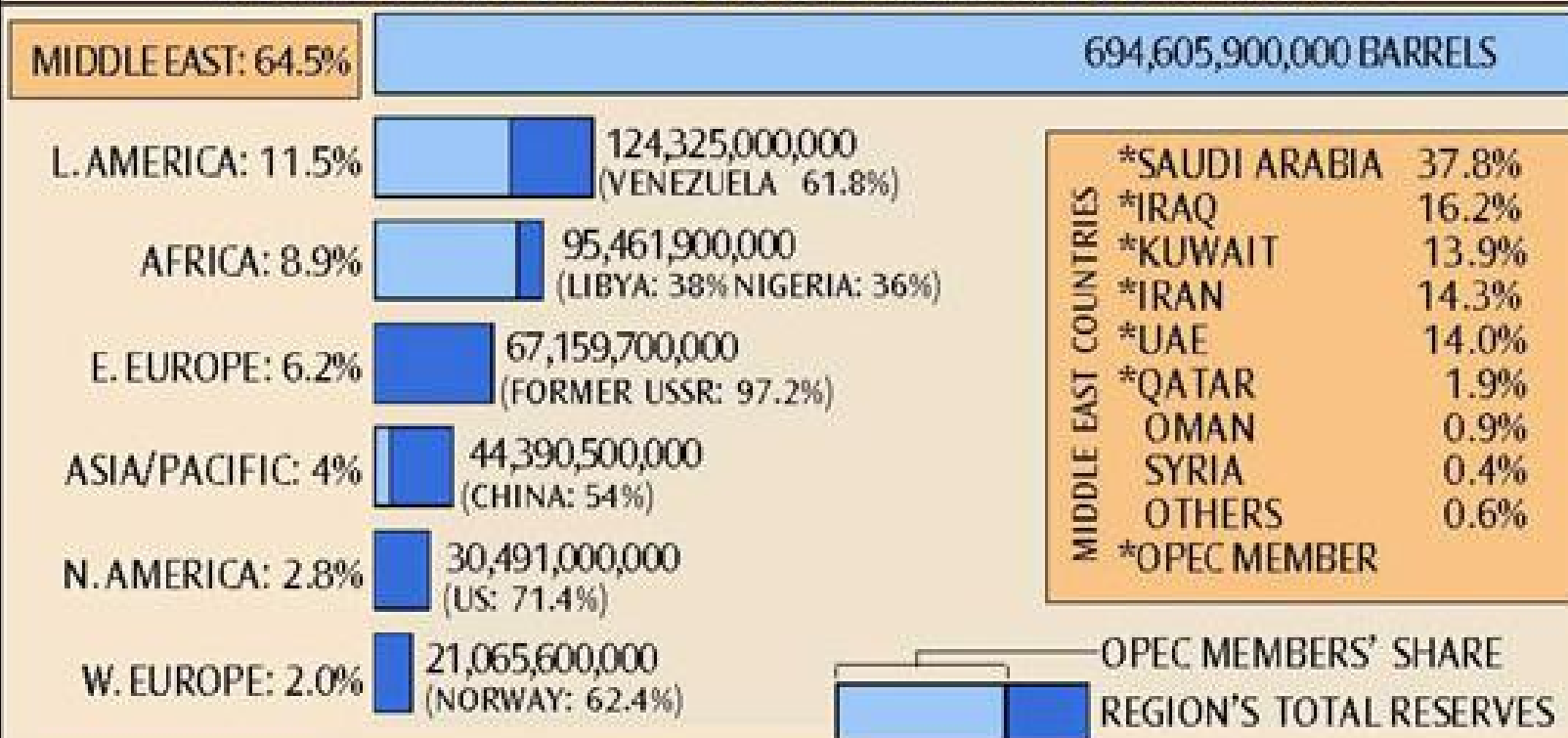
- *Ukraine-Russia gas dispute*
- *liberalisation of EU gas and electricity markets*
- *commercial relations with third countries, has pushed the issue firmly on top of the political agenda.*

# Energy supply

- *The EU currently:*
  - imports 82% of its oil*
  - 57% of its gas*
  - world's leading importer of these fuels*
- *Only 3% of the uranium used in European nuclear reactors was mined in Europe.*

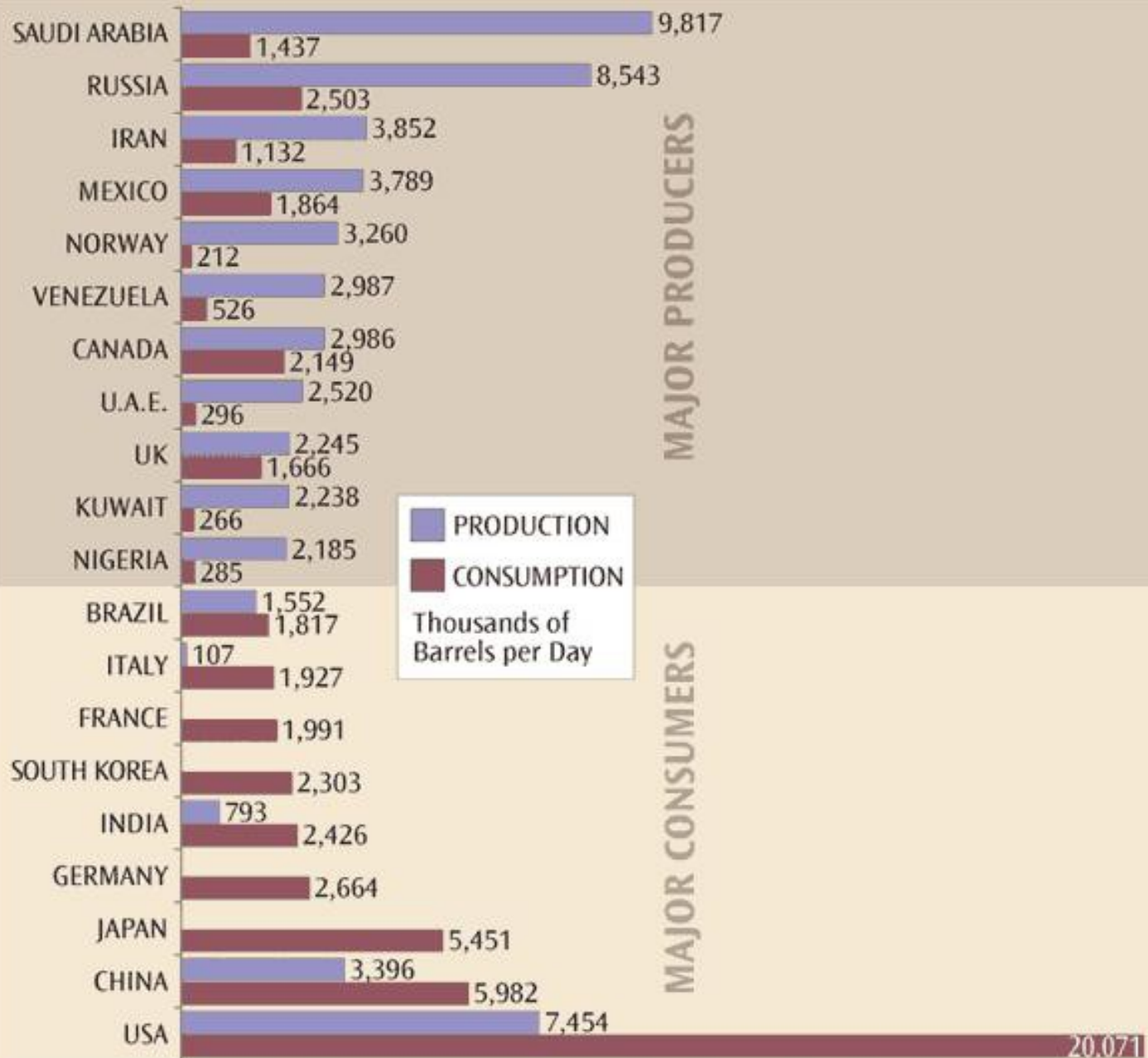
# Limited amount of fossil fuel, not "renewable"

## WORLD PROVEN CRUDE OIL RESERVES BY REGION



Source: OPEC Annual Statistical Bulletin, Tables 10 and 33  
[www.opec.org/Publications/AB/pdf/Ab002000.pdf](http://www.opec.org/Publications/AB/pdf/Ab002000.pdf)

# MAJOR OIL PRODUCERS AND CONSUMERS



Source: BP Statistical Review of World Energy 2004 <<http://www.bp.com/statisticalreview2004>>

## PROVEN COAL RESERVES

### TOP TEN COUNTRIES



Million  
tonnes oil  
equivalent

## PROVEN NATURAL GAS RESERVES

### TOP TEN COUNTRIES



Million  
tonnes oil  
equivalent

Source: World Resources Institute Earthtrends database,  
<<http://earthtrends.wri.org>>

Source: World Resources Institute Earthtrends database,  
<<http://earthtrends.wri.org>>

# Commission Green Paper on energy security

## **Prediction:**

*If no action is taken the EU's energy dependency will climb from 50% in 2000 to 70% in 2030.*

- **Oil:**

*45% of EU oil imports originate from the Middle East; by 2030, 90% of EU oil consumption will have to be covered by imports*

- **Gas:**

*40% of EU gas imports originate from Russia (30% Algeria, 25% Norway);*

*By 2030, over 60% of EU gas imports are expected to come from Russia with overall external dependency expected to reach 80%.*

- **Coal:**

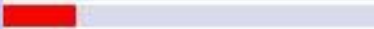
*By 2030, 66% of EU needs is expected to be covered by imports.*



# Renewable Energy Sources

	EU Member State	2005 Figure	2020 Target	% To cover:	
1	United Kingdom	1.3%	15%	13.7%	
2	Denmark	17%	30%	13%	
3	Ireland	3.1%	16%	12.9%	
4	France	10.3%	23%	12.7%	
5	Germany	5.8%	18%	12.2%	
6	Italy	5.2%	17%	11.8%	
7	Netherlands	2.4%	14%	11.6%	
	<b>EU</b>	<b>8.5%</b>	<b>20%</b>	<b>11.5%</b>	
8	Spain	8.7%	20%	11.3%	
9	Greece	6.9%	18%	11.1%	
10	Belgium	2.2%	13%	10.8%	
11	Austria	23.3%	34%	10.7%	
12	Portugal	20.5%	31%	10.5%	
13	Cyprus	2.9%	13%	10.1%	
14	Luxembourg	0.9%	11%	10.1%	
15	Malta	0%	10%	10%	
16	Finland	28.5%	38%	9.5%	
17	Sweden	39.8%	49%	9.2%	
18	Slovenia	16%	25%	9%	
19	Hungary	4.3%	13%	8.7%	
20	Lithuania	15%	23%	8%	

# CO<sub>2</sub> emissions

EU MEMBER STATE	2003	2004	2005	PROJECTIONS 2010	KYOTO TARGET 2012	% UNDER KYOTO TARGET	
ESTONIA	21.2	21.2	20.7	18.9	40		52.7%
LATVIA	10.7	10.7	10.9	13.6	23.3		41.6%
BULGARIA	-	68.9	69.8	87.1	127.3		31.6%
ROMANIA	-	160.1	153.7	192.5	259.9		26.0%
LITHUANIA	16.7	21.1	22.6	33.5	44.1		24.0%
HUNGARY	83.3	79.5	80.5	87.4	114.9		23.9%
POLAND	382.5	396.7	399	420	551.7		23.9%
CZECH REPUBLIC	147.5	147.1	145.6	145.7	180.6		19.3%
SLOVAKIA	51.1	49.5	48.7	58.3	67.2		13.2%
UNITED KINGDOM	658	660.4	657.4	595.6	678.3		12.2%
SWEDEN	70.9	69.7	67	69.8	75.2		7.2%
GERMANY	1024.4	1025	1001.5	955.4	972.9		1.8%
						% OVER KYOTO TARGET	
LUXEMBOURG	11.3	12.8	12.7	14.2	9.1		56.0%
AUSTRIA	92.5	91.2	93.3	92.5	68.7		34.7%
SPAIN	407.4	425.2	440.6	410.2	331.6		23.7%
ITALY	577.3	580.5	582.2	587.3	485.7		20.9%
FINLAND	85.4	81.2	69.3	85	71.1		19.5%
SLOVENIA	19.7	19.9	20.3	21.6	18.6		16.1%
DENMARK	73.6	68.2	63.9	62.6	54.8		14.2%
PORTUGAL	83.7	84.6	85.5	88	77.4		13.7%
IRELAND	68.4	68.6	69.9	68.4	63		8.6%
GREECE	137.2	137.6	139.2	150.4	139.6		7.7%
NETHERLANDS	215.4	218.4	212.1	211.8	200.4		5.7%
BELGIUM	147.6	147.6	143.8	141.6	135.9		4.2%
FRANCE	560.9	556.1	553.4	569	564		0.9%
MALTA	3.1	3.2	3.4	2.2	NO TARGET		
CYPRUS	9.2	9.9	9.9	12.2	NO TARGET		