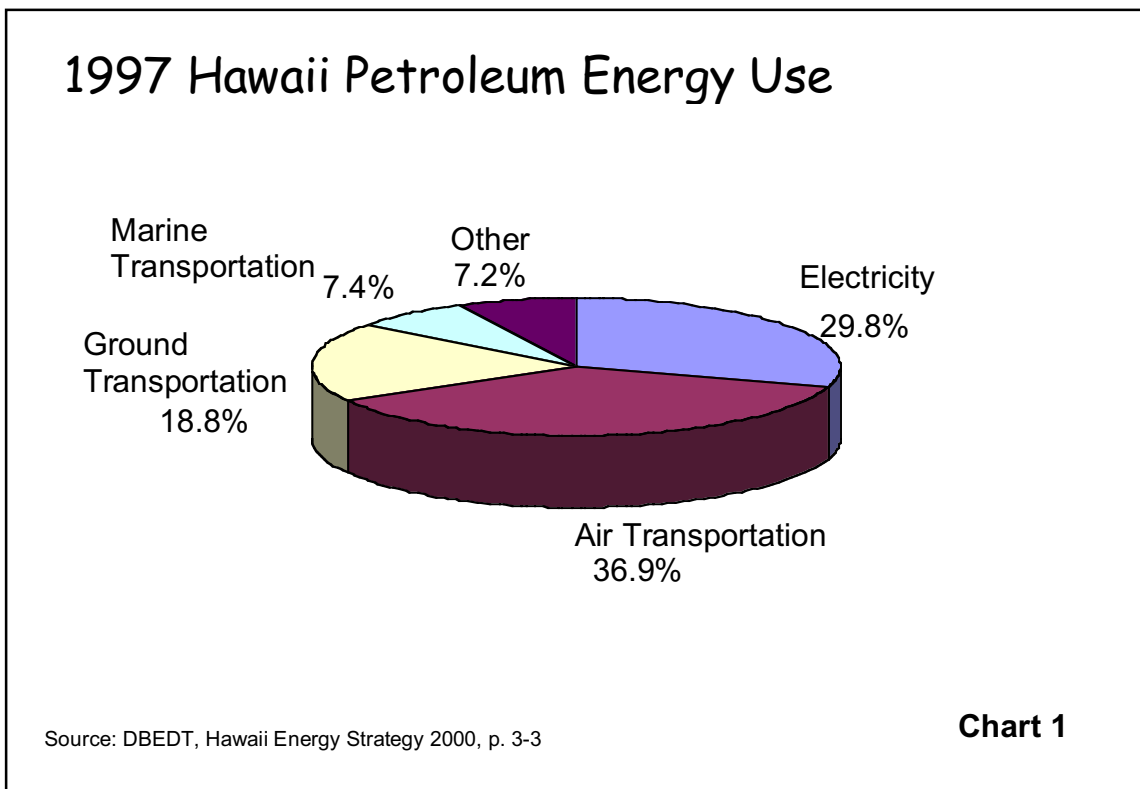


Overview of Oil Usage in Hawaii

Oil Usage in Hawaii

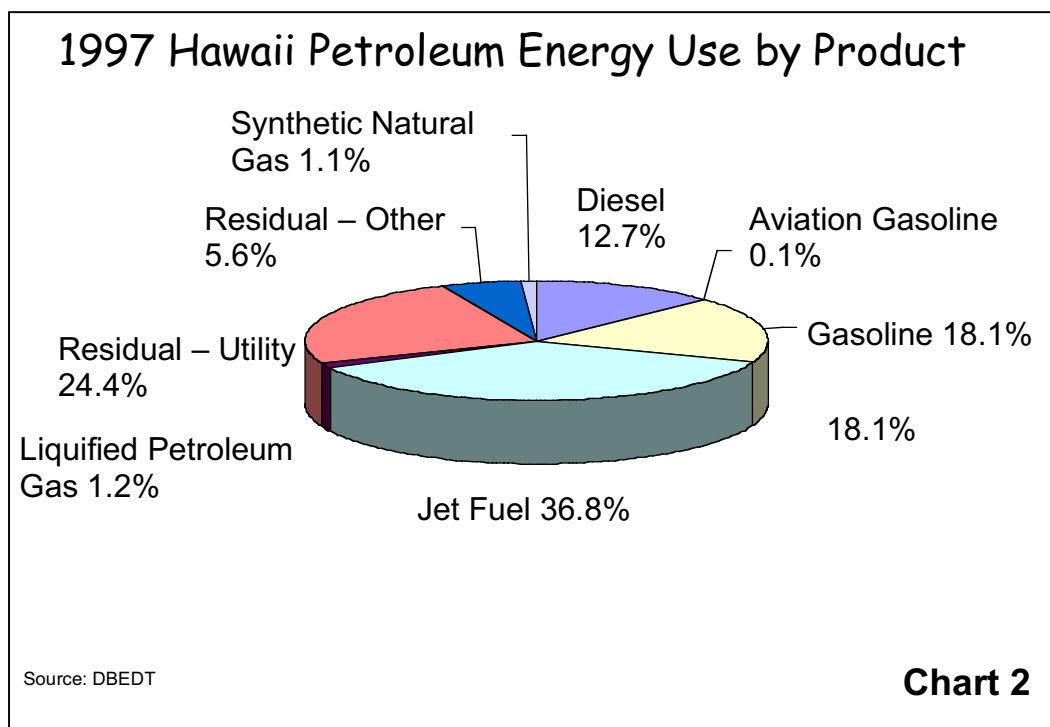
Petroleum products (i.e. gasoline, diesel, jet fuel, liquefied petroleum gases, synthetic natural gas, and residual fuel oil) are used for a variety of purposes in Hawaii. The following chart shows the usage in Hawaii by sector:



Transportation, primarily air and ground, consumes 63.1% of the oil imported into Hawaii while electricity accounts for 29.8% of the oil used. Other commercial and industrial uses account for the remaining 7.2% of the oil imported into Hawaii.

Oil Usage by Type of Product

The usage of petroleum products by type of product is shown in the following chart:

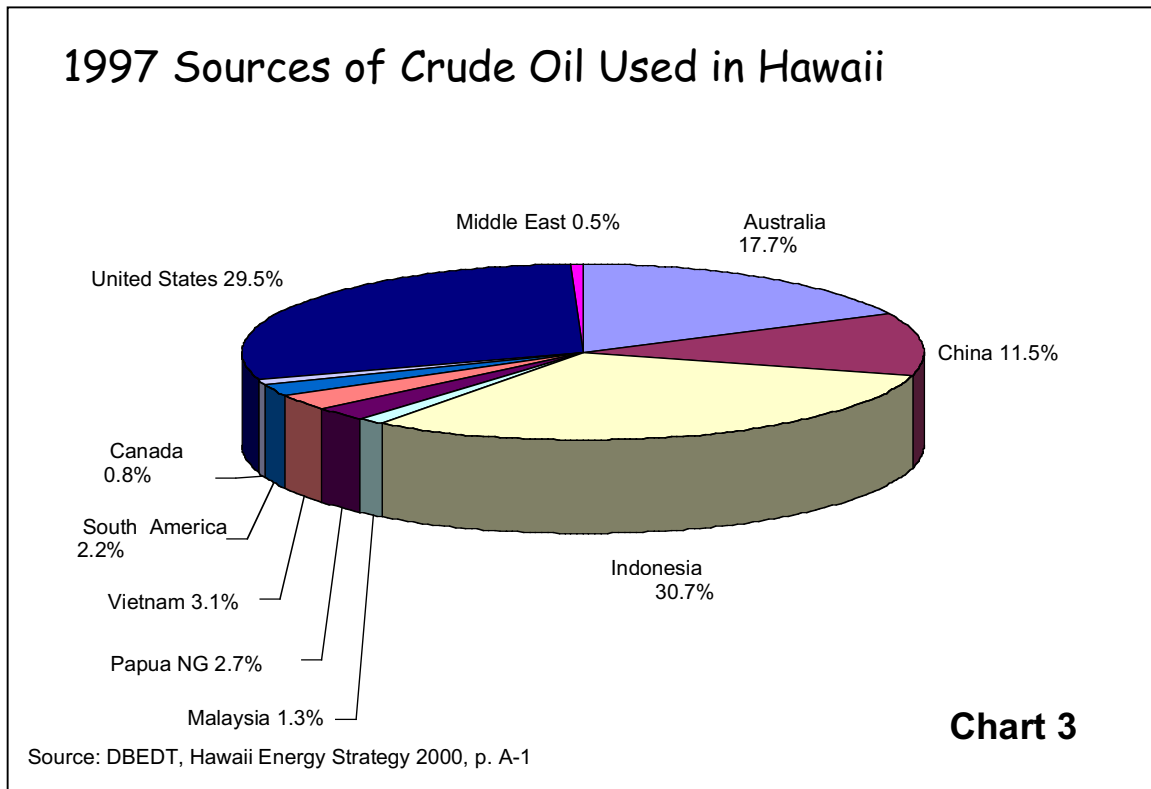


Jet fuel is used for air transportation. Gasoline is used primarily for automobiles and trucks with a small amount used for air transportation. Diesel is used for ground and marine transportation as well as electricity generation on the neighbor islands. Synthetic natural gas (SNG) and liquefied petroleum gas (LPG), primarily propane, is distributed for residential and business use.

Residual fuel oil is the product that is remaining after these lighter petroleum products (i.e. gasoline, jet fuel, LPG, and SNG) are refined from crude oil. Most of the residual fuel oil is used for electricity generation on Oahu in the form of low sulfur fuel oil (LSFO). LSFO is a solid at room temperature and must be heated in order to be piped to our boilers. The requirement limits its usefulness for other purposes.

Sources of Hawaii's Oil Imports

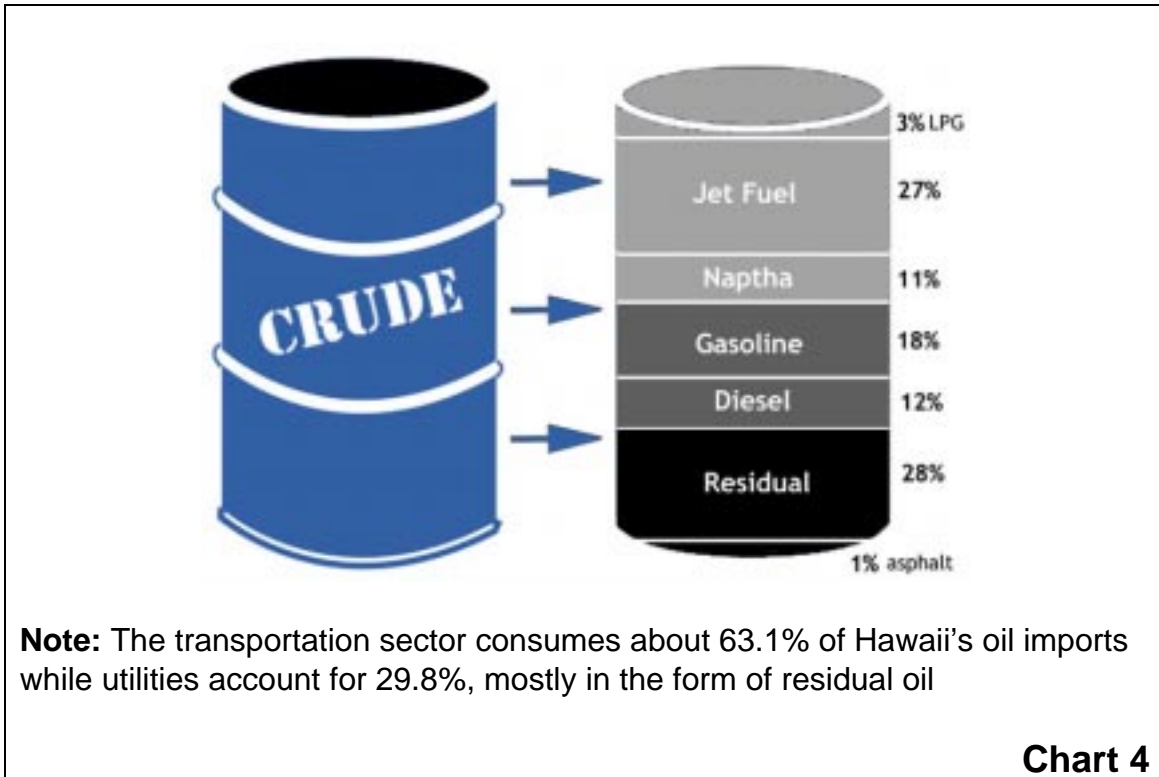
Petroleum products that are used in Hawaii are either refined locally from crude oil or imported in their refined state. Hawaii has two local oil refineries located in Campbell Industrial Park on Oahu. The following figure illustrates the sources of crude oil used by the Hawaii refineries.



Note that the majority of the crude oil used in Hawaii comes from the United States or Indonesia with Australia and China also providing significant amounts of crude oil. Crude oil from the Middle East region represents a very small amount.

Hawaii Refinery Products

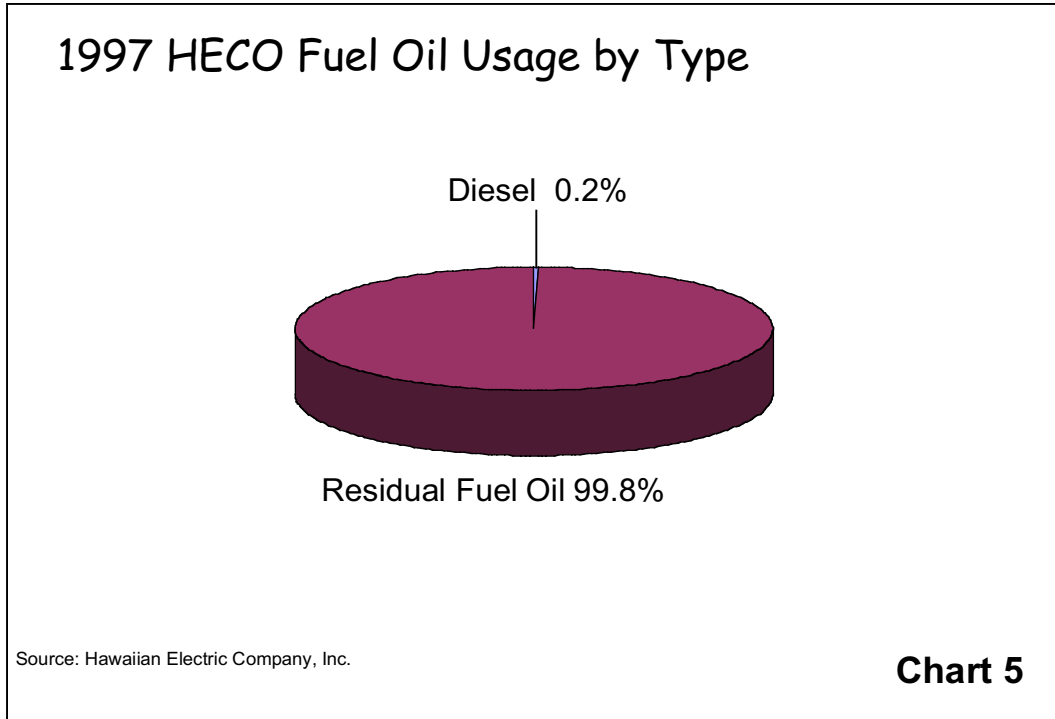
The amount of each type of petroleum product that is refined from crude oil by the Hawaii refineries vary with demand and type of crude oil, but is typically as shown in the following chart.



Since residual fuel oil is the by-product remaining after the lighter petroleum products are refined from the crude oil, reducing the use of residual fuel oil in Hawaii will not eliminate the need to import crude oil. Crude oil would still have to be imported to Hawaii to produce gasoline, jet fuel, and other petroleum products. If it were not used to produce electricity, Hawaii would likely have to export it or find some alternative use for the 'leftovers'.

Fuel Oil Usage by HECO

On Oahu, HECO uses two types of fuel oil to generate electricity, namely residual fuel oil and diesel. Chevron and Tesoro provide HECO's residual fuel oil as a byproduct of their Hawaii refinery operations. The percentages of each type of fuel oil used by HECO are shown in the following chart.



As explained earlier, the majority of the fuel oil used by HECO is residual fuel oil.

Summary

Oil is the source of energy for a variety of purposes in Hawaii. Transportation (i.e. air, ground, and marine) uses the majority of oil-based energy in Hawaii (i.e. over 60%) while electricity generation accounts for less than 30% of the oil-based energy usage in Hawaii. The majority of the fuel oil used by the HECO utilities to generate electricity is residual low sulfur fuel oil that is leftover after the lighter petroleum products are refined from crude oil to meet Hawaii's other energy demands. The use of low sulfur fuel oil for other purposes in Hawaii is limited because it requires constant heating to transport, store, and use. Generating electricity from sources other than residual fuel oil will not eliminate the need to import crude oil to Hawaii. Crude oil would still be required to produce gasoline and jet fuel. Significant reductions in the use of residual fuel oil to generate electricity would likely result in it being exported out of Hawaii and the additional export cost could increase the cost of other refined petroleum products.