

Petroleum & Transport

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KEA Petroleum

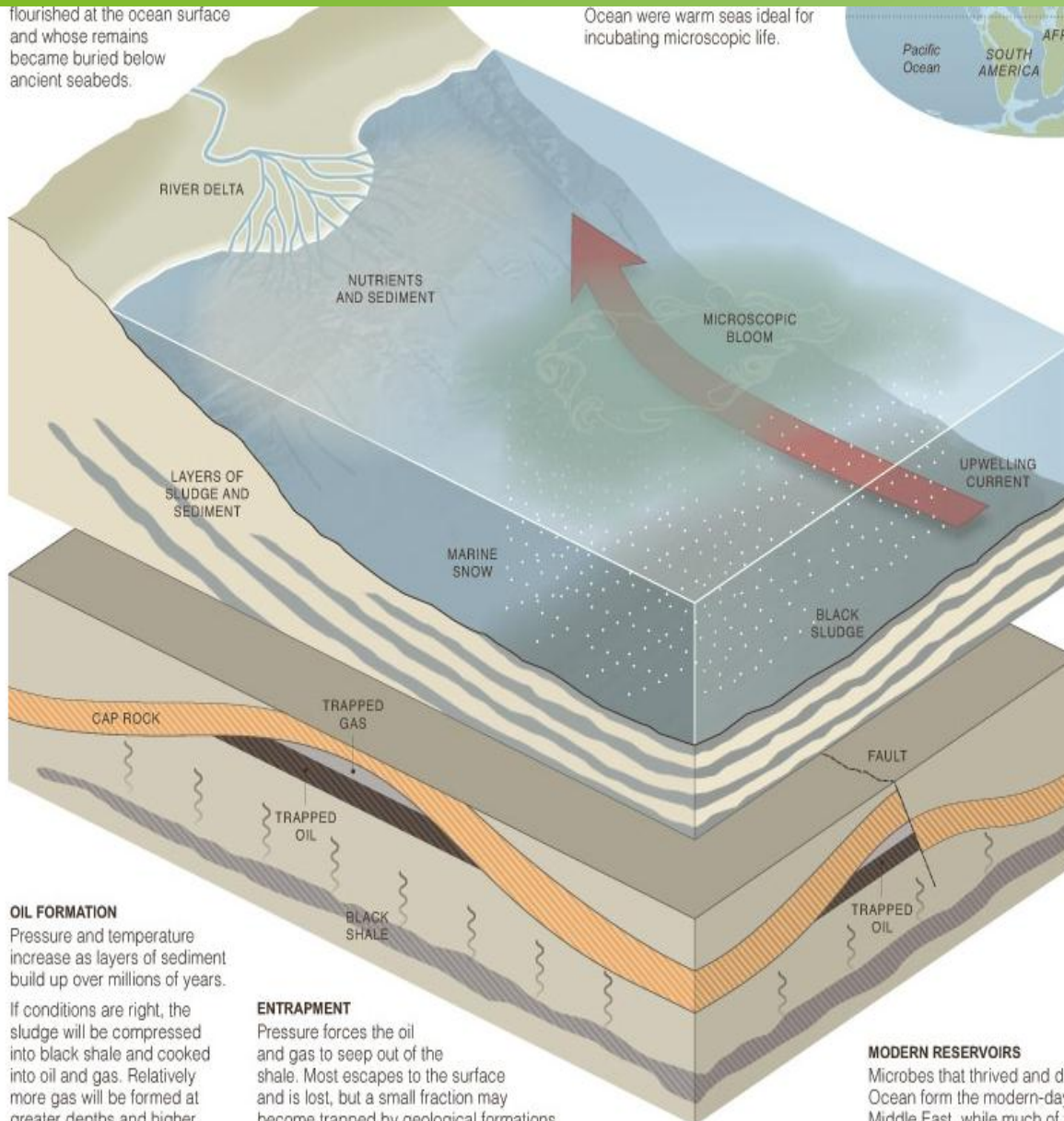


- Petroleum industry & Transport Industry are mutually dependent and cannot survive without each other.
- Shared history and development.
- Common problems and issues facing both industries now and into the future.
 - Poor Image, Inconvenient necessity,
 - Bad Press, Never good news stories,
 - Carbon Tax, Global warming, not Clean and Green
 - Social License to Operate – SLO.
 - Difficult to attract people to the industry
 - No votes in supporting either sector.

- Petroleum: Petra – Rock, oleum – oil
- “Fossil Fuel” from microscopic fossils not massive ones
- Oil is “cooked” in an “oil Kitchen” that is multiple km under ground at high temperature, high pressure, for a long time
- Oil then permeates upwards through the pores, fractures and fissures in the rocks multiple km
- Hopefully finds a reservoir rock, with a seal above it and gets trapped in the pore spaces.

flourished at the ocean surface and whose remains became buried below ancient seabeds.

Ocean were warm seas ideal for incubating microscopic life.



BLACK SLUDGE

Oil production begins when nutrients from rivers or upwelling currents encourage microbes to thrive in warm surface waters.

If the "marine snow" of debris and dead microbes falling from the surface outpaces decay on the seabed, the microbes will accumulate into a thick biologic sludge.

Sediment covering the sludge prevents further decay.

OIL FORMATION

Pressure and temperature increase as layers of sediment build up over millions of years.

If conditions are right, the sludge will be compressed into black shale and cooked into oil and gas. Relatively more gas will be formed at greater depths and higher

ENTRAPMENT

Pressure forces the oil and gas to seep out of the shale. Most escapes to the surface and is lost, but a small fraction may become trapped by geological formations

MODERN RESERVOIRS

Microbes that thrived and died in the ancient Tethys Ocean form the modern-day oil deposits of the Middle East, while much of the oil trapped below the

- Petroleum products used in the Transport Industry:
 - Fuels (Diesel, Petrol, Jet Fuel, Avgas, LPG, CNG)
 - Fuel Additives (Surfactants, Lubricators, Enhancers)
 - Lubricants (Oil, Grease, Hydraulic Oil, Brake Fluid)
 - Plastics (Insulators, sealants, tyres,)
 - Bitumen
 - Pharmaceuticals
 - Etc

- Transport Services used in the Petroleum Industry:
- Critical to finding, producing, refining and selling Petroleum.
- Unconventional accounts for 70% of Oil reserves. Onshore.
 - Exploration (Seismic, Drilling, Construction)
 - Production (Oil Transport, Fracking, Construction)
 - Midstream (Liquid (Oil & Gas) Transport, Construction)
 - Downstream (Distribution of liquids)

- Past, Present and Future.



1922 Mack AB truck

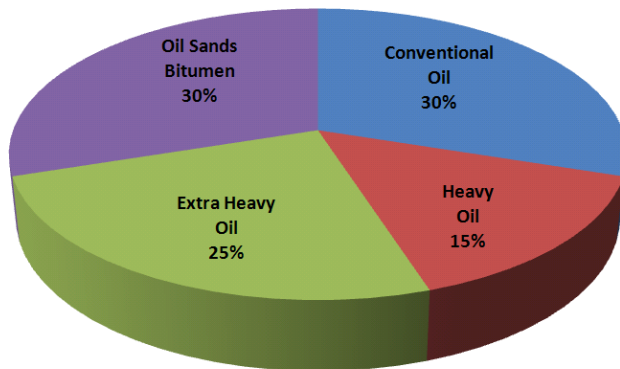


1922 Oil well Oklahoma

- Past, Present and Future.

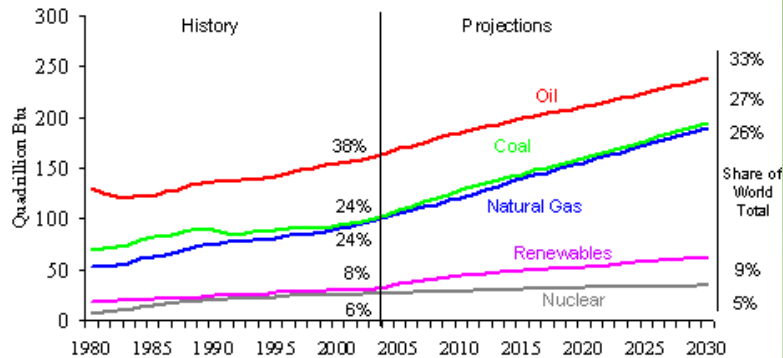


Total World Oil Reserves

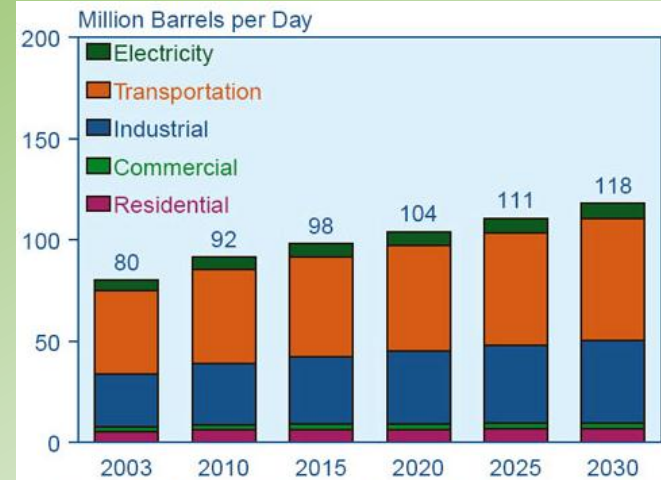


- Past, Present and Future.

Figure 2. World Marketed Energy Use by Fuel Type



Source: EIA, IEO2006



Sources: **2003:** Derived from Energy Information Administration (EIA), *International Energy Annual 2003* (May-July 2005), web site www.eia.doe.gov/iea/. **Projections:** EIA, System for the Analysis of Global Energy Markets (2006).

- Future is positive for both industries.
- Challenges exist
 - Carbon Tax, Global warming, not Clean and Green
 - Social License to Operate – SLO.
 - Resource constrained
- Community engagement the key to future
 - Be loud and proud

Thank you ...