A Green Hydrogen Utility for the Xaxli'p Community

A 51% Xaxli'p-owned green hydrogen utility designed to provide a viable alternative to fossil fuels and stand up to climate change

November, 2025.

Dear Xaxli’pmec,

This information package outlines why this project is important, highlights community benefits, provides a project status update, and aims to answer questions and concerns.

We see this project as a unique moment in time — for Xaxli’p to lead a project that is the first of its kind — a majority Indigenous-owned green hydrogen plant in BC designed to provide a viable alternative to fossil fuels and stand up to climate change.

For the project to move forward, the Xaxli’p needs to vote to approve a land designation to lease Lot 9-2-1 Fountain IR 1B to Xaxli’p Salish Limited Partnership (XSLP).

This is our opportunity to guide how we collectively strengthen our connection to our land, air, and waters. Our Xaxli’p-led teachings will inform how to responsibly work on Fountain Flats to maintain the Eco-system Land-based Management Plan, restore biodiversity, and ensure our economic health and food security.

We invite you to have your comments and questions heard at our upcoming community meetings and to contribute to its development.

Kukwstum'úlhkal'ap.
Respectfully, XSLP Advisory Council
Nora Billy, Juanita Jacob, Natasha Billy, Darrell Bob Jr.

Questions? Comments? Concerns?

Cait Cameron, Managing Director, Xaxli’p Salish Limited Partnership (XSLP)
604-910-9286 / cait@salishelements.ca
Nora Billy, Community Liaison, Chair of XSLP Advisory Council
250-256-3994 / nobil1.nb@gmail.com
Andrew Mercer, CEO, Xaxli’p Development (XDLP)
250-256-4800 / andrew.mercer@xaxlip.ca

A Green Hydrogen Utility for the Xaxli’p Community

Xaxli’p Development LP has partnered with Salish Elements to form the Xaxli’p Salish Limited Partnership (XSLP) with plans to build a 51% Xaxli’p-owned green energy utility to produce liquified hydrogen fuel.

The Xaxli’pmec Advisory Council exists to steer the partnership and ensure Xaxli’p has a voice in how the project comes together and to create a plan for a potential additional structure, a Biocultural Innovation Centre — a knowledge-sharing space to share teachings about traditional uses of local plants and animals, as well as community gathering space.

Why the project is important

- Xaxli’p-ownership – infrastructure, first of its kind majority Indigenous-owned
- Increased economic sovereignty – more opportunities for self-determination
- Climate change – a renewable energy carrier to reduce dependency on fossil fuels, lowering greenhouse gas emissions

Other Community Benefits

- Local employment opportunities and responsible integration of business with environment environmental stewardship
- Additional support for traditional food, cultural, educational, and ecosystem restoration activities
- Profits from sales of hydrogen fuel go to community in a majority-ownership model

Brief History of Xaxli'p and Salish Elements

2023

The hydrogen production facility concept was conceived at a ceremony, and Xaxli'p enlisted the late Howard Bob to explore what a community-based green hydrogen project might look like with Salish Elements.

2025

APRIL

Chief Darrell Bob joins Salish Elements in Germany and Norway to meet with world-leading engineering suppliers for equipment that can be used in the utility.

2023

Chief and Council signed a Memorandum of Understanding to engage Salish Elements to further explore options for a hydrogen utility on Xaxli'p reserve lands.

2025

MAY

Nora Billy joined as Community Liaison to advise on the green hydrogen project, spread awareness in Xaxli'p, form an Advisory Council, and ensure Xaxli'pmec are included in renewable energy spaces and conferences to share directly about the sacred relationship among Xaxli'pmec, water, and land.

(From Left to Right) SE Communications Director, Deanna Ambrose, and Xaxli'p – Salish LP Community Liaison, Nora Billy, working the annual 2025 Salish Elements table at HyFcell hydrogen conference held in Vancouver

2023 & 2024

Salish Elements presented various ideas to the Xaxli'p community for feedback.

2025

SEPTEMBER

The LP board brought on local Lillooet resident, Cait Cameron, as Managing Director. Before joining, Cait was the Policy Advisor to the St'át'imc Chiefs Council.

The Advisory Council is formed and comprises four Xaxli'p members and Chair, Nora Billy. The Council advises the LP on how to operate in such a way that will serve the community's needs most effectively.

2024

A board of directors is formed consisting of Bobby Watkinson (Xaxli'p Councillor), Andrew Mercer (CEO, XDLP), Omar Kassem (CEO, co-founder, Salish Elements), Rueben George (Chairman, Co-founder, Salish Elements).

2025

NOVEMBER

Community meeting held and led by Advisory Council and Managing Director of the XSLP to provide a project update.

2024

MAY

An Agreement in Principle is signed to establish a partnership between Xaxli'p and Salish Elements (SE).

(From Left to Right) SE CEO Omar Kassem, SE Chairman Rueben George, Former BC Minister of Energy, Mines, and Low Carbon Innovation Josie Osborne, Kukpi7 Darrell Bob, XSLP Board Member, Bobby Watkinson, XDC GM Andrew Mercer, and Former SE VP of Community Development James Delorme

2025

DECEMBER

Indigenous Services Canada (ISC) to attend a community meeting on land designation process.

2025

JANUARY

Further exploration and research on Xaxli'p water assessment in conjunction with upgrading Xaxli'p's drinking water infrastructure, engaging local hydrologist experts whose work in the Territory spans decades.

2026

JANUARY 26

Xaxlip'mec land vote day on the opportunity to lease Lot 9-2-1 Fountain IR to the XSLP for the purpose of green hydrogen production facility.

Key Topics

Community Referendum: The Land Vote

Xaxli'pmec will vote on Monday, January 26, 2026, to determine if Lot 9-2-1 Fountain IR 1B will be designated for lease to the Xaxli'p Salish LP for 99 years. The land vote follows a formal process set out by Indigenous Services Canada (ISC).

Water Studies

Ensuring a reliable, sustainable water supply for Xaxli'p is a shared priority. XSLP is exploring opportunities with Xaxli'p to coordinate water infrastructure upgrades that benefit the community. The facility would require approximately 530 cubic metres (m3) per day on average and up to 850 m3 per day in total for additional cooling in warmer months. We are conducting further water assessments to ensure long-term sustainability.

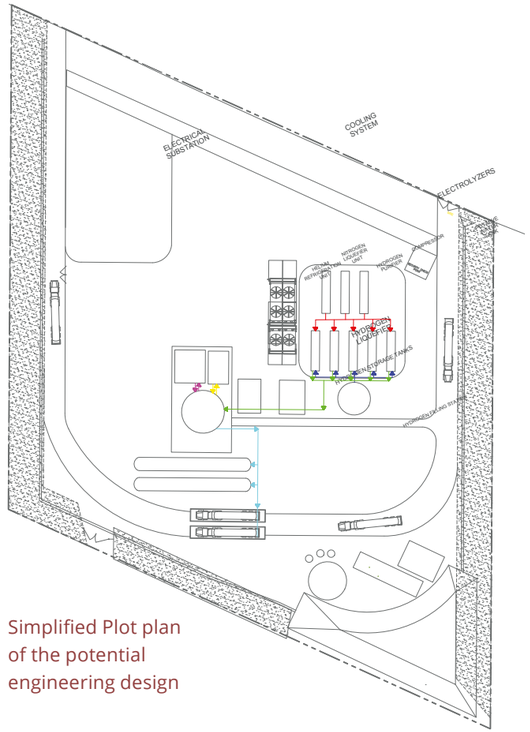
Power Supply

The hydrogen production facility and planned Biocultural Innovation Centre will be powered by a renewable energy source, consuming 31MW.

Front-End Engineering Design (FEED)

The hydrogen utility project has undergone several iterations and design processes with the Salish Elements engineering team. With the basis of design, feasibility done and the Front-End Engineering Design in progress, this will deliver the most optimal drwaings, design, supplier equipment and data for detailed design and construction to get under way.

Water
Gaseous Hydrogen
Liquefied Hydrogen
Nitrogen
Helium
Supplied DC Power



Simplified Plot plan of the potential engineering design

End Use Opportunities

A primary application of the green hydrogen produced will be to provide clean, green power in diesel generation dependent communities in British Columbia. The partnership is currently securing all its buyers to provide investor confidence in the project.

A key application is in zero-emission trucking. The transport sector is a huge emitter of carbon dioxide, as almost all trucks on the road today are fossil fuel dependent. Hydrogen can power heavy-duty trucks to provide zero-emission transportation with a longer range than battery vehicles. Salish Elements will also use these vehicles to deliver green hydrogen to partners and communities.

The fuel cells use hydrogen to produce power for the electric motor to drive the vehicle.

Disclaimer: This representation of a hydrogen truck is a conceptual mock-up intended solely for illustrative purposes.

Expected Next Steps

Based on a positive land vote from Xaxli'pmec to lease lot 9-2-1 to XSLP. All dates are tentative.

2026 summer

Construction is anticipated to begin as early as June 2026 and will take an estimated two years to complete the hydrogen production facility.

2026 fall

Xaxli'p members can train in an employable field or trade to work at the hydrogen production facility, including Class I driver training, a 3-month course partly sponsored by XSLP.

2028 summer

Construction completes. Green hydrogen production begins.

Training Opportunities for Xaxli'pmec

Foundation Modules

01

Hydrogen 101

Introductory courses covering hydrogen properties, applications, and safety fundamentals.

02

TDG / WHMIS

(Transportation of Dangerous Goods / Workplace Hazardous Materials Information System) – Regulatory trainings to ensure compliance with handling, labeling, and transporting hazardous materials.

03

Hydrogen Fire Education / Fire Safety Assurance

Specialized trainings focused on hydrogen-specific fire risks, mitigation strategies, and emergency response protocols.

04

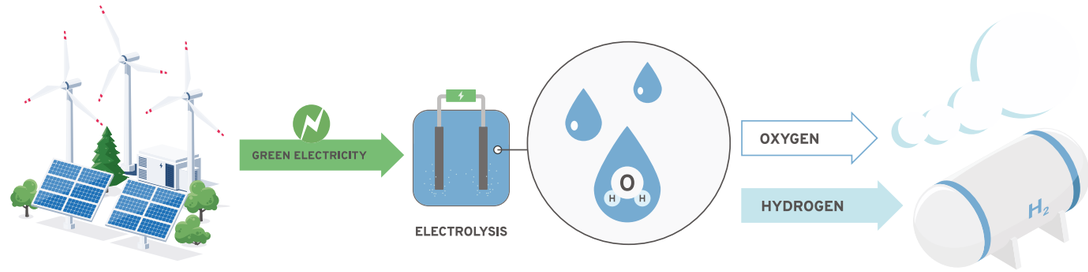
Hydrogen Awareness for First Responders

Targeted educational programs for emergency personnel to recognize, assess, and respond to hydrogen-related incidents safely.

The Technology

What is hydrogen?

Hydrogen is the most abundant elem ent in the universe. On Earth, hydrogen is most commonly found in water (qu7).



How is hydrogen made?

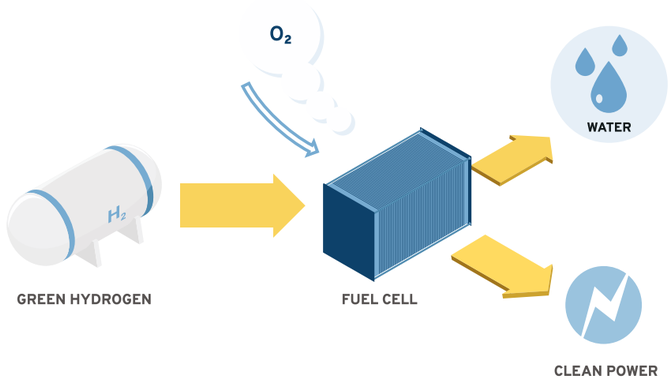
Hydrogen can be produced in many ways — not all of them clean, as evidenced by other production facilities that use carbon-intensive and fossil fuel-based processes to make hydrogen.

Our proposed method is electrolysis, which involves running an electric current through water to separate the hydrogen and oxygen molecules. If the electricity used in the electrolysis process comes from a renewable source (such as hydro, wind, and solar), this kind of hydrogen can be called **green hydrogen** — a carrier of clean energy.

Energy can then be produced using a fuel cell: a device that generates electricity from the energy released by turning hydrogen fuel and oxygen (from the air) into water. Fuel cells can be small enough to power a vehicle, including cars, trucks, and ships, or large enough to provide power to a whole community.

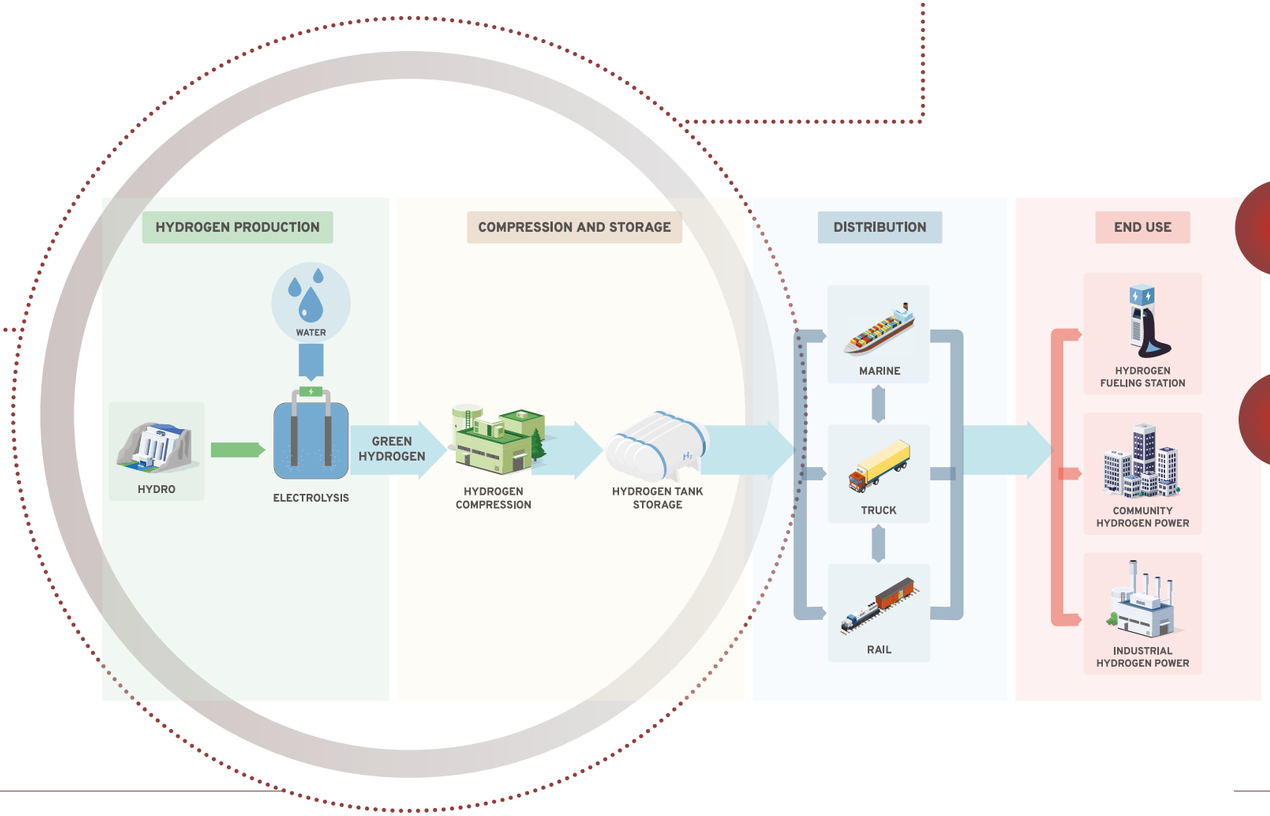
Hydrogen Benefits

Hydrogen is a versatile and unique energy carrier that enables economic and environmental benefits and can play a significant role in decarbonization of energy systems. It has the highest energy per mass of any fuel allowing it to transfer large amounts of energy from its point of production to end-use applications. However, as a gas, it has very low energy per volume, so it is typically compressed or liquefied for storage and transport. Hydrogen can be produced from clean energy sources and is carbon and pollutant-free at its point of use.



This means pure clean water is the only by-product that is released from using hydrogen as fuel.

Xaxli'p production facility involves these steps



How the green hydrogen process works

1

Step 1: Hydrogen Production

Inside the utility, a 25 MW **electrolyzer** uses clean electricity to split water molecules:

- **Water enters the electrolyzer**
- **Clean hydroelectricity powers the process** - 25 MW of renewable energy to the electrolyzer, 6 MW to the rest of the facility
- **Water molecules are separated** - hydrogen (H_2) and oxygen (O_2) are produced
- **Hydrogen is collected** - approximately 10,000 kg (10 tonnes) of hydrogen per day
- **Oxygen is released** - safely returned to the atmosphere

2

Step 2: Liquefaction and Storage

Hydrogen fuel must be liquified on-site for transport in a process called liquefaction. Liquid hydrogen takes up 800 times less space than gas — a huge volume reduction.

- **Cool to liquid form** - hydrogen is cooled to -253° C (-423° F)
- **Storage tanks** - held safely at -253° C until transport
- **Heat recovery** - waste heat from this cooling process is harvested and used for other purposes, such as greenhouses at the Biocultural Centre

3

Step 3: Distribution

Liquid hydrogen is loaded into specialized, safety-rated transport trucks and delivered to customers. About 2.5 trucks can transport the daily production of the facility.

4

Step 4: End Use

The green hydrogen produced at Xaxli'p can be used to reduce dependency on fossil fuel to energize power grids in remote communities and to provide eco-friendly fuel to the transportation industry — from heavy duty transport vehicles, powering EV charging stations, and marine vessels. These are just the current applications, but in the future more heavy-duty equipment, machines and vehicles (even airplanes) may be transitioned to hydrogen fuel.

How safe is green hydrogen production?

The green hydrogen utility in Xaxli’p will be subject to the numerous federal and provincial regulations and safety and standards codes.

1. **Cleaner process:** Although hydrogen, as with any other fuel is not zero risk, liquefaction enables a safer handling and storage method. Potential leak risks lead to gaseous hydrogen being released and does not affect the air quality. While a hydrogen leak does pose immediate safety risks like flammability, it quickly rises and disperses in the atmosphere rather than lingering as a long-term environmental contaminant like other fuels like diesel.

2. **No combustion:** Unlike fossil fuel-based production, there's no high-temperature combustion or toxic chemicals in the basic process.

3. **Established technology:** Electrolysis has been utilised in various industries for over a hundred years and is a very well-established technology considered extremely efficient, reliable, and cost-effective.electricity - no pollution, no carbon emissions.

Risk Mitigation

Hydrogen is highly flammable and possesses a very low minimum ignition energy, significantly lower than that of natural gas. As a result, it can ignite readily from static discharge, sparks, or heat sources. When hydrogen and oxygen concentrations reach their respective flammable limits, there is a potential for explosion. This risk can be effectively mitigated through robust engineering controls, automated safety systems, and adequate ventilation.

In the event of a substantial hydrogen release within a confined or poorly ventilated area, the gas can displace oxygen, creating an asphyxiation hazard for personnel. This risk is minimized by ensuring proper ventilation and implementing well-documented work procedures.

Because hydrogen is colorless and its flame is nearly invisible in daylight, fire detection poses a challenge for workers. Utilizing specialized detection equipment capable of sensing non-visible radiation significantly enhances fire safety.

Due to its extremely small molecular size, hydrogen is more prone to leakage than most other gases. In addition, high-voltage electrical equipment presents a potential ignition source for any leaked hydrogen. Installing reliable detection and monitoring systems equipped with automatic alarms and shutdown functions provides an effective means of risk mitigation.

Dependence on BC Hydro’s electrical grid introduces vulnerability to power surges, voltage fluctuations, and outages. Maintaining a suitably rated emergency power supply ensures the safe operation of all critical systems during power interruptions, thereby protecting facility integrity and personnel safety.

About Salish Elements

Salish Elements is an Indigenous-led renewable energy company that works in the spirit of traditional trade networks. Headquartered in Tsleil-Waututh territory, Salish Elements advances green hydrogen solutions to decarbonize energy systems across the West Coast.

For more information visit:
www.SalishElements.ca

SALISH ELEMENTS

Canada's Hydrogen Strategy Progress Report emphasizes safety as a key priority. Major projects like the 88-megawatt electrolyzer at Hydro-Québec in Varennes represents one of the world's first and largest green hydrogen production facilities, demonstrating Canada's confidence in scaling the technology safely. Ontario hydrogen projects, including the Canadian Tire Bolton Distribution Centre which produces hydrogen onsite, have reported zero safety incidents.

Green Hydrogen

The Cleanest Form of Hydrogen energy

The Xaxli'p facility will produce **green hydrogen** - the cleanest form of hydrogen.

1. **100% renewable electricity source** - powered entirely by a local renewable source so no fossil fuels are burned.

2. **Zero carbon emissions during production** - the electrolysis process produces only hydrogen and oxygen, with no CO_2 or other greenhouse gases.

3. **Clean fuel output** - when the hydrogen is used in fuel cells, it produces only water vapor and electricity - no pollution, no carbon emissions.

Mark your calendar

Monday, January 26 - land vote

Further reading

Canada's Hydrogen Strategy
https://natural-resources.canada.ca/energy-sources/clean-fuels/hydrogen-strategy
BC Hydrogen Strategy
https://www2.gov.bc.ca/gov/content/industry/electricity-alternative-energy/renewable-energy/hydrogen-office

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