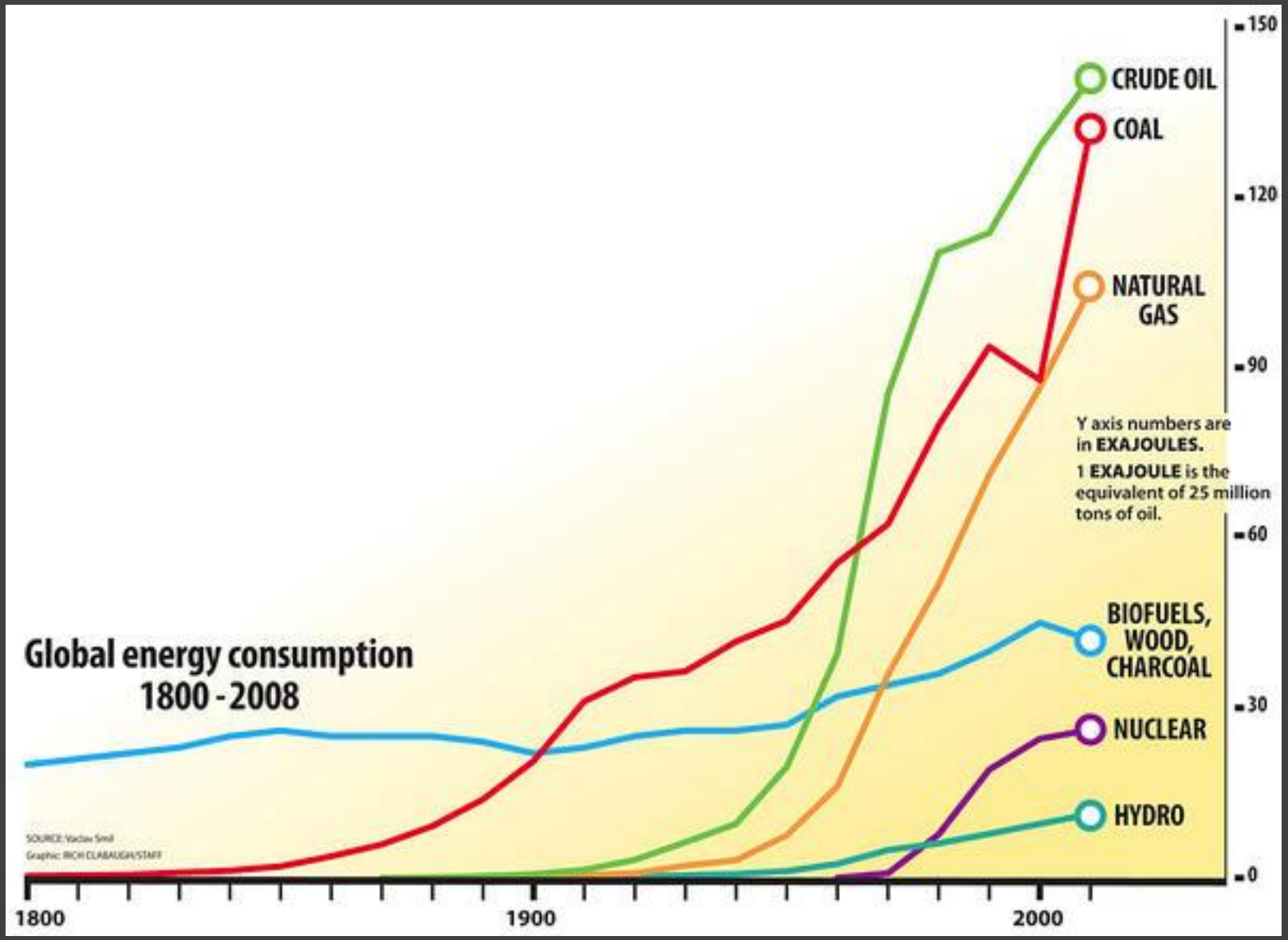
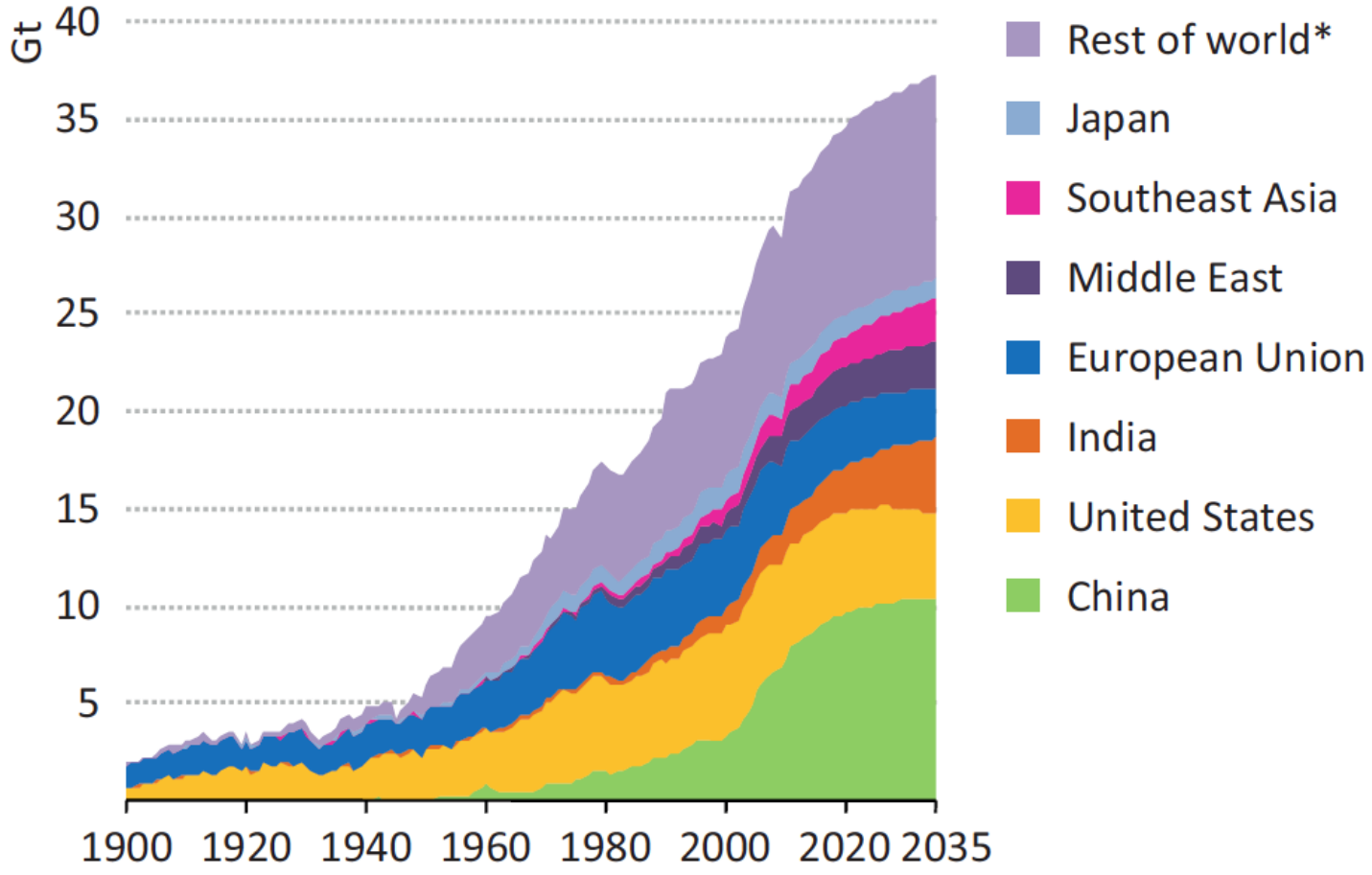
- Where have we been?
- Where are we today?
- Lessons we should have learned.
- Policy Options
- Where are we headed?


Global energy consumption
1800 - 2008
CRUDE OIL
COAL
NATURAL GAS
BIOFUELS, WOOD, CHARCOAL
NUCLEAR
HYDRO
Y axis numbers are in EXAJOULES.
1 EXAJOULE is the equivalent of 25 million tons of oil.
150
120
90
60
30
0
1800
1900
2000

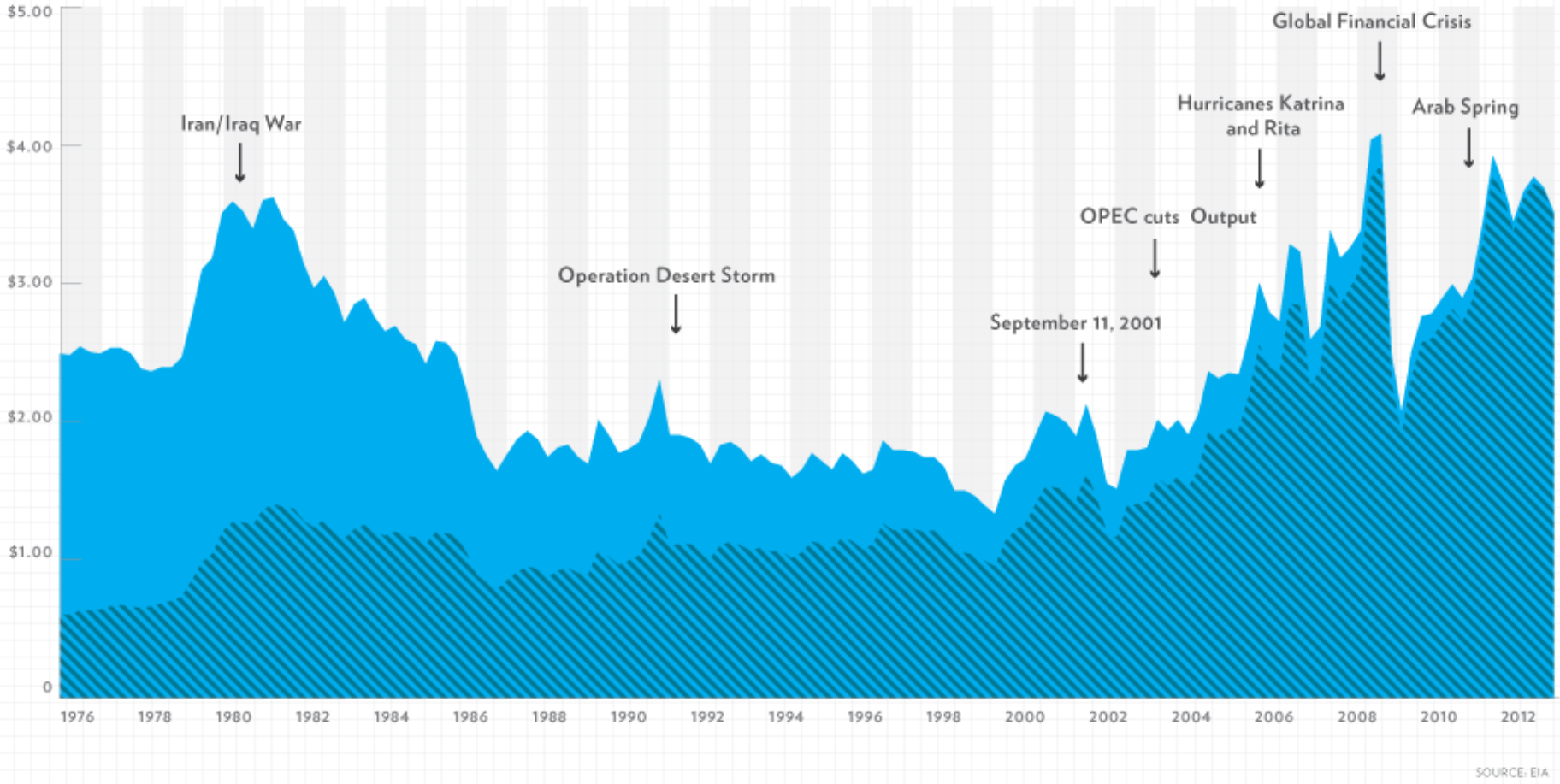
Energy-related CO_2 emissions by region in the New Policies Scenario



* Rest of world includes international bunkers.

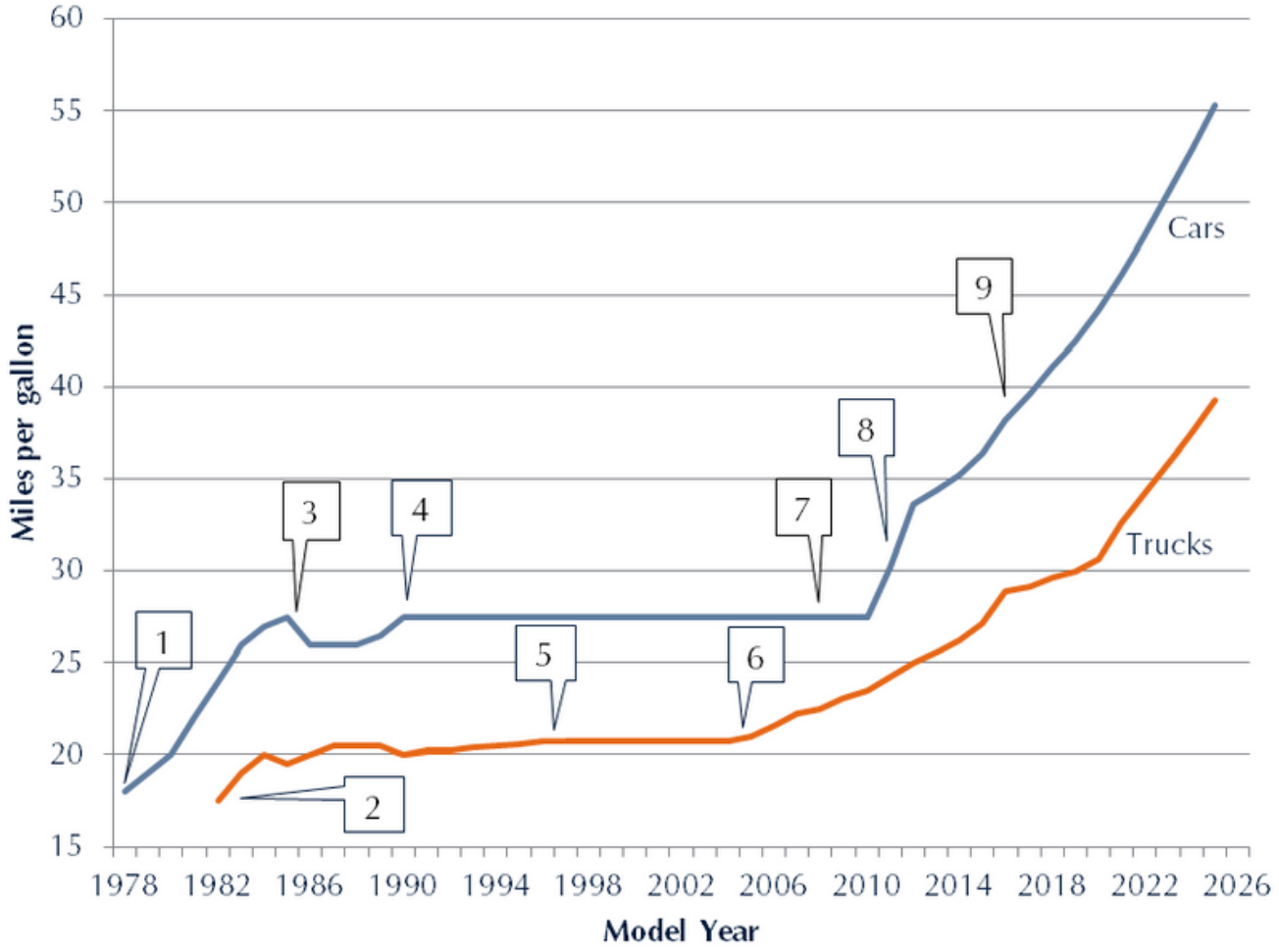
GLOBAL INSTABILITY CAUSES UNPREDICTABLE PRICE SPIKES

Quarterly retail price per gallon of regular grade gas



SOURCE: EIA

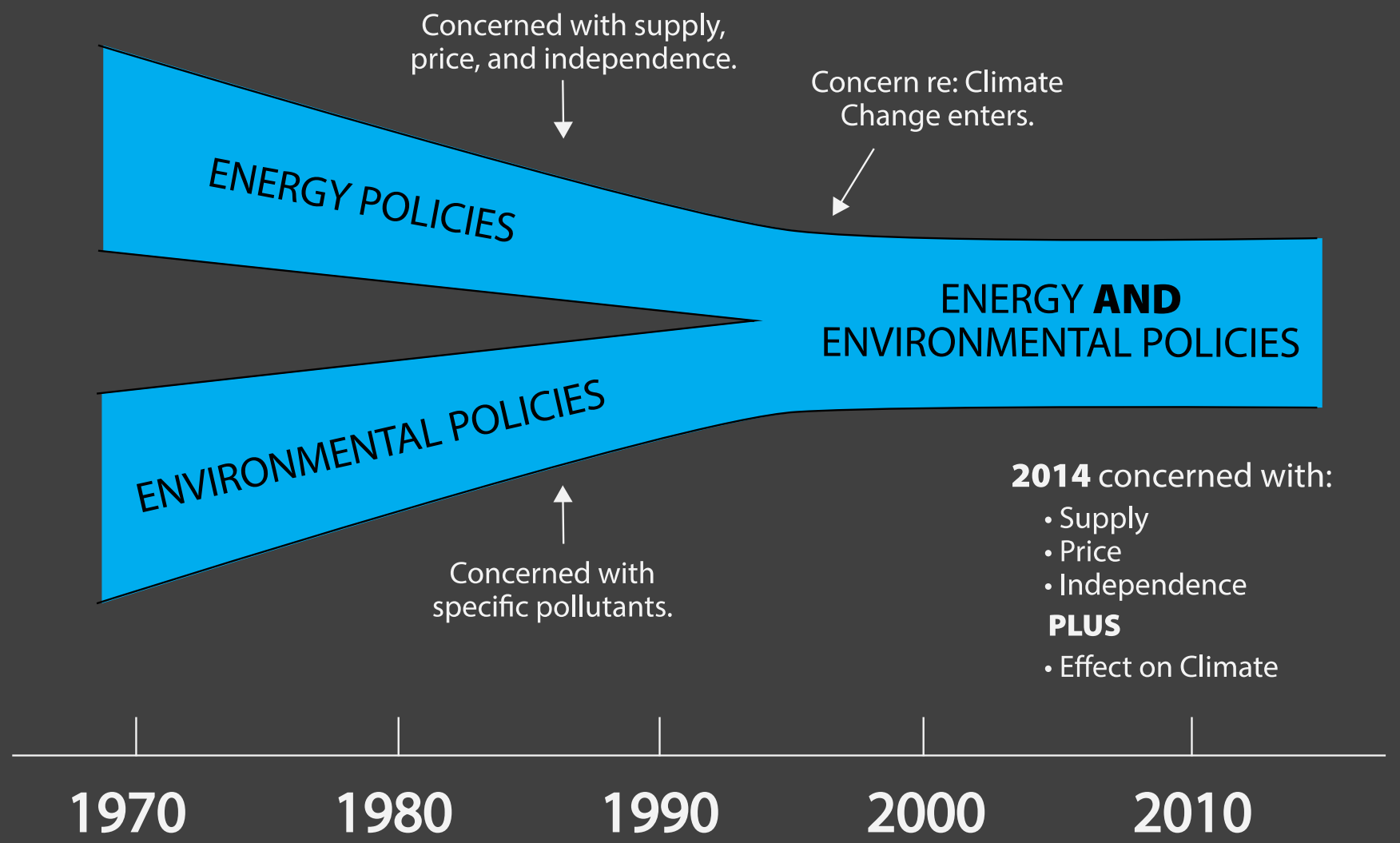
FIGURE 1: Fuel economy standard for passenger vehicles from MY1978-2025.



Source: NHTSA Summary of Fuel Economy Performance, NHTSA MY2017-2025 Factsheet

1. 1978-1985: Congress sets car standard (1978-1985)
2. DOT sets truck standard to max feasible (1979-1996)
3. DOT decreased car standard (1986-1989)
4. DOT sets car standard to 27.5 mpg (1990-2010)
5. Congress freezes truck standards at 20.7 mpg (1997-2001)
6. Bush Admin issues new truck targets (2005-2007)
7. EISA changes CAFE to footprint standard (2008-present)
8. Obama Admin issues new car & truck standards (2012-2016)
9. Obama Admin issues new car & truck standards (2017-2025)

The Evolution of U.S. Policy



Lessons We Should Have Learned

1. **We need sustained attention to address energy and climate change issues.**

2. **Policies need to reflect our best understanding of the science.**

3. **Policy objectives need to include:**
   SUPPLY, PRICE, INDEPENDENCE ***PLUS*** EFFECT ON CLIMATE

4. **An election campaign is a terrible thing to waste.**

5. **In power generation strong government policy is needed to reduce emissions.**

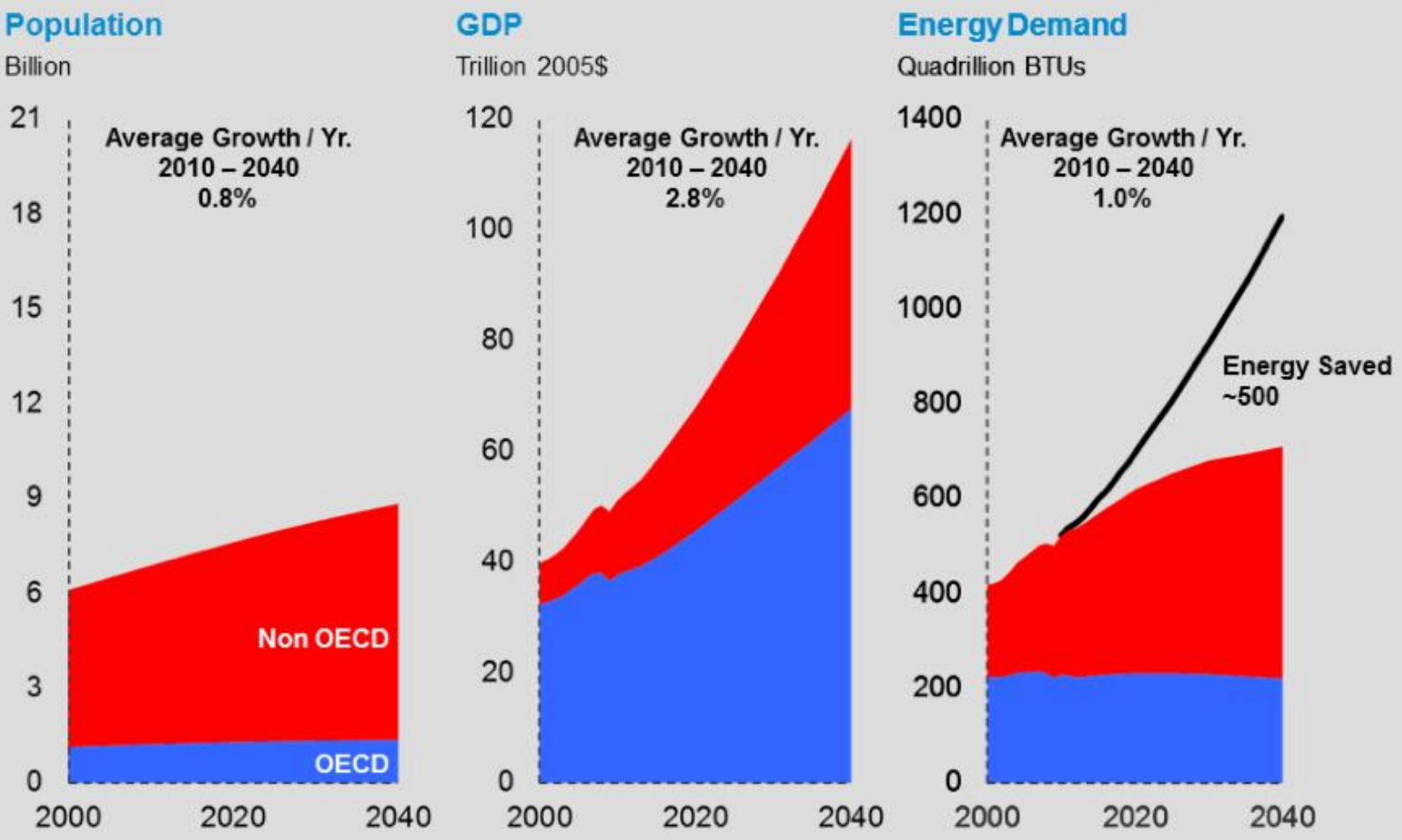
6. **In transportation strong policies are needed to promote the manufacture of safe, low cost, low (or zero) emission vehicles.**

Policy Options

Beginning with the least difficult.

1. Policies to increase energy efficiency.
2. Policies to improve the performance and reduce the cost of less emitting sources of energy.
3. Policies to have the full cost of energy reflected in the price of that energy.

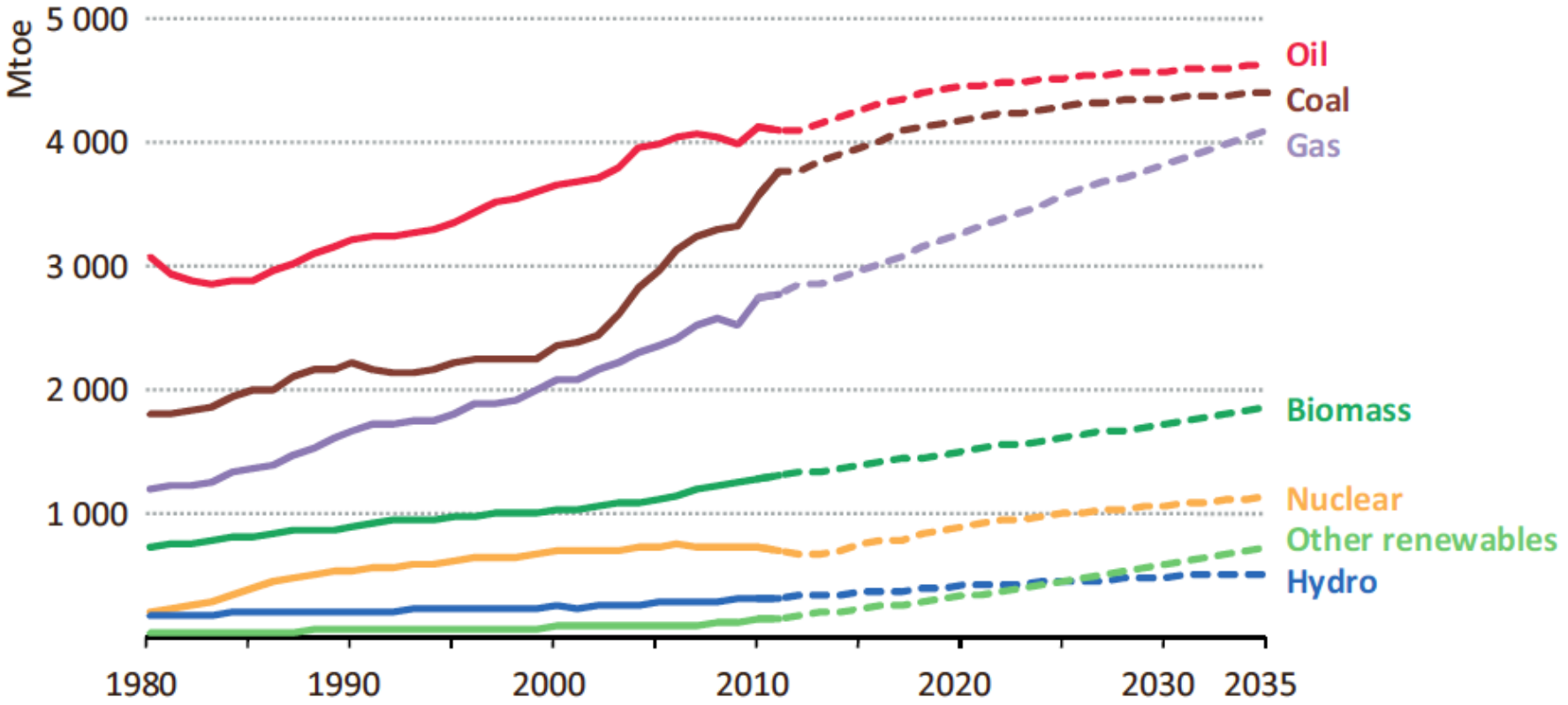
Global Progress Drives Demand



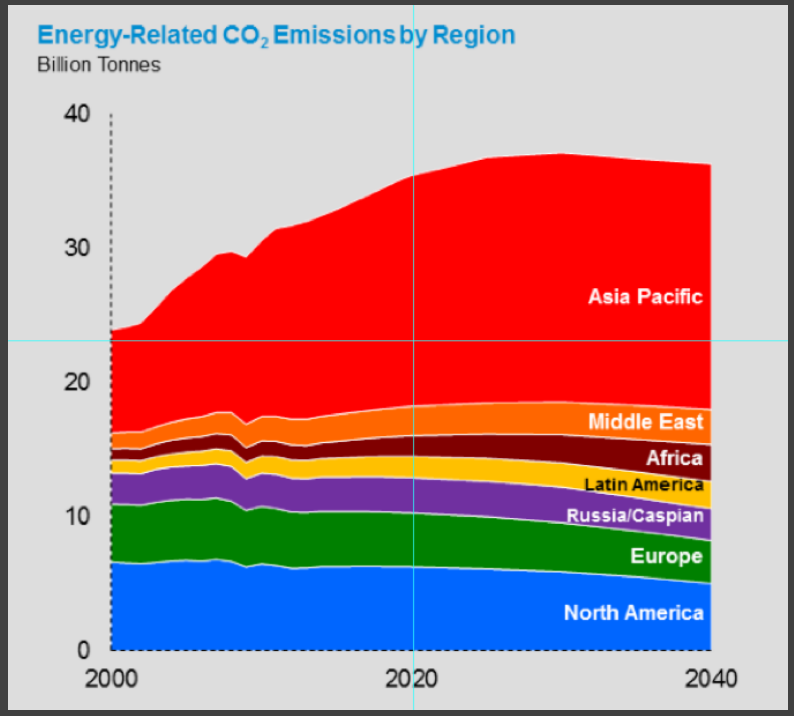
ExxonMobil

ExxonMobil 2014 Outlook for Energy

World primary energy demand by fuel in the New Policies Scenario

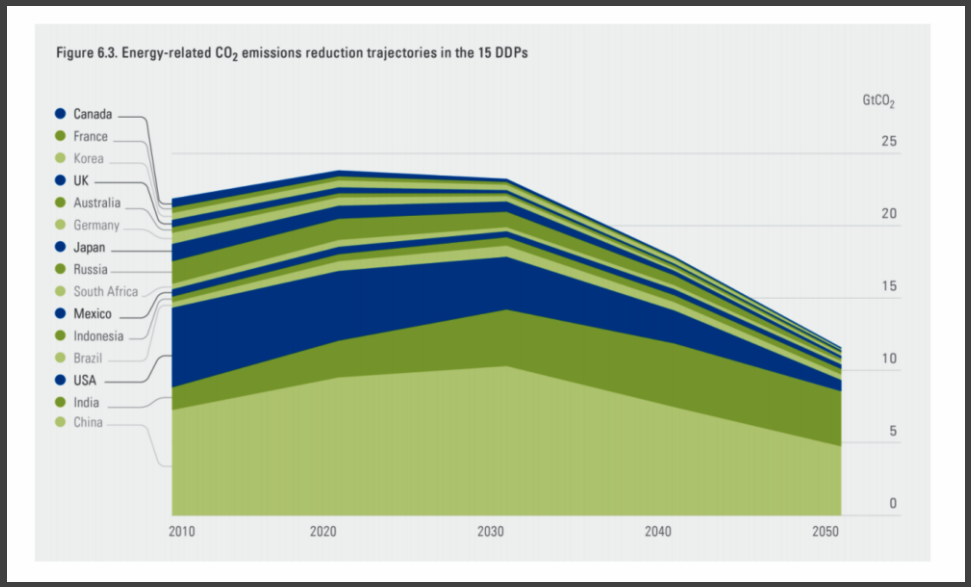


Energy-Related CO_2 Emissions



Exxon Mobil 2014 Outlook for Energy

Energy-Related CO_2 Emissions Reduction Trajectories



Jeffrey Sachs UN Report