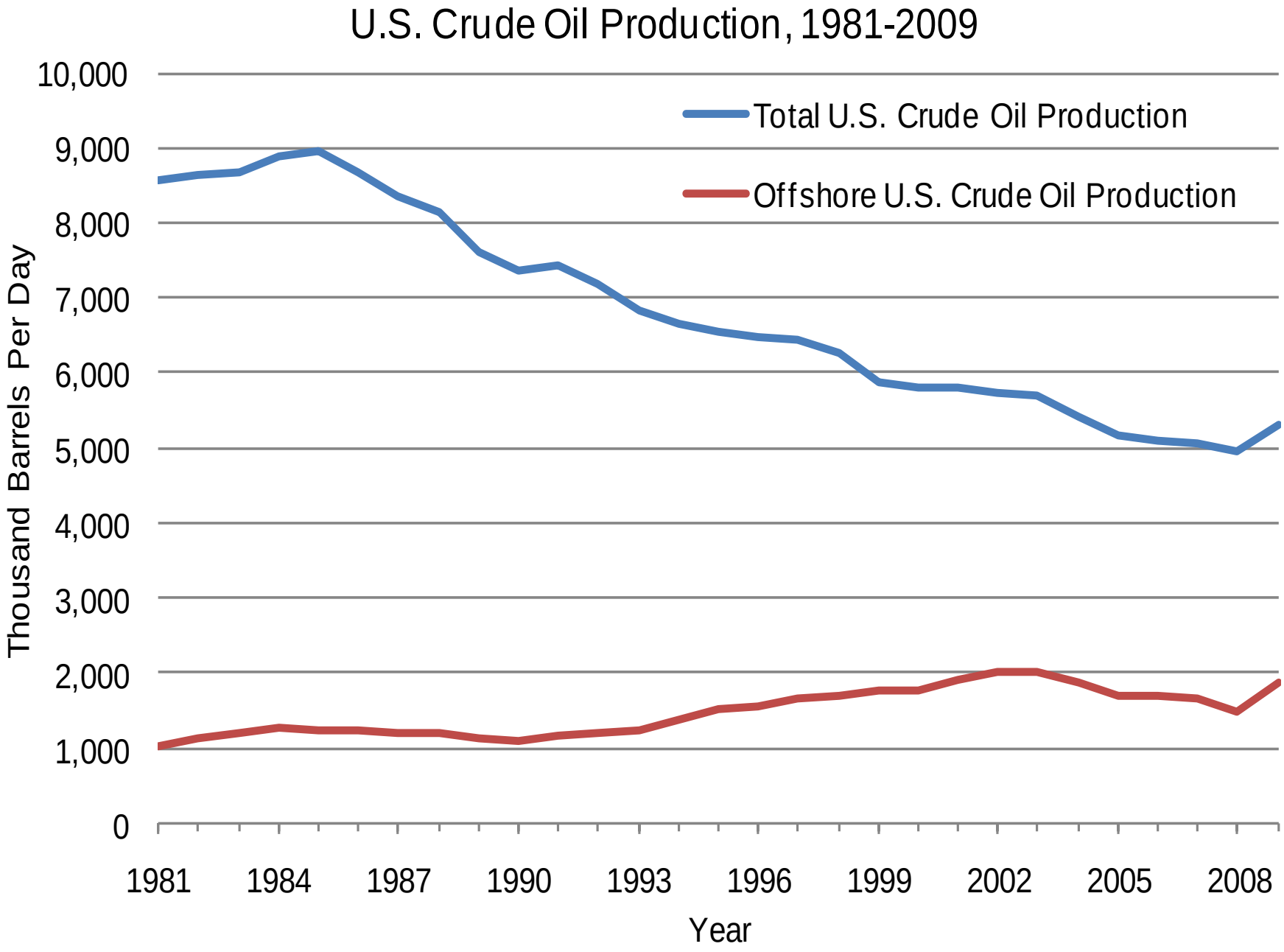
1. The nation is currently and will in the foreseeable future be highly dependent on offshore drilling in the outer continental shelf, including in deep waters.

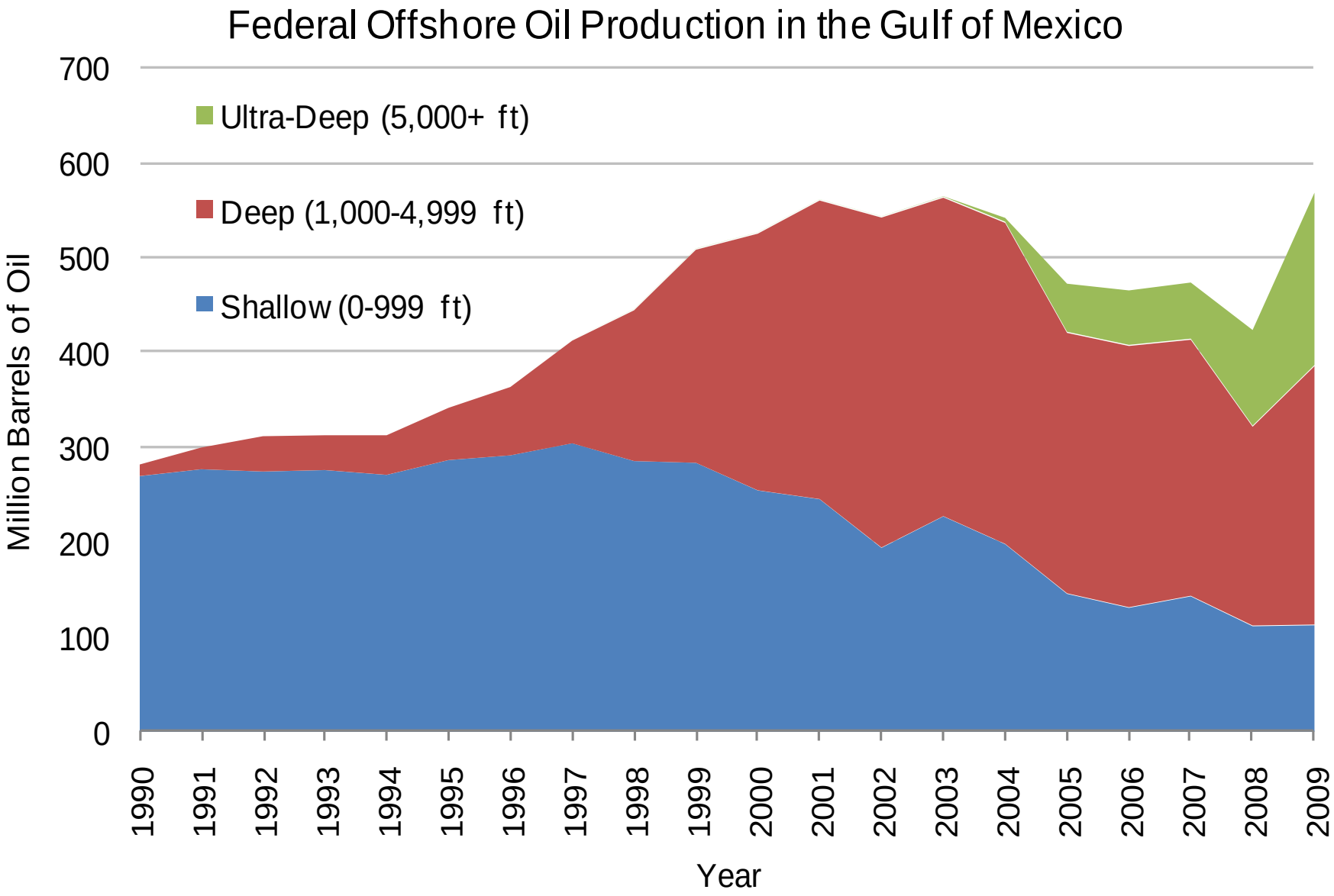
2. The oil and gas industry developed highly innovative and advanced technologies to explore oil and gas reserves increasingly deeper and further offshore.

3. Offshore production has helped offset declines in production elsewhere in the U.S., moderated dependence on foreign imports, thereby contributing to national security and reduction of the trade deficit.

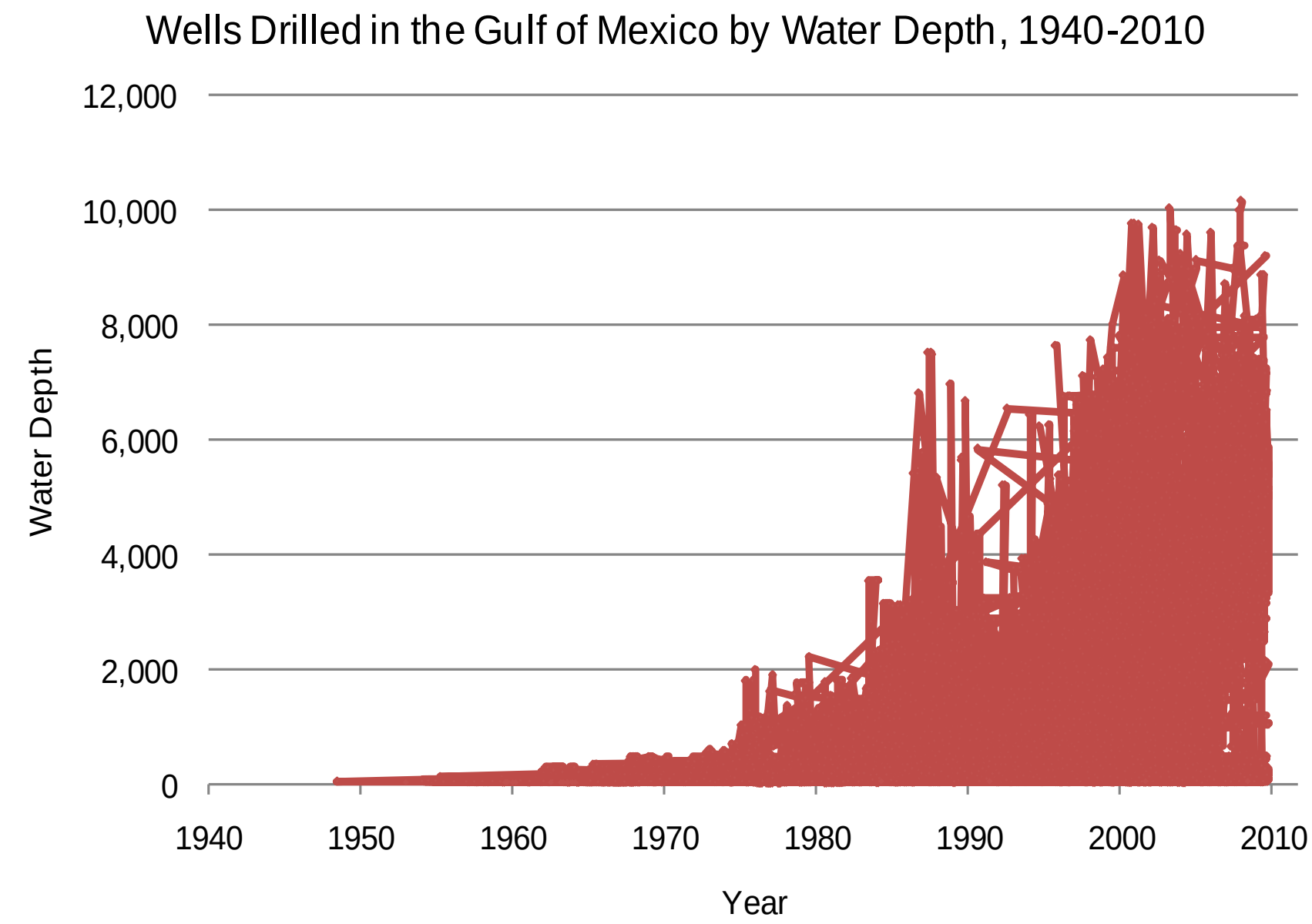
4. Offshore oil production is part of a broader picture that includes strategies for managing demand, the role of alternative fuels, and the availability of domestic reserves for future generations.



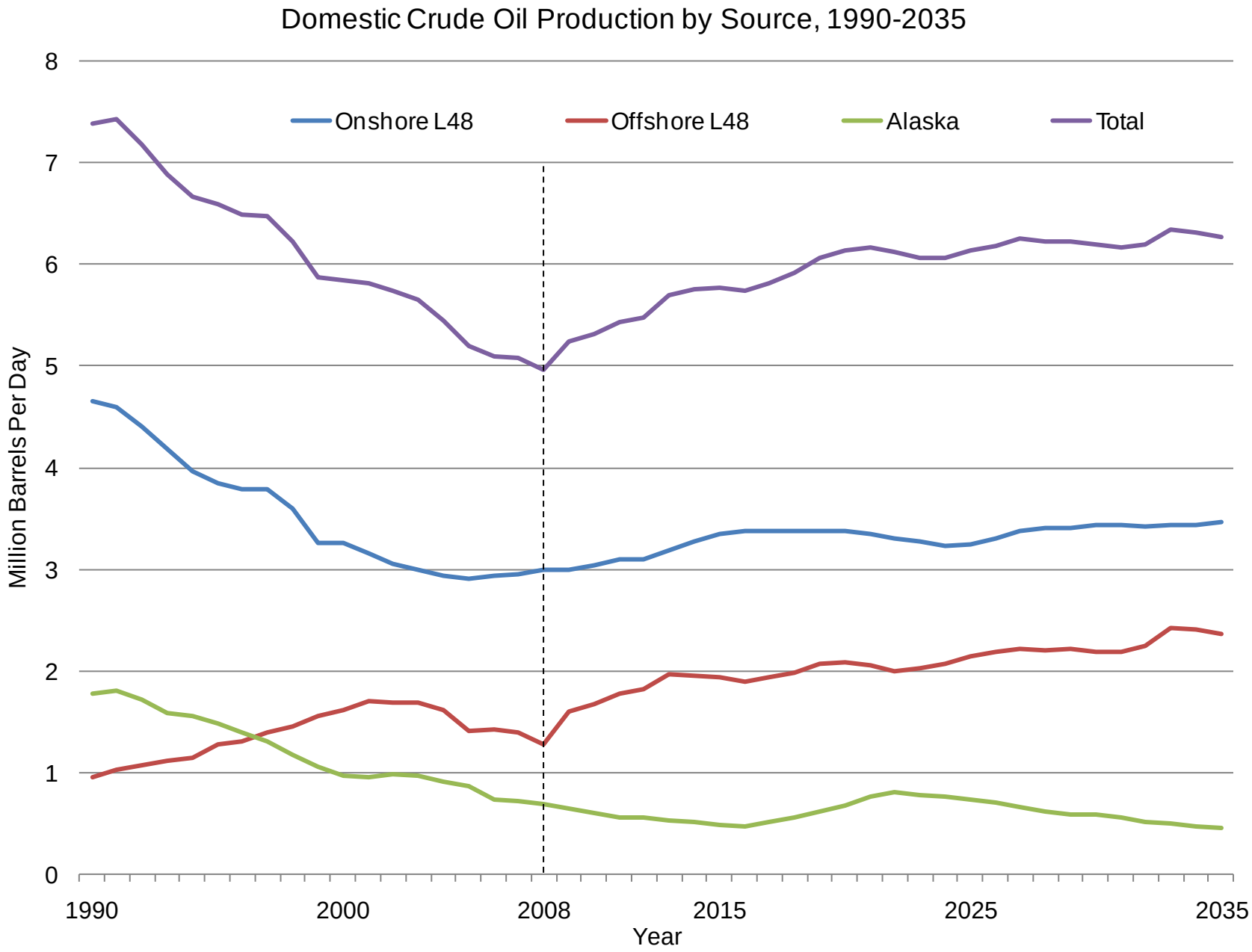
Source: Commission staff, adapted from U.S. Energy Information Administration



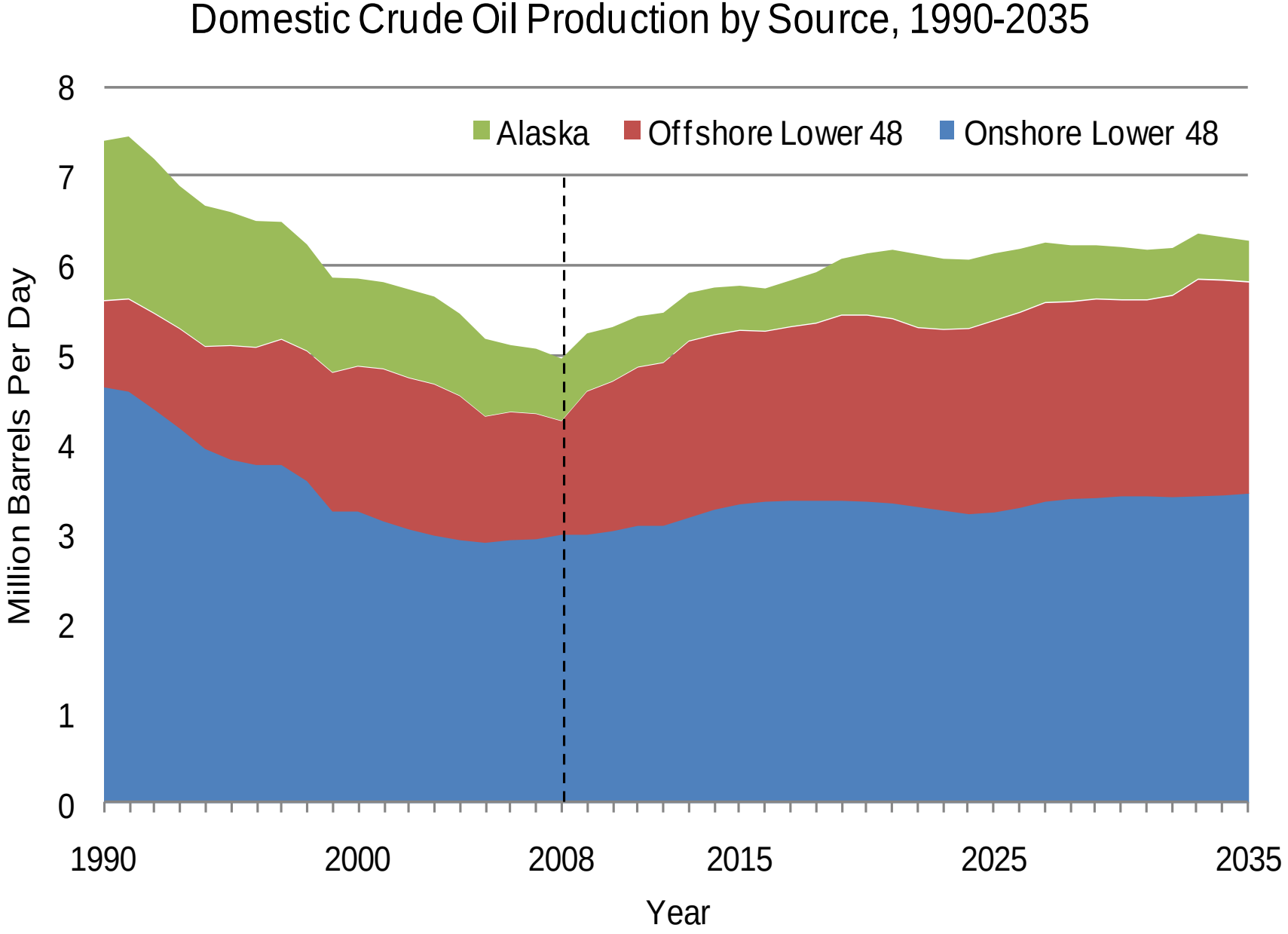
Source: Commission staff, adapted from U.S. Energy Information Administration



Source: Commission staff, adapted from Bureau of Ocean Energy Management, Regulation and Enforcement

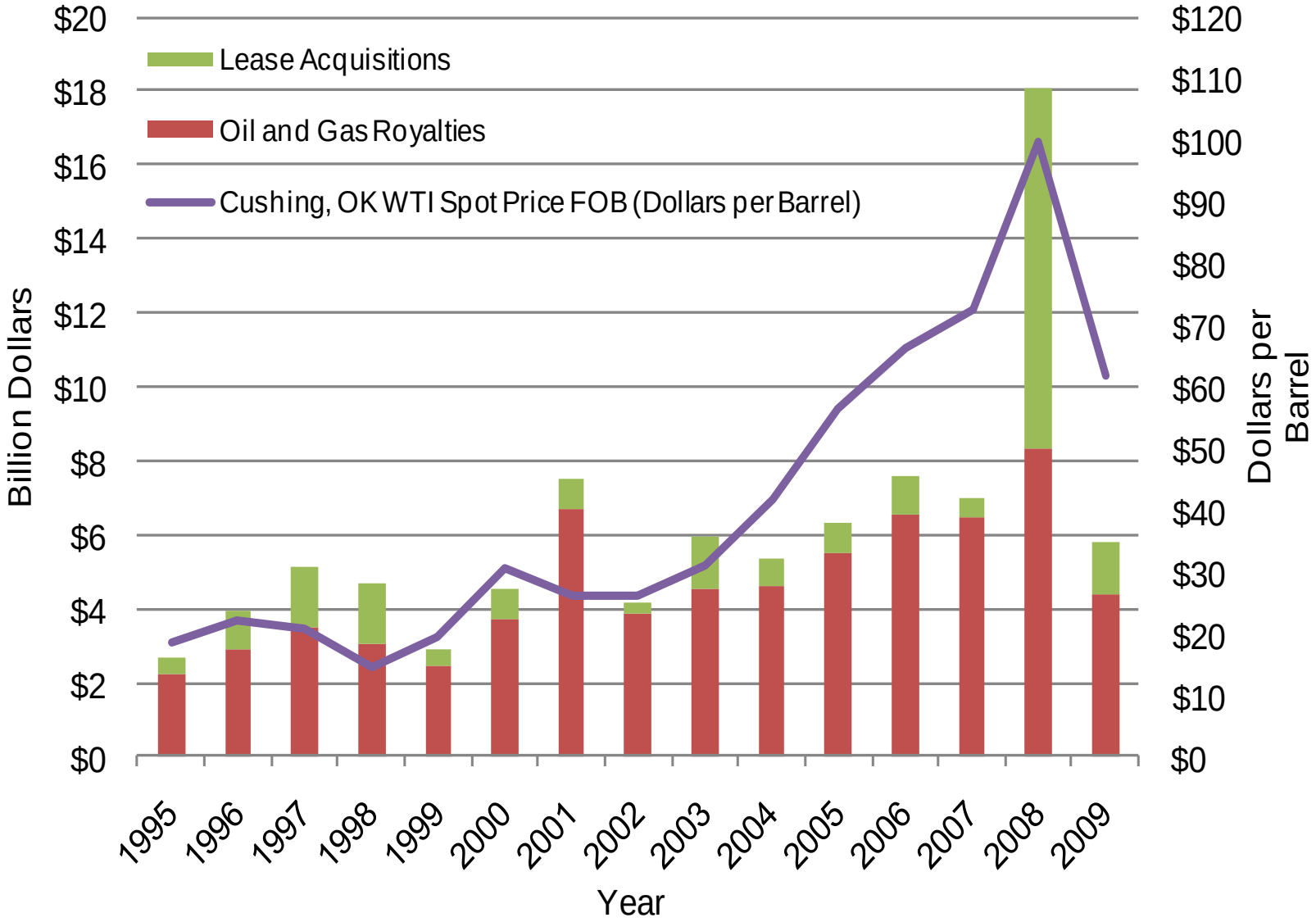


Source: Commission staff, adapted from U.S. Energy Information Administration



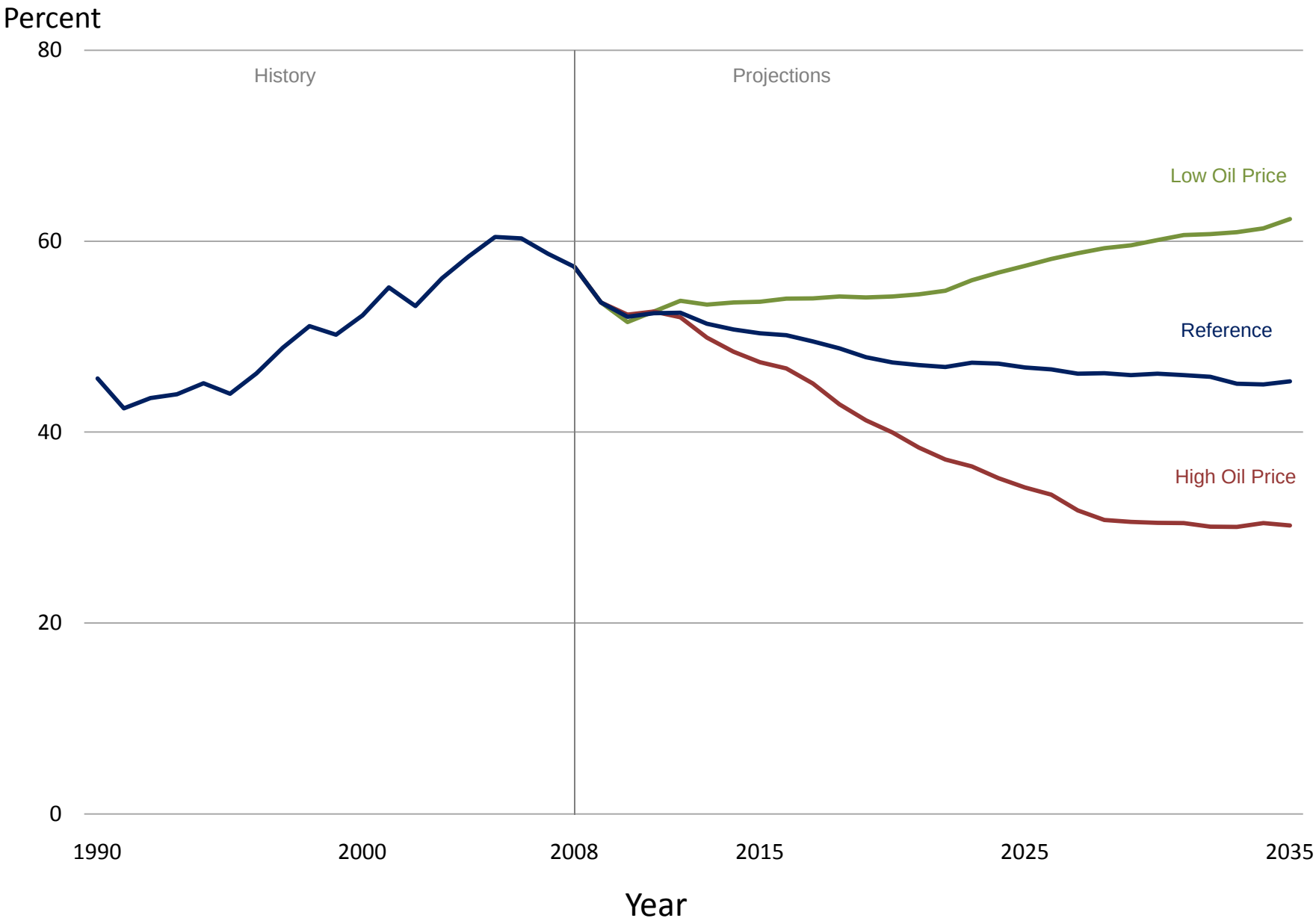
Source: Commission staff, adapted from U.S. Energy Information Administration

Total Federal Offshore Revenues Collected by MMS/BOEMRE, by Fiscal Year

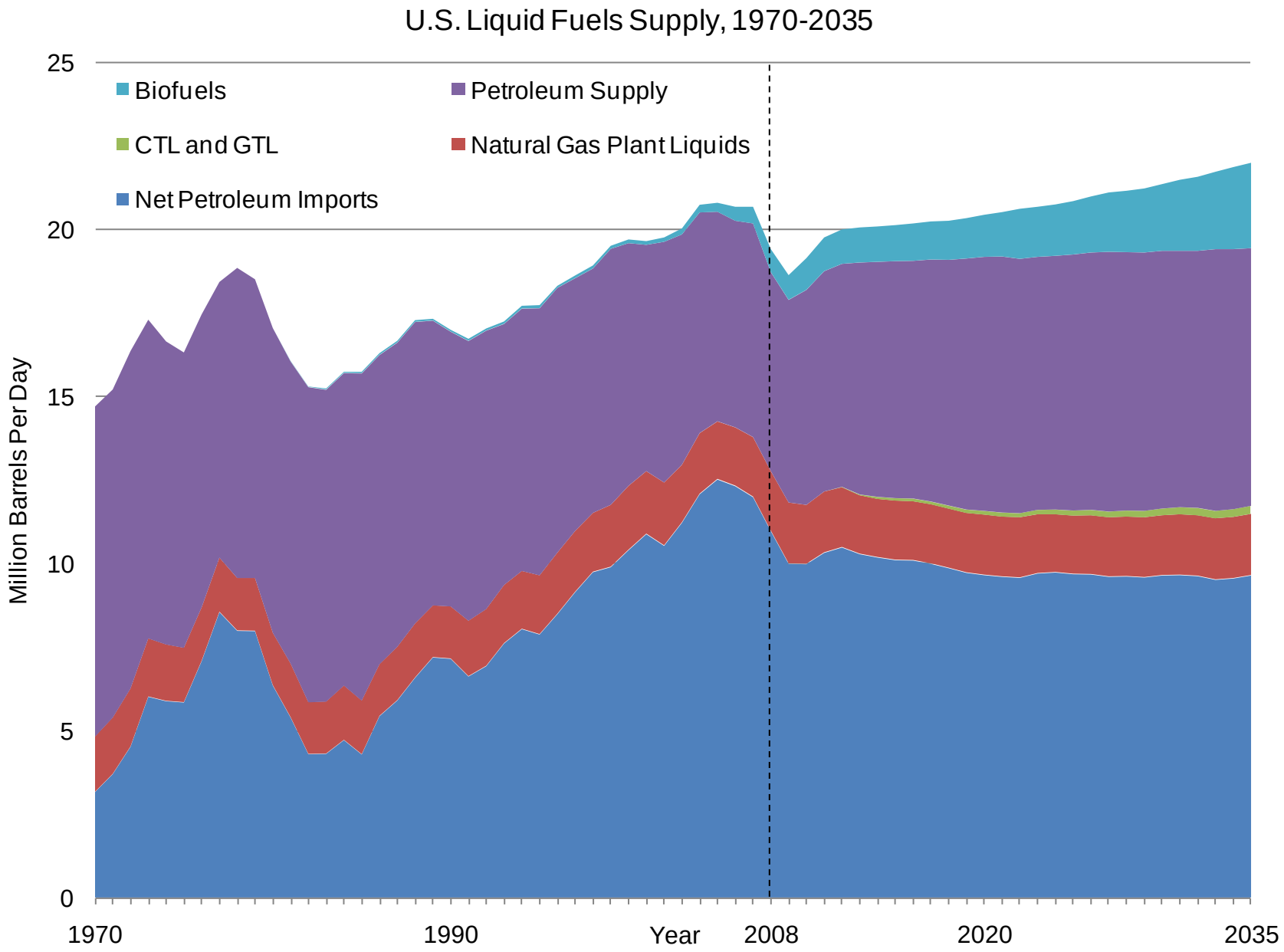


Source: Commission staff, adapted from Bureau of Ocean Energy Management, Regulation and Enforcement

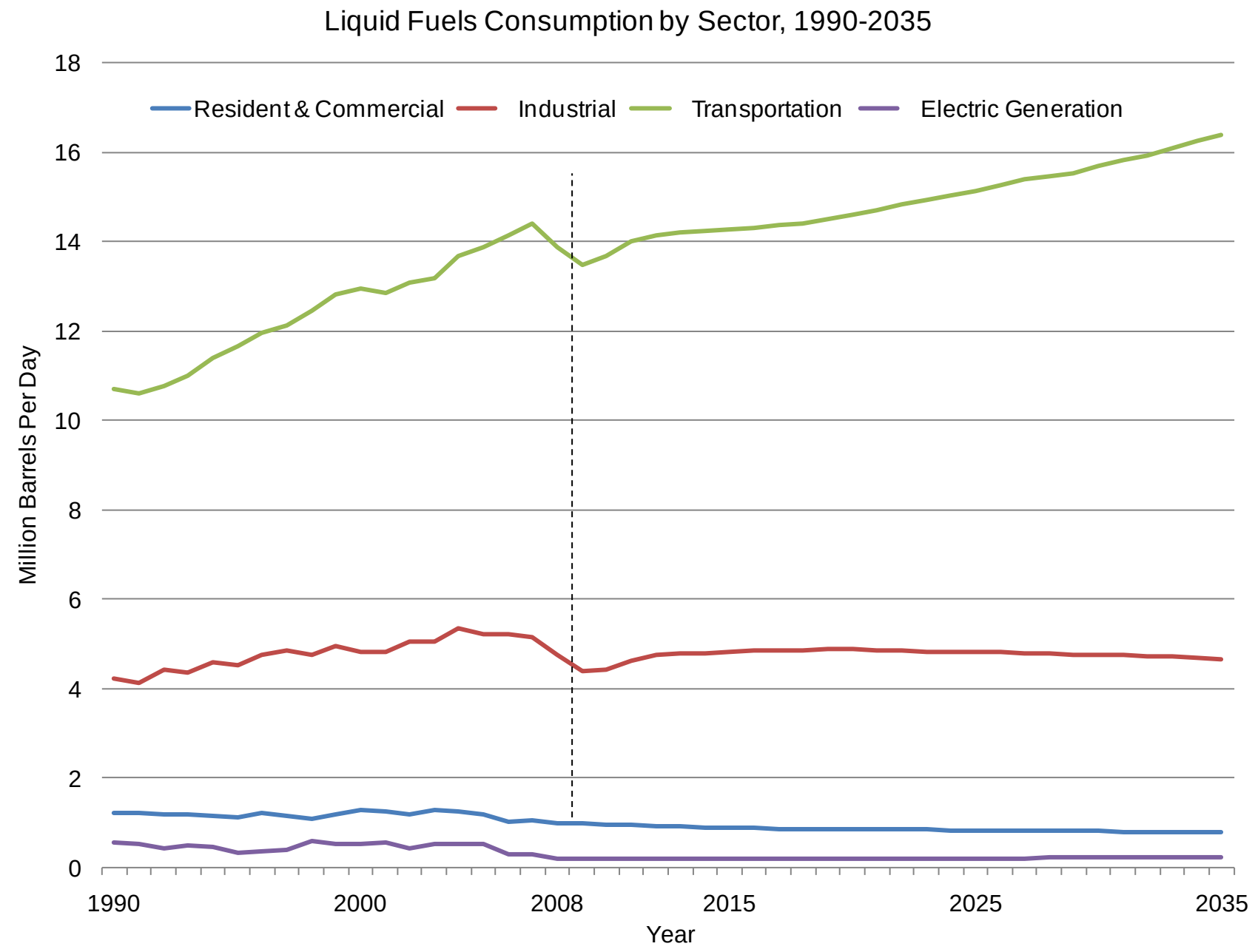
Net import share of U.S. liquid fuels consumption in three cases, 1990-2035



Source: U.S. Energy Information Administration



Source: Commission staff, adapted from U.S. Energy Information Administration



Source: Commission staff, adaptedy from U.S. Energy Information Administration

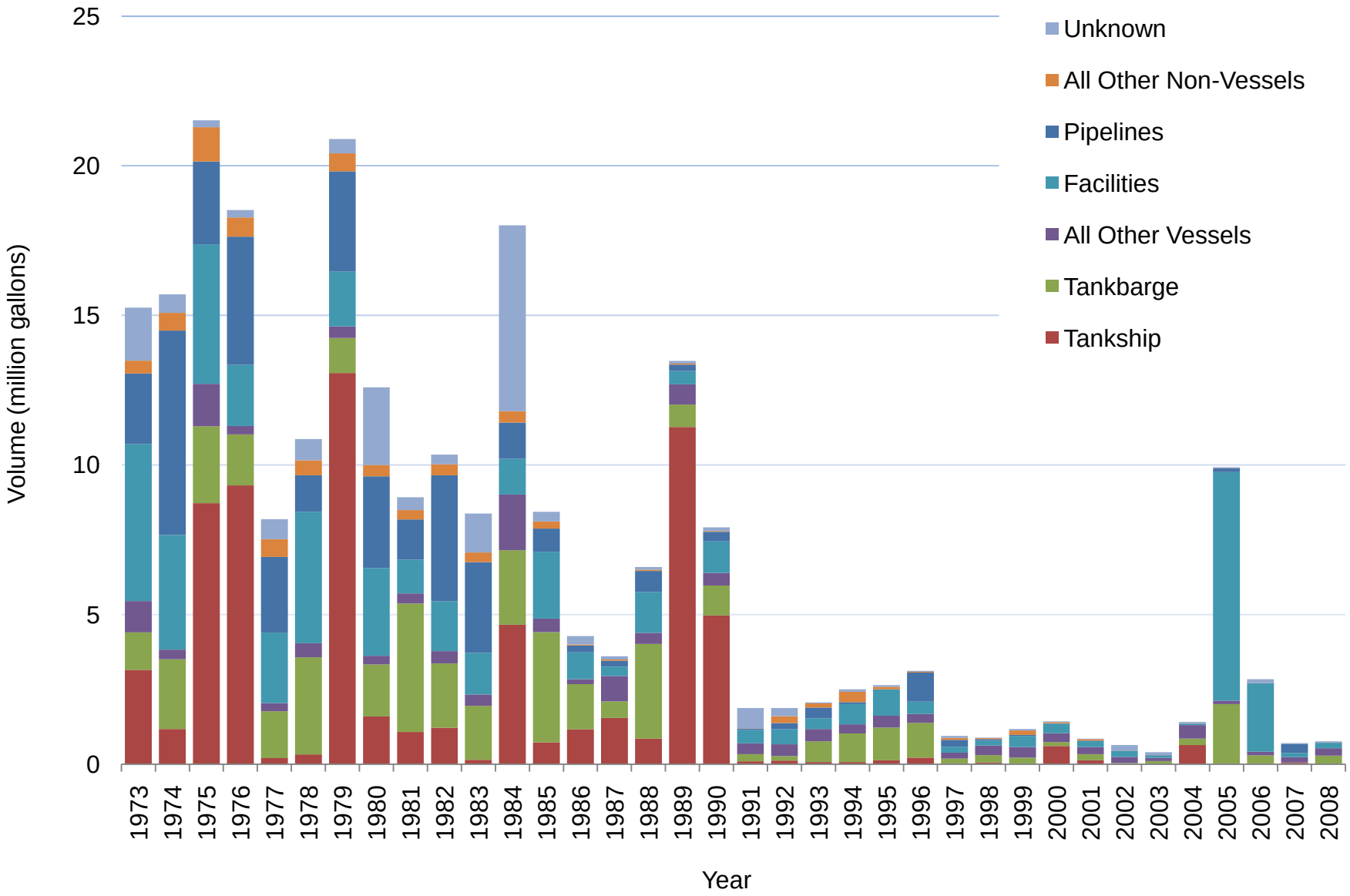
5. Despite the impressive technology developed for offshore drilling, there were not comparable developments in the technologies that provide safety in the challenging new environments in which the industry operated.

6. Offshore rigs have complex management problems because of the combination of prime operators, subcontractors, and equipment manufacturers needed to make them work.

7. Some companies in the Gulf of Mexico failed to apply process safety measures to provide unified coordination of the range of complex technical tasks on large rigs and the diversity of companies working on them.

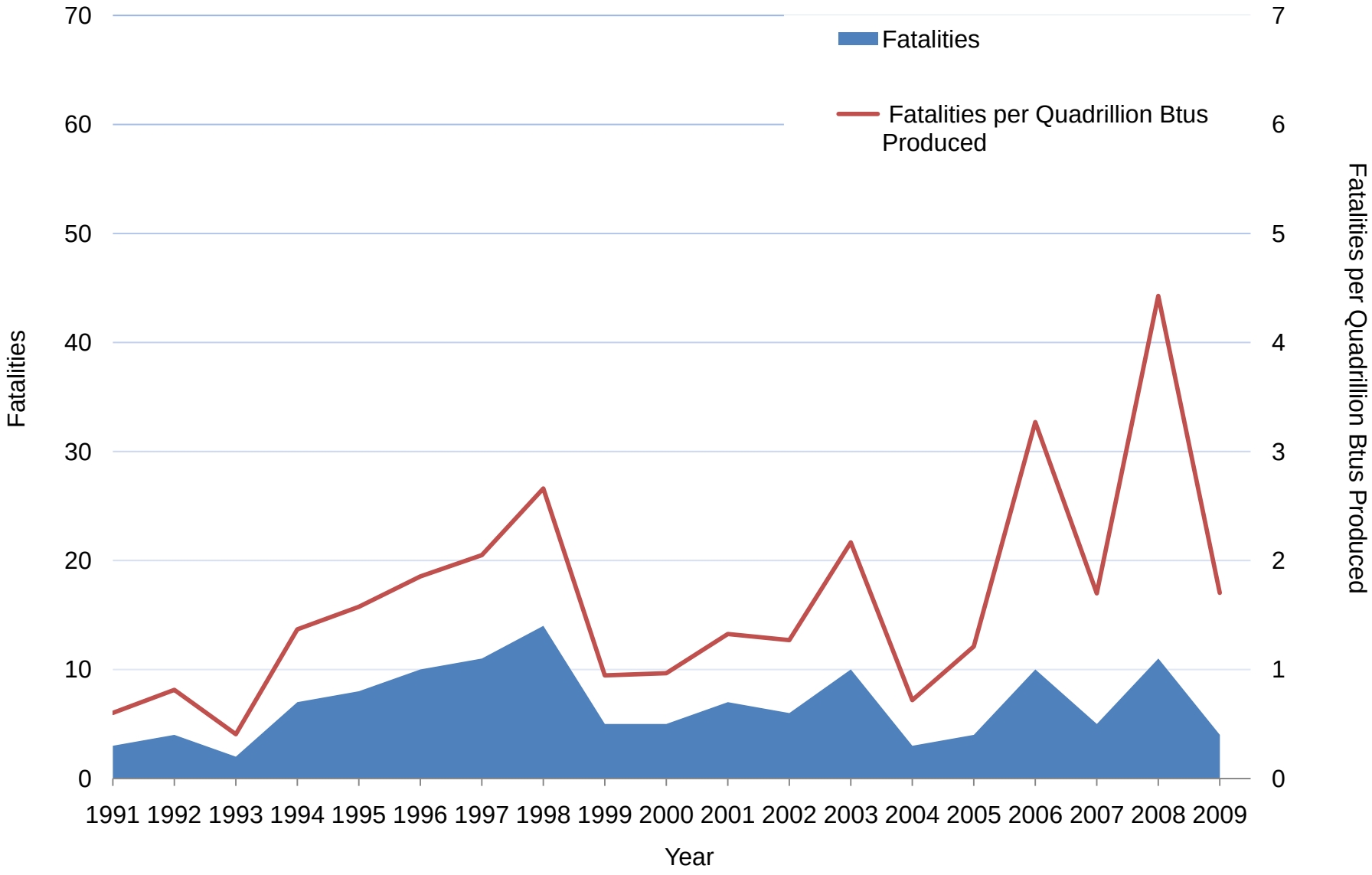
8. The entire oil and gas industry failed to provide adequate contingency plans, including the availability of adequate containment systems, for a major well blowout in the Gulf of Mexico, or to advance technologies for oil recovery.

Total Volume of Spills In & Around U.S. Waters by Spill Source, 1973-2008

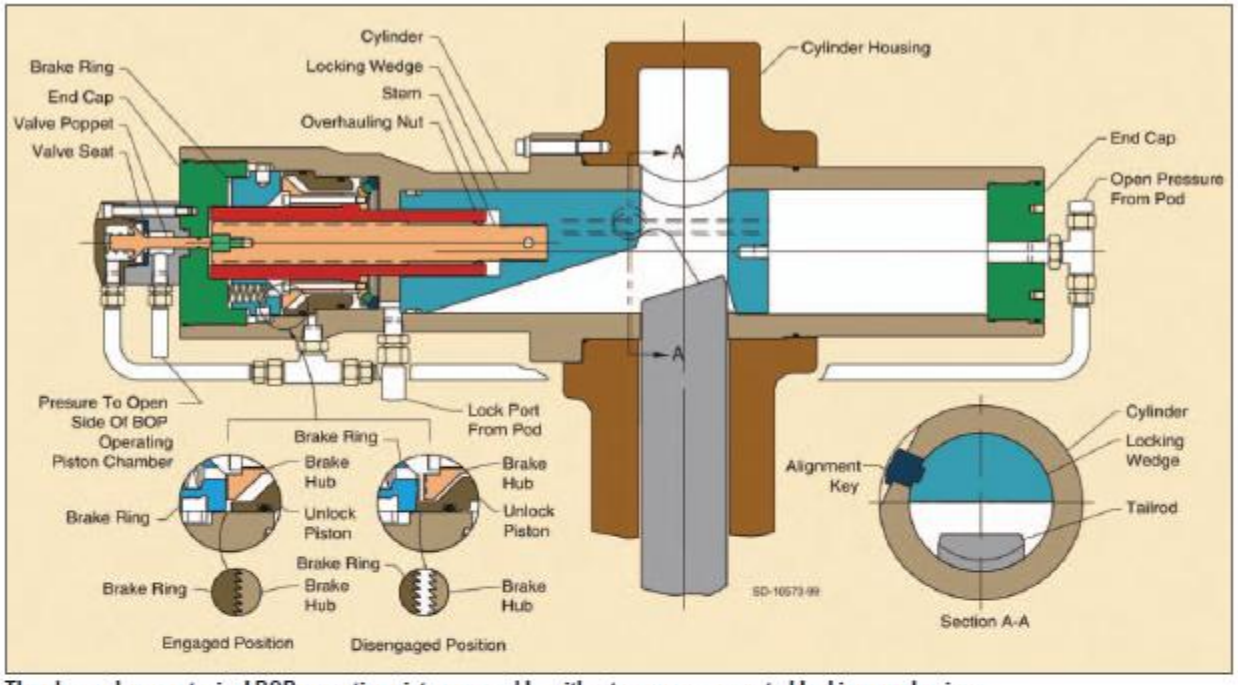


Source: Commission Staff, adapted from Polluting Incidents In and Around U.S. Waters, a Spill/Release Compendium: 1969 – 2008, U.S. Coast Guard

Outer Continental Shelf Fatalities Relative to Energy Production 1991-2009



Source: Commission staff, adapted from Bureau of Ocean Energy Management, Regulation and Enforcement & U.S. Energy Information Administration



The above shows a typical BOP operating piston assembly with a transverse-mounted locking mechanism.

Design evolution of a subsea BOP

Blowout preventer requirements get tougher as drilling goes ever deeper

By Melvyn F (Mel) Whitby,
Cameron's Drilling System Group

THE FIRST RAM BOP was developed in 1920, and, in the last 90 years, the principle of operation of a ram BOP has not deviated much from the original concept.

In a typical design, a set of 2 rams is mechanically or hydraulically closed either around a wellbore tubular to form a pressure-tight seal against downhole pressure or wellbore fluids. Shearing rams were introduced in the 1960s. They could sever the pipe in the

What has changed, however, and is in a constant state of flux are the operating parameters and the manner in which BOPs are used in today's drilling activities. Today, a subsea BOP can be required to operate in water depths of greater than 10,000 ft, at pressures of up to 15,000 psi and even 25,000 psi, with internal wellbore fluid temperatures up to 400° F and external immersed temperatures coming close to freezing (34° F).

THE CHALLENGE

The desperate challenges being experienced by drilling contractors and oil companies alike are critical technical

Therefore, it must function without fail. One possible enhancement involves taking advantage of advances in metallurgy to use higher-strength materials in ram connecting rods or ram-shafts.

The newbuild drilling and production facilities under construction for today's market are limited for space and handling capabilities and, therefore, require that BOP stacks be lighter-weight and take up less space on the rig while

with the new-found functionality in addition, existing limited capacity rigs have the potential to be upgraded for use in deepwater with higher capabil-

Data presented by John Gisclair, a support services coordinator for a unit of Halliburton, to a federal panel investigating the April 20 disaster shows there was a sharp rise in pressure that was later followed by a sharp drop in pressure.

Gisclair said that could have been an indicator that something was wrong.

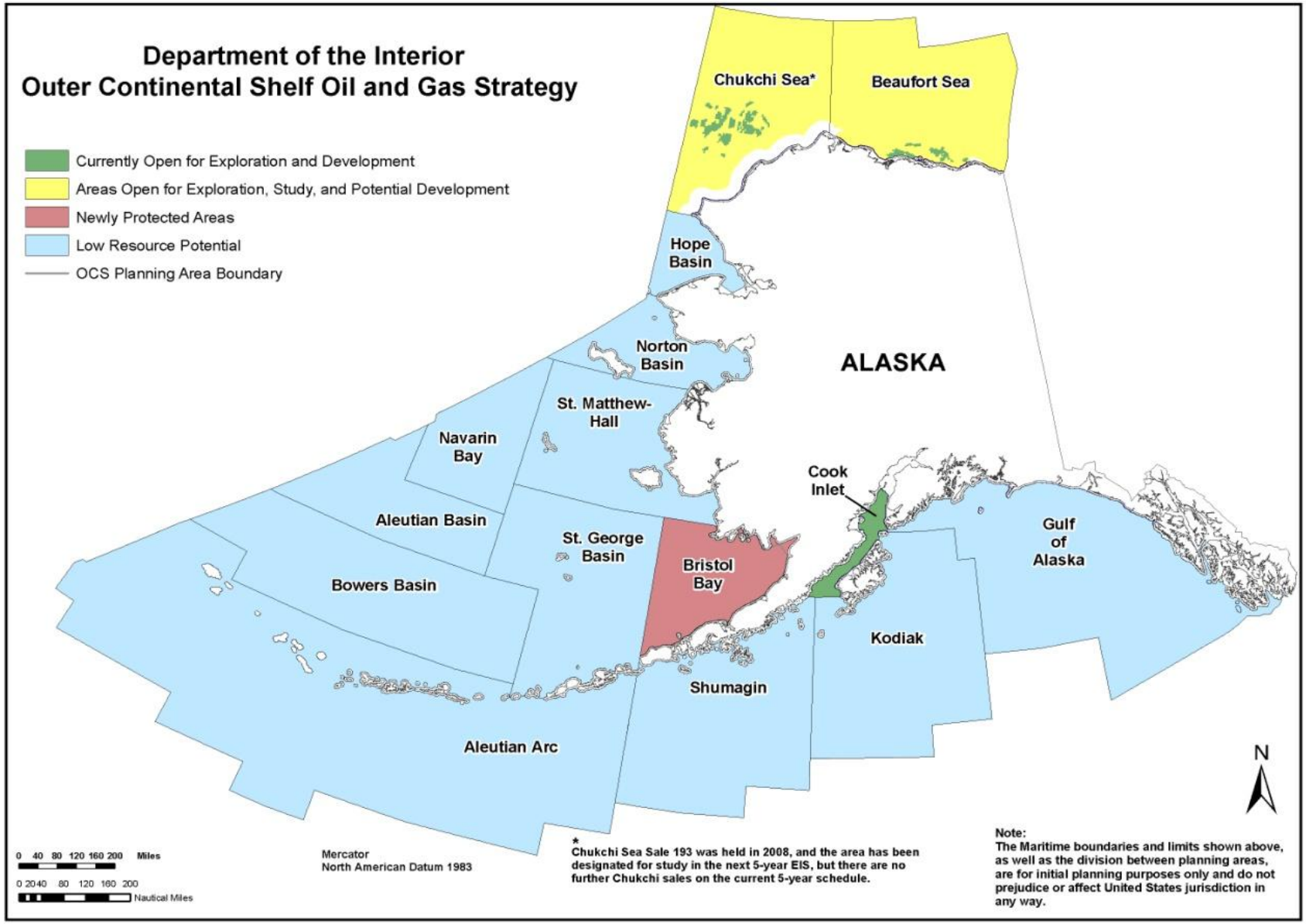
But Gisclair said one of his workers who was on the rig later told him that there were so many simultaneous activities -- starting with the displacing of mud to the pumping of fluids overboard -- it was difficult to see what was going on.

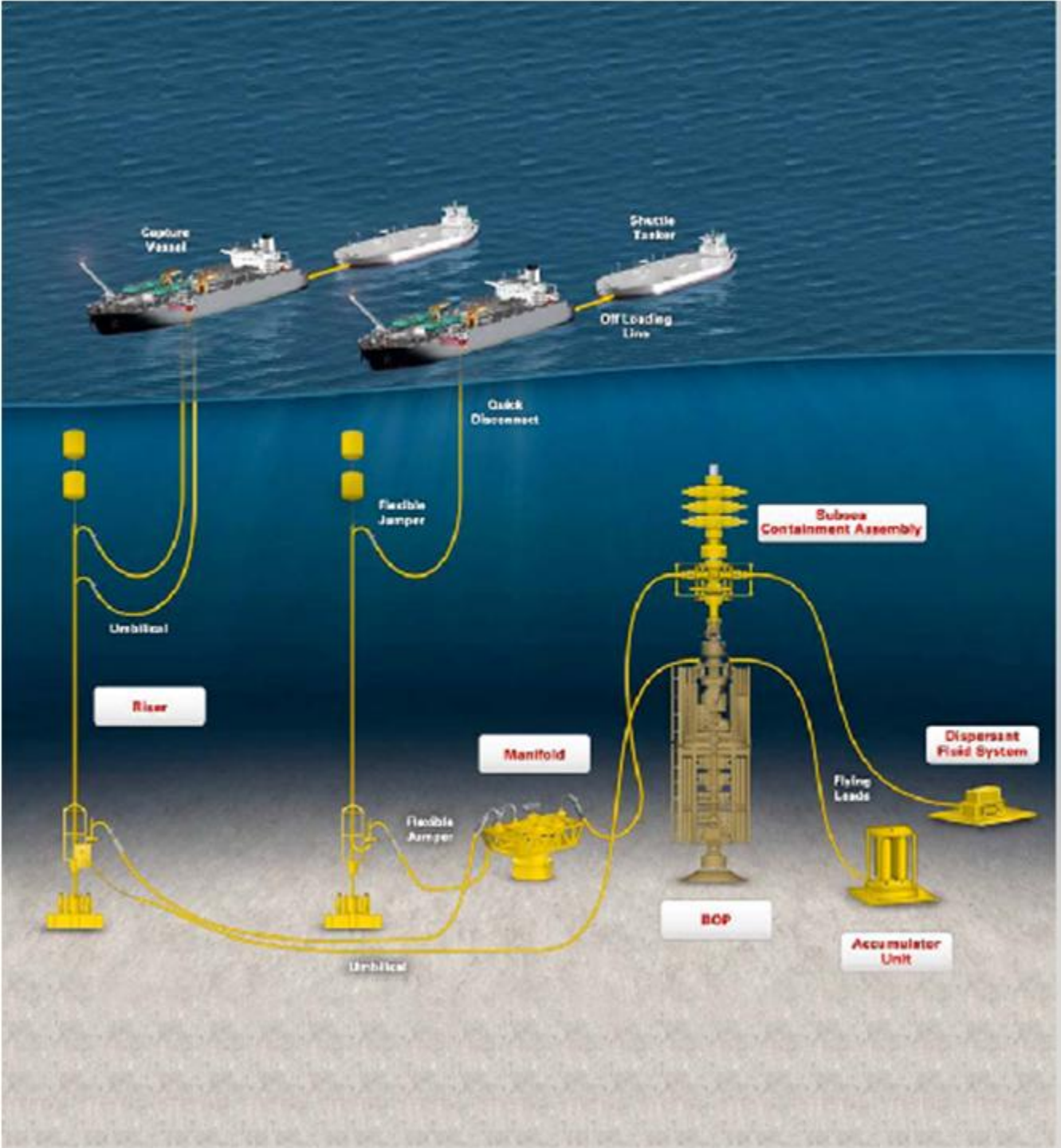
"We're pretty close to blind," at one point, Gisclair testified.

9. The national interest requires the continuation and expansion of a strong offshore drilling program, but one with a better balancing of risk and with greater safety protections for human life, the environment and the economy.

10. The oil and gas industry is planning for exploration and development in frontier areas outside the Gulf of Mexico, including the Arctic, which would introduce new safety challenges, many of which have not been fully analyzed.

11. By forming a Marine Well Containment Company, some in the oil and gas industry are beginning to address the absence of a readily available containment system for the Gulf of Mexico. Many key decisions that will help determine the long-term viability and success of the organization, however, have yet to be made.

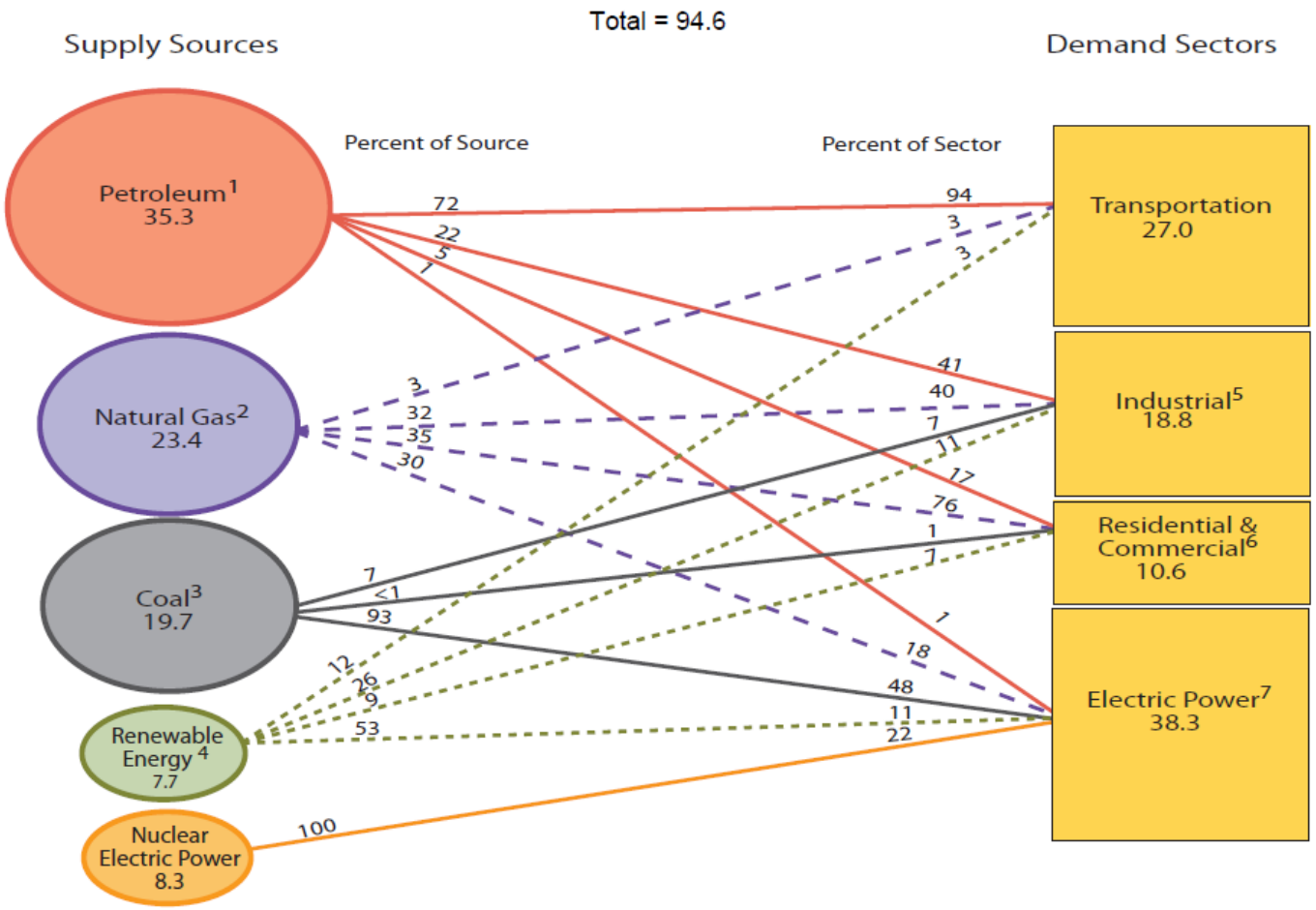

Department of the Interior
Outer Continental Shelf Oil and Gas Strategy
Currently Open for Exploration and Development
Areas Open for Exploration, Study, and Potential Development
Newly Protected Areas
Low Resource Potential
OCS Planning Area Boundary
Chukchi Sea*
Beaufort Sea
Hope Basin
Norton Basin
ALASKA
St. Matthew-Hall
Navarin Bay
Cook Inlet
Aleutian Basin
St. George Basin
Bristol Bay
Gulf of Alaska
Bowers Basin
Kodiak
Shumagin
Aleutian Arc
N
0 40 80 120 160 200 Miles
0 20 40 80 120 160 200 Nautical Miles
Mercator
North American Datum 1983
* Chukchi Sea Sale 193 was held in 2008, and the area has been designated for study in the next 5-year EIS, but there are no further Chukchi sales on the current 5-year schedule.
Note:
The Maritime boundaries and limits shown above, as well as the division between planning areas, are for initial planning purposes only and do not prejudice or affect United States jurisdiction in any way.



Fully Integrated System Constructed and Tested in Advance

This flexible and adaptable system includes subsea containment equipment connected by risers to vessels that will safely capture, store and offload the oil

Figure 2.0 Primary Energy Flow by Source and Sector, 2009
(Quadrillion Btu)

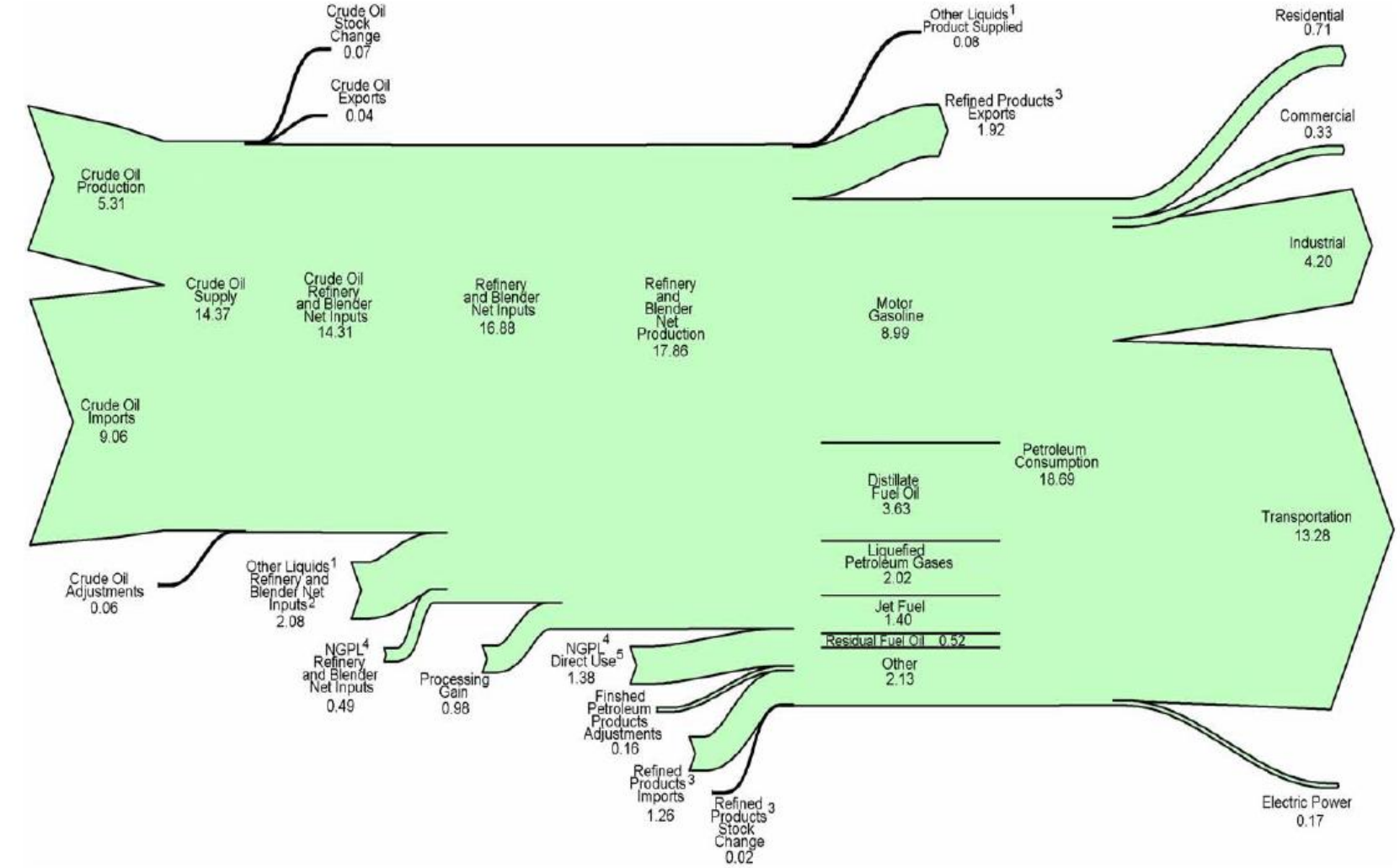


[1] Does not include biofuels that have been blended with petroleum—biofuels are included in "Renewable Energy."
[2] Excludes supplemental gaseous fuels.
[3] Includes less than 0.1 quadrillion Btu of coal coke net exports.
[4] Conventional hydroelectric power, geothermal, solar/PV, wind, and biomass.
[5] Includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants.
[6] Includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants.
[7] Electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.

Note: Sum of components may not equal total due to independent rounding.
Sources: U.S. Energy Information Administration, *Annual Energy Review 2009*, Tables 1.3, 2.1b-2.1f , 10.3, and 10.4.

Source: U.S. Energy Information Administration

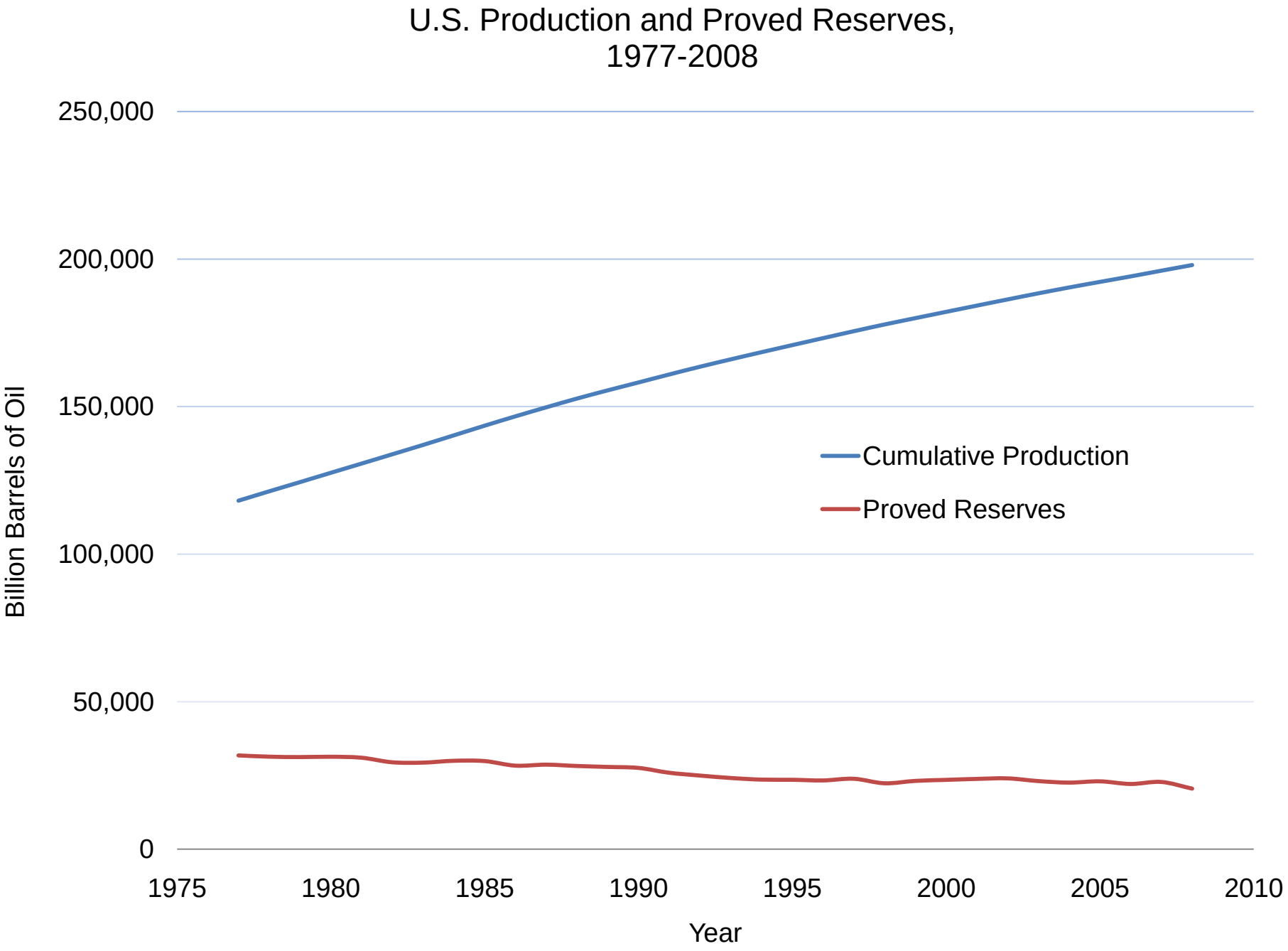
Figure 5.0. Petroleum Flow, 2009
(Million Barrels per Day)



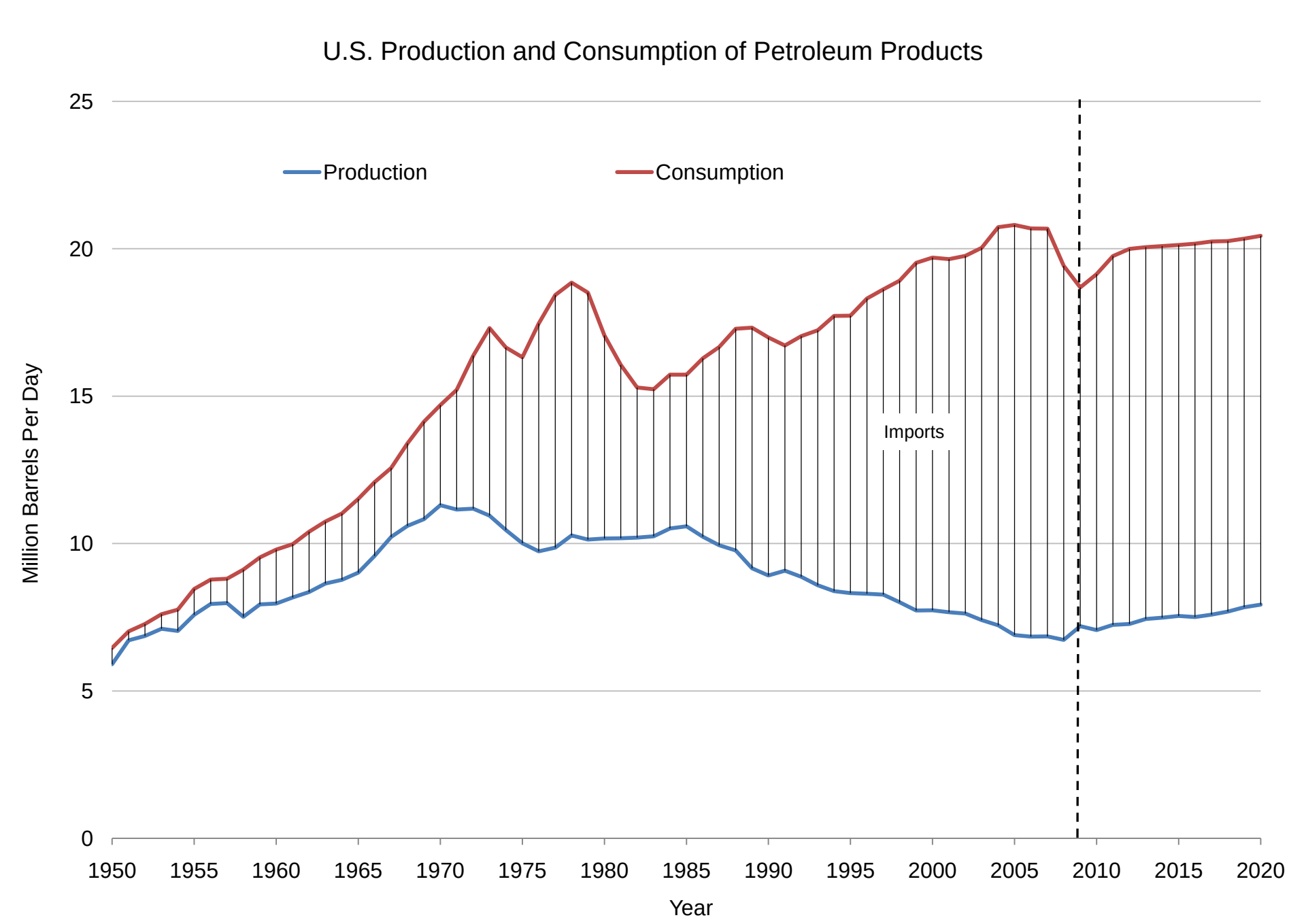
[1] Unfinished oils, hydrogen/oxygenates/renewables/other hydrocarbons, and motor gasoline and aviation gasoline blending components.
[2] Renewable fuels and oxygenate plant net production (0.75), net imports (1.34) and adjustments (-0.03) minus stock change (0.06) and product supplied (-0.08).
[3] Finished petroleum products, liquefied petroleum gases, and pentanes plus.
[4] Natural gas plant liquids.
[5] Production minus refinery input.

Notes: • Data are preliminary. • Values are derived from source data prior to rounding for publication. • Totals may not equal sum of components due to independent rounding.
Sources: Tables 5.1, 5.3, 5.5, 5.8, 5.11, 5.13a-5.13d, 5.16, and *Petroleum Supply Monthly*, February 2010, Table 4.

Source: U.S. Energy Information Administration



Source: Commission staff, adapted from U.S. Energy Information Administration



Source: Commission staff, adapted from U.S. Energy Information Administration