



# **Global & UK Energy Supply *the Developing Situation***

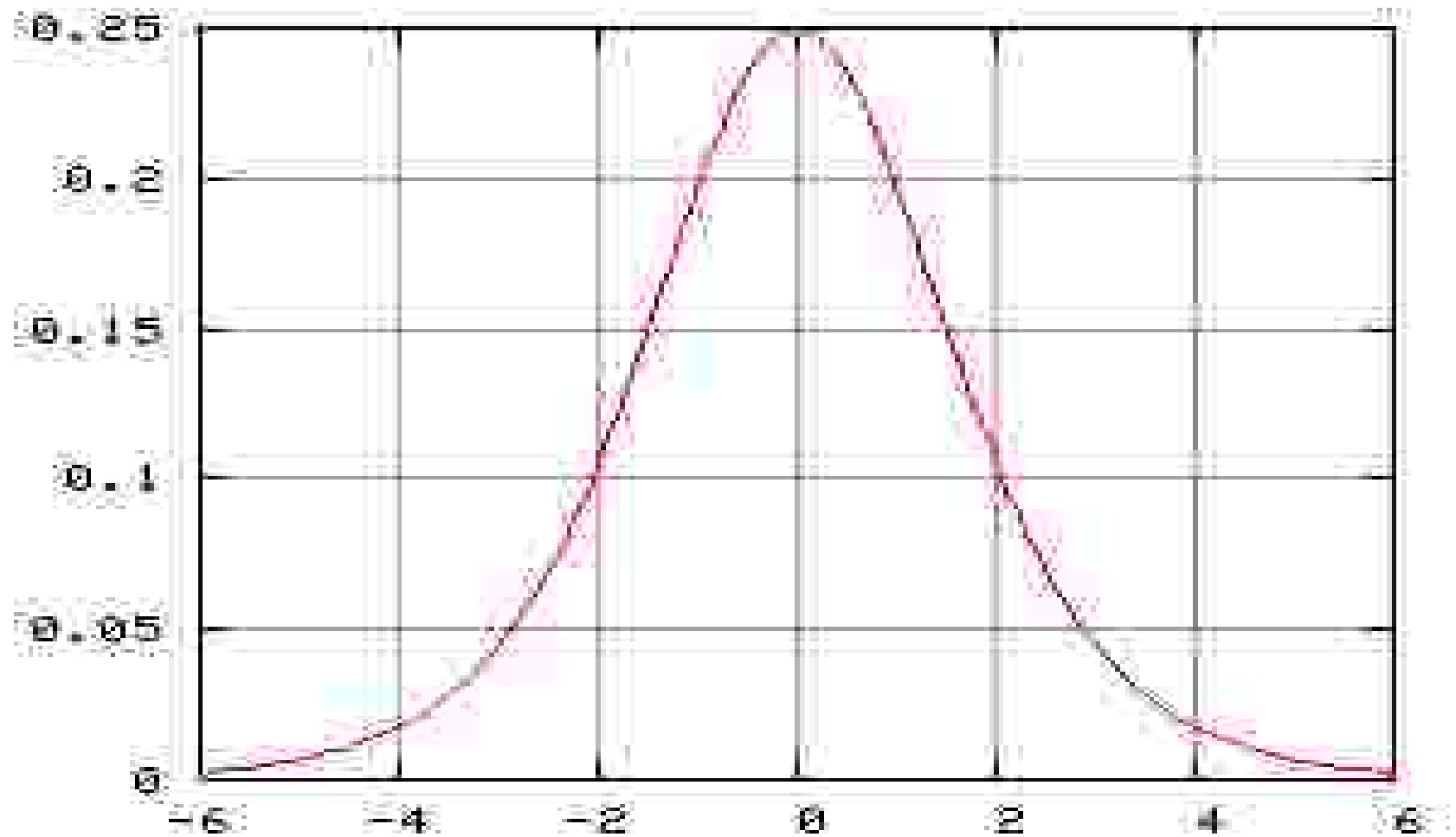
Andrew Park  
Swan Energy Limited



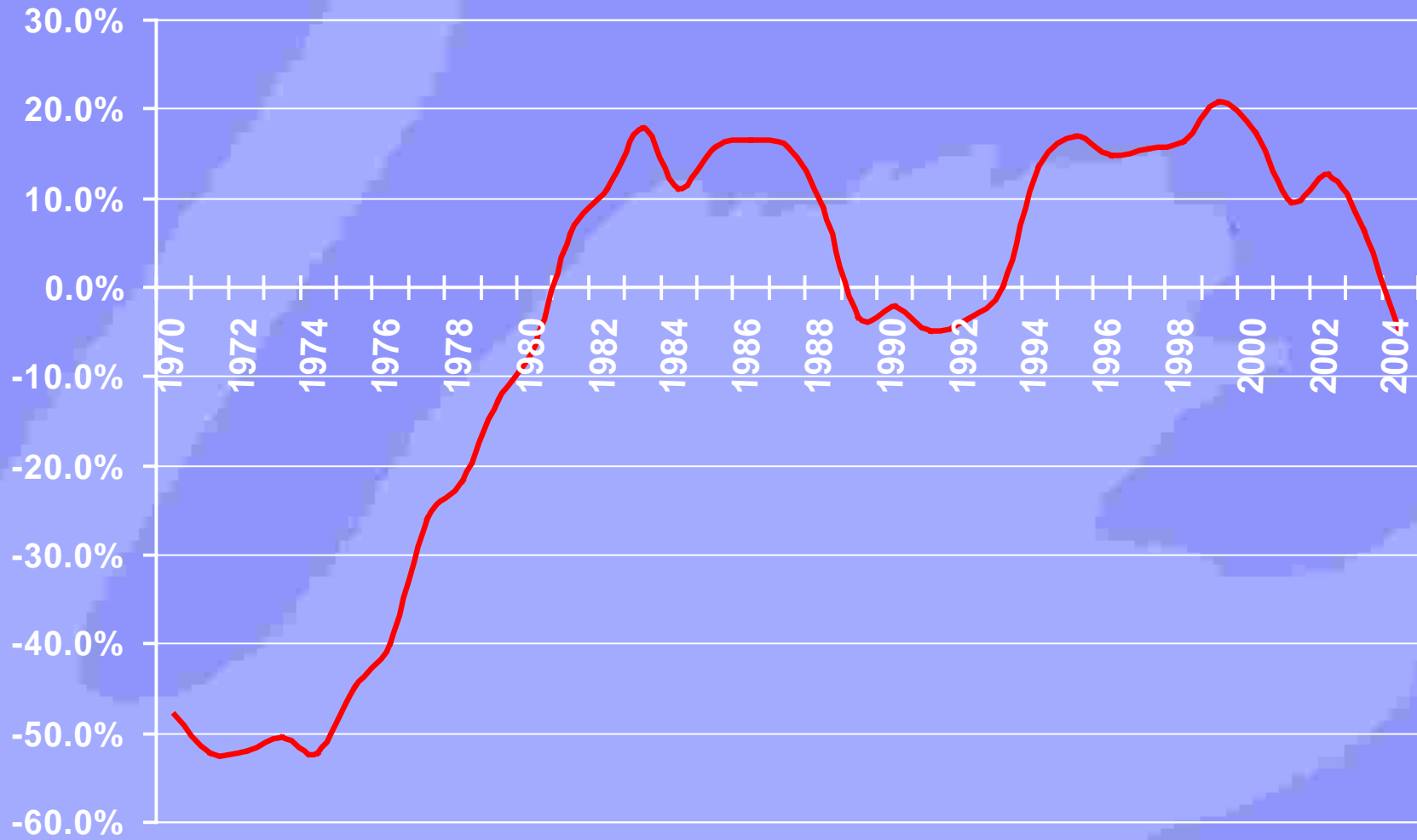
# Agenda

- Review of what I said last year
- What has changed and how
- Revised global energy supply outlook
- Revised implications for the UK
- Conclusions

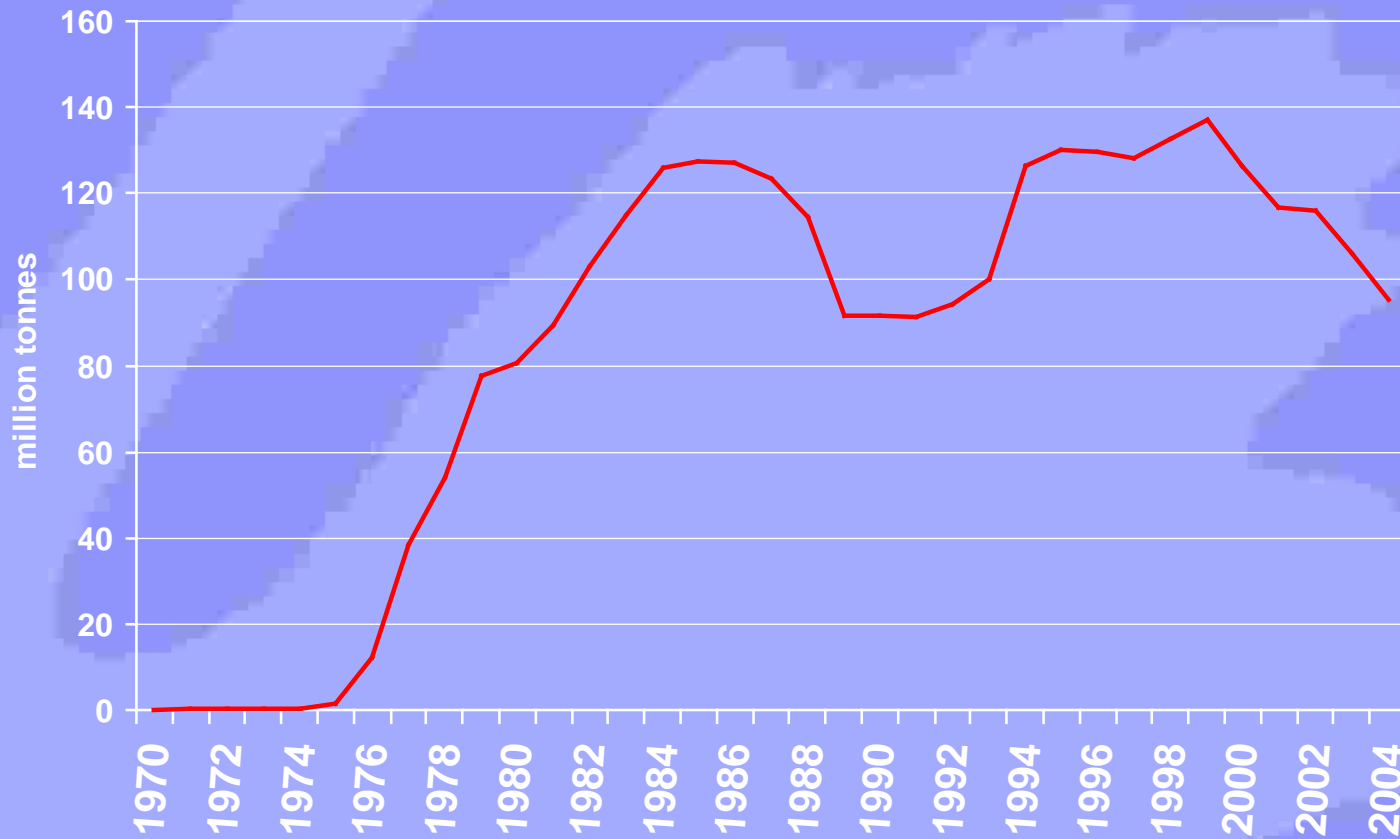
# Depletion



# UK Energy Exports

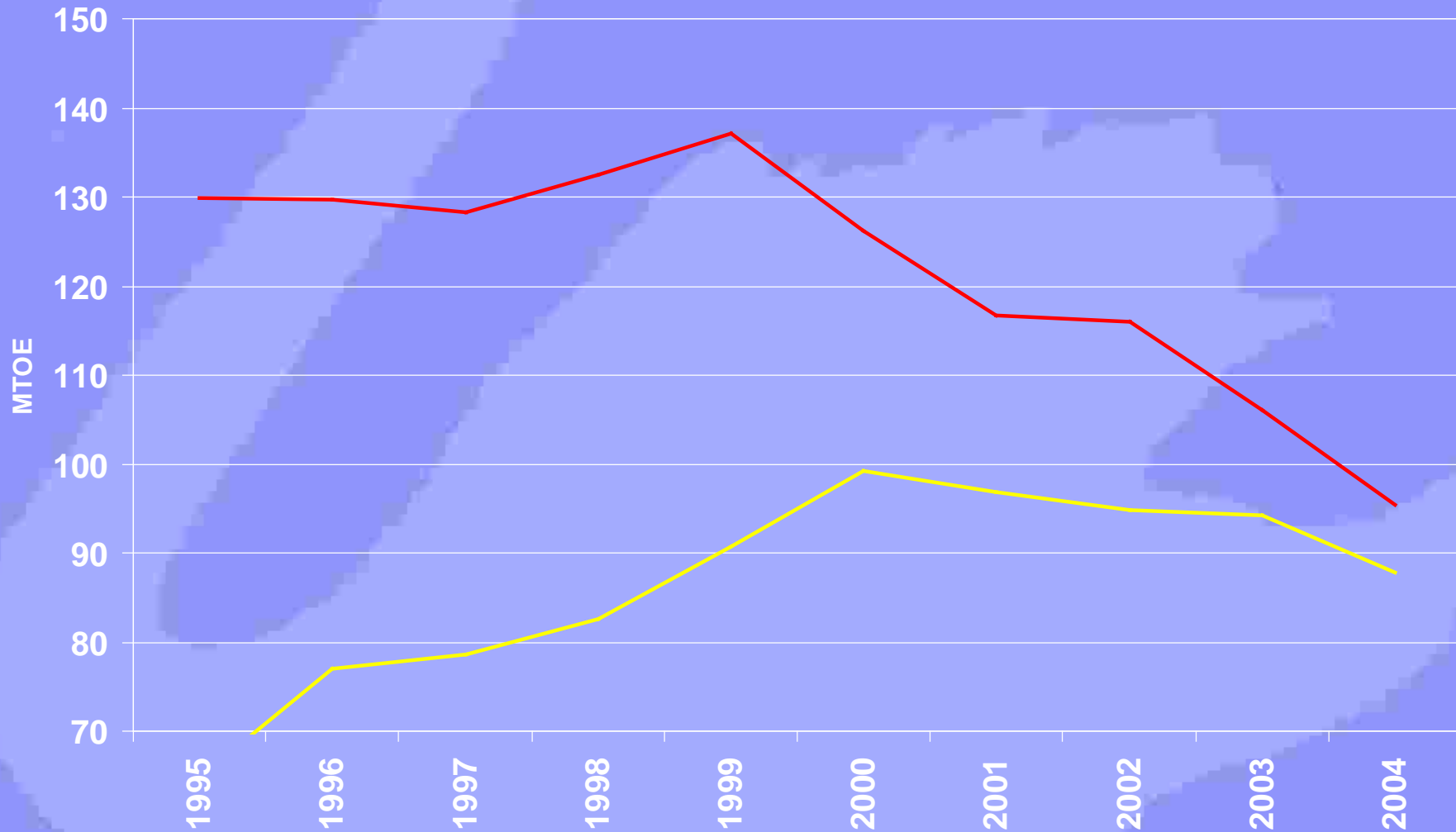


# UKCS Oil Production

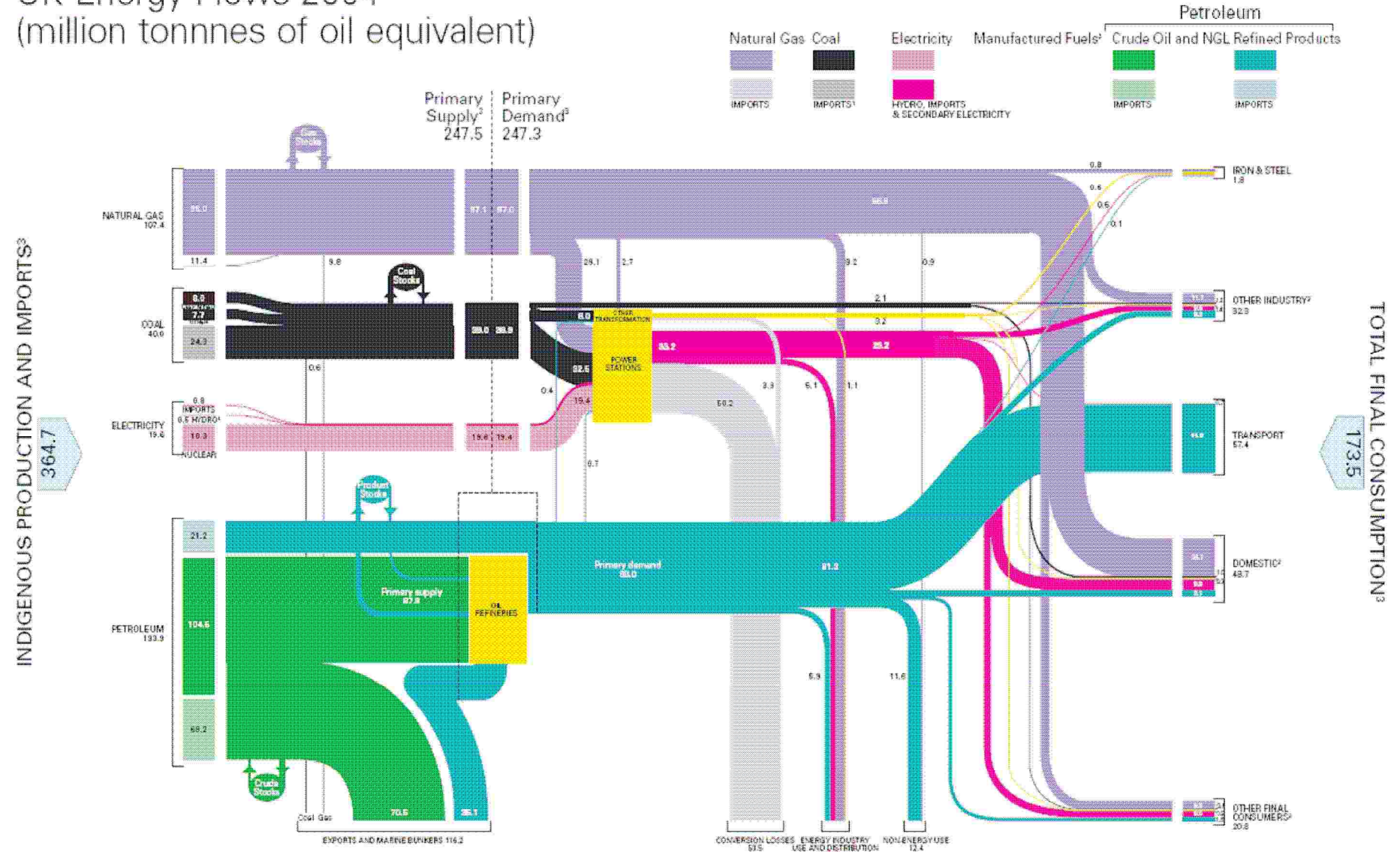


# UK Oil & Gas Production

— Oil — Gas



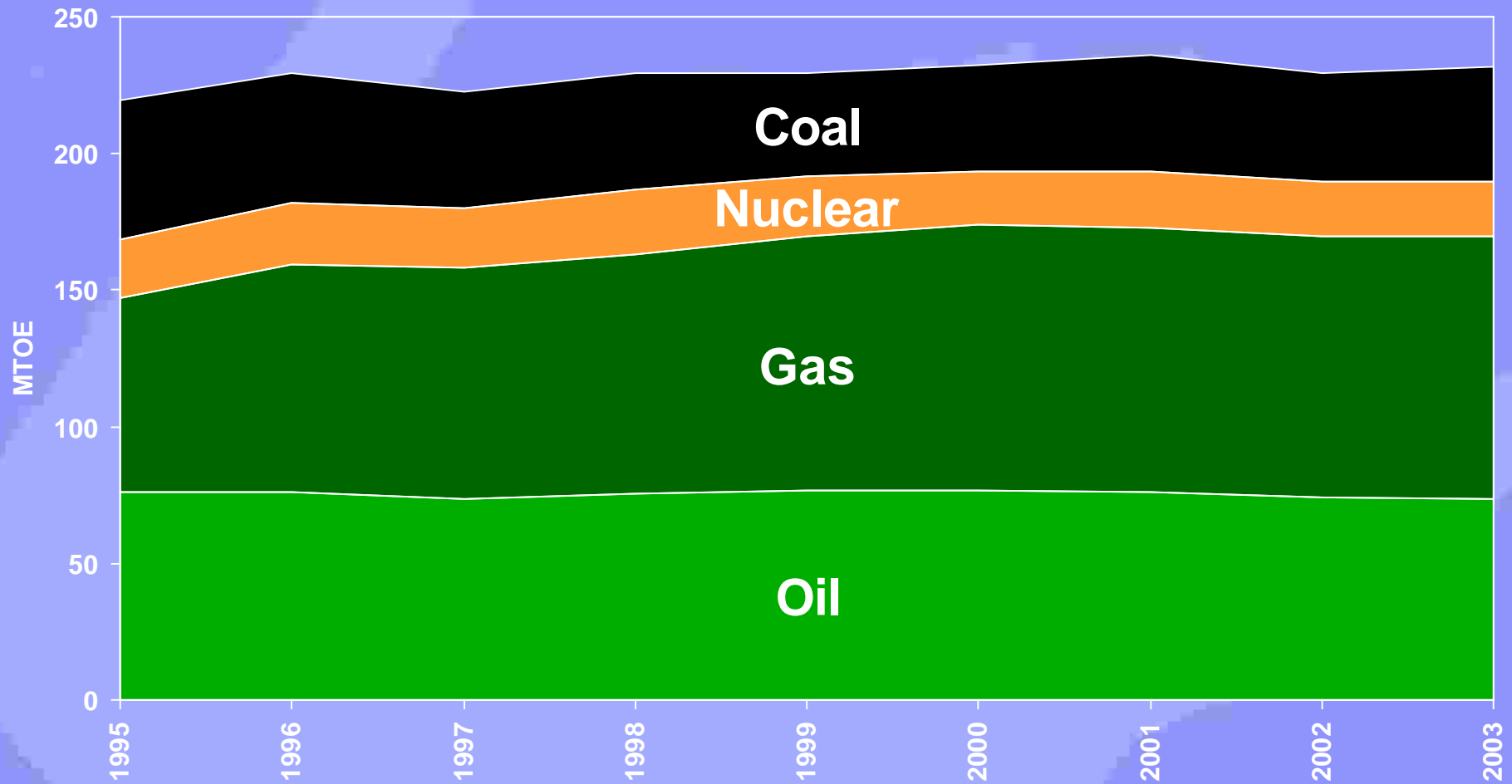
# UK Energy Flows 2004 (million tonnes of oil equivalent)



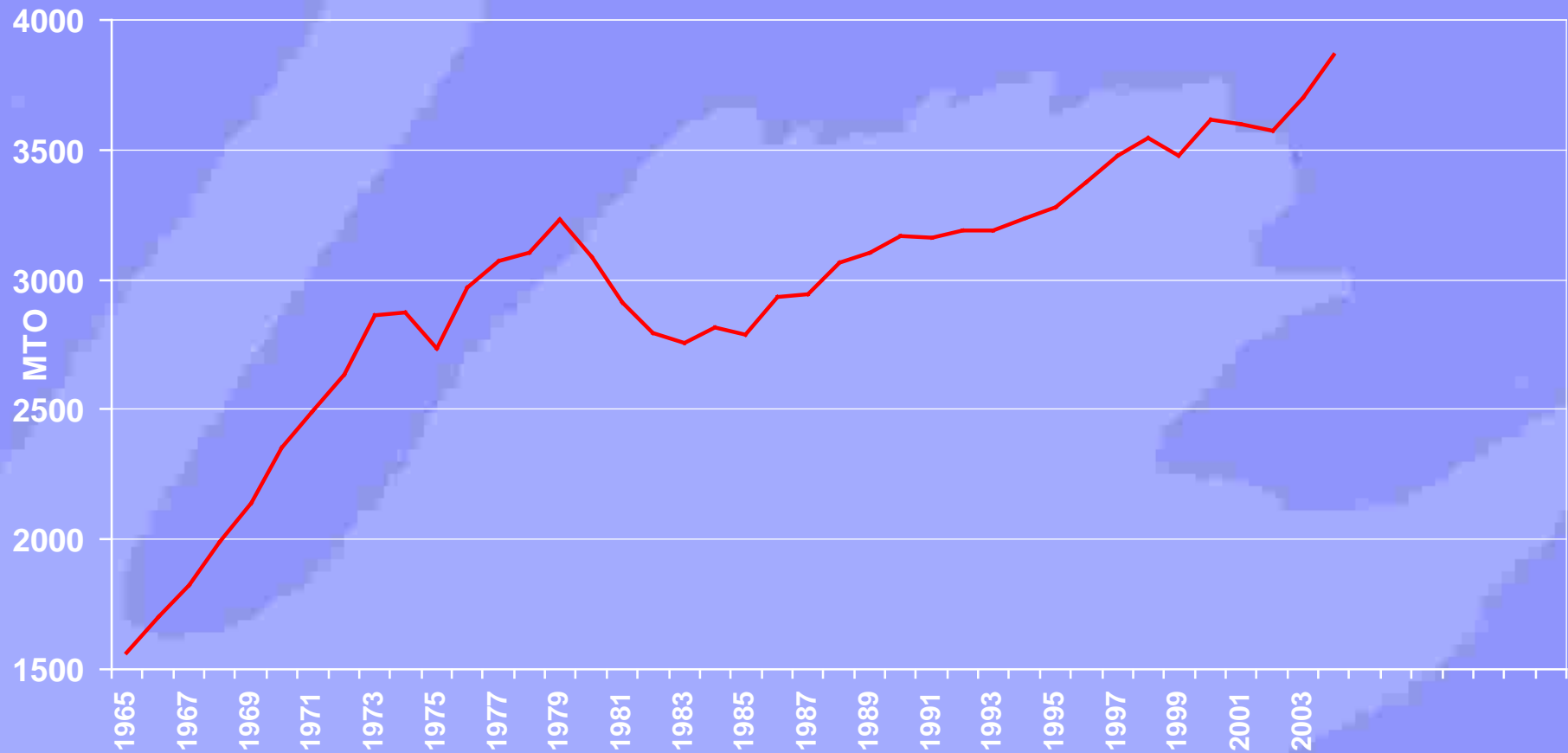
**FOOTNOTES:**  
 1. Coal imports include imports of manufactured fuels, which accounted for 6.1 million tonnes of oil equivalent in 2004.  
 2. Includes heat sold.  
 3. Includes all renewables.  
 4. Includes wind, wave, geothermal and solar.  
 This flowchart has been produced using the table of balance and figures in the 2005 UK Digest of Energy Statistics, Table 1.1.



# UK Energy Trends

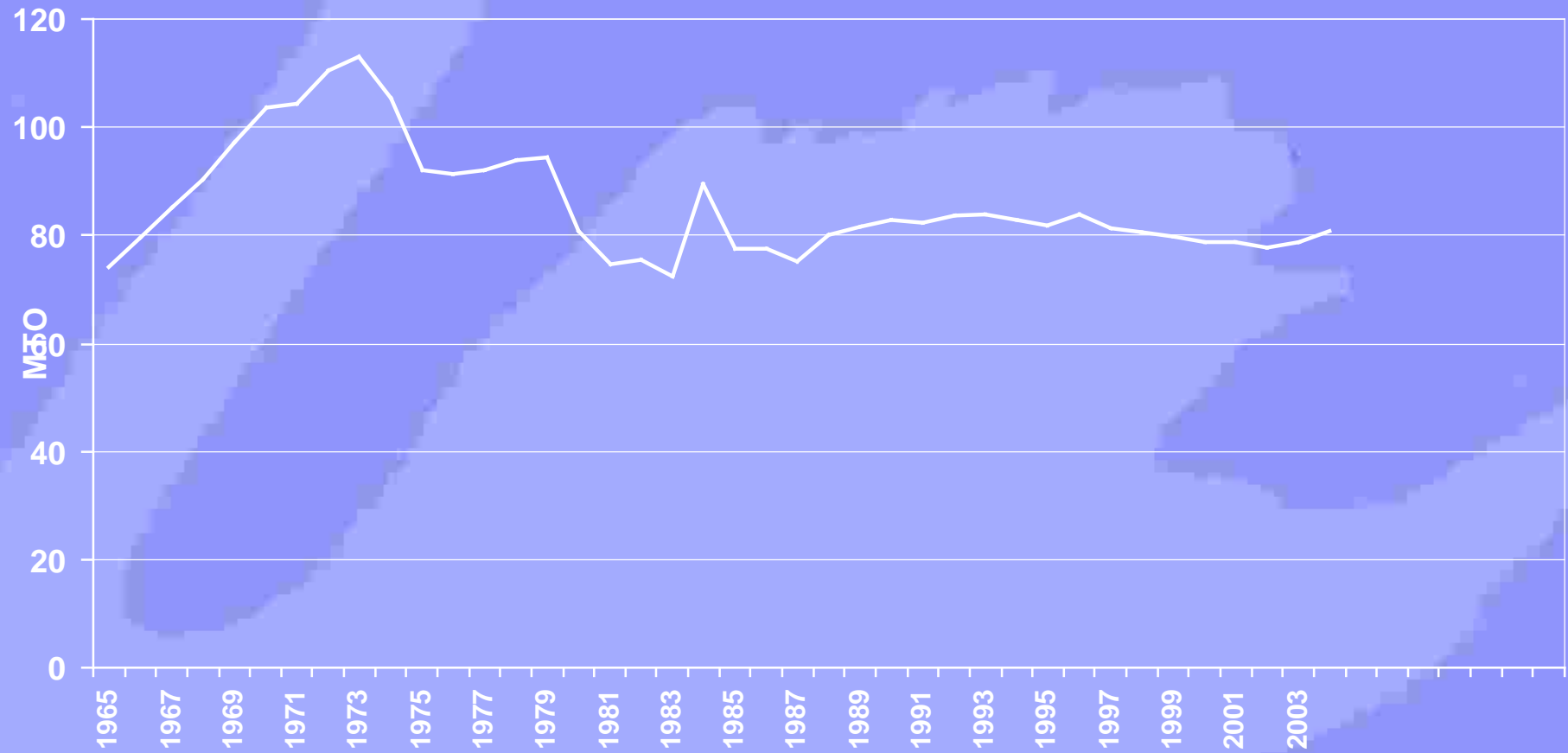


# Global Oil Production

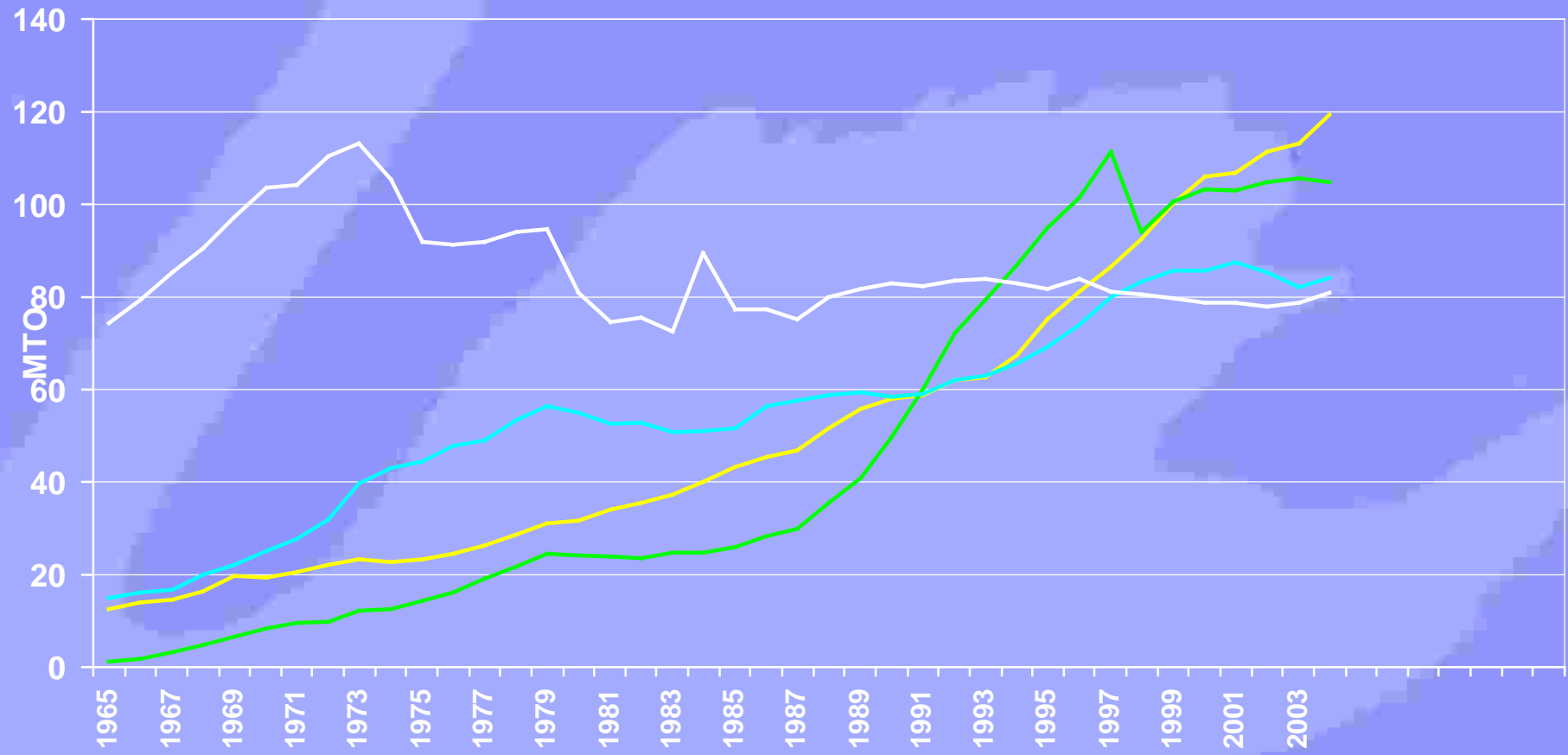




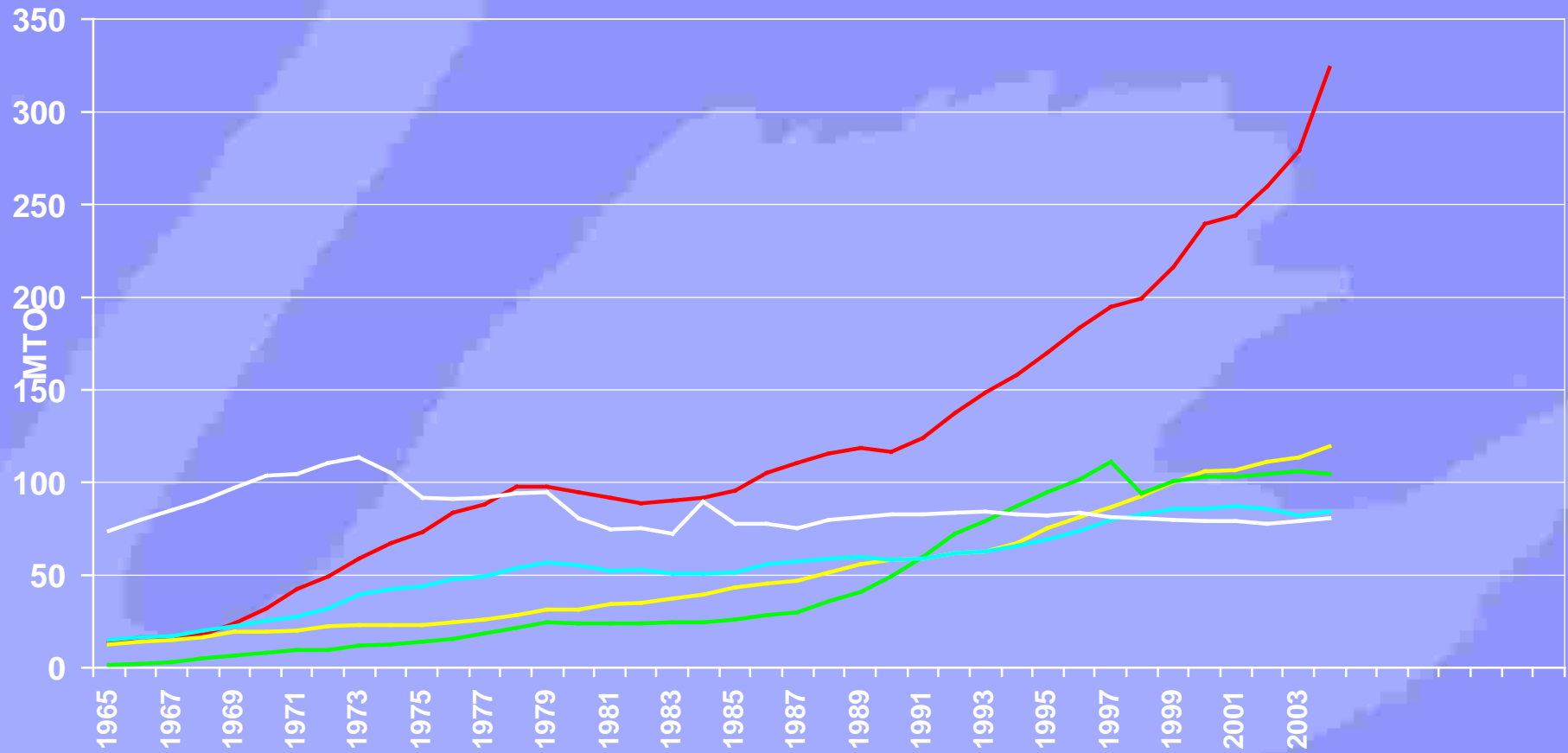
# Oil Demand



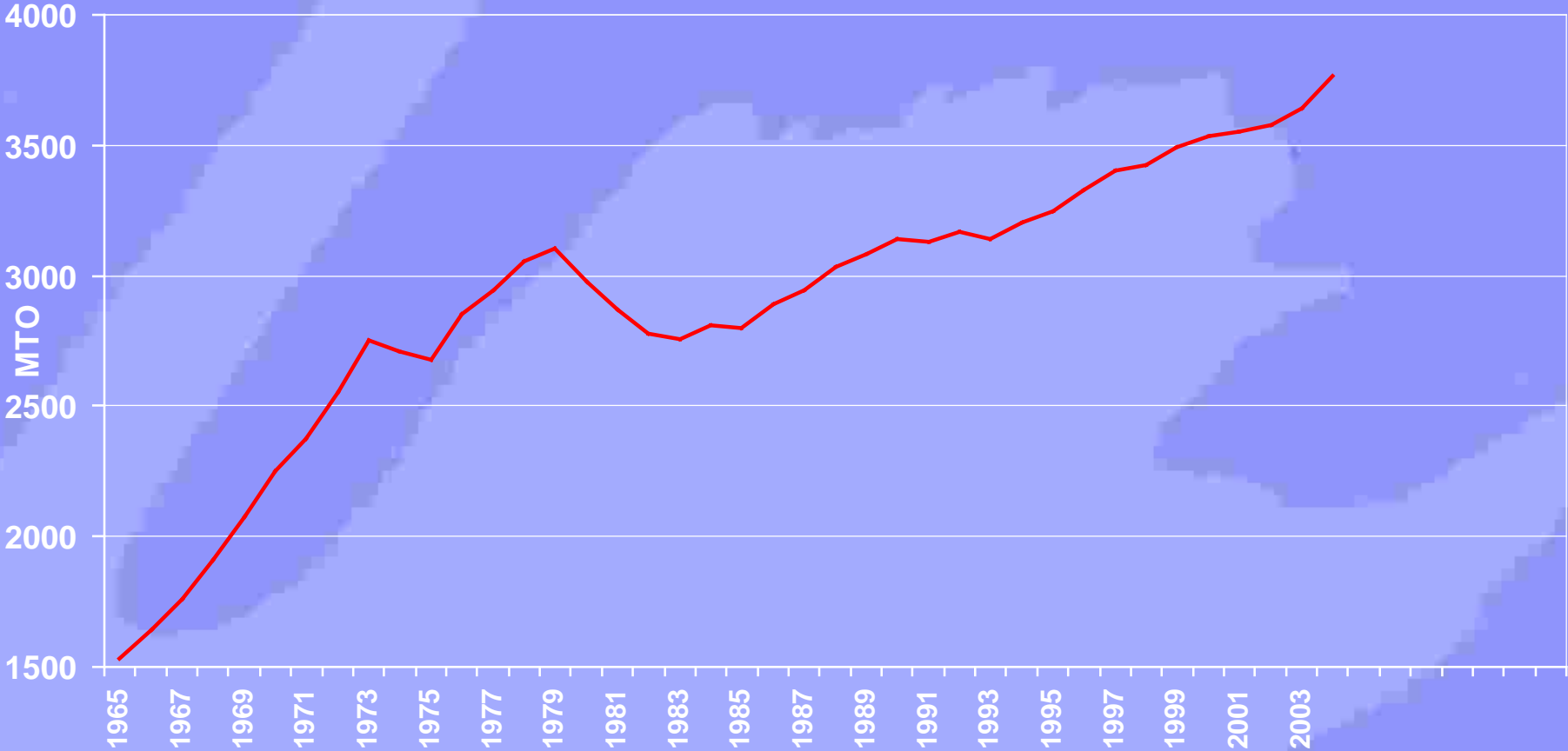
# Oil Demand



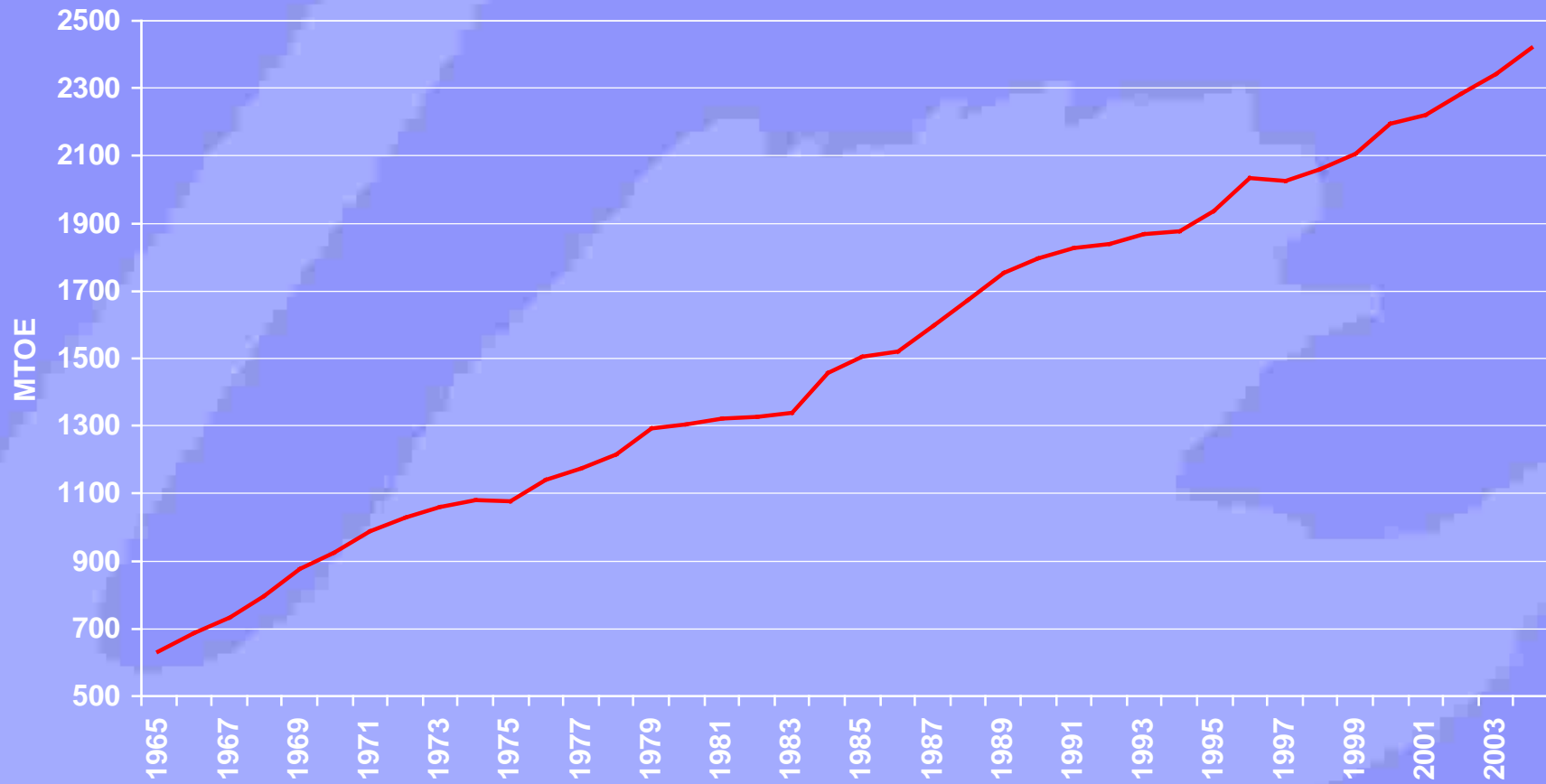
# Oil Demand



# Global Oil Demand



# Global Gas Demand



# What are they Saying?

- "I wish I could simply wave a magic wand and lower gas prices tomorrow. But we must act now to address the fundamental problem. Our supply of energy is not growing fast enough to meet the demands of our growing economy.....

– George W Bush – 20 April 2005

# What are they Saying?

- "[Australia's] Deputy Prime Minister John Anderson believes high fuel prices reflect the inevitable decline in the world's oil and gas reserves.

– Australia Broadcasting Corporation – 20 May 2005

# What are they Saying?

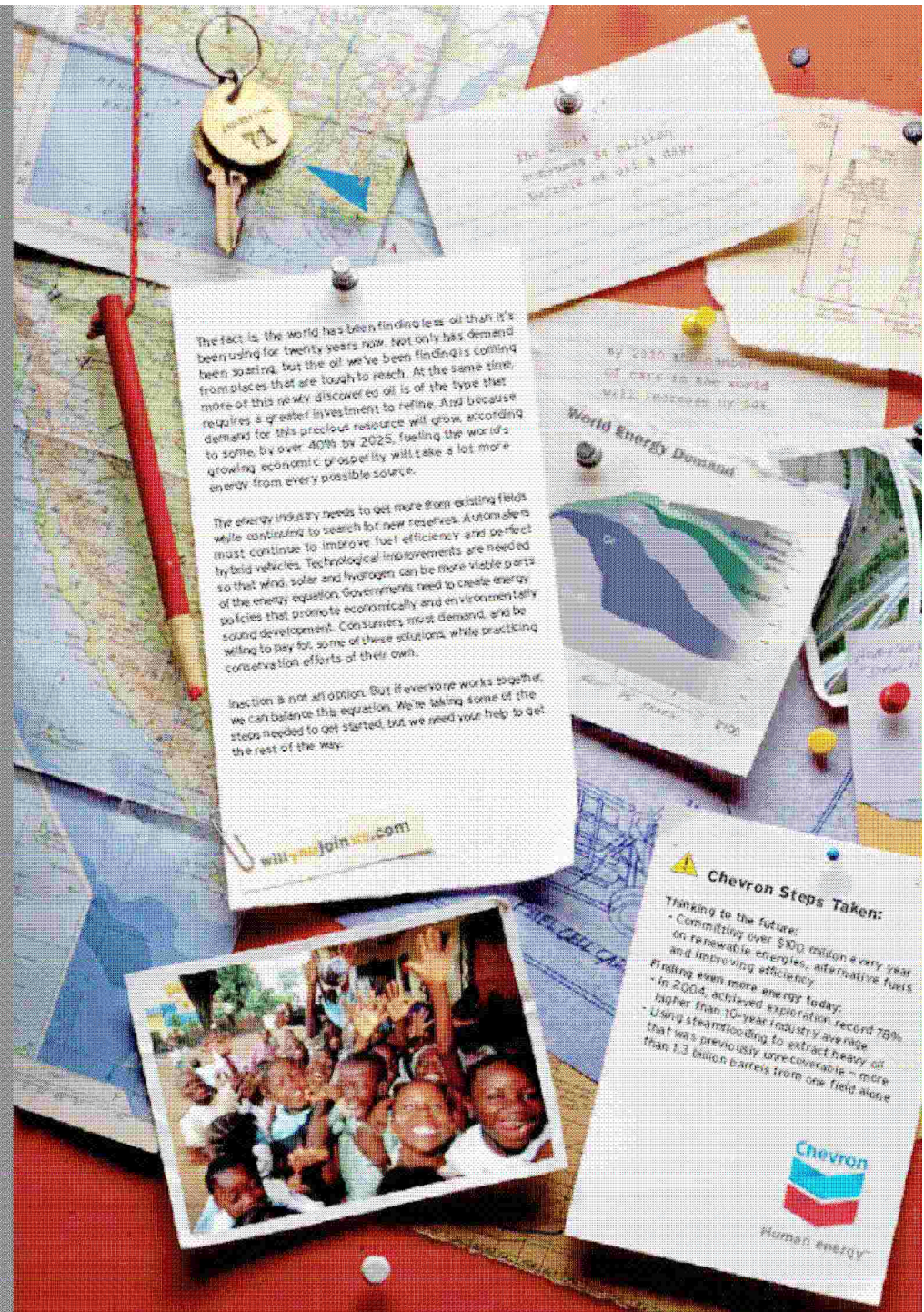
- 'The world faces enormous energy challenges. There are no easy answers.' ....
  - Exxon Mobil – 2005

# What are they Saying?

- 'One thing is clear: The era of easy oil is over. We call upon scientists and educators, politicians and policy-makers, environmentalists, leaders of industry and each one of you to be part of reshaping the next era of energy. Inaction is not an option,'  
– Chevron Corporation – 2005

The world consumes two barrels of oil for every barrel discovered.

So is this something you should be worried about?



The fact is, the world has been finding less oil than it's been using for twenty years now. Not only has demand been soaring, but the oil we've been finding is coming from places that are tough to reach. At the same time, more of this newly discovered oil is of the type that requires a greater investment to refine. And because demand for this precious resource will grow, according to some, by over 40% by 2025, fueling the world's growing economic prosperity will take a lot more energy from every possible source.

The energy industry needs to get more from existing fields while continuing to search for new reserves. Automobiles must continue to improve fuel efficiency and perfect hybrid vehicles. Technological improvements are needed so that wind, solar and hydrogen can be more viable parts of the energy equation. Governments need to create energy policies that promote economically and environmentally sound development. Consumers must demand, and be willing to pay for, some of these solutions, while practicing conservation efforts of their own.

Inaction is not an option. But if everyone works together, we can balance this equation. We're taking some of the steps needed to get started, but we need your help to get the rest of the way.


[www.joinup.com](http://www.joinup.com)



**⚠️ Chevron Steps Taken:**

Thinking to the future:

- Committing over \$100 million every year on renewable energies, alternative fuels and improving efficiency
- In 2004, achieved exploration record 79% higher than 10-year industry average
- Using steamflooding to extract heavy oil that was previously uneconomical - more than 1.3 billion barrels from one field alone



Human energy™

# Lord Browne of BP

- 2004 was a year of rising energy prices and growing concern in many parts of the world about the security of future supplies  
– June 2005



# Global Energy Supply Outlook

- **Oil production will now peak in 2007**
  - Oil demand is still accelerating
  - Demand may overtake production earlier
- **Gas production will peak in 2020**
  - Gas demand is accelerating
- **Coal production will peak in 2040**

# And then came Dennis



**Much, much worse**



# Shell Mars Platform



# Shell Mars Platform



# Hurricane Katrina

- 58 Platforms damaged
- 26 platforms & rigs missing
  - 15 of these were hub platforms
- Oilfield port of Venice – destroyed
- 8 refineries shut down
- On-shore gas compression plants inoperable
- Pipelines not yet inspected

# Hurricane Katrina

- Oil production now below demand
  - Have we reached a turning point?
- Gas supplies in US now inadequate
  - Enhanced demand for LNG
- World wide energy crisis
  - Says the IEA

# What are they Saying?

- We have entered the post oil era.
  - Dominique de Villepin - 1/9/2005
- ..the big increase in (the oil) price over the last year will remain.
  - Mervyn King – 1/9/2005

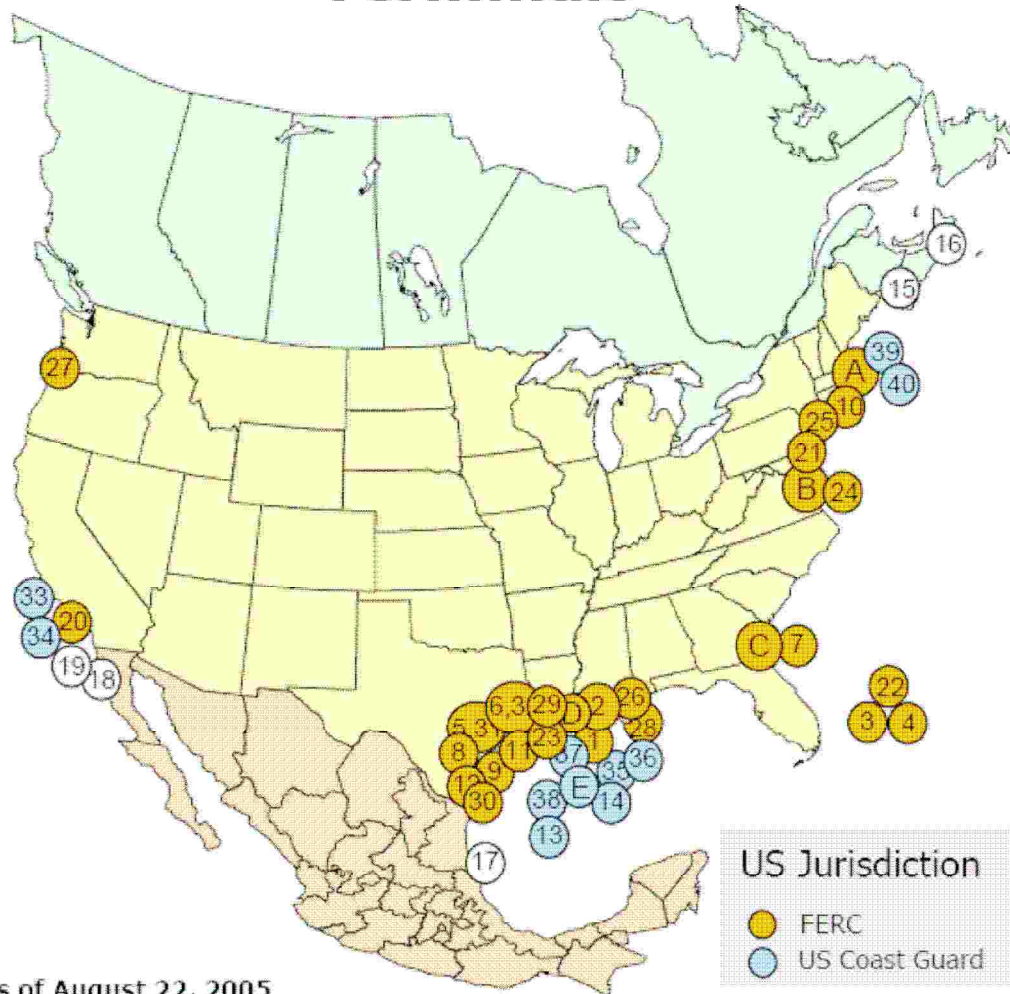
# General Situation - Oil

- Global oil demand exceeds supply
- Oil prices will continue to rise
- Military adventures to secure oil supplies more likely
- Threat of terrorist action against oil installations is enhanced
- Agricultural output will fall

# General Situation - Gas

- US reliant on imports before Katrina
- Gas prices in US now around \$12/mmBtu
- LNG infrastructure being built now

# Existing and Proposed North American LNG Terminals



As of August 22, 2005

\* US pipeline approved; LNG terminal pending in Bahamas

**CONSTRUCTED**

- A. Everett, MA : 1.035 Bcfd (Tractebel - DOMAC)
- B. Cove Point, MD : 1.0 Bcfd (Dominion - Cove Point LNG)
- C. Elba Island, GA : 0.68 Bcfd (El Paso - Southern LNG)
- D. Lake Charles, LA : 1.0 Bcfd (Southern Union - Trunkline LNG)
- E. Gulf of Mexico: 0.5 Bcfd, (Gulf Gateway Energy Bridge - Excelerate Energy)

**APPROVED BY FERC**

- 1. Lake Charles, LA: 1.1 Bcfd (Southern Union - Trunkline LNG)
- 2. Hackberry, LA : 1.5 Bcfd, (Sempra Energy)
- 3. Bahamas : 0.84 Bcfd, (AES Ocean Express)\*
- 4. Bahamas : 0.83 Bcfd, (Calypso Tractebel)\*
- 5. Freeport, TX : 1.5 Bcfd, (Cheniere/Freeport LNG Dev.)
- 6. Sabine, LA : 2.6 Bcfd (Cheniere LNG)
- 7. Elba Island, GA: 0.54 Bcfd (El Paso - Southern LNG)
- 8. Corpus Christi, TX: 2.6 Bcfd, (Cheniere LNG)
- 9. Corpus Christi, TX : 1.0 Bcfd (Vista Del Sol - ExxonMobil)
- 10. Fall River, MA : 0.8 Bcfd, (Weaver's Cove Energy/Hess LNG)
- 11. Sabine, TX : 1.0 Bcfd (Golden Pass - ExxonMobil)
- 12. Corpus Christi, TX: 1.0 Bcfd (Ingleside Energy - Occidental Energy Ventures)

**APPROVED BY MARAD/COAST GUARD**

- 13. Port Pelican: 1.6 Bcfd, (Chevron Texaco)
- 14. Louisiana Offshore : 1.0 Bcfd (Gulf Landing - Shell)

**CANADIAN APPROVED TERMINALS**

- 15. St. John, NB : 1.0 Bcfd, (Canaport - Irving Oil)
- 16. Point Tupper, NS 1.0 Bcfd (Bear Head LNG - Anadarko)

**MEXICAN APPROVED TERMINALS**

- 17. Altamira, Tamulipas : 0.7 Bcfd, (Shell/Total/Mitsui)
- 18. Baja California, MX : 1.0 Bcfd, (Sempra)
- 19. Baja California - Offshore : 1.4 Bcfd, (Chevron Texaco)

**PROPOSED TO FERC**

- 20. Long Beach, CA : 0.7 Bcfd, (Mitsubishi/ConocoPhillips - Sound Energy Solutions)
- 21. Logan Township, NJ : 1.2 Bcfd (Crown Landing LNG - BP)
- 22. Bahamas : 0.5 Bcfd, (Seafarer - El Paso/FPL )
- 23. Port Arthur, TX: 1.5 Bcfd (Sempra)
- 24. Cove Point, MD : 0.8 Bcfd (Dominion)
- 25. LI Sound, NY: 1.0 Bcfd (Broadwater Energy - TransCanada/Shell)
- 26. Pascagoula, MS: 1.0 Bcfd (Gulf LNG Energy LLC)
- 27. Bradwood, OR: 1.0 Bcfd (Northern Star LNG - Northern Star Natural Gas LLC)
- 28. Pascagoula, MS: 1.3 Bcfd (Casotte Landing - ChevronTexaco)
- 29. Cameron, LA: 3.3 Bcfd (Creole Trail LNG - Cheniere LNG)
- 30. Port Lavaca, TX: 1.0 Bcfd (Calhoun LNG - Gulf Coast LNG Partners)
- 31. Freeport, TX: 2.5 Bcfd (Cheniere/Freeport LNG Dev. - Expansion)
- 32. Sabine, LA: 1.4 Bcfd (Cheniere LNG - Expansion)

**PROPOSED TO MARAD/COAST GUARD**

- 33. California Offshore: 1.5 Bcfd (Cabrillo Port - BHP Billiton)
- 34. So. California Offshore : 0.5 Bcfd, (Crystal Energy)
- 35. Louisiana Offshore : 1.0 Bcfd (Main Pass McMoRan Exp.)
- 36. Gulf of Mexico: 1.0 Bcfd (Compass Port - ConocoPhillips)
- 37. Gulf of Mexico: 2.8 Bcfd (Pearl Crossing - ExxonMobil)
- 38. Gulf of Mexico: 1.5 Bcfd (Beacon Port Clean Energy Terminal - ConocoPhillips)
- 39. Offshore Boston, MA: 0.4 Bcfd (Neptune LNG - Tractebel)
- 40. Offshore Boston, MA: 0.8 Bcfd (Northeast Gateway - Excelerate Energy)

# General Situation - Gas

- US reliant on imports before Katrina
- Gas prices in US now around \$12/mmBtu
- LNG infrastructure being built now
- Reserves are concentrated in middle east and Russia
- Demand is concentrated in North America and Europe

# Gas

- **We are assured of a rosy future - gas will be imported**
  - from Russia by pipeline and
  - from elsewhere as LNG
- **A pipeline from Russia is long and crosses many other countries**
- **Russia views Gazprom as a legitimate instrument of foreign policy**

# Gas - LNG

- Total global LNG trade in 2003 was 168 bcm
- In 2004 this increased to 178 bcm
- US demand will be over 600 bcm by 2015
- Russian gas will go to Europe, China and Eur-Asia
- Asia-Pacific gas will go to Japan and Pacific rim
- Other LNG will come from the middle east
- Gas prices reflect general situation

# Immediate Implications for UK

- Oil & gas prices will remain high
- Electricity prices will remain high
- Oil supplies may become restricted
- Real threat to gas supplies this winter

# Conclusions

- Prices will continue to rise
- Supply will be restricted
- Conflict is more likely
- The party is over

# Sir Fred Hoyle

- We have, or soon will have, exhausted the necessary physical prerequisites so far as this planet is concerned. With coal gone, oil gone, high-grade metallic ores gone, no species however competent can make the long climb from primitive conditions to high-level technology. This is a one-shot affair. If we fail, this planetary system fails so far as intelligence is concerned.

# Conclusions


- Prices will continue to rise
- Supply will be restricted
- Conflict is more likely
- The party is over
- The Limits to Growth

‘Facts do not cease to exist because they are ignored.’

*Aldous Huxley*

A blue-tinted photograph of a swan and a duck on water. The swan is on the left, facing right, with its long neck curved. The duck is on the right, facing left, with its head tilted down. The water is dark blue, and the background is a lighter blue sky.

**What next?**

A blue-tinted image of a swan swimming in water. The swan is positioned on the left side of the frame, facing left. The water is a deep blue, and the background is a lighter blue. The text "Any questions?" is overlaid in the center of the image in a bold, green font.

**Any questions?**