



# GETTING FUEL FROM THERE TO HERE.

## **The challenges. The costs.**

Together we will provide value to our communities by safely delivering quality petroleum products and services.

**CROWLEY®**  
People Who Know®

# Western and Arctic Alaska FUEL LOGISTICS

## Refining

Refiners create refined products, such as heating fuel, from crude oil.

## Purchasing

Crowley purchases fuel from the refineries at the current wholesale market price. Wholesale purchases are indexed to major markets such as Seattle and Los Angeles.

## Storage

Fuel is put into a tank farm at the regional terminals or fuel hubs. Crowley carries the cost for the stored fuel until the customer pays for it.



## Transportation/Distribution

Crowley transports fuel from refineries in Asia, the U.S. West Coast and Alaska to Western Alaska via line haul barges (large ocean-going barges), and then transfers the fuel onto shallow draft lighterage barges (small coastal barges) for final delivery to regional terminals or fuel hubs.



## Transportation/Distribution to Villages

Small, shallow draft tugs and barges transport the fuel to community tanks and tank farms. The majority of villages do not have docks, so fuel barges must be grounded on the beach to make deliveries. Sometimes, villages do not have fuel headers at the beach, so a truck is used to transport the fuel from the barge to the communities' tanks.



## Sale

Local tank farms/terminals sell to their customers.



# HEATING OIL COSTS

Heating oil costs are determined by many factors, such as the cost of the raw material (crude), how much it costs to refine, taxes, and transportation, among others. Cost breakdown is shown below:

## Overhead Costs

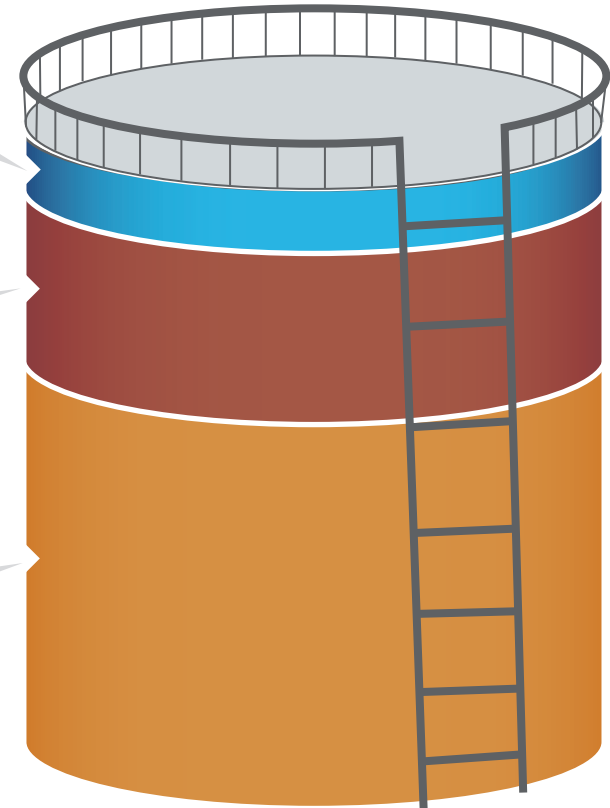
Overhead and marketing costs include indirect costs such as utilities, payroll, employee health benefits, etc., as well as a margin of profit. Fees include sales, dock and throughput fees. These additional costs generate income for the communities that are serviced. Each community has a different fee structure that impacts the price of heating oil. Other costs that fit into this category are taxes and regulatory compliance costs associated with the Alaska Department of Environmental Conservation (ADEC), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Department of Transportation (DOT), and United States Coast Guard (USCG).

## Distribution Costs

Transportation and distribution costs increase the farther a community is from the refinery, which is one reason why delivery prices vary so much in Western Alaska. The shallow water locations of Western Alaska require transportation with specially designed shallow-draft vessels. Insufficient or non-existent docking and off-loading facilities increase time, safety and environmental risks, which increase costs as well. And inventory-carrying costs are incurred by holding the inventory in storage tanks over the winter season or until sold.

## Product Costs

Crude oil prices are determined by worldwide supply and demand. Changes in the price of crude oil affect the price of heating oil. Refineries separate the crude oil into useful substances (gasoline, gas oil, kerosene, jet fuel, etc.). Costs incurred at refineries include equipment, maintenance, labor, fees, etc. These costs are passed along to companies (like Crowley) who purchase the products. Crowley's experience and relationships allow Crowley to buy quality heating oil at the lowest possible cost from a diverse supply network.



## Ways to Limit Fuel Costs

Many of the options listed are directly related to saving time during the delivery process. The longer Crowley spends at a location and the more times the fuel is transferred, the more costly it can become. Crowley is doing everything it can to create a more efficient fuel distribution network, including investing in new tugs and double-hull barges specially designed for Alaska work. Investment in port or community infrastructure, and improving ports, harbors and river routes by federal, state or local government agencies would help reduce costs further. For example:

- **Port development:** Building docks or beach tie up points would increase efficiency and reduce risk. In select locations, dredging would permit barges to carry more fuel, resulting in fewer trips and/or less time waiting for tides. Crowley could get the work done faster and more efficiently, subsequently reducing costs.
- **Community tank farms:** Consolidating fuel deliveries with a common transfer header would increase efficiency by eliminating multiple deliveries within the same village.
- **Timely applications:** The sooner that customers book their fuel orders, the more efficiently Crowley can plan its work. Many communities participate in bulk fuel loan programs, or other government assistance programs, in order to finance their large, once-a-year fuel purchases. Streamlined application procedures and a consolidated application process for all agencies would expedite approvals and allow Crowley to create a more efficient delivery system.

# Up to the Challenge.

For more than 60 years, Crowley has been responsible for delivering millions of gallons of fuel to Western and Arctic Alaska communities on an annual basis. Each year, Crowley is challenged with orchestrating one of the most complicated fuel delivery systems in the nation. These locations are a long way off the Alaska road system, situated on the coast, or on inland rivers and lakes. The challenges vary from site to site. It is a capital-intensive business with a short delivery season dictated by the constraints of bad weather and a harsh operating environment.

Under ideal circumstances, our four-month fuel delivery season in Western and Arctic Alaska begins in Bristol Bay and moves northward. The Arctic season is even shorter. Crowley typically transfers millions of gallons of fuel to its own terminals and its customers' tanks before ice forces barging operations to shut down. Our goal is to put enough fuel into these terminals and tanks to last through the spring or even summer. It's a sizable investment with a carrying cost to Crowley, as the fuel product is sold throughout the winter months.

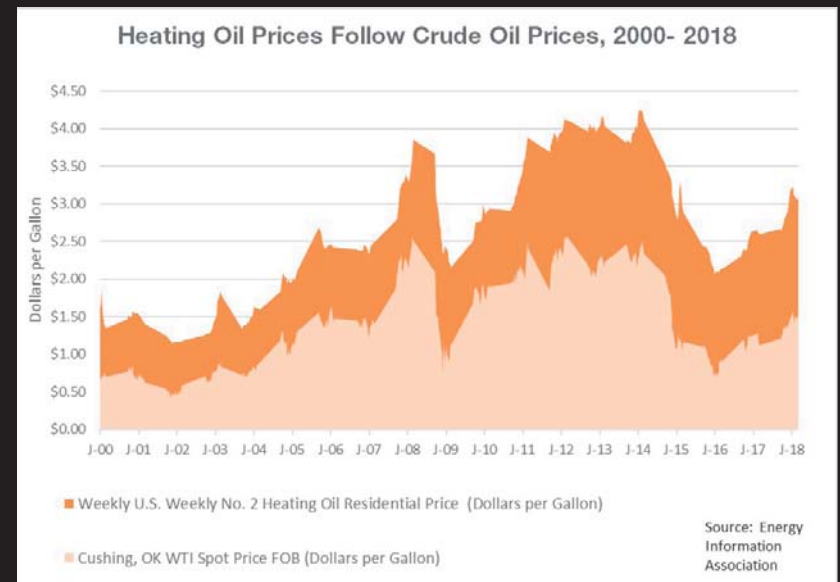
While the initial fuel cost is based on the wholesale market price on the date the fuel is purchased from the refinery, there are additional factors that impact the cost of transporting the fuel to rural Alaska markets. Ultimately, it is the sum total of raw product and refining costs; local fees, taxes and regulatory costs; storage costs; overhead and marketing costs; and transportation and distribution costs that impact the final price of fuel to our customer.

This brochure addresses the challenges and costs of delivering fuel in Western and Arctic Alaska. It explains the many variables that go into distribution, fuel cost and the structure of the market. At Crowley, we believe it is important that our customers are knowledgeable about the fuel distribution process and hope that this overview is helpful.



## Why Heating Oil Prices Fluctuate

- Wholesale market price changes daily, determined by worldwide supply and demand.
- Crowley's cost of the fuel is based on the wholesale market price on the date the barge loads at the refinery.
- Transportation costs vary by region. It usually costs more the farther a delivery location is from the point of supply. Deliveries to inland river points require the transfer of fuel to a smaller barge for the final delivery, adding more cost. Some locations have difficult barge landings affected by tide that simply take longer, also affecting cost.
- Taxes and fees vary by community.
- Weather affects accessibility. When low river water levels prevent barge deliveries, fuel may have to be flown into a community, usually at a much higher cost than barge delivery.





## Crowley Services

We understand the importance of fuel to our customers and we try to assist in any way we are able to help cut down on costs, expedite the application process and protect the environment.

Some of the things we are doing to help:

Facilitating bulk fuel loans and educating customers about the loan process

Administering the Energy Assistance programs

Reducing risk to the environment by increasing the number of double hull barges in the Western Alaska fleet. This is above and beyond current regulations, as it's the right thing to do for the safety of the environment and to protect the way of life in the communities we serve.

For more information, call our toll free Alaska number: 1.866.770.5587