

ADVANCING ALASKA LNG

Timothy Fitzpatrick, Alaska Gasline Development Corporation, looks at how shockwaves from Russia's invasion of Ukraine propelled the Alaska LNG project to the forefront of new LNG developments.

In February 2022, leaders of the Alaska Gasline Development Corporation (AGDC), the team behind the Alaska LNG Project, prepared to travel to Houston for the annual CERA Week energy conference. The Alaskans packed presentations and scheduled meetings to explain the climate benefits of Alaska LNG, consistent with the national energy strategy laid out by the Biden Administration.

The Russian invasion of Ukraine, just a few days before the conference, turned their plans upside down.

Immediately following the invasion, international interest in Alaska LNG skyrocketed. Alaska LNG was in the catbird seat when LNG investors realised that buyers in Asia would quickly need to find new sources to replace natural gas from Russia and North American LNG being diverted



Figure 1. Alaska LNG is the only fully-permitted US West Coast LNG export project, opening direct US access to major Asian energy markets.

to Europe. The advantages of Alaska LNG's close proximity to Asia rapidly came into focus as developers examined the prospects of new LNG projects.

As recalled by AGDC President, Frank Richards, the company became the 'belle' of the CERA ball overnight, with potential partners lining up to talk as a result of it being the only export project on the US West Coast with all major permits in hand. Industry insiders knew the conflict in Europe would create an energy vacuum in the Pacific.

US officials have watched Europe's growing dependence on Russian energy with concern for years. Prior to the invasion, 40% of Europe's natural gas originated in Russia. European energy buyers pivoted to the US and other allied LNG suppliers for relief.

The morning after the Russian invasion, Asian energy leaders faced a two-fold crisis. First, Europe's skyrocketing demand for non-Russian LNG immediately drove global LNG spot prices to record-breaking, astronomical heights. Second, due to their proximity to and reliance on energy from Eastern Russia, Asian nations were staring down the same geopolitical energy vulnerabilities being experienced by European nations.



Figure 2. Alaska's close proximity to Japan and other Asian markets gives Alaska LNG a major competitive advantage over more distant alternatives.



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No need for Russian gas when #America stands ready to supply it. Proud to bring together friends @SenDanSullivan, @GovDunleavy, @amoshochstein & ones from @METI_JPN, #JBIC, & @JOGMEC_JP to discuss how @AlaskaLNG can be part of 's energy future.



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Figure 3. US Ambassador to Japan, Rahm Emanuel, convened a project summit in Tokyo for Alaska LNG to bring industry and policy stakeholders together to advance Alaska LNG.

Energetic US federal support

The ongoing global energy reckoning has also strengthened US federal support for Alaska LNG. The federal support for this project has grown to the point where it now mirrors the strong stakeholder and community backing found within Alaska.

The Bipartisan Infrastructure Law, signed by President Biden, made Alaska LNG eligible for Federal Loan Guarantees which are indexed to inflation, helping mitigate post-pandemic and invasion-related price changes. These loan guarantees, spearheaded by US Senator, Lisa Murkowski (Alaska), are currently worth US\$29 billion and backstop more than 65% of the project's costs.

The U.S. Department of Energy (DOE) amended record of decision and supplemental environmental impact statement (SEIS) issued for Alaska LNG by the Biden Administration validates the project's environmental benefits and reaffirms that natural gas produced for Alaska LNG will have fewer greenhouse gas emissions than natural gas produced elsewhere.

Advantages highlighted by the SEIS

Lower production emissions

Natural gas on Alaska's North Slope is produced alongside oil, which results in fewer emissions than natural gas produced separately from oil, as is typically found in other markets. Gas and oil produced independent of each other generate higher overall emissions. About 75% of North Slope gas is 'associated gas' (produced with oil) vs only about 40% of Gulf Coast gas, according to the SEIS.

Lower shipping emissions, costs, and fewer delays

Alaska LNG's proximity to Asia gives Alaska LNG a significant climate, economic, and reliability advantage over competing projects. Given that each tanker makes a round trip delivering LNG to Asia and returns to reload, Alaska is more than 12 000 round-trip miles closer to leading Asian markets than competing US Gulf Coast LNG export projects, per the SEIS. This means that each tanker is required to spend 22 – 26 additional days at sea delivering LNG to Asia from the Gulf Coast instead of from Alaska, raising recurring tanker emissions and costs. Alaska's direct transit route also avoids passage through canals or other geographic or political chokepoints. The DOE report notes that LNG cargoes bound for Asia from destinations other than Alaska "need to pass through either the Panama or Suez Canals, but this comes with restrictions on vessel size, delays, and additional costs to pass through the canals."¹

Trade relationships

Alaska LNG's cost advantages have been verified by an independent competitiveness analysis undertaken by Wood Mackenzie, which determined that Alaska LNG is able to provide LNG to Asian markets at a lower cost of supply than Gulf Coast peers.²

Beyond validating the project's climate benefits, the Biden Administration has also leveraged federal diplomacy and trade relationships to convey Alaska LNG's strategic

value to international policy makers and energy industry officials. Last autumn, the U.S. Department of State convened a unique 'Alaska LNG Summit' in Tokyo, bringing together top Japanese government and LNG executives to advance formation of the partnerships required to develop Alaska LNG.

Summit leaders included U.S. Department of State Senior Advisor for Energy Security, Amos Hochstein, who *The Washington Post* reports is dubbed President Biden's "energy whisperer"³ and "has played a key role in advising Biden on international energy policy" during Biden's time as both President and Vice President.

Other US participants included U.S. Department of State Assistant Secretary for Energy Resources, Geoffrey Pyatt, and US Ambassador to Japan, Rahm Emanuel. Following the summit, Ambassador Emanuel tweeted, "No need for Russian gas when America stands ready to supply it... Alaska LNG can be part of Japan's energy future."⁴

In a subsequent column in *The Wall Street Journal*, Emanuel elaborated: "Last year, Russia supplied about 9% of Japan's LNG. Australia supplied the most, over 36%. The US already supplies Japan with 10% of its LNG, and we are ready to do more. Planned expansions in states such as Alaska could, based on private-sector studies, supply Japan's current and future demand at a reasonable cost with much lower methane emissions than alternative LNG. Alaska LNG can travel to Japan in six days without any strategic chokepoints and can make Japan the energy export hub for the Indo-Pacific to reduce its coal dependency."⁵

Other important summit participants included US Senator, Dan Sullivan (Alaska), Alaska Governor, Mike Dunleavy, and AGDC's Richards. Japanese energy industry attendees included senior representatives from INPEX, Mitsubishi Corporation, Tokyo Gas, and JERA.

Meeting Asia's energy needs today and tomorrow

The consensus among energy forecasters is that global LNG demand will continue to grow for decades. But according to Richards, US and Asian energy leaders see Alaska LNG's potential even beyond clean-burning natural gas.

Asian nations including Japan, Korea, and Vietnam have set aggressive emissions reduction targets, and the strategies of these nations incorporate low to no-emissions hydrogen and ammonia in their energy mix. Alaska has an enviously complete checklist of the items needed for launching commercial scale hydrogen and ammonia production derived from natural gas.

Hydrogen in the form of conventional liquid ammonia emits no carbon dioxide when used to produce energy, and ammonia is easier to store and transport than hydrogen gas. By unlocking the estimated 200 trillion ft³ of natural gas on Alaska's North Slope, North America's largest untapped natural gas basin, Alaska LNG will drive hydrogen and ammonia production, as well as LNG.

The benefits of producing low-carbon hydrogen from natural gas are realised when the carbon released during hydrogen production is captured and safely stored in underground geologic formations. Alaska's Cook Inlet, immediately adjacent to the planned Alaska LNG terminal

in Nikiski, Alaska, has an estimated 50 gt of carbon sequestration capacity, the best carbon sequestration potential on the US West Coast, according to geologists. Put another way, 50 gt equates to about five decades of emissions from the entire nation of Japan.

Alaska is also home to well-established energy infrastructure, including an existing ammonia plant located next to the planned Alaska LNG project LNG facility. This plant was idled due to declining Cook Inlet natural gas production, and natural gas via Alaska LNG enables it to resume operations.

Other Alaska assets include a well-trained energy workforce, widely respected permitting rigor, and stringent environmental, health, and safety standards, giving Alaska a well-earned reputation as a source for responsibly produced energy. And as the AGDC assembles the development team with the right qualifications and capitalisation to build and operate Alaska LNG, the stars are aligned for this project. **LNG**

References

1. 'ALASKA LNG PROJECT: Final Supplemental Environmental Impact Statement', *U.S. Department of Energy*, Vol. 2, (January 2023), www.energy.gov/sites/default/files/2023-01/final-seis-0512-si-alaska-lng-volume-2-2023-01.pdf
2. 'Alaska LNG Competitiveness Analysis: Final Report', *Wood Mackenzie*, (21 January 2023), https://agdc.us/wp-content/uploads/2022/01/WMA_Alaska-LNG-Competitiveness-Analysis_FINAL_20JAN2022.pdf
3. JOSELOW, M., 'Biden's 'energy whisperer' balances climate agenda, rising gas prices', *The Washington Post*, (19 June 2022), www.washingtonpost.com/climate-environment/2022/06/17/amos-hochstein-biden-energy-gas/
4. Tweet published by Rahm Emanuel on 24 October 2022, <https://twitter.com/USAmbJapan/status/1584402209940602880>
5. EMANUEL, R., 'How Japan Can Avoid Europe's Energy Mistakes', *Wall Street Journal*, (4 December 2022), www.wsj.com/articles/japan-can-move-quickly-to-avoid-an-energy-crisis-europe-russia-nuclear-wind-solar-batteries-alaska-lng-11670169782

Alaska LNG consists of three principal infrastructure components

Arctic carbon capture (ACC) plant

Located in the Prudhoe Bay section of Alaska's North Slope, the plant removes carbon dioxide and hydrogen sulfide before natural gas enters the Alaska LNG pipeline.

Natural gas pipeline

An 807-mile 42 in. dia. pipeline connecting the ACC plant to the LNG facility capable of moving 3.7 billion ft³/d of natural gas. The pipeline includes multiple offtake points to provide natural gas for in-state residential, commercial, and industrial needs.

Alaska LNG facility

Located at tidewater in Nikiski, Alaska, the 20 million tpy LNG facility features three liquefaction trains, two loading berths, two 240 000 m³ LNG tanks, and a jetty.