Oil Independence:
Achievable National Goal or Empty Slogan?

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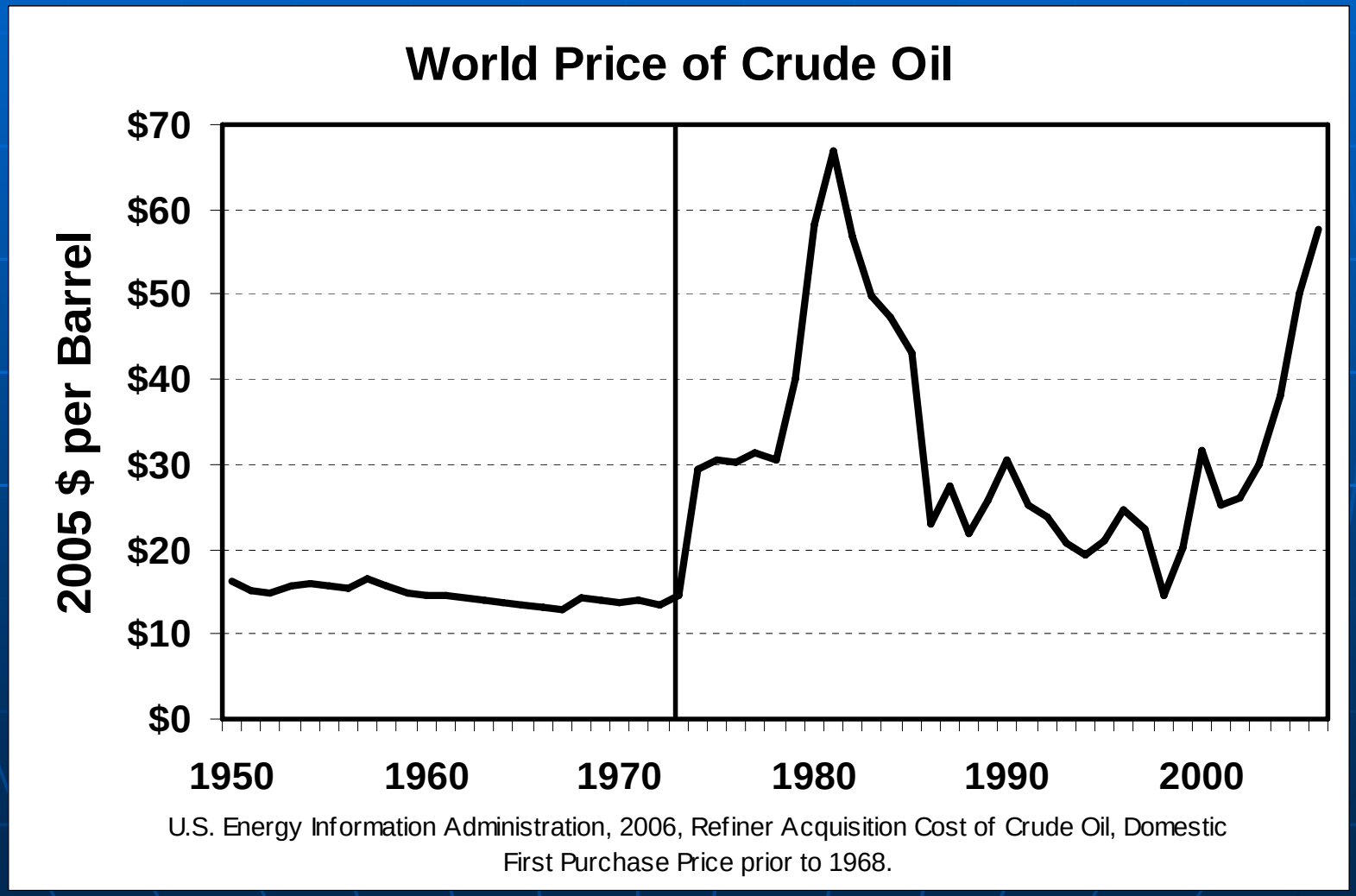
What is oil (energy) independence?

- Use no oil?
- Import no oil?
- A state in which our nation's decisions are not subject to restraining or directing influence by others as a consequence of our need for oil.

A measurable goal is needed.

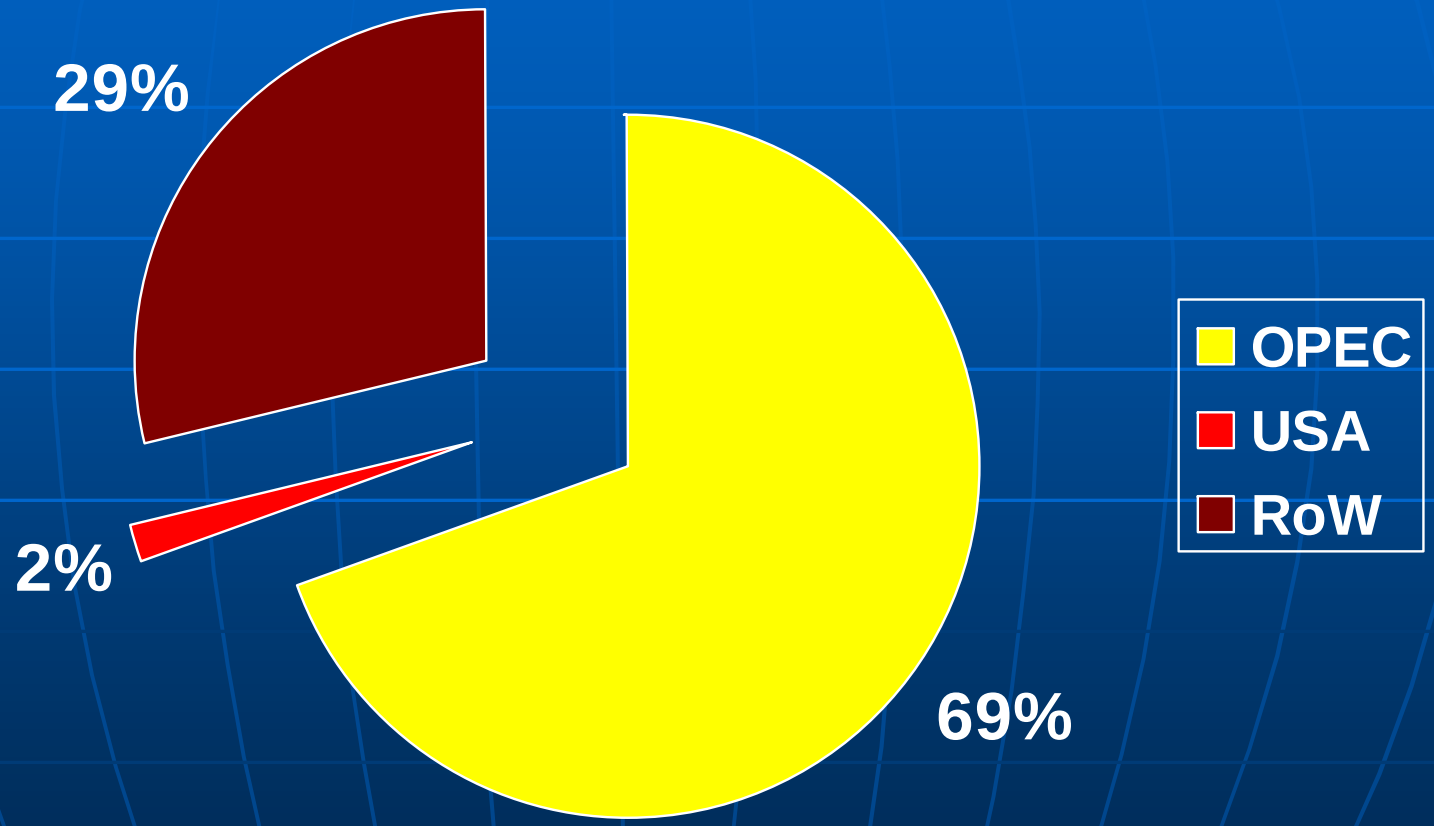
- QUALITATIVE:
  - For all conceivable world oil market conditions, the costs of oil dependence to our economy will be so small that they have no effect on our economic, military or foreign policy.
- QUANTITATIVE:
  - The estimated total economic costs of oil dependence will be less than 1% of GDP with 95% probability by 2030.

"The real problem we face over oil dates from after 1970: a strong but clumsy monopoly of mostly Middle Eastern exporters operating as OPEC." Prof. Morris Adelman, MIT, 2004.



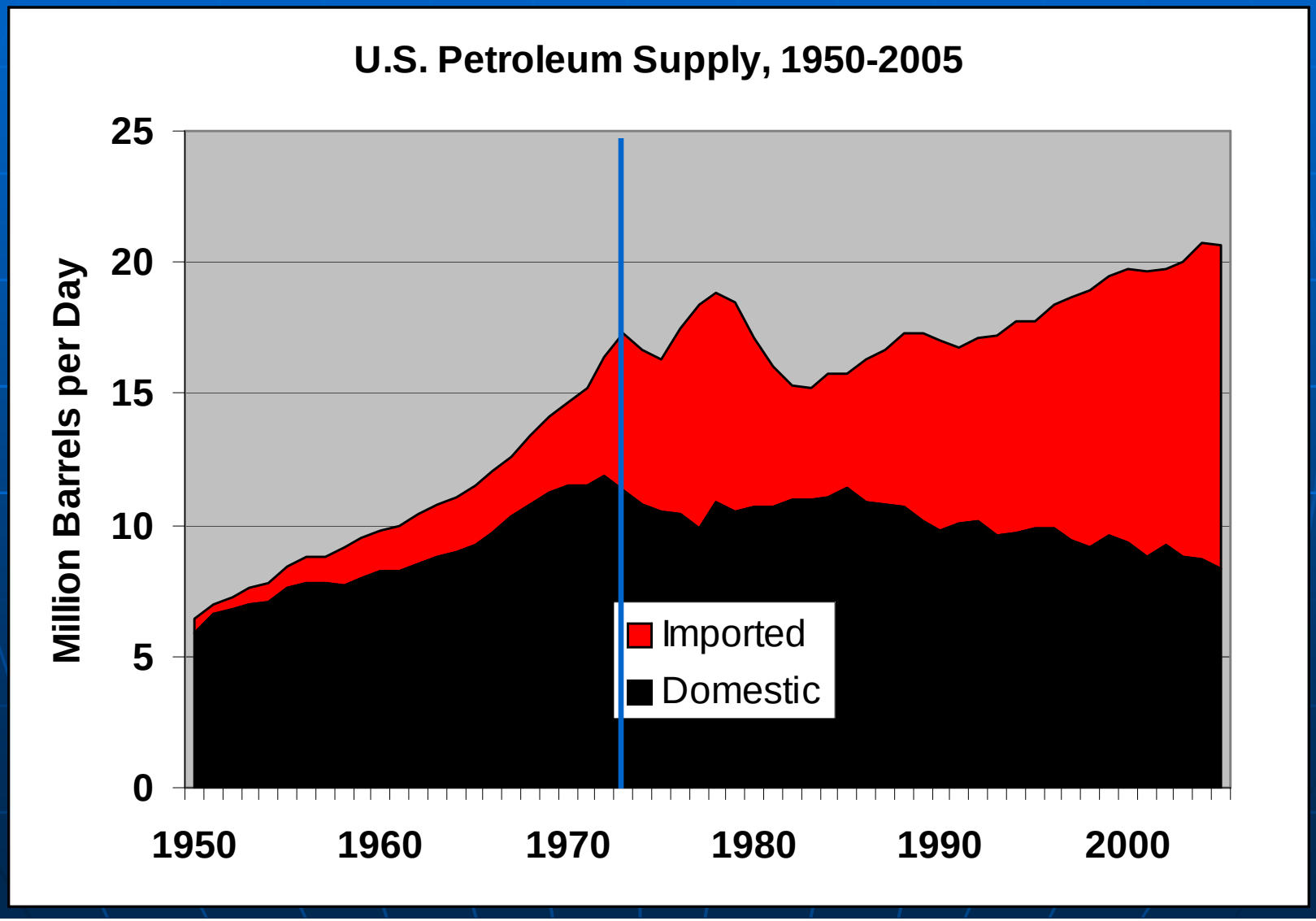
U.S. Energy Information Administration, 2006, Refiner Acquisition Cost of Crude Oil, Domestic First Purchase Price prior to 1968.

OPEC members own 69% of the world's proven oil reserves and more than half of ultimate resources of conventional oil.



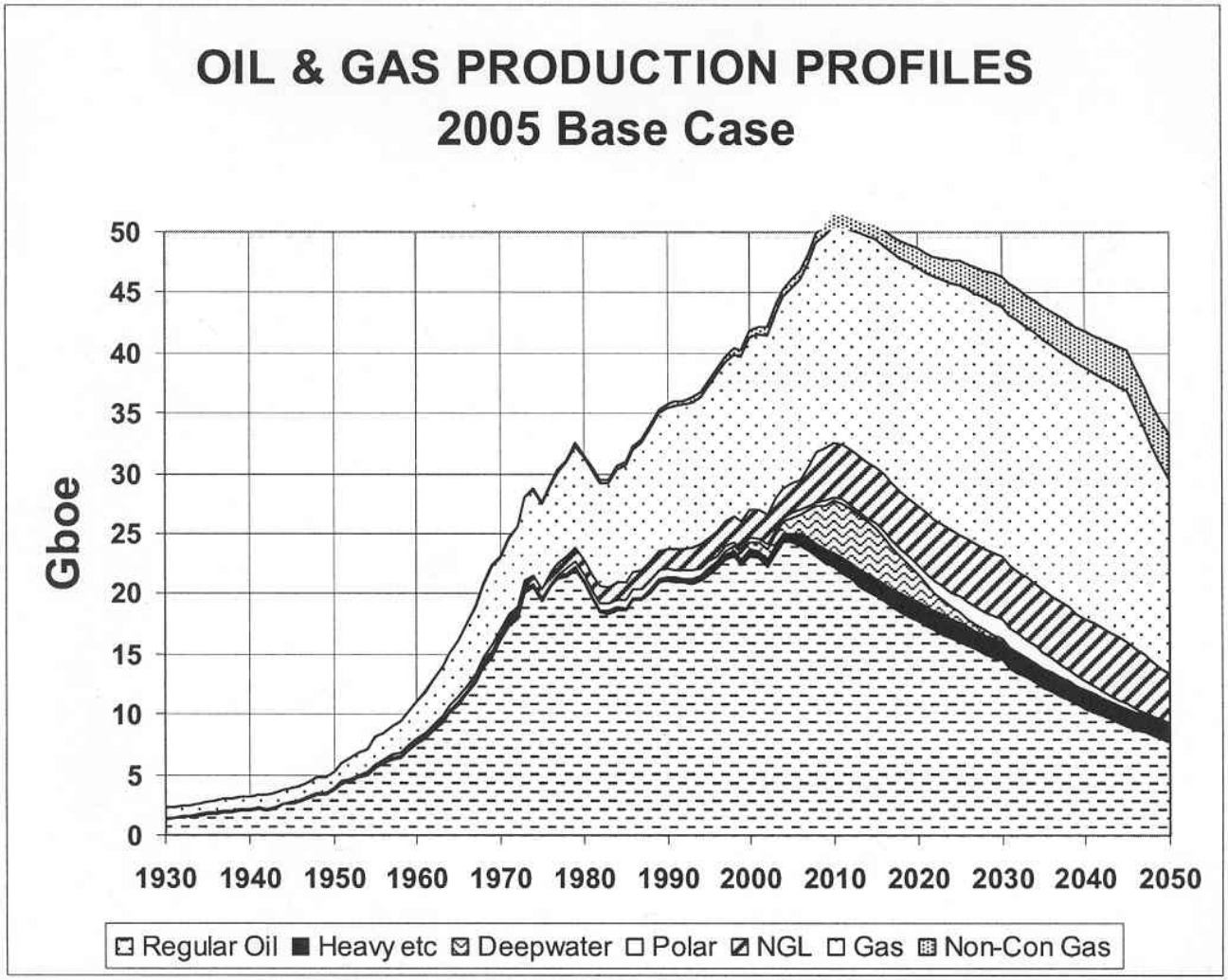
Source: U.S. Energy Information Administration, 2006.

The cartel's market power was strengthened by growing world demand, its increasing market share and…the peaking of US crude oil production in 1970.

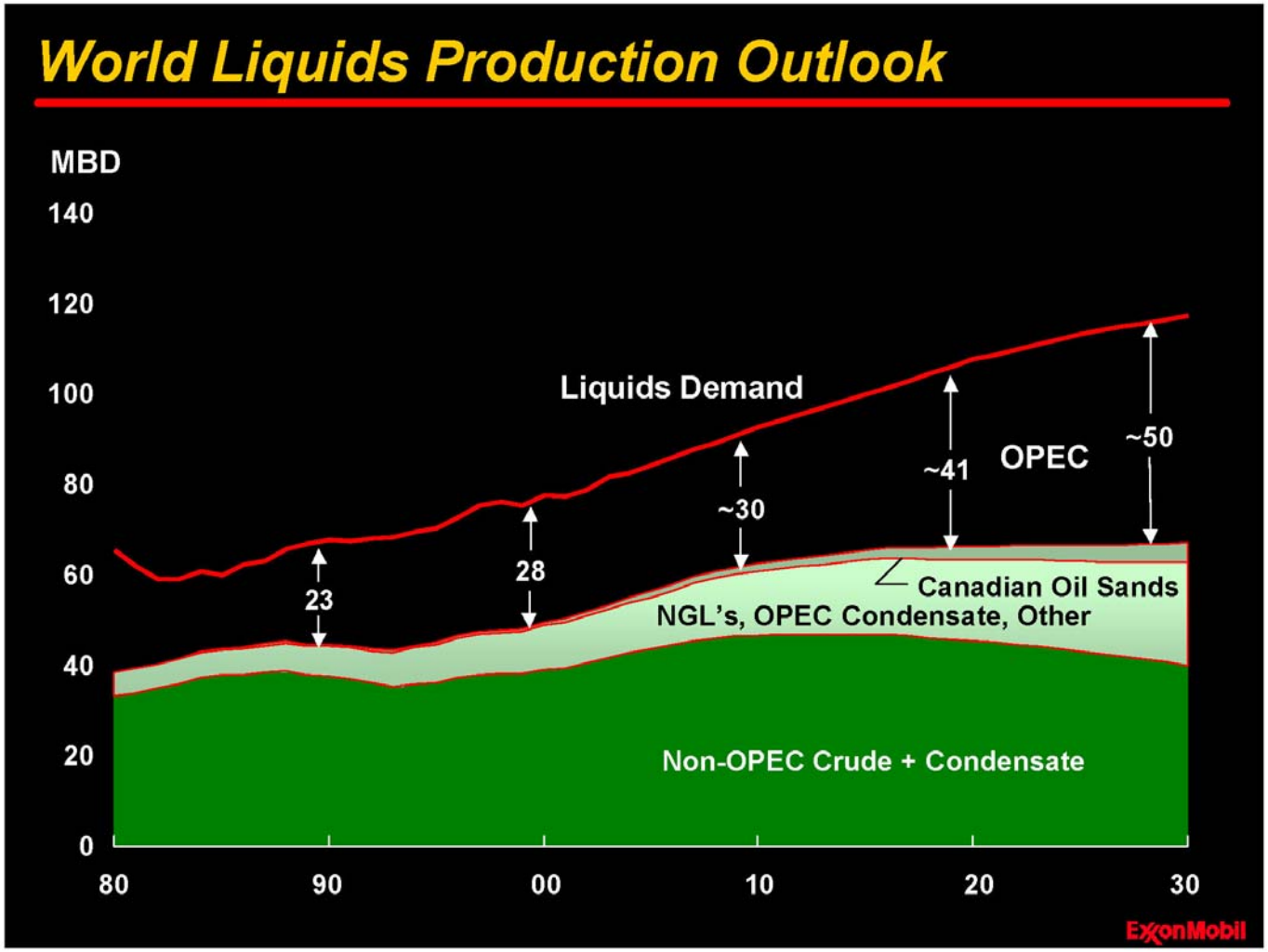


Colin Campbell and the ASPO foresee the imminent, and probably catastrophic peaking of oil and gas supplies.

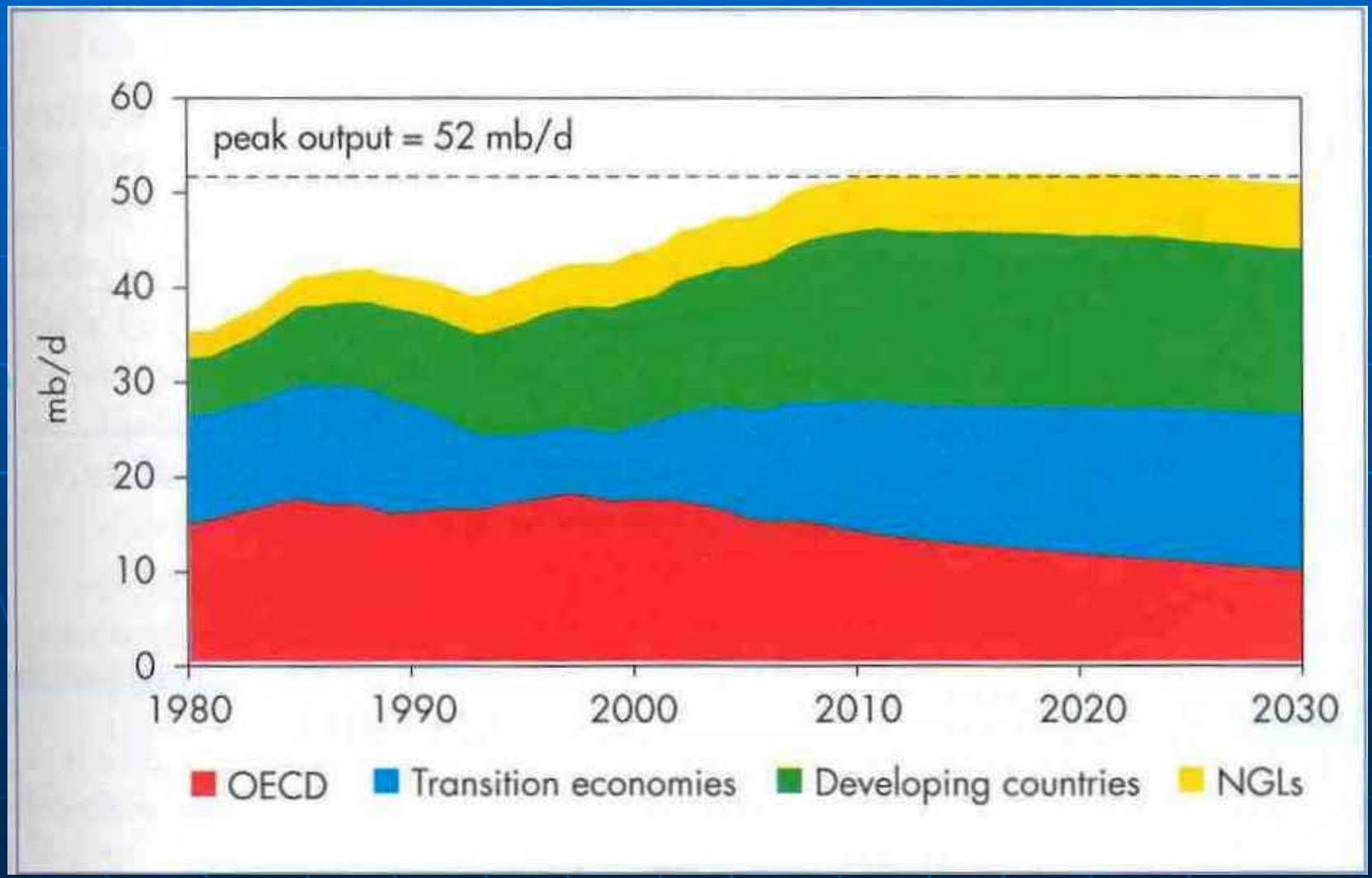
The General Depletion Picture



Projections of just 2 years ago expected peaking of non-OPEC supply with OPEC filling the gap. This would increase their market share and market power.



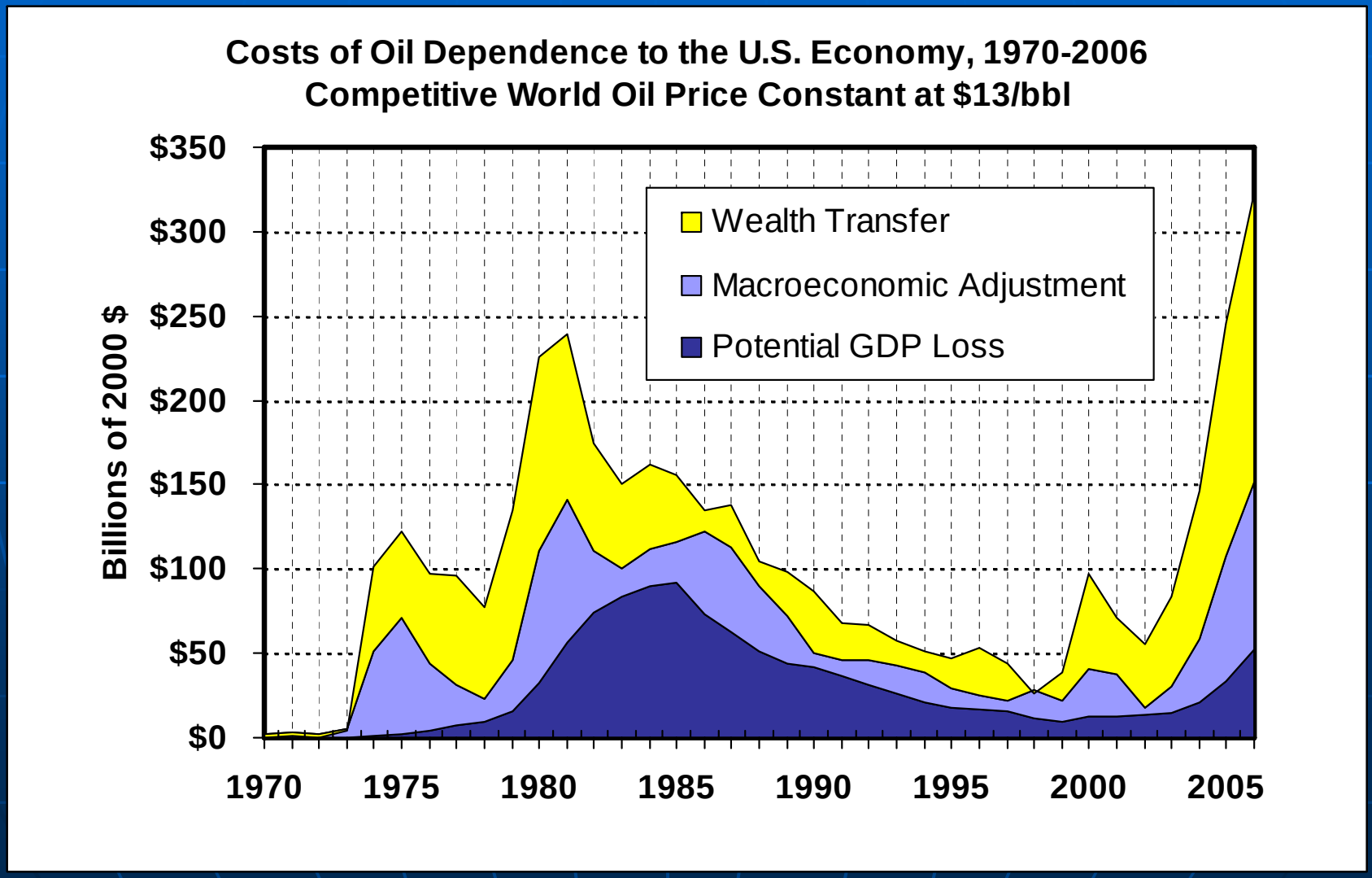
IEA's WEO 2006 foresees a non-OPEC plateau with less OPEC supply and unconventional sources filling the gap. This, too would boost OPEC's market power.



There are direct monetary costs and important indirect costs of oil dependence in a non-competitive market.

- **Wealth transfer**
- **Long-run GDP losses**
- **Disruption costs**
- **Military costs**
- **Foreign policy costs**
- **Strategic stockpile costs (SPR)**

The economic costs of oil dependence have been substantial, over $4 trillion since 1970.



Representing uncertainty about future world oil markets is critical.

- Oil Market Uncertainty
  - Reference, High Oil Price, Low Oil Price AEO 2006 scenarios
- Supply Disruption/Short-run Monopoly Power Uncertainty
  - Simulated supply curtailments
- OPEC Response Uncertainty
  - Maintain Output/Maintain Price of Oil
- Parametric Uncertainty

The AEO Cases represent BAU, a modified NCEP plan a comprehensive energy policy.

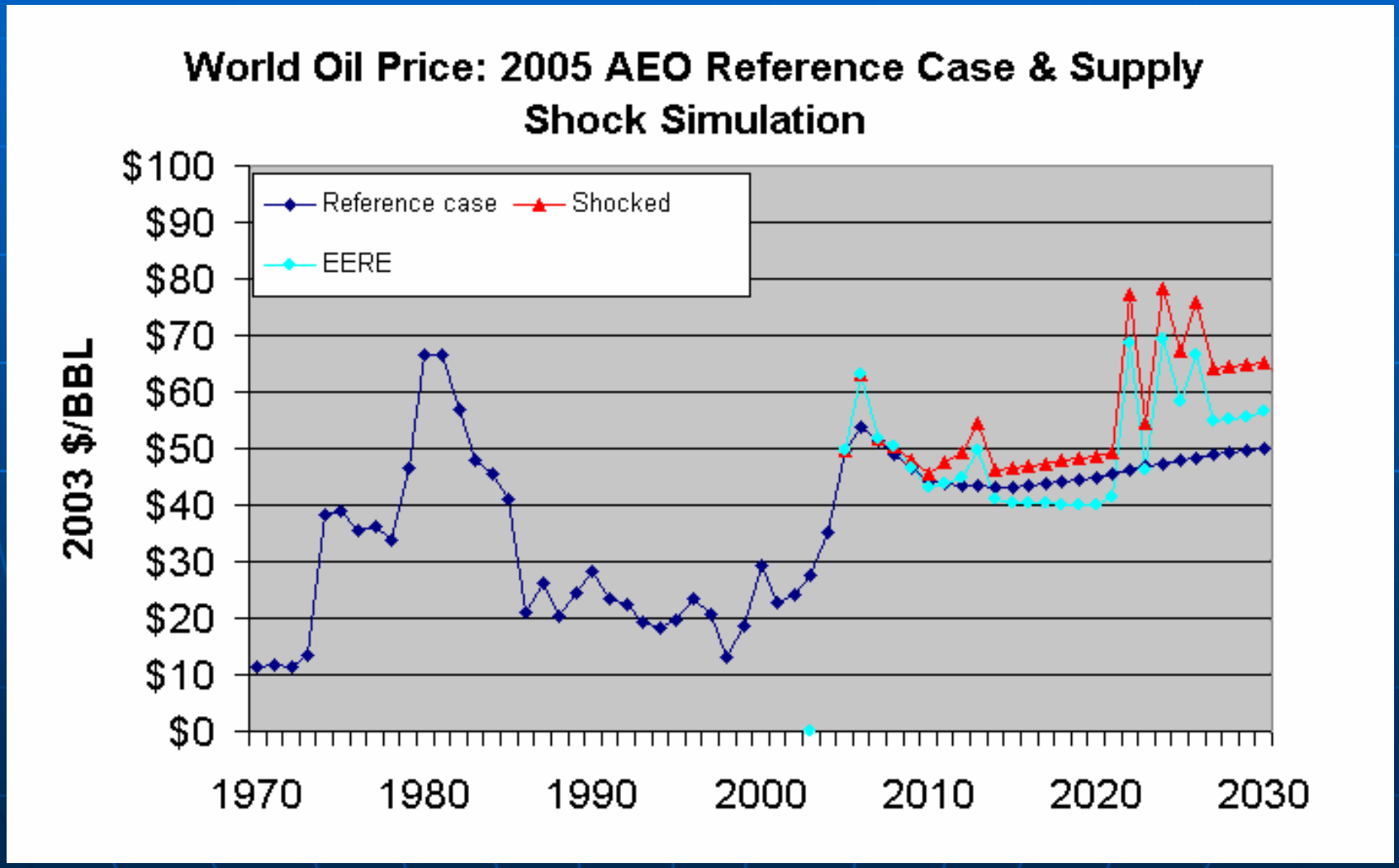
TABLE 1 Estimated Changes in U.S. Oil Supply and Demand in 2030 for the Modified NCEP Oil Independence Strategy (Millions of Barrels per Day)

	Oil Demand	Oil supply
Reference Case	27.57	10.42
NCEP Case Changes		
Light vehicle fuel economy	-3.50	
Heavy vehicle fuel economy	-0.53	
Rail and ship energy efficiency	-0.20	
Eliminate building heating with oil	-0.37	
Industrial efficiency, substitution	-0.62	
Coal to liquids		1.00
ANWR and Pacific Offshore		2.00
Biofuel	-2.00	
Subtotal: Decrease in Demand	-7.22	
Subtotal: Increase in Supply		*3.00*
NCEP Case Totals	**20.35**	**13.42**
Percent Change from Reference Case	-26%	29%

In "all conceivable" future oil market conditions, economic losses are guaranteed to be negligible.

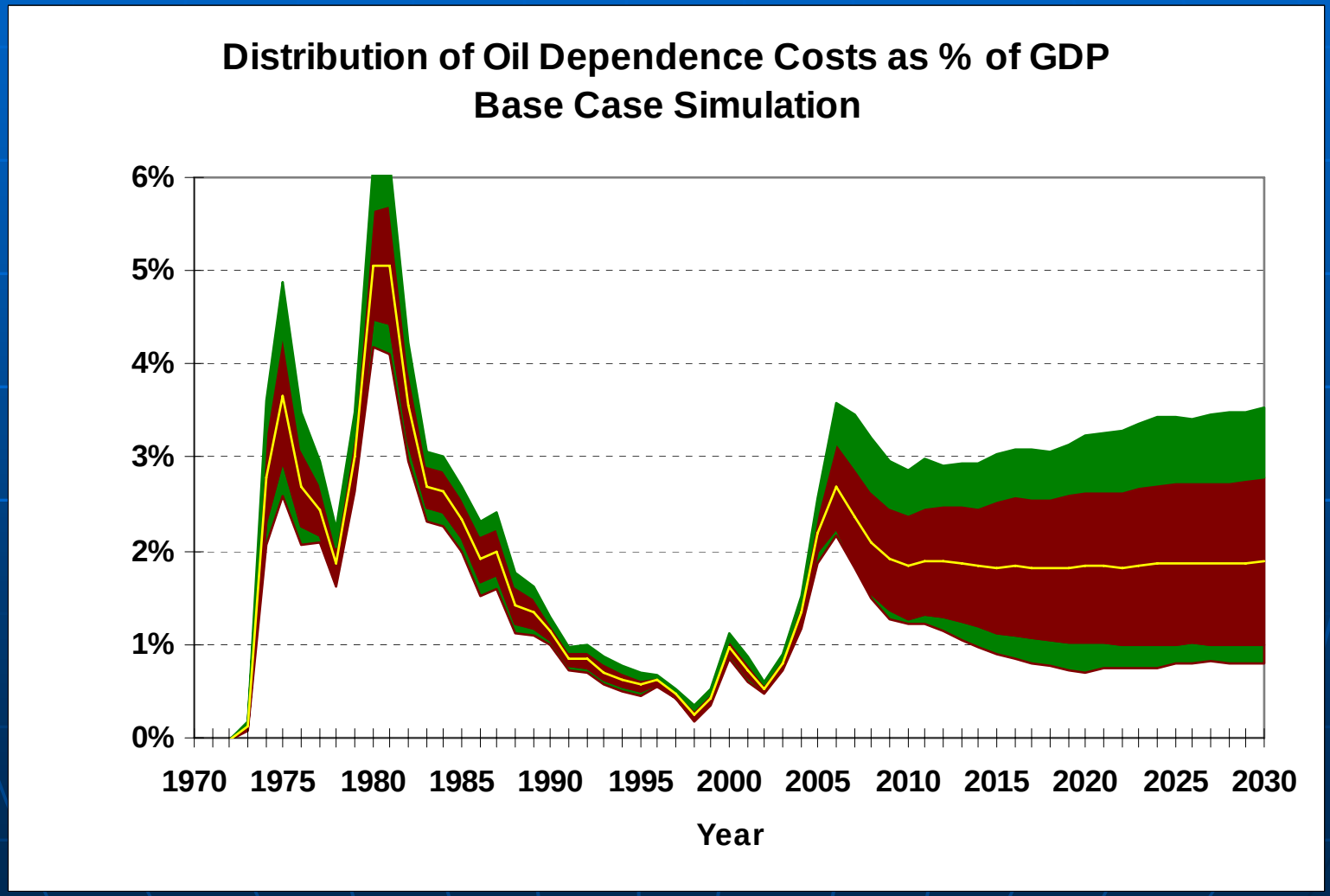
- **All conceivable**: 10,000 futures.
  - Simulated with Oil Security Metrics Model
  - Different oil resource scenarios (AEO Cases).
  - Oil supply disruptions and price shocks.
  - Parametric uncertainties (e.g., price elasticities, response rates, etc.).
  - Two "bounding" alternative OPEC responses to oil independence actions.
- **Guaranteed**: 95% "probability"
- **Negligible**: < 1% of GDP

Each oil market future chooses an AEO Case and in which there may be oil supply disruptions.

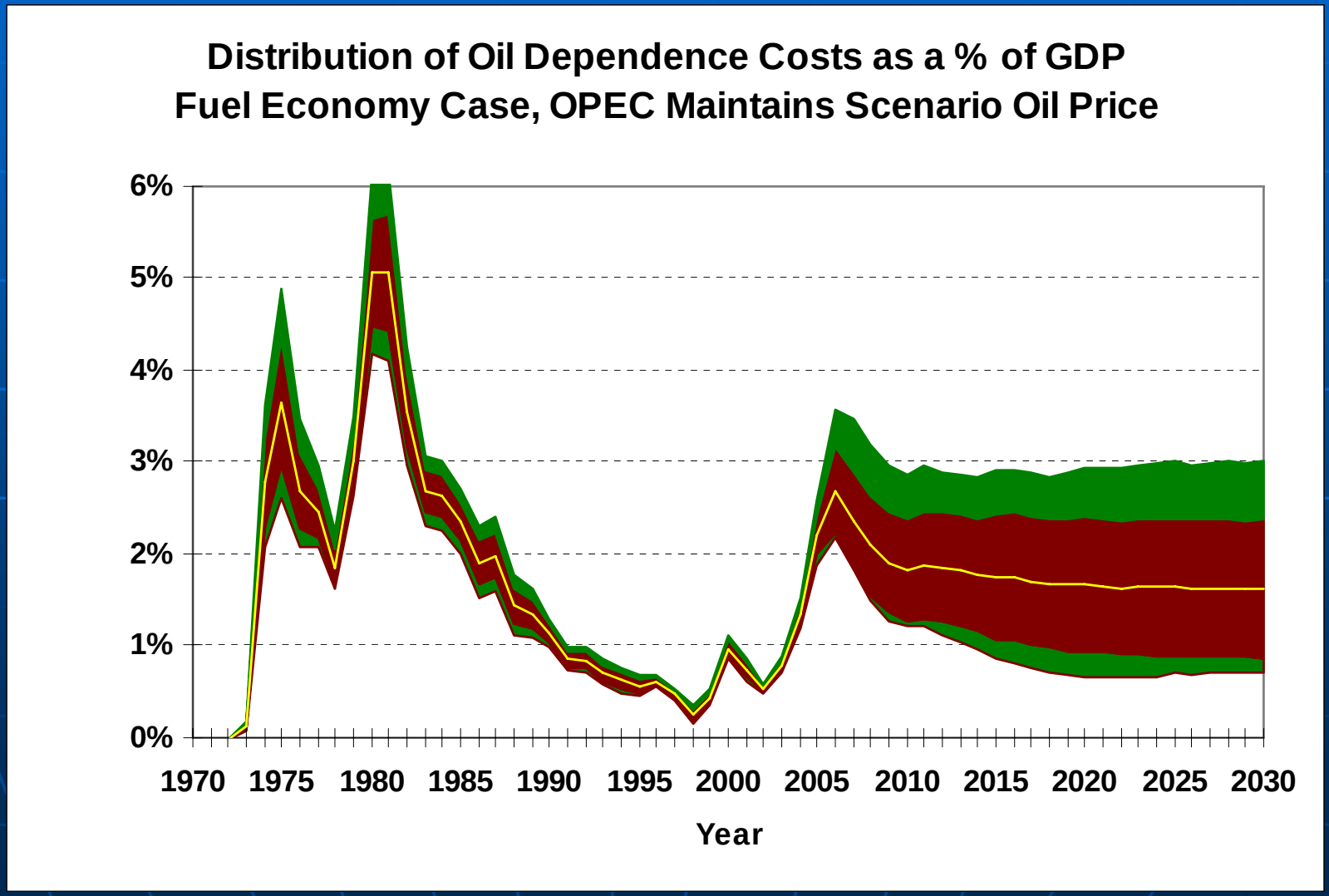


Expected oil dependence costs under BAU = 0.8-3.5% of GDP.

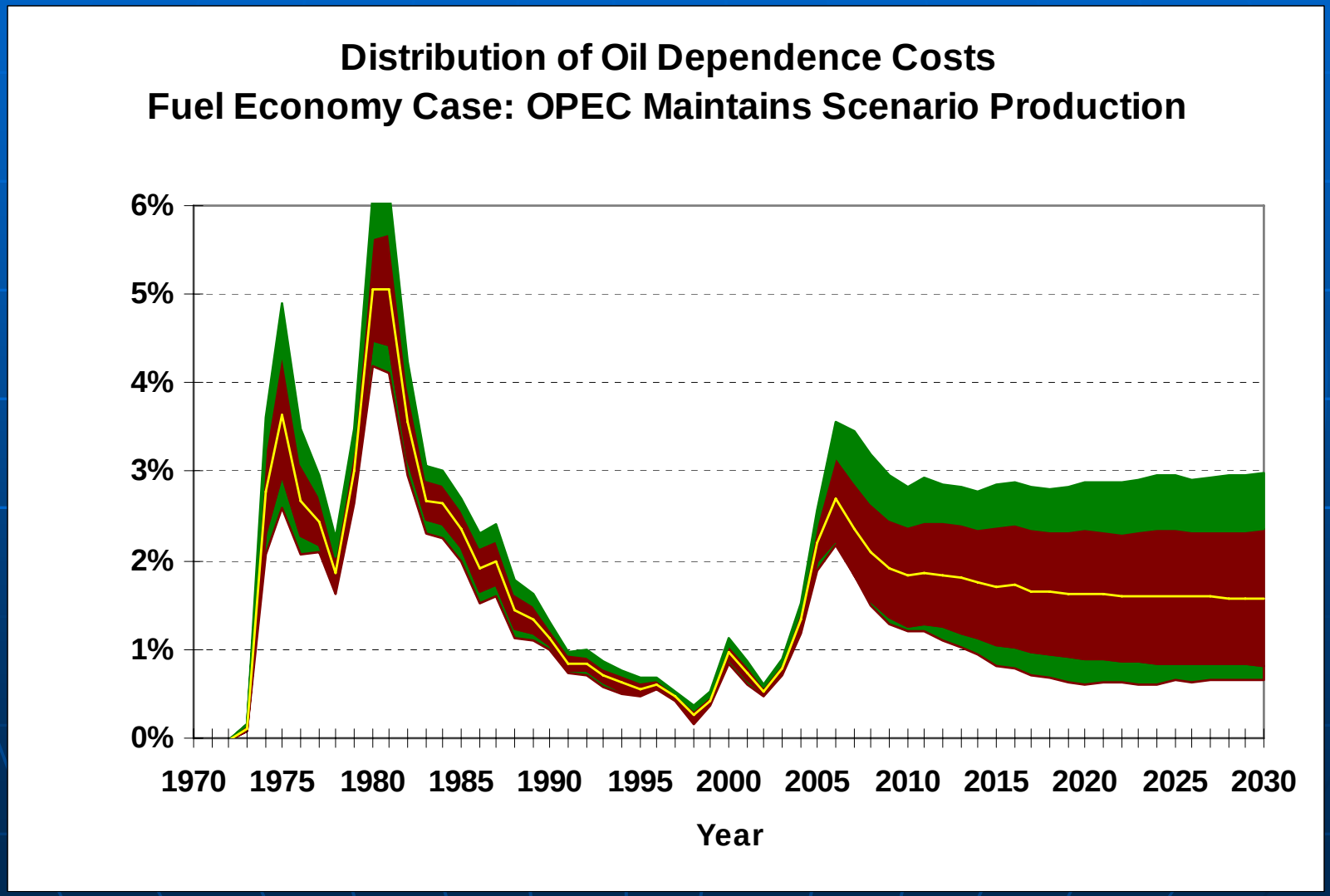
(Interior interval = +/- 1 std. dev., exterior interval = 5% to 95% C.I.)



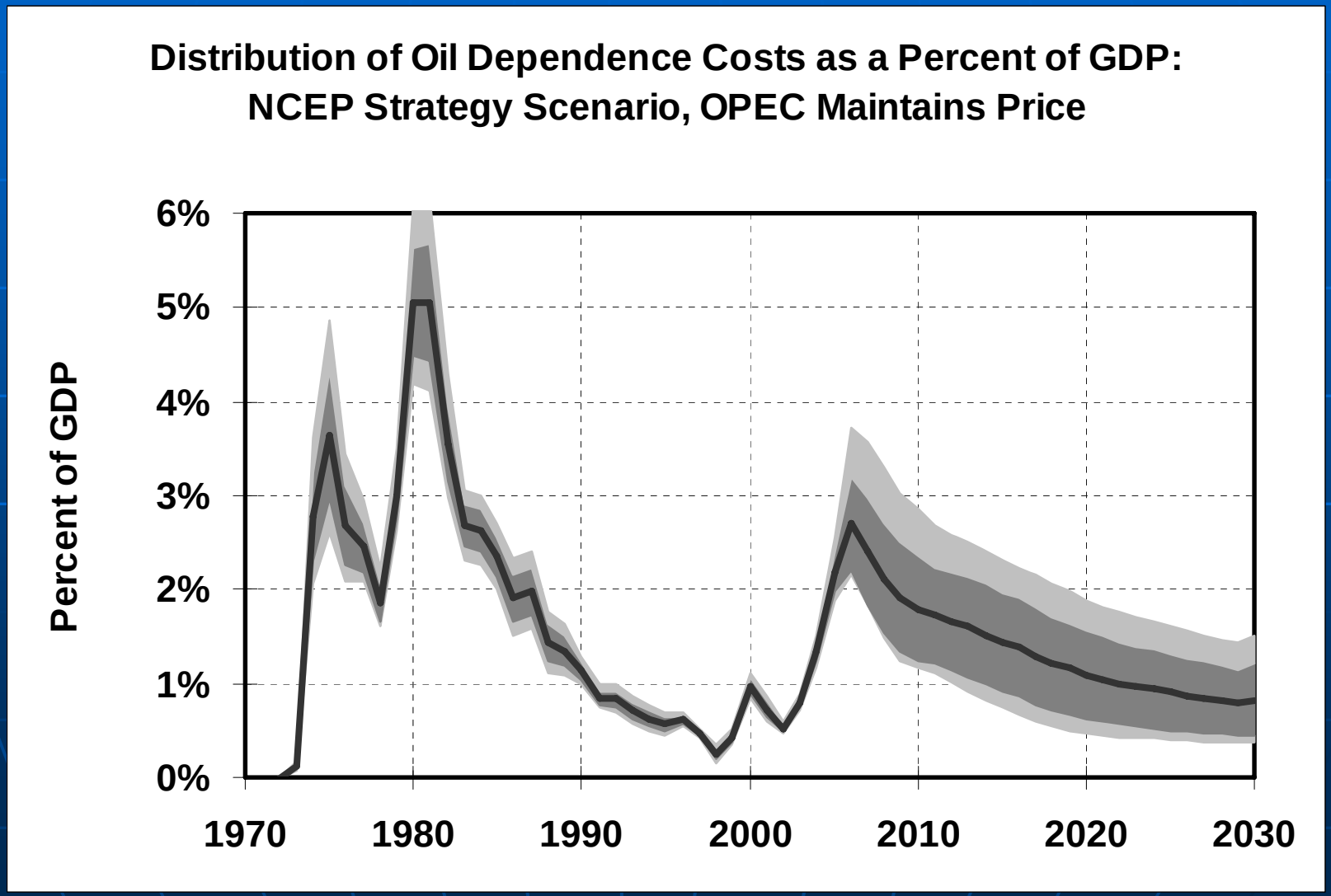
A one-time single-focus policy is insufficient: Raising LDV fuel economy to 35 MPG by 2017, then stopping, lowers the cost range to 0.5% to 3.0%.



The result is nearly unchanged if OPEC chooses to maintain output.



The NCEP strategy falls just short of the independence goal. **More is needed, and progress must be sustained beyond 2030.**



Transportation faces serious energy challenges.

- Achieve oil independence.
- Reduce carbon dioxide emissions.
- Undertake a transition to sustainable energy sources.
- Transportation needs advanced technologies and a comprehensive, realistic, energy policy for the 21st Century.

THANK YOU.