

The background of the slide is a photograph of an offshore oil rig at sea during sunset. The sky is a mix of dark blue, orange, and yellow, with some clouds. The rig is silhouetted against the horizon, with some lights visible on its structure. A smaller vessel is visible to the right of the rig.

The Oil & Gas Landscape: global challenges and local issues

**Waikato Regional Energy Forum
Conference October 2008**

Chris Roberts Public Affairs Manager

New Zealand Oil & Gas Limited

Contents

- What's happening with the Oil Price?
- The Global Outlook
- New Zealand Issues
- Oil's place in a 'greener' energy future

Key Information Sources:

International Energy Agency

National Petroleum Council (USA)

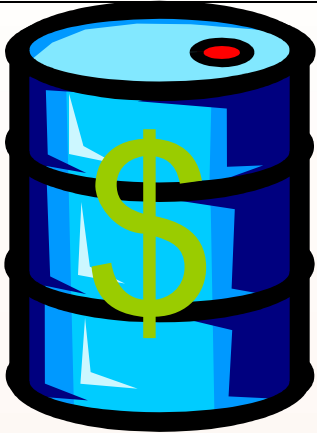


What's happening with Oil prices?

Unless the world economy collapses, there will be strong upward pressure on oil prices



Factors Influencing Oil Prices



=

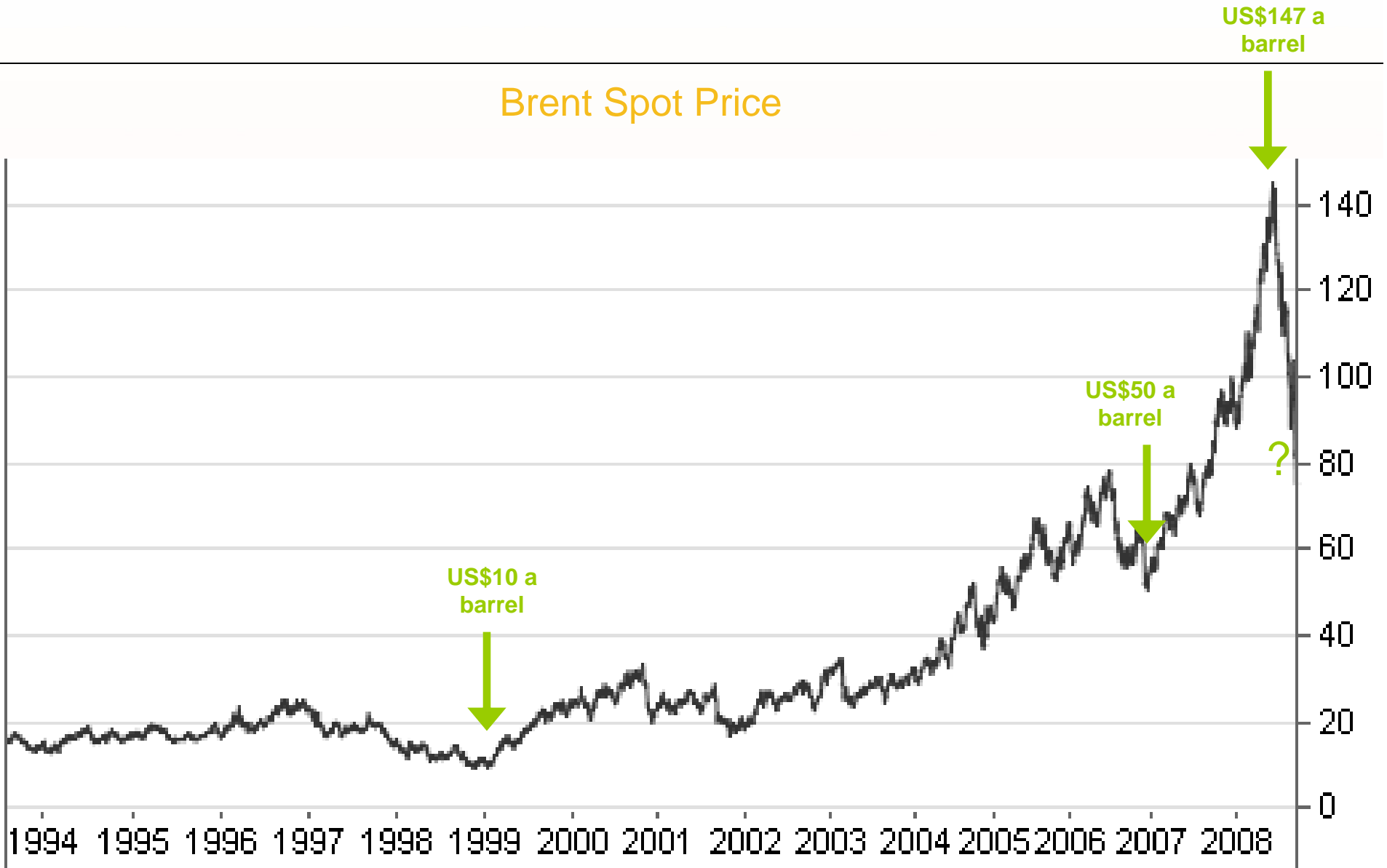
marginal production cost +
product tightness +
weather +
geopolitics +
refinery capacity +
speculation +
economic confidence + ...

But no one can break the analysis down
into its component parts....



International Oil Price

Brent Spot Price



Demand Side Assessment: short term

- Looming Recession in USA and Europe
- Oil demand beginning to decline
 - Total miles driven in the USA down 3% this year
- World Oil use in 2008 now expected to only be marginally up on 2007



Demand Side Assessment: longer term

- Increasing demand as economies and populations expand
- By 2030 over 80% of the world's population will live in the developing world
 - Developing countries now consume only 40% of the world's energy
 - Many reaching the point where individual wealth and consumption accelerates
- Demand driven by industry, transport, heating/cooking, commercial use – by improved standards of living



Demand Examples - Transport

- China is motoring
 - Chinese vehicle fleet expected to increase 7-fold to 270 million by 2030
- India's Nano car – US\$2,500
 - Millions switching from bicycle to motor vehicle
 - Nano sales target – 500,000 a year



Demand Examples - Transport



old

e



PRODUCTS MADE FROM OR CONTAINING OIL

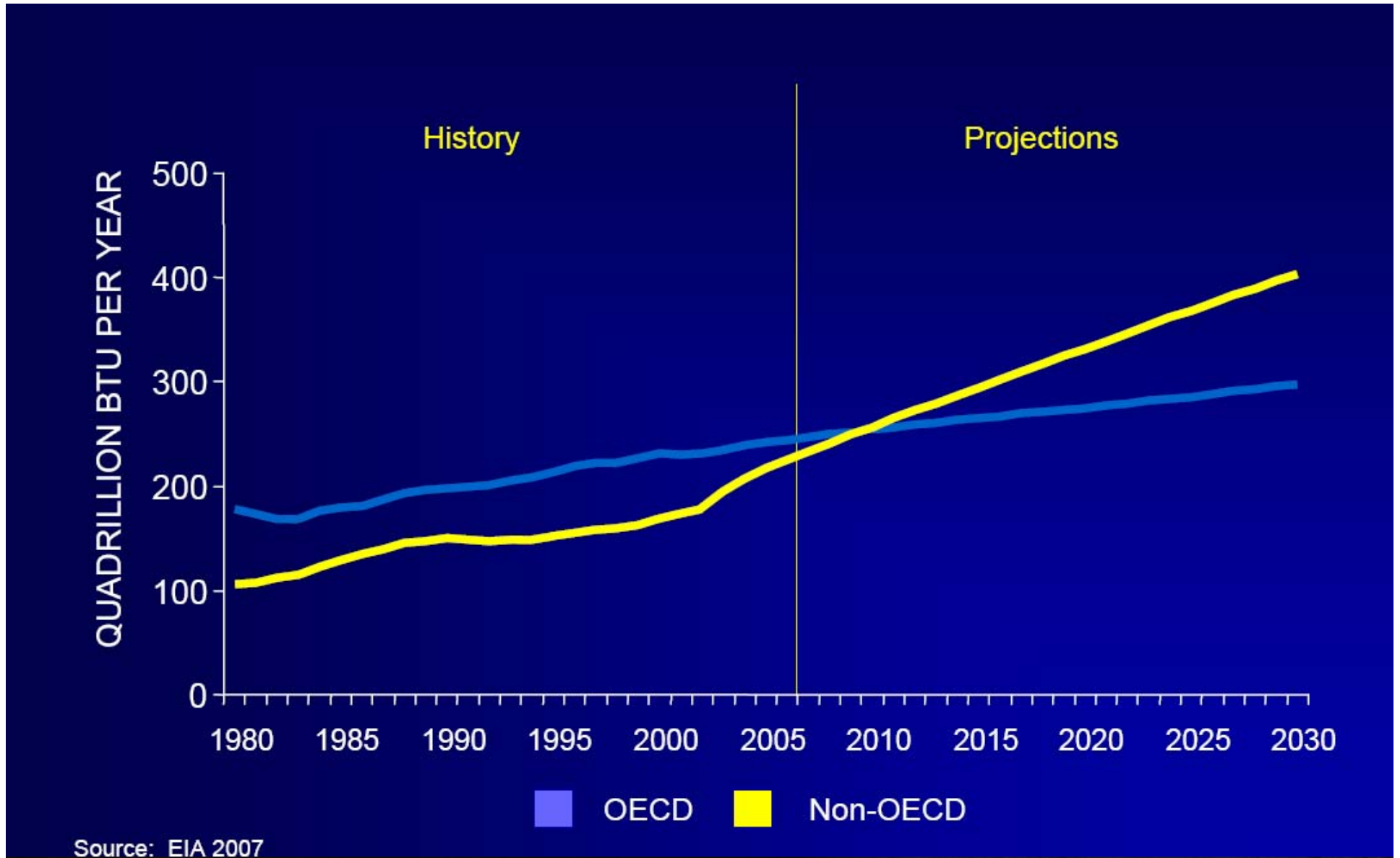
Ammonia	Cold cream	Floor polish	Lipstick	Putty	Synthetic rubber
Anaesthetics	Combs	Folding doors	Loudspeakers	Pyjamas	Tap washers
Antihistamines	Cortisone	Food preservatives	LP records	Refrigerator linings	Telephones
Antiseptics	Crayons	Garbage bags	Luggage	Roof sarking	Tennis rackets
Artificial limbs	Credit cards	Garden hoses	Mascara	Roofing	Tents
Artificial turf	Curtains	Glue	Milk jugs	Rubber cement	Toilet seats
Ashphalt	Deodorant	Golf bags	Model cars	Rubbing alcohol	Tool racks
Aspirin	Detergents	Golf balls	Mops	Safety glass	Toothbrushes
Awnings	Dice	Guitar strings	Motorcycle helmets	Salad bowls	Toothpaste
Balloons	Dishwashing liquids	Gumboots	Movie film	Shampoo	Toys
Ballpoint pens	Disposable nappies	Hair colouring	Nail polish	Shaving cream	Transparent tape
bandages	Dolls	Hair curlers	Oil filters	Shoe polish	TV cabinets
Beach umbrellas	Dresses	Hand lotion	Paddling pools	Shoes	Tyres
Bitumen paint	Drinking cups	Hearing aids	Paint brushes	Shower curtains	Umbrellas
Boats	Dyes	Heart valves	Paint rollers	Shower doors	Unbreakable dishes
Cameras	Electric blankets	House paint	Panty hose	Skateboard wheels	Upholstery
Candles	Electrician's tape	Ice buckets	Parachutes	Skis	Vaseline
Car battery cases	Eye glasses	Ice chests	Perfume	Slacks	VCR tapes
Car sound insulation	False teeth	Ice cube trays	Permanent press clothes	Soap dishes	Vinyl
Carpeting	Fan belts	Ink	Pillows	Soft contact lenses	Vitamin capsules
Cassettes	Fertilisers	Insect repellent	Plastic wood	Sportscar bodies	Water pipes
Caulking	Fishing lures	Insecticides	Plywood adhesive	Sunglasses	Wire insulation
Clothes line	Fishing rods	Life jackets	Purses	Sweaters	Yarn

Demand Side Assessment: longer term

- Global oil demand predicted to increase by between 40% and 70% by 2030
 - From 86 mmbbls/day to between 120 and 138 mmbbls/day
 - A faster growth rate than over the last 25 years
 - Natural gas demand to increase by even more
- IEA's Alternative Policy Scenario— all government climate change policies are implemented:
 - Global oil demand still 23% higher by 2030 – 106 mmbbls/day
- Developing countries driving the growth



Demand – Long Term



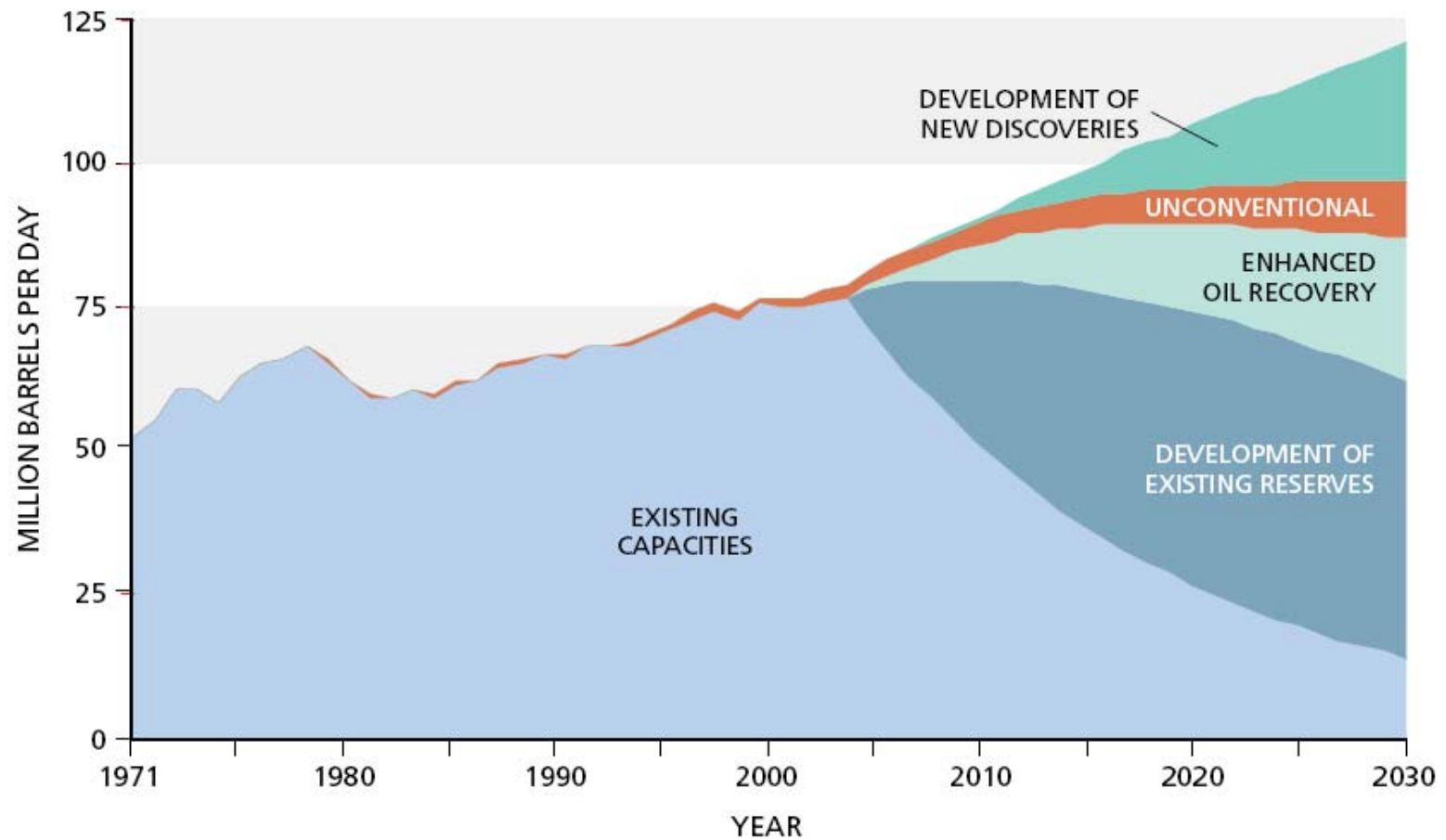
Supply Side Assessment

- Fossil fuels will remain largest source of energy
 - Expected growth in Biomass and other renewables
 - But in 2030 fossil fuels will continue to provide over 80% of global energy supply
- Conventional oil sources will dominate
 - Unconventional oil will provide under 10% of supply



Supply Side Assessment

Total Liquids Supply



Source: IEA, *World Energy Outlook 2004*.

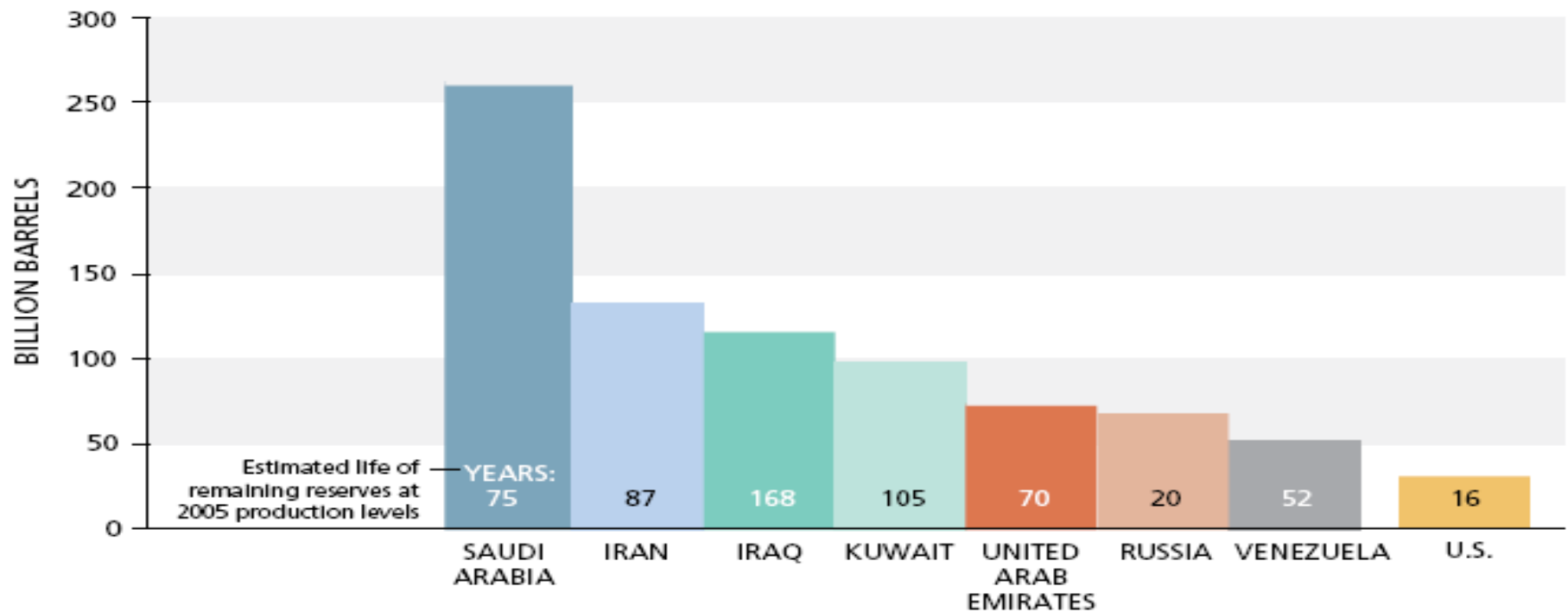
Supply Side Assessment

- The world is well-endowed with hydrocarbons
 - Natural endowment assessments indicate very large in-place volumes and resource potential: several times current reserve estimates
 - Key issue at present is not ‘endowment’ but ‘producibility’
- Growing set of global uncertainties
 - Production limitations
 - Environmental constraints
 - Infrastructure requirements
 - Geopolitical alignments
- The resource is there – **can we use it?**



Supply Side Assessment

- Increasing concentration of resources
- OPEC's share of world supply will increase from 42% now, to 52% in 2030
 - Growing power of National Oil Companies



Supply Side Assessment

- Capacity of E&P industry to sustain growing production rates is uncertain
 - Investment of US\$4.3 trillion needed by 2030
 - Much of the world's existing oil production will need to be replaced by 2030
- Increasing international oil trade
 - Developing countries will become major oil importers
 - Trade security a major issue



Supply - Vulnerable Supply Points



Supply Side Assessment

- The risks to supply are accumulating:
 - Nationalism or protectionism may remove resources from the market
 - Increasing concentration of existing reserves in a few hands
 - New oil & gas sources more difficult to access
 - Technology requirements increasingly complex
 - Massive investment needed
 - Human resources stretched
 - Environmental constraints evolving and indeterminate



What does this mean for oil prices?

Short term

- Economic recession = lower demand = falling prices
- BUT lower prices mean marginal projects will be delayed or mothballed
 - Supply reduces to match demand
- In the meantime, the transition to alternative energy sources could lose momentum



What does this mean for oil prices?

Longer term

- World is moving from demand-driven to supply-constrained system
- Economically disruptive supply shortfalls likely to occur
- Increased demand will amplify effects of short-term events

and stays collapsed
Unless the world economy collapses[^], there will be strong upward pressure on oil prices



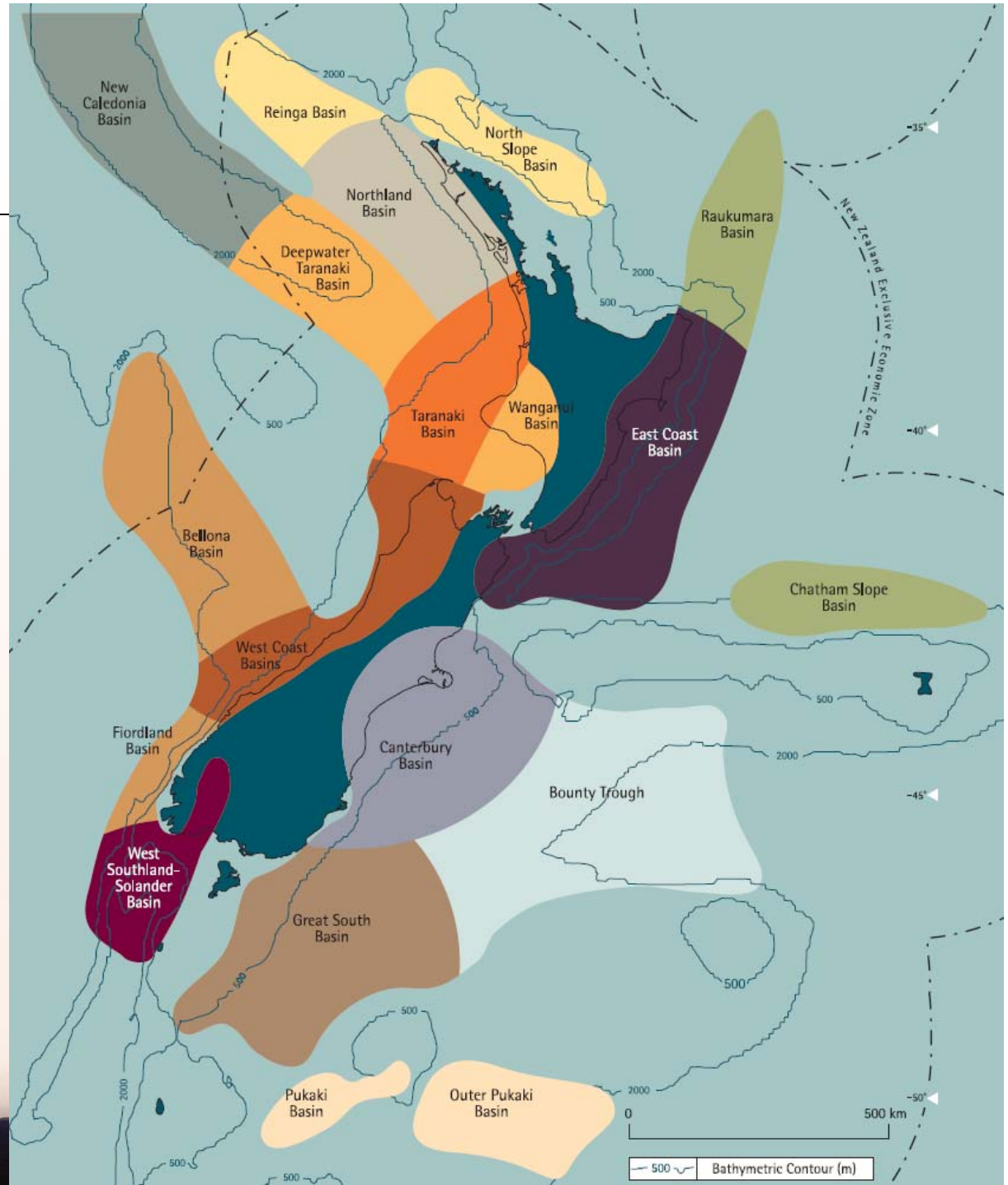
Where does NZ fit?

- Small fry on a global scale
 - Taranaki production a major contributor to GDP
 - But NZ producing 0.2% of world oil supply
- Geographically isolated
- Limited infrastructure
 - Nothing outside of Taranaki
- Not on radar screen of most big players



Where does NZ fit?

- NZ relatively under-explored
 - Further resource potential in Taranaki
 - Other identified basins with good potential
 - CSM potential, including in the Waikato



Where does NZ fit?

- NZ offers a safe, secure location
- Good prospects for further NZ exploration
- Gas for NZ or Oil for the World?
 - Oil sells into an international market
 - Gas less valuable and more difficult to monetise
- Oil, not gas, is now the primary target in NZ



Conclusion – Oil’s Role in our “Greener” Future

- Our petroleum addiction will last at least 2 more generations
 - The world will use more oil, not less, driven by economic growth in developing countries
- Conventional oil & gas (and coal) will continue to be the dominant energy sources
- Increasing supply risk and higher demand means upward pressure on prices
- NZ needs to find and use its own resources



The background of the slide is a photograph of an offshore oil rig at sea during sunset. The sky is a mix of dark blue, orange, and yellow, with some clouds. The rig is silhouetted against the horizon, with some lights visible on its structure. A smaller vessel is visible to the right of the rig.

The Oil & Gas Landscape: global challenges and local issues

Waikato Regional Energy Forum Conference October 2008

Chris Roberts Public Affairs Manager

New Zealand Oil & Gas Limited