

Energy and Environment: Challenges and Opportunities

Mohamed Hamel
Head, Energy Studies Department
OPEC Secretariat

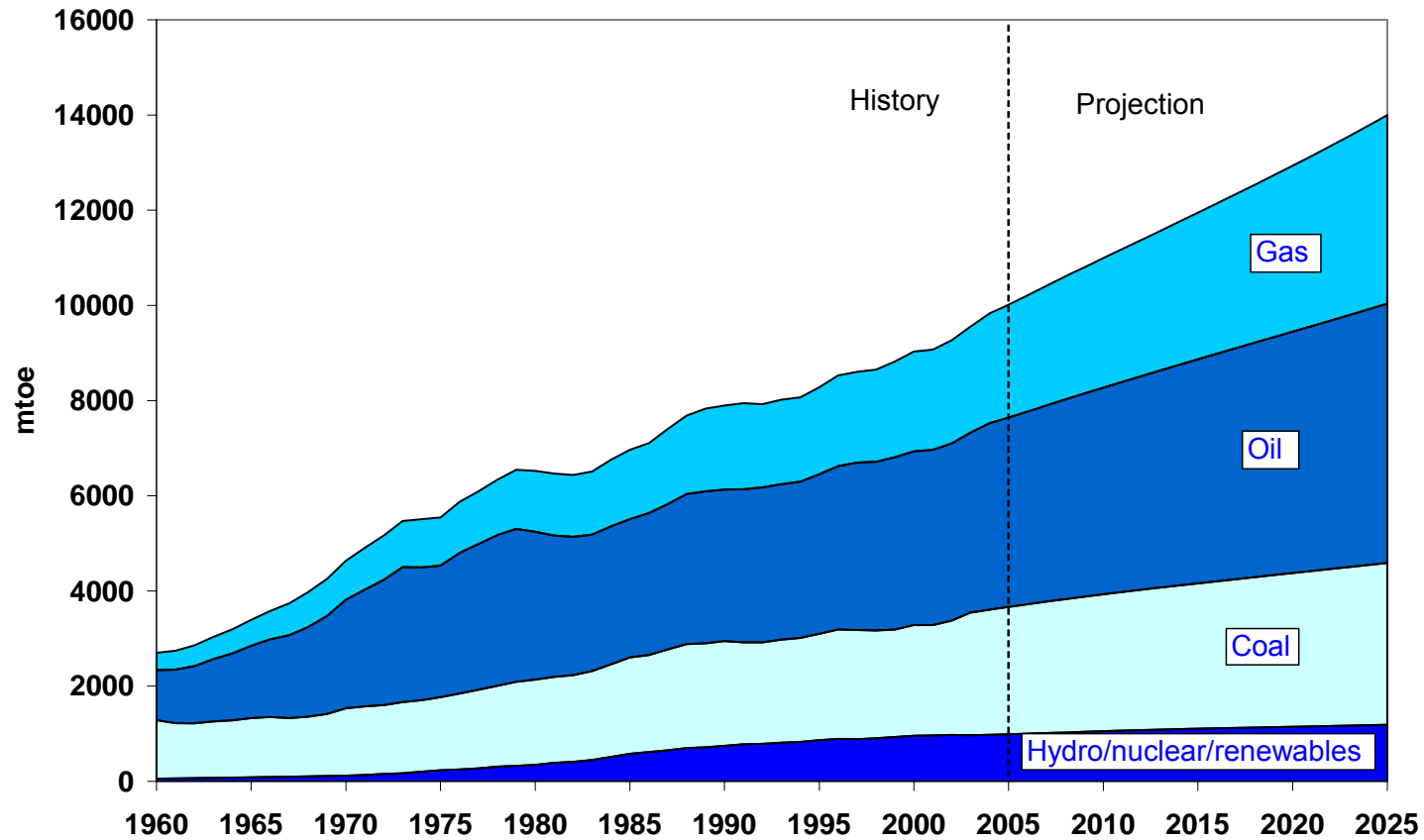
Offshore Arabia 2006
17th December, 2006, Dubai

Outline

- OPEC's long-term world energy outlook
- Focus on the Middle East
- Environmental protection:
challenges and opportunities
- Conclusion



Fossil fuels will continue to provide most of the energy needed

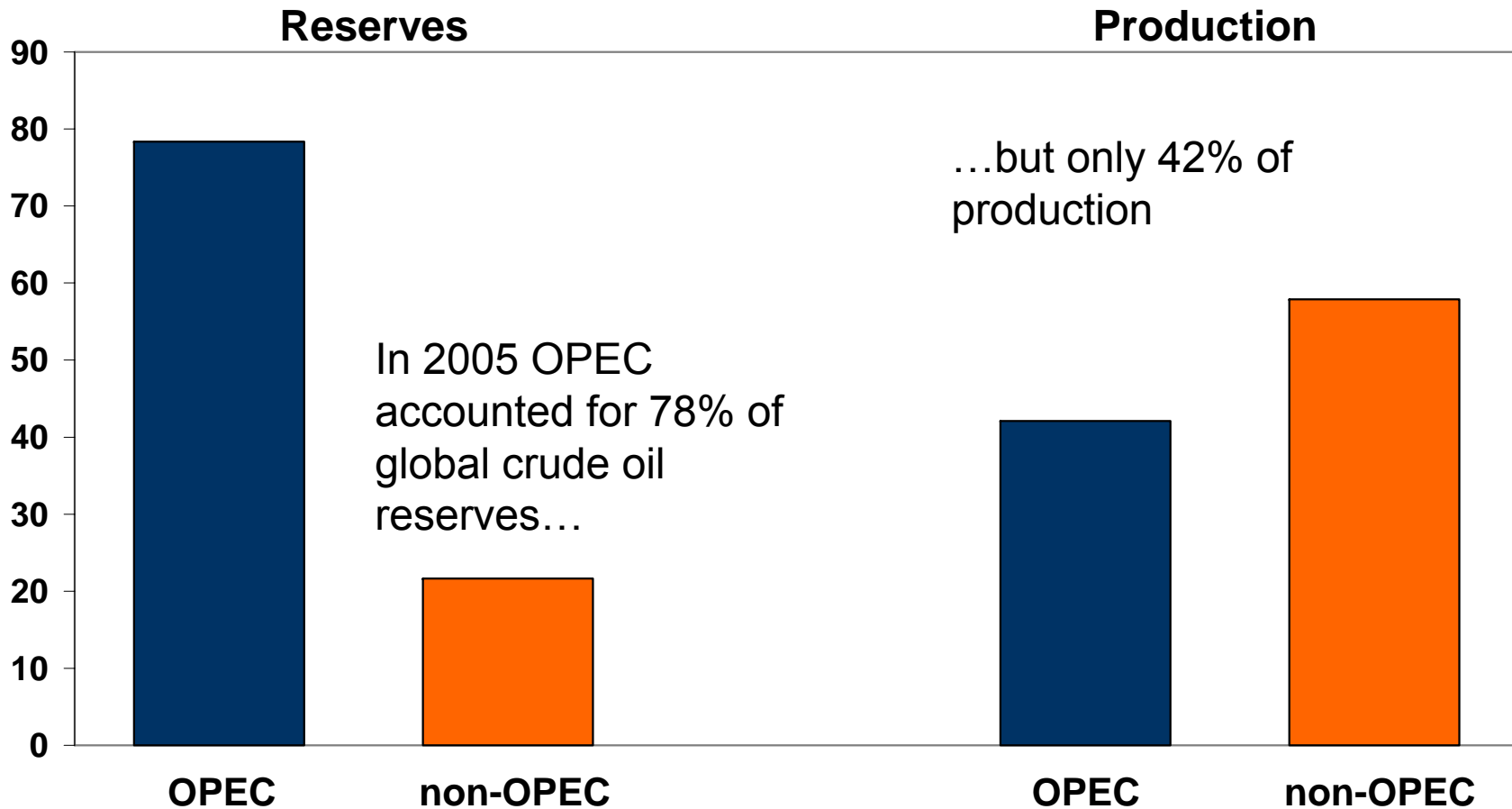


Oil supply and demand outlook, mb/d, reference case

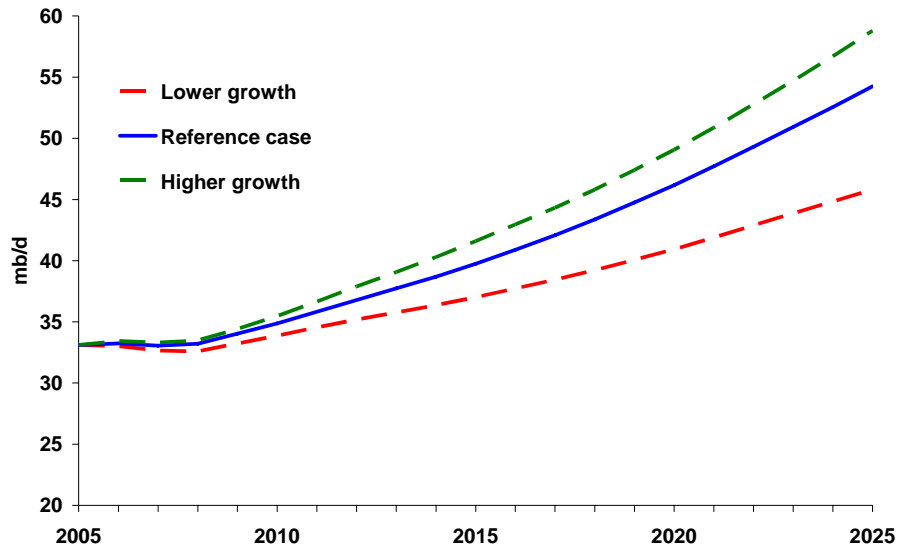
	2005	2010	2015	2020	2025
World demand	83.2	90.7	98.0	105.6	113.1
Non-OPEC supply	50.1	55.8	58.3	59.4	58.9
OPEC supply (incl. NGL)	33.1	34.9	39.7	46.2	54.3



OPEC/non-OPEC share in crude oil reserves and production %

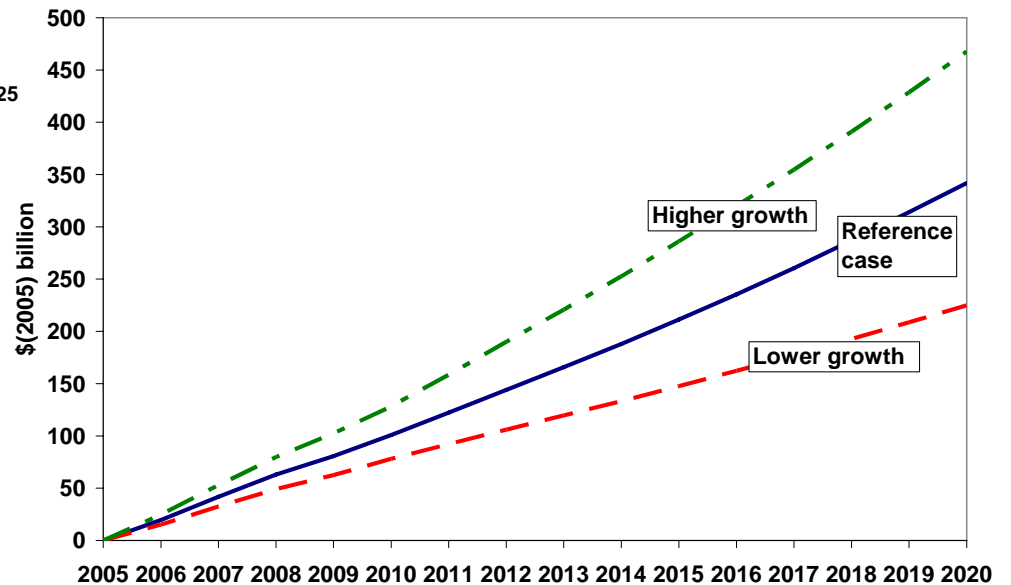


But there are major uncertainties...

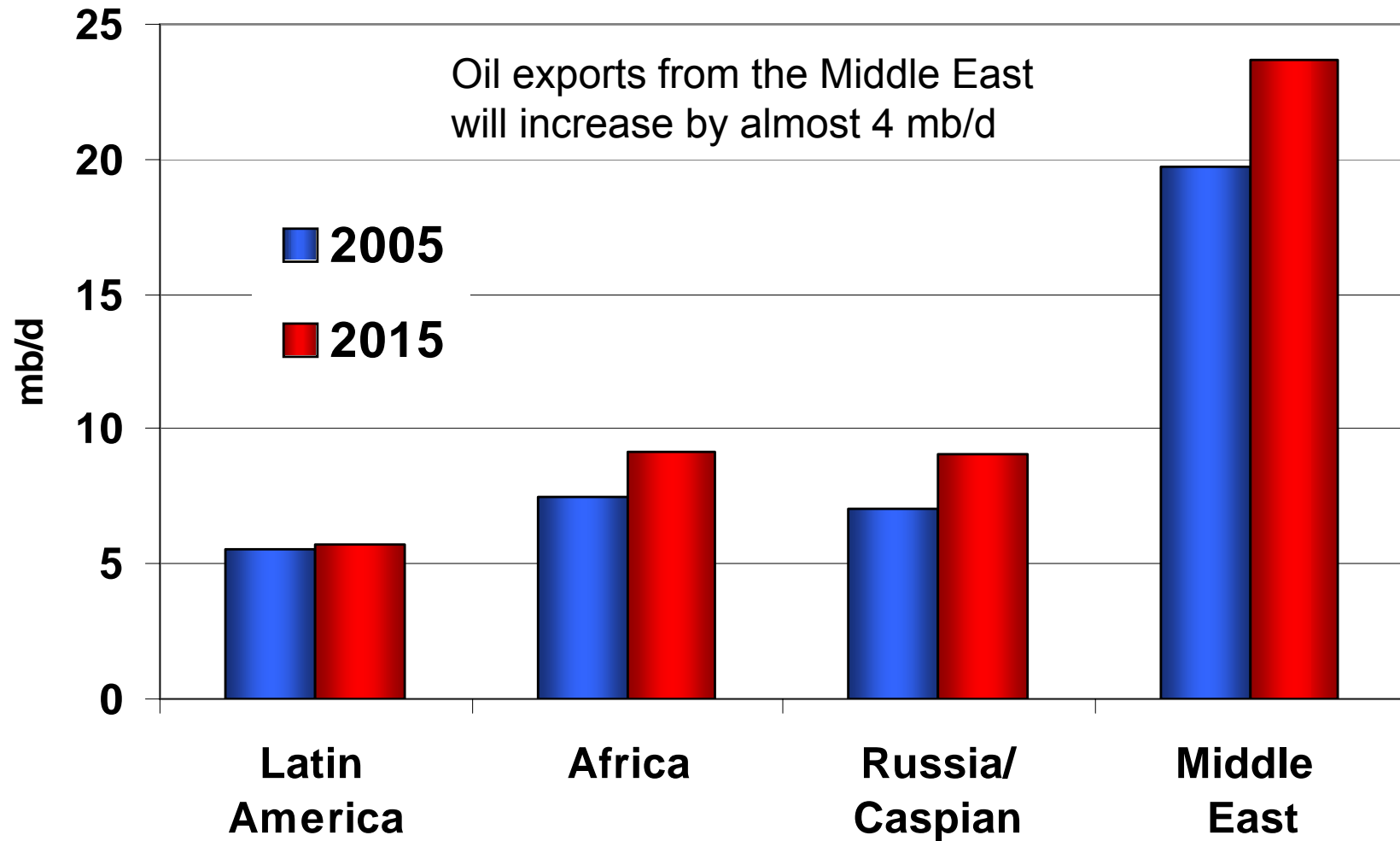


...concerning required OPEC volumes...

...and OPEC investment needs



Major oil exporting regions, 2005 and 2015



Increased marine trade has environmental implications

Substantial increases in tanker traffic expected in Gulf region

The seas of this region are already among the busiest in the world

Highly vulnerable to pollution

The countries of the region have been exceptionally proactive

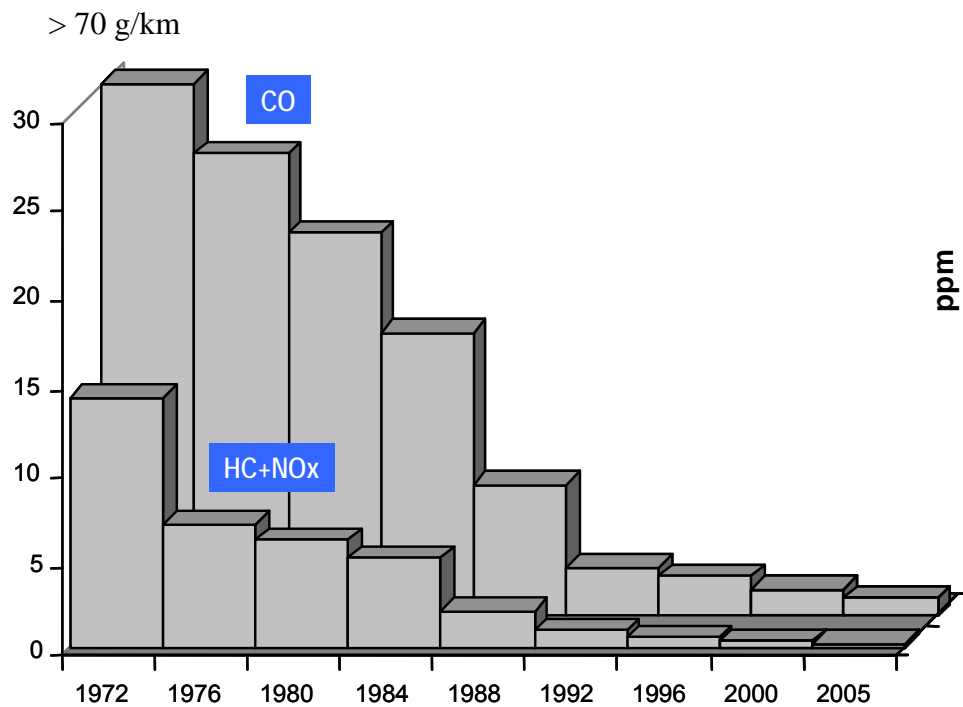
Increased costs are an inevitable consequence of stricter environmental standards

Points to need for assistance

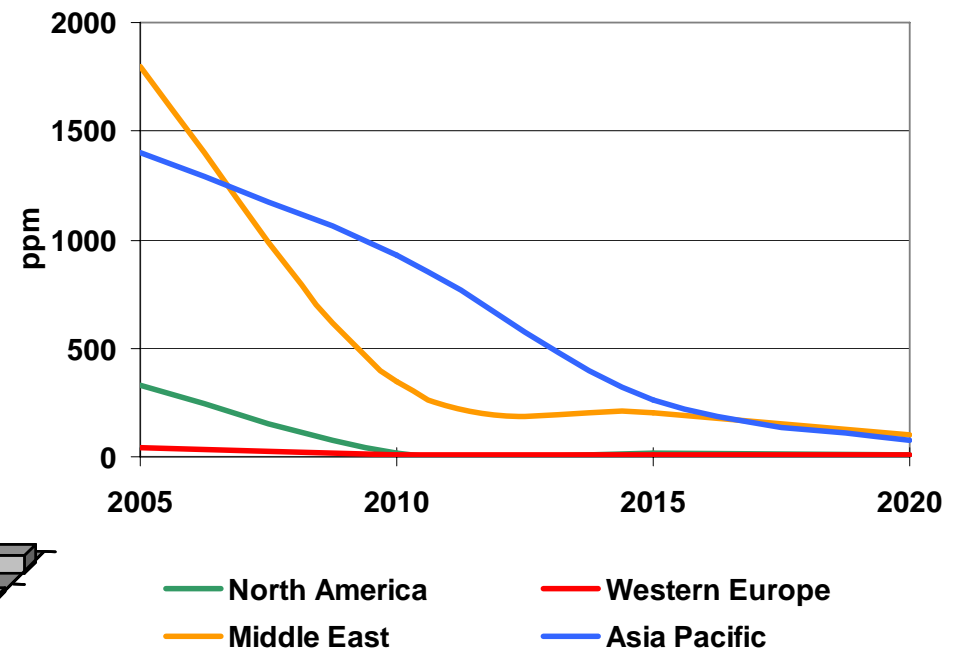


Huge progress has been made in addressing local pollution concerns:

Evolution of pollutant emissions (individual cars)



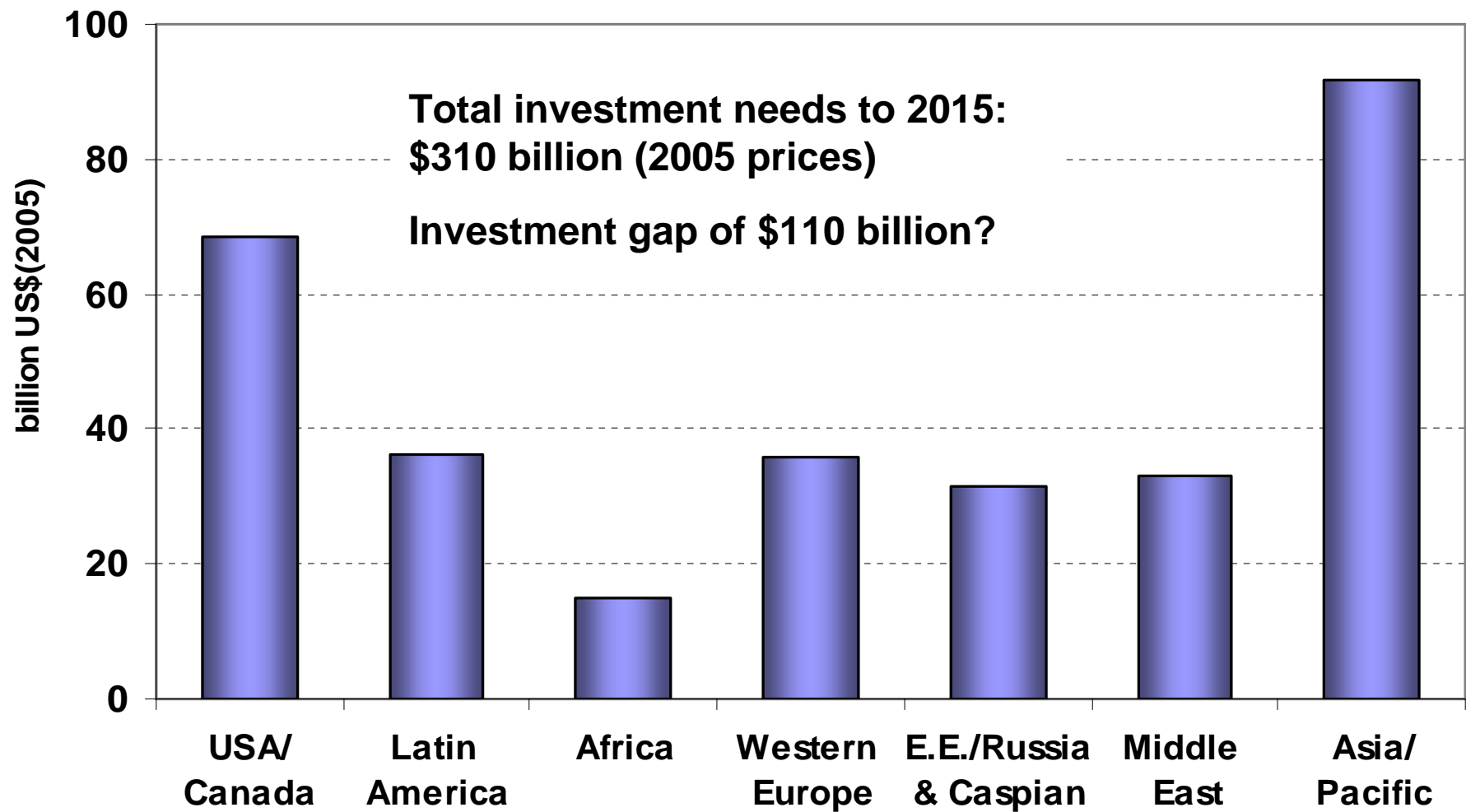
Expected levels of sulphur content in automotive diesel



... but major challenges still lay ahead

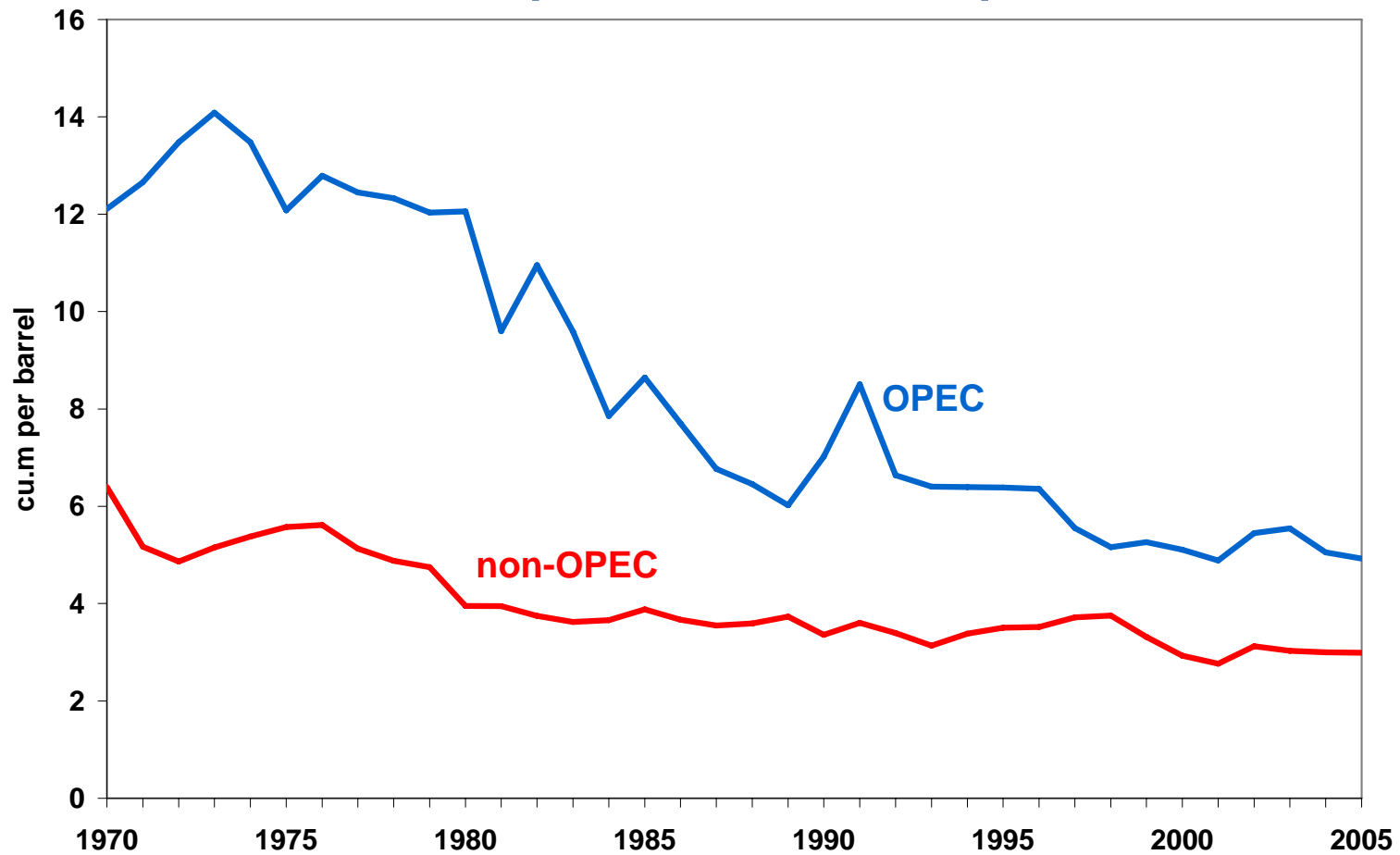


Refinery investment requirements 2005 - 2015

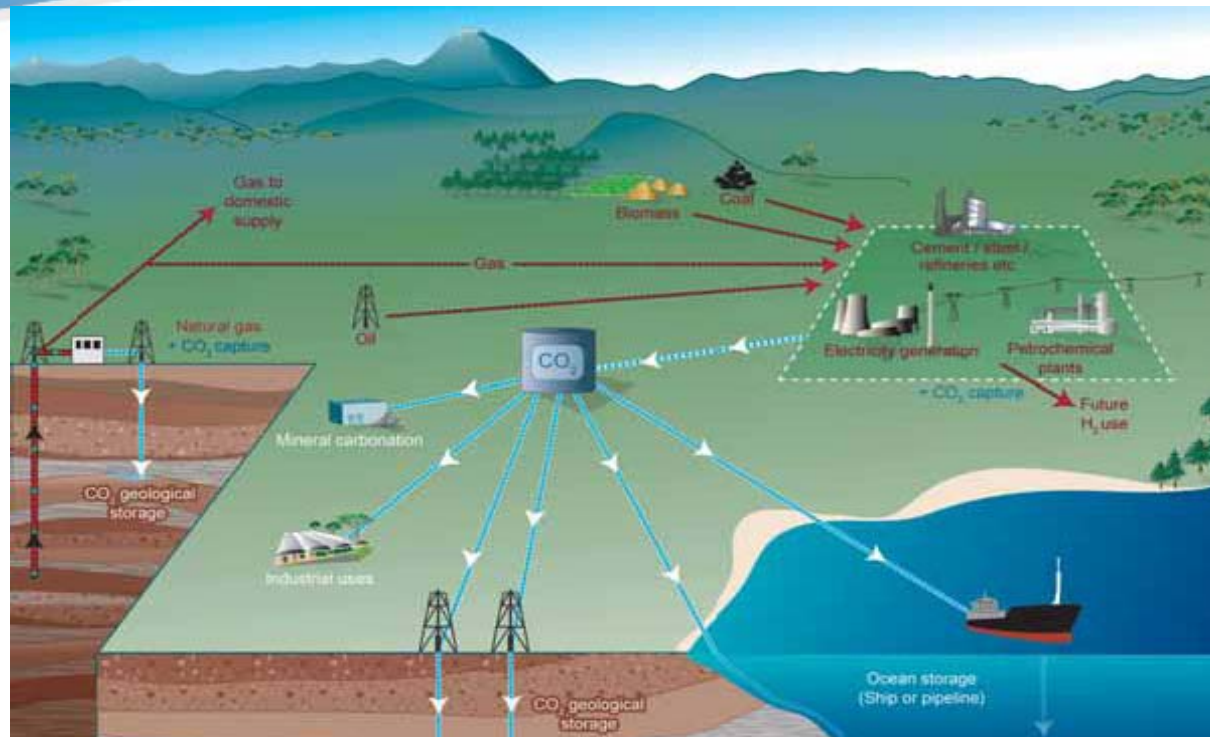


OPEC: An impressive reduction in gas flaring

Gas flared per barrel of crude produced



Cleaner oil and gas technology: the promise of carbon capture and storage



Source:
IPCC

- CCS is a promising technology to address climate change concerns
- Industrialised countries should take the lead in this area
- EU-OPEC Roundtable and CDM Conference, Riyadh, Sept. 2006



Conclusions

- OPEC in general, and the Gulf Region in particular, will grow in importance in supplying the world's energy needs
- This has important implications for the environment
- Local and regional initiatives have proven highly successful
- Many challenges ahead...
- ...but also many opportunities
- RECSO is part of the solution
- OPEC is committed to environmental protection, as reflected in its recently published Long Term Strategy
- Need to deal with environment holistically, in the context of all pillars of sustainable development





OPEC

www.opec.org