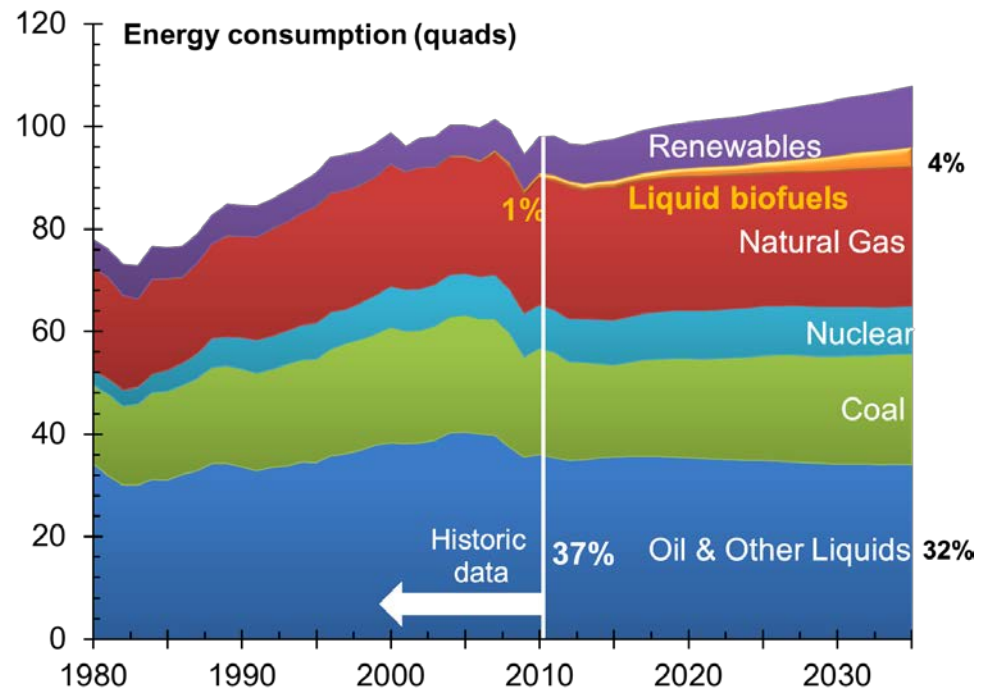


Shale Gas and Oil

Billy B. Bardin, The Dow Chemical Company

Christopher W. Jones, Georgia Tech

- Fossil resources provide:
 - (i) Energy
 - (i) Raw materials for products – chemicals, plastics, composites, insulation, pharmaceuticals - that drive the economy and provide quality of life
- We now have new fossil resources



Source: IPCC, 2007

US Chemical Industry in 1995

- Jones and Bardin graduate with BS degrees in chemical engineering
- Prevailing wisdom – if you want to design and build a new chemical facility, must travel to Asia or Middle East
- No new infrastructure in the US since the 1970s
- “You will see no significant new capital projects in the US in your lifetime”

US Chemical Industry Today

- Hydraulic fracturing now yielding a boom in domestic natural gas, natural gas liquids, and shale oil supply
- Significant new manufacturing projects being built along Gulf coast, the North East, Upper plains states / Canadian border region
- More than \$100 billion in capital investment, changing the balance of trade, and US energy independence
- Major impact on energy production as well – massive switch from coal-based to natural gas based electricity
- Game changer in our lifetime – immediate impact

Today's Speakers

- Stephen Ingram, Halliburton
 - the nature of the shale gas resource
- Kelvin Gregory, Carnegie Mellon University
 - water management and sustainability
- Eric Stangland, The Dow Chemical Company
 - conversion of shale gas and shale gas liquids to value-added products