

Community News

Community News is a quarterly newsletter for residents of Kitimat, Terrace and surrounding areas. We invite your comments, questions or suggestions for future articles. Please contact us at KitimatLNGFeedback@chevron.com

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Chevron Kitimat LNG team members participated in a fire truck pull to help raise funds for the United Way of the North.

Message from Alan Dunlop, General Manager



As the fall months fade away and winter takes over, we are also moving into a time of transition on the Kitimat LNG project. Earlier this year, our co-venturer, Apache Canada Limited, announced its intention to sell their co-venture interest in the project. While this will likely mean change in the project ownership,

we want to assure First Nations, business partners, and communities in northern B.C. that Chevron is committed to advancing the Kitimat LNG project. We continue to complete our planned work program for 2014 and are currently finalizing budgets and plans for next year.

As we look into the New Year, we are still focused on the factors that need to be resolved in order for a Final Investment Decision on the project to be reached. These conditions include completing our Front End Engineering and Design work which will give us greater certainty around the overall costs and schedule, getting clarity and certainty around the fiscal framework, gaining additional First Nations support, and executing marketing agreements with LNG buyers.

The B.C. government recently unveiled proposed legislation introducing a new LNG tax and regulating greenhouse gas emissions from liquefied natural gas production. While both pieces of legislation make up part of the overall fiscal framework for the project, it is important to note that a final investment decision on the Kitimat LNG project will evaluate the project in its entirety. This includes careful consideration of projected LNG sales prices, and incorporation of the costs to develop the natural gas in northeastern B.C., to construct

the Pacific Trail Pipeline from Summit Lake to Kitimat that transports the gas, to build the LNG plant near Kitimat and finally, to operate the facilities once the project is completed. In order for the project to move forward successfully, all these factors must be in concert, making it possible for Chevron and its co-venturers to receive a reasonable rate of return for their investment in the project.

The Kitimat LNG project has already made a significant contribution to the Province of British Columbia and is a leader in progressing the development of a safe, clean and energy efficient LNG facility in B.C. Since 2011, Chevron and our co-venturer Apache have spent hundreds of millions of dollars here in B.C. on early project site preparation work, pipeline right-of-way clearing, and work camps. Local and First Nations businesses have been major beneficiaries of this work, and have also benefited from training and employment associated with this work. Investing in communities and protecting the environment are key values of how we operate at Chevron and we're proud to share some examples of how we are doing that in local communities in this issue of our Newsletter.

We always welcome your opinions and feedback on the Kitimat LNG project and can be reached by email at kitimatlngfeedback@chevron.com or by phone at 1-844-800-0900.



General Manager, Kitimat LNG
Vice President, Chevron Canada Limited



Kids can watch the universe unfold inside the StarLab dome



LNG carriers are designed and built to be as safe as possible

Starlab takes students on a virtual field trip to the stars

Budding young astronomers in a number of northwest communities will soon get a chance to experience a Martian sunrise and other wonders of the universe through Starlab, HR MacMillan Space Centre's portable planetarium.

As part of its community investment program, Kitimat LNG is providing \$27,700 to the Space Centre to bring Starlab to students and communities along its project route this year.

Starlab - a large dome upon which images are projected - takes viewers on a virtual field trip to the far corners of the universe. They can see images from the Hubble Space Telescope of celestial bodies that are only a blur from here on Earth.

"The philosophy behind Starlab is to make science learning come alive by helping educators get their students excited about astronomy and profile British Columbia's role in space exploration," says Raylene Marchand, Executive Director of the HR MacMillan Space Centre. "Starlab is also an ideal vehicle to help a wider community audience develop an appreciation for the connections between space science, the environment and their everyday lives."

An impetus for bringing Starlab to northern B.C. was feedback from local communities saying there was a need for more interactive experiences in schools.

"We are excited to be working with the Space Centre to bring a dynamic learning experience to communities and students," says Deidre Reid, Social Investment Manager, Kitimat LNG. "By removing the classroom walls and taking participants on a virtual journey, Starlab can help demonstrate to students that science and technology are fun and interesting."

This year's Starlab tour is a pilot program with plans to make it available to more communities in 2015.



Marine transportation safety

More than 50 years ago, a specially modified vessel, the Methane Pioneer, entered into maritime history when it delivered the first ocean cargo of LNG from Lake Charles, Louisiana, to Canvey Island, United Kingdom.

The industry has come a long way since then and boasts an enviable safety record. To date, more than 77,000 loaded LNG voyages have occurred without any loss of primary containment of an LNG carrier cargo tank.

LNG carriers have evolved over the years, but the one constant is that they are designed and built to be as safe as possible. They are double-hulled, which minimizes the probability for a loss containment of an LNG cargo tank in the event of a collision or grounding. LNG carriers have sophisticated leak detection systems to continually monitor cargo tank condition.

To handle the cold temperatures of their LNG cargo, the storage tanks have advanced insulation such as high-tech foam that minimizes the amount of LNG vaporized during transport. The LNG that does vaporize is used to cleanly fuel the ship's engines, helping reduce the overall carbon footprint of the voyage.

If a release of LNG were to occur, it would vaporize and the natural gas would warm up. When the natural gas becomes warmer than -106.7° C (-160° F), it becomes lighter than air and will rise and disperse rather than collect near the ground or water. LNG would not mix with water and is non-polluting and non-toxic.

Bish Cove and the Douglas Channel, through which Kitimat LNG carriers would transit, are designated as a Mandatory Pilotage Zone. This means by law LNG carriers calling at Kitimat LNG will be required to have British Columbia Coast Pilots board each carrier while still out at sea to use their expert and local knowledge to safely navigate the waterway, including Douglas Channel to and from the LNG terminal.



LNG is the same natural gas used by British Columbians every day for heating and cooking

LNG 101 - A primer on liquefied natural gas

Liquefied natural gas, or LNG, is the same natural gas that hundreds of thousands of British Columbians use every day for heating and cooking in their homes and several Canadian provinces use to generate electricity.

Liquefying natural gas is the way to safely transport it to overseas markets. To do this, it is first cooled to about -160° C, the temperature at which the natural gas turns into a liquid form - or LNG. In its chilled liquid state LNG occupies 1/600th of its original gaseous volume. The cooling process takes place in a liquefaction plant that operates like a refrigerator or freezer - only on a much larger scale.

Cooling the natural gas to liquid form allows it to be stored in tanks, and loaded on to specially designed LNG carriers for safe and efficient shipment to regasification plants where the LNG is transformed back to a gaseous state for distribution via pipelines to end customers.

LNG is odourless, non-corrosive and non-toxic. If released or exposed to the surrounding air, it quickly evaporates to become natural gas (mostly methane) and does not mix with water or soil.

Worldwide demand for natural gas is steadily increasing, because it is a clean-burning fuel that produces fewer greenhouse gas emissions than other hydrocarbons.

Unconventional natural gas extracted through hydraulic fracturing now accounts for approximately 60 per cent of all natural gas produced in British Columbia. It's not a new technology and switching to natural gas has many benefits. For example, natural gas has 40 per cent fewer emissions than coal when the entire production lifecycle from extraction to final use is taken into account.

The switch from coal to natural gas can have huge benefits in countries such as China where burning coal accounts for a significant portion of the world's greenhouse gas emissions. The benefit is even greater when the health benefits of cleaner air are taken into account since burning coal for electricity or as fuel for indoor stoves contributes to China's significant air pollution and millions of deaths each year according to the World Health Organization.

Kitimat LNG founding member of BC LNG Alliance

This October, a new industry association was launched in order to foster the growth of a safe, environmentally responsible and globally competitive LNG industry in British Columbia and Canada.

The BC LNG Alliance is made up of seven B.C. LNG proponents, with Chevron's Kitimat LNG project being one of the founding members of the Alliance.

"Our members are committed to developing an LNG industry that is safe and environmentally responsible, an industry that British Columbians can be proud of," said David Keane, President of the BC LNG Alliance.

All of the Alliance members bring decades of experience, insight and best environmental practices in LNG to British Columbia. The Alliance will be providing British Columbians with reliable information on LNG, the

industry's operations and best practices as well as engaging with, listening to and addressing the questions and concerns of communities, First Nations and stakeholders. In the coming months, the Alliance plans to tour northern B.C. communities with additional stops in the Interior and Lower Mainland.

"The people of northwest B.C. see great opportunity in LNG, and I see the BC LNG Alliance as a further demonstration of the industry growing and evolving," said Terrace Mayor David Pernarowski at the Alliance's official launch in Terrace on October 8, 2014.

For more information on the BC LNG Alliance and information about the LNG industry, you can visit their website at www.BCLNGA.ca or follow on Twitter at @BCLNGA.



KLNG biodiversity study a first in Canada

As part of its commitment to protect the environment, Kitimat LNG is undertaking a unique, multi-year Biodiversity Monitoring and Assessment Program (BMAP).

The program will collect information about the status and trends of habitats, ecosystems and species within the footprint of the Kitimat LNG project prior to, during and after construction. The information will provide recommendations for the development of best management practices during the construction and operation of the Pacific Trail Pipeline and Kitimat LNG facility.

“Our goal during the construction of the LNG facility and pipeline is to ensure we have world class environmental monitoring and assessment practices in place, and this program will help us achieve that goal,” says Rod Maier, Vice President of the Pacific Trail Pipeline.

The BMAP research and monitoring activities will be carried out independently by the Natural Resources and Environmental Studies Institute at the University of Northern British Columbia (UNBC), the Smithsonian Conservation Biology Institute’s Center for Conservation, Education and Sustainability in Washington, D.C., and Archipelago Marine Research Ltd., a private company

with extensive local and international marine research experience.

The BMAP’s objectives are to:

- Understand the current biodiversity status and links to ecological function within the footprint of the Kitimat LNG facility and Pacific Trail Pipeline projects;
- Share information about the potential effects to construction teams so they can restore and mitigate impacts to local ecosystems;
- Develop more timely and efficient ways of monitoring species and habitat;
- Contribute to best practices for construction and operations of both projects;
- Enhance our knowledge of biodiversity and how ecosystems function in regions across northern British Columbia; and
- Share the information gathered by publishing the results.

“This is the first BMAP undertaken in Canada, and it goes beyond the regulatory requirements of both the federal and provincial governments,” says Maier.

HOLIDAY KITIMAT OFFICE HOURS

The Kitimat Community office will be closed from December 15 to January 5 for the holiday break.



Community Contact

Chevron’s Kitimat LNG project welcomes your feedback.

If you have any comments or concerns, please do not hesitate to email us at KitimatLNGFeedback@chevron.com.

Call us toll-free at 1-844-800-0900

www.chevron.ca/KitimatLNG

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