# Liquefied Natural Gas for Hawai‘i

Our best transition to a 100 percent renewable energy future

## Liquefied (LNG) Natural Gas will help us transition to a 100 percent renewable energy future and deliver significant economic benefits for customers

**This plan:**

- is an interim and transitional arrangement designed to support our commitment to achieving Hawai‘i’s 100 percent renewable energy goal with a diverse mix of renewable resources.
- uses new, more flexible and efficient generation and retires three old, oil-fired generators at Kahe Power Plant, providing the lowest cost and most environmentally friendly transition to Hawai‘i’s 100 percent renewable energy goal.
- offers the best possible terms for our customers. We take no mark-up and make no profit on fuel purchases so all the savings on fuel will benefit our customers.
- requires substantial upfront financial support and expertise that NextEra Energy can provide and is contingent on PUC approval of the merger of Hawaiian Electric with NextEra Energy.
- is estimated to save a typical (500 kilowatt-hours monthly) residential customer up to $390 a year on O‘ahu, $100 on Hawai‘i Island and $15 on Maui after LNG imports begin and generation modernization is complete.

*...more*

## Key Benefits

- **Customer savings –** $850 million to $3.7 billion through 2045 depending on oil prices, compared to using oil
- **Reduced oil imports –** over 8 million barrels annually (80 percent less than today) starting with import of LNG planned for 2021 and further decreasing until we reach 100 percent renewable energy
- **Smaller carbon footprint –** lower greenhouse gas emissions, starting with import of LNG planned for 2021:

| $SO_2$ emissions **reduced** | NOx emissions **reduced** | $CO_2$ emissions **reduced** |
|---|---|---|
| **96%** | **72%** | **62%*** |

*** CO2 reduction of more than 4 million tons. Equivalent to taking more than 80 percent of Hawai‘i’s passenger vehicles off the road**

**(Calculations based on Power Supply Improvement Plan using LNG)**

- **Transition to renewables –** with greater reliability and 30 percent better efficiency for customers, using more economical, flexible, and fast-responding new generation and a much cleaner fuel, as 50-plus-year-old fossil fuel generators are retired

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**Importing natural gas in liquid form (LNG):**

- will **significantly decrease fuel oil use** for power generation with an immediate 80 percent reduction when LNG imports begin, leading to total elimination by 2045.
- will reduce greenhouse gas emissions significantly when LNG imports begin, leading to more decreases when fuel oil for power generation is totally eliminated by 2045. Our carbon footprint will be much smaller than sticking with oil for our transition to **100 percent renewables by 2045.**
- will **create more work and more Hawai‘i jobs** for barge and tug operators, stevedores and truck drivers, as well as construction and utility plant operations, with secondary increases in other economic sectors and tax collections for public purposes.
- will require minimal new offshore or onshore facilities. It needs **no offshore factory ship** to convert LNG back to gas; **no undersea pipeline** to bring gas ashore; **no major onshore gas processing facility** and **no use of existing or new underground gas pipelines.** Existing gas pipelines on O‘ahu are not sufficient or suitable to support using natural gas in our power plants.
- uses mostly modular and movable equipment (carrier ships, barges and containers) that **can be resold or repurposed** by respective owners when no longer needed for power generation in Hawai‘i.
- is the most efficient way to **share the benefits of cleaner, low-cost natural gas** with the Neighbor Islands.
- can **provide economical natural gas** for use by other companies and industries including heavy truck transportation. In the future, LNG containers may be moved from ports to power plants on trucks fueled by natural gas, another way to reduce oil use.

## BRINGING NATURAL GAS SAFELY TO HAWAI‘I

- Natural gas from northeastern British Columbia would be piped to a facility near Vancouver, liquefied and loaded on medium-sized carrier vessels.
- At Mamala Bay, at least one mile south of the reef runway off O‘ahu, LNG would be offloaded into special double-walled containers stacked on a customized barge.
- In Kalaeloa and Honolulu harbors, the barge's cranes would unload LNG containers. Harbors would need no fixed modifications. Trucks would move containers from Kalaeloa Harbor to Kahe and Kalaeloa Partners' power plants during off-peak traffic times and at night.
- From Honolulu Harbor, containers would go by regular barge service to Maui and Hawai‘i Island. Trucks would take containers from Kahului Harbor to M-a‘alaea, from Kawaihae Harbor to Keahole and from Hilo Harbor to H-am-akua. LNG trucks would replace trucks delivering fuel oil on Maui and Hawai‘i Island with little noticeable change in traffic.
- LNG is non-toxic, non-corrosive and does not ignite except under limited conditions.
- In the unlikely event of a spill, LNG would turn into a gas and dissipate into the air almost immediately.
- For 50 years, natural gas has been safely transported around the world in liquefied form. It is subject to strong international, national and local regulation and monitoring for safety and environmental protection.