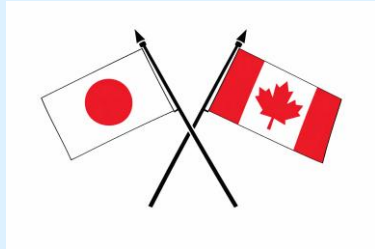




NextHydrogen

Innovation in Water Electrolysis™



Company Overview

NXH:TSXV
NXHSF:OTC



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Legal disclaimer

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Market research and public data

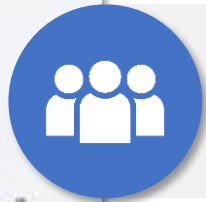
This presentation also contains or references certain market and industry data which is based upon information from independent industry publications, market research, analyst reports and surveys and other publicly available sources. Although the Company believes these sources to be generally reliable, such information is subject to interpretation and cannot be verified with complete certainty due to limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other inherent limitations and uncertainties. The Company has not independently verified any of the data from third party sources referred to in this presentation and accordingly, the accuracy and completeness of such data is not guaranteed.

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The Presentation Materials contain forward-looking statements with respect to Next Hydrogen. By their nature, forward-looking statements are subject to a variety of factors that could cause actual results to differ materially from the results suggested by the forward-looking statements. In addition, the forward-looking statements require Next Hydrogen to make assumptions and are subject to inherent risks and uncertainties. There is significant risk that the forward-looking statements will not prove to be accurate, that Next Hydrogen’s assumptions may not be correct and that actual results may differ materially from such forward-looking statements. Accordingly, readers should not place undue reliance on the forward-looking statements. Generally forward-looking statements can be identified by the use of terminology such as “anticipate”, “will”, “expect”, “may”, “continue”, “could”, “estimate”, “forecast”, “plan”, “potential” and similar expressions. Forward-looking statements contained in the Presentation Materials may include, but are not limited to statements with respect to the successful execution of Next Hydrogen’s business objectives and plans, including in respect of its research and development (“R&D”) and the commercialization and growth of its business, the expected growth of the hydrogen economy, its competitive position in respect thereof, its ability to execute on its expected market opportunity, expectations in respect of the fossil fuel industry, the environmental impact thereof and the economic opportunities resulting therefrom, specifically in respect of demand for hydrogen, its ability to innovate products, the durability of its products, Next Hydrogen’s investment and capital market strategy, Next Hydrogen’s favourable position in the market on a go-forward basis, project projected financial results, targeted returns, demographic and market size/trends, go-forward management of Next Hydrogen, and other expectations, beliefs, plans, objectives, assumptions, intentions or statements about future events or performance and timelines. These forward-looking statements are based on a number of assumptions which may prove to be incorrect including, but not limited to: Next Hydrogen’s ability to execute its business plan, to source materials at competitive costs, to protect its intellectual property, to accurately forecast supply and demand, and to secure and maintain its competitive position; competition, including from established and future competitors; market reception of its products; general economic, market and business conditions; ability to obtain sufficient capital on satisfactory terms; availability of equipment and personnel; changes in global markets; the successful and timely implementation of investment strategies; and the impact of changes in applicable laws and regulations.

Forward-looking information involves known and unknown risks and uncertainties, many of which are beyond our control, that could cause actual results to differ materially from those that are disclosed in or implied by such forward-looking information. These risks and uncertainties include, but are not limited to, those described under “Risk Factors” in this confidential presentation. Although Next Hydrogen has attempted to identify the main risk factors that could cause actual results to differ materially from those contained in forward-looking information, there may be other risk factors not presently known to Next Hydrogen or that it presently believes are not material that could also cause actual results or future events to differ materially from those expressed in such forward-looking information.

The forward-looking statements contained in the Presentation Materials are made as of the date hereof or the dates specifically referenced in the Presentation Materials, where applicable. Except as required by law, Next Hydrogen undertakes no obligation to update publicly or to revise any forward-looking statements that are contained or incorporated in the Presentation Materials. All forward-looking statements contained in the Presentation Materials are expressly qualified by this cautionary statement. No securities commission or similar regulatory authority has passed on the merits of the securities to be offered by Next Hydrogen or reviewed this Presentation and any representation to the contrary is an offence.



Next Hydrogen was founded in 2007 by pioneers in water electrolysis with ~\$90M+ of investment to design next generation water electrolyzers



Canada is a proven leader in innovation for the hydrogen sector (Stuart Energy, Ballard, Hydrogenics, Ionomr, Next Hydrogen, Hydrogen Optimized)



Next Hydrogen's Select Partners include:



Green Hydrogen has a strong case to Decarbonize Fertilizer, Cement, Steel, Refinery Industries and Transportation Applications – Heavy Duty and Material Handling

40 patents
on both alkaline and PEM designs issued globally
+ 27 European registrations

16+ years
of IP development to advance cell design architecture

Next Hydrogen Manufactures Electrolyzers – Hydrogen Production Technology

Next Hydrogen can harness renewable power sources and grid-based systems as inputs to create hydrogen for transportation and industrial use by supplementing fuel sources



Wind Power



Solar Power



Nuclear Power/Grid



Hydro Power

 NextHydrogen



Power



Industrial



Transportation












Agriculture



Advanced technology and products to help customers transition to a low carbon economy

Large End Global Hydrogen Markets

Market Segment	Applications	Advantages	Market Maturity	Next Hydrogen Partners
Transportation	<ul style="list-style-type: none"> Material handling equipment Trucks Aero planes Marine vessels 	<ul style="list-style-type: none"> Vehicle range Weight & payload capability Quick refueling 	Bus and forklifts at commercial readiness trucks, marine vessels and aero planes in pilot stages	  
Industrial	<ul style="list-style-type: none"> Petro-chemicals Fertilizers Steels 	<ul style="list-style-type: none"> Feedstock for low emissions chemicals Existing \$120B market 	Long historical use of Hydrogen in industry	 
Micro Grids / Stationary Energy	<ul style="list-style-type: none"> Large scale energy storage Power to gas Grid stabilization Back-up energy supply (for Data centers) Military applications 	<ul style="list-style-type: none"> Efficient long-term and seasonal storage Low maintenance Reliability Low emissions 	<ul style="list-style-type: none"> Small to medium scale storage in active use Massive scale hydrogen storage in development 	 
Nuclear Fusion	Tritium production	Efficient production of tritium, required to fuel nuclear fusion	40 pilot projects announced	
Export	<ul style="list-style-type: none"> LH₂ (Liquid Hydrogen) NH₃ (Ammonia) LOHC (Liquid Organic Hydrogen Carrier) 	Bulk renewable & sustainable energy distribution	In early research & development stages	

NH-150 Electrolyzer Building Block



- Alkaline Water Electrolyzer Technology
- Electrolyzer Module with Balance of Plant Modules including power, controls, gas purification and closed-loop cooling
- Key Features include Scalable, Low cost, High current density, Dynamic response (ideal for renewable sources), wide operating range

Our Differentiated Technology versus Competitors

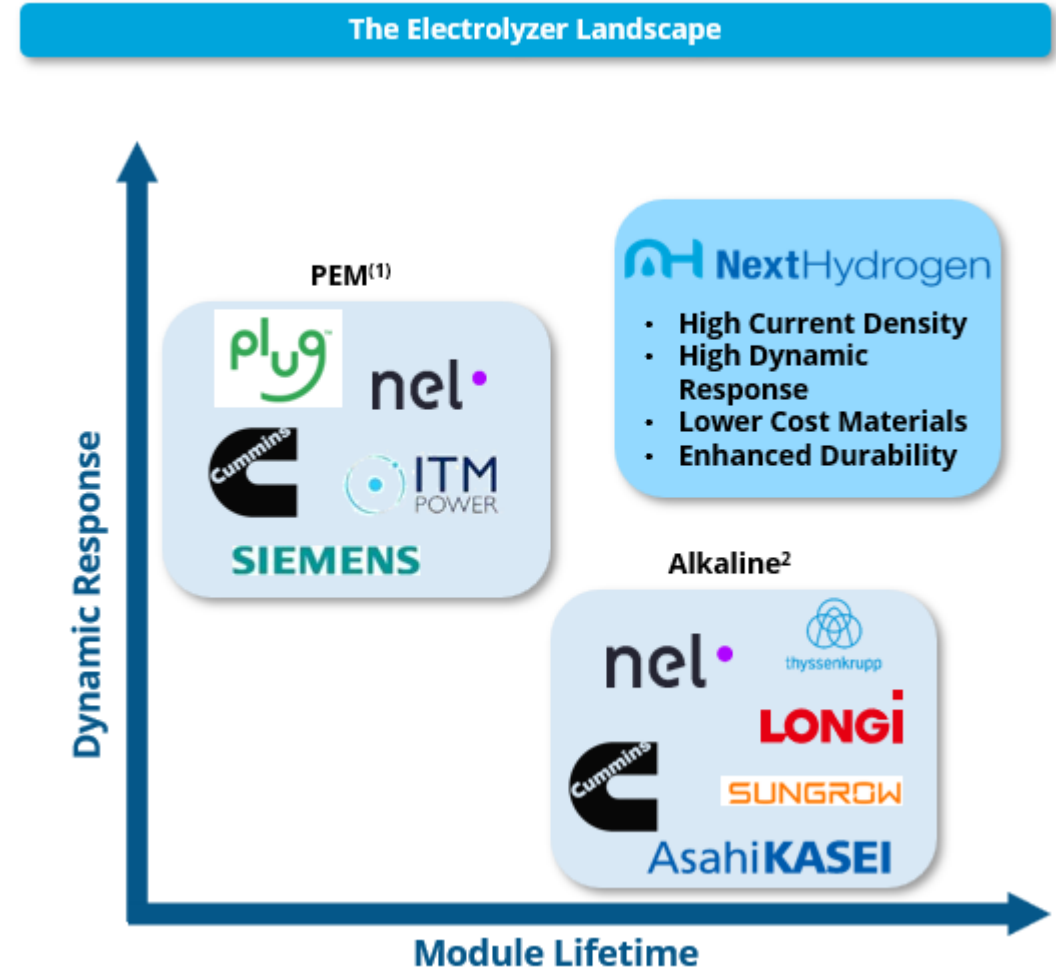
Next Hydrogen's unique cell design (40 patents) delivers PEM like intermittent operation with alkaline lower capital cost, scale and durability

- Alkaline electrolyzers have proven durability, scalability and low capital cost. Best suited for base load applications and not intermittent operations.
- PEM electrolyzers can operate intermittently, are compact, scalability being proven and higher capital costs due to use of precious metals.

Low Temperature Electrolyser Chemistries

Metric	Industry Benchmarks		Next Hydrogen
	Alkaline	PEM	
Scalability	Highest	Medium	Highest
Cost	Lowest	Highest	Lowest
Operating Range	Low	Highest	Highest
Durability	Highest	Medium	Highest
Dynamic Response	Low	High	High

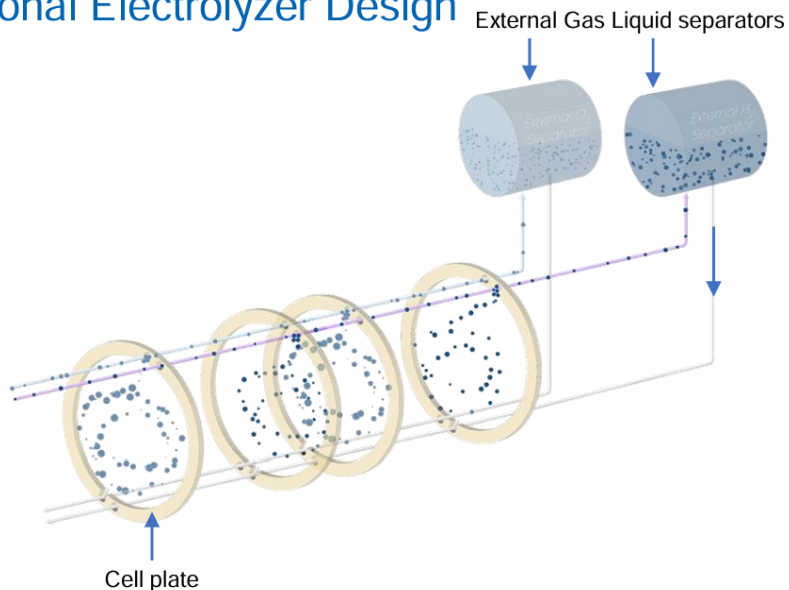
Next Hydrogen's Cell Design architecture is cell agnostic which allows it to use alkaline today and be able to integrate other cell chemistries if they offer compelling value proposition



Significant Advancement In Water Electrolysis

Conventional Electrolyzer Design

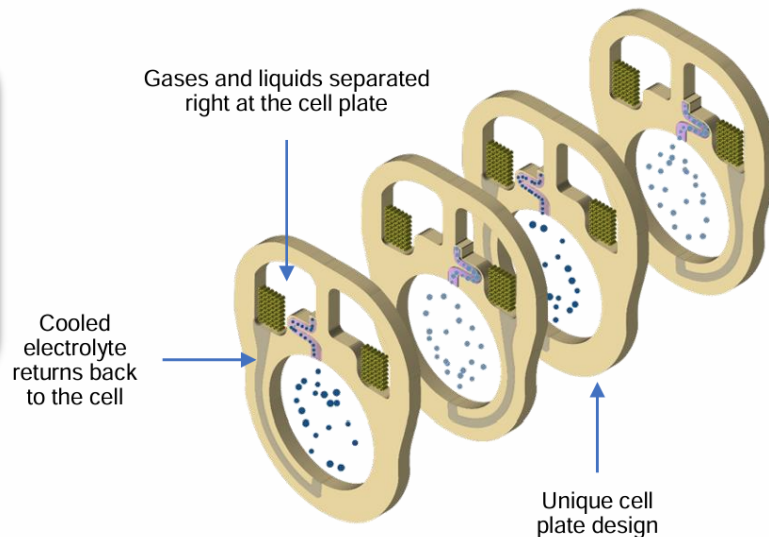
Electrolyte and gases are required to flow through pipes to external separators which limits the performance of electrolyzers



- ✗ External gas-liquid separators, outside of stack
- ✗ Potential for flow restrictions leading to uneven gas-liquid and temperature distributions at higher current densities and multi-MW scale
- ✗ Low dynamic response given distance from gas-liquid separators

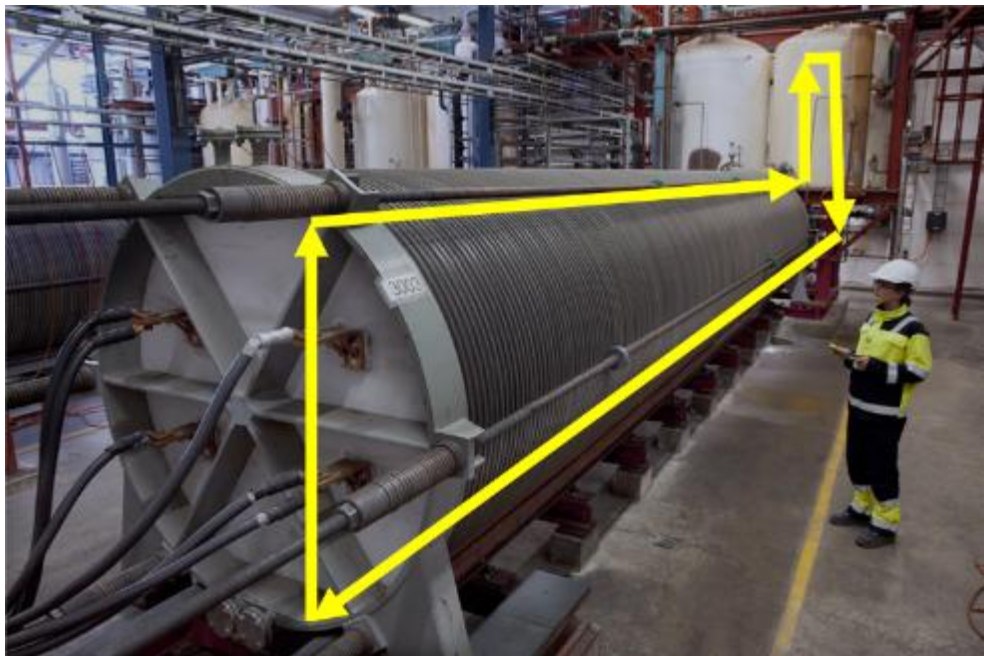
NextHydrogen Electrolyzer Design

All electrolyte and gas-liquid separation occurs at each cell plate, removing limiting design features of conventional electrolyzers



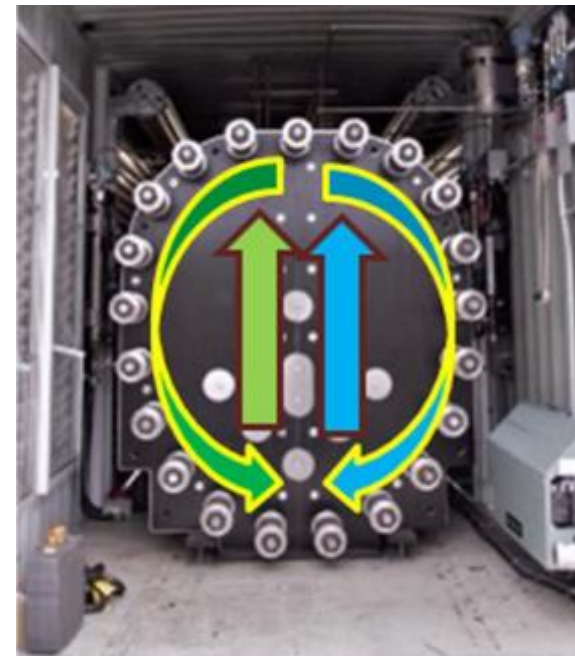
- ✓ Internal gas-liquid separators in each half cell
- ✓ Decentralized gas-liquid separator ensures no fluid and gas flow restrictions across the system for higher current densities and multi-MW scale
- ✓ Superior dynamic response as gases and liquids are separated right above the cell plate

Shorter Pathway, Shorter Process



Conventional

Axial electrolyte circulation

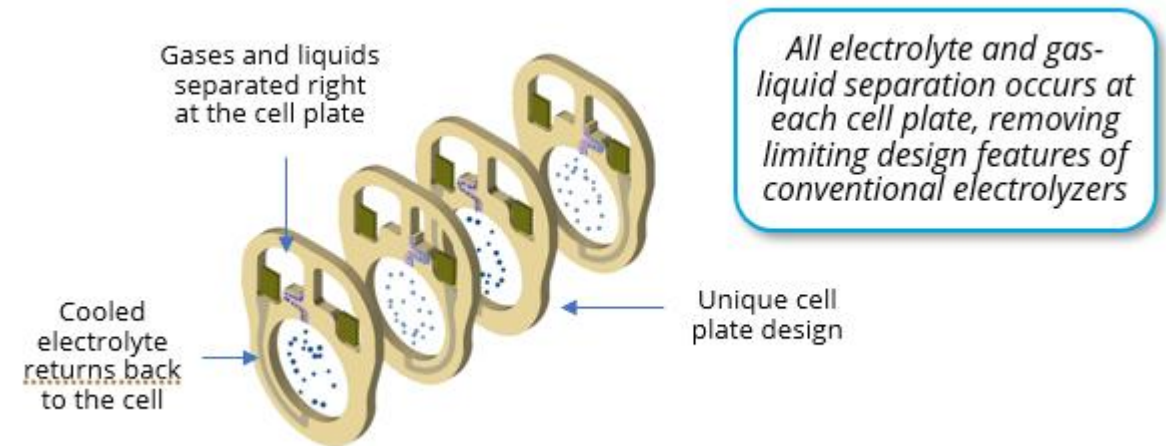


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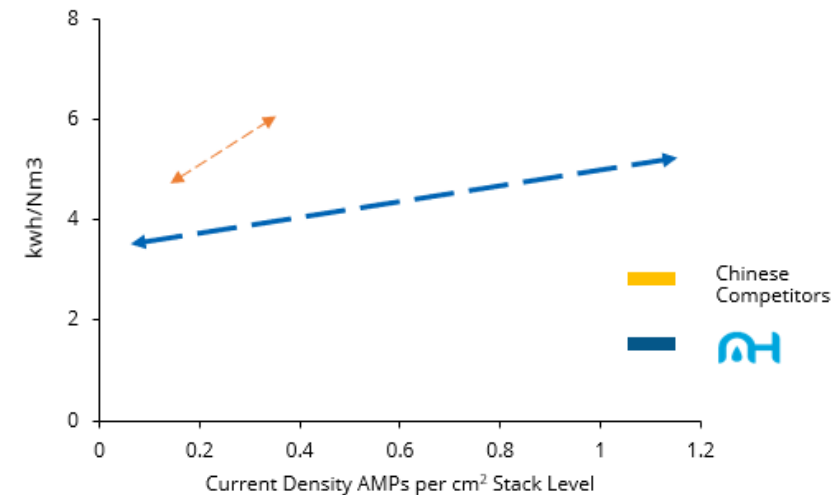
Circumferential electrolyte circulation

Innovation for Large Scale and Low-Cost Hydrogen Production

- First revolution in cell design architecture since the 1950s and validated at scale
- Decentralizes gas-liquid separation removing operating choke points
- Allows for **3 to 4 times more hydrogen** production out of each alkaline cell resulting in an electrolyzer which is **1/3 the length** versus leading competitors
- Allows for much higher material utilization to drive down the capital cost of equipment
- 60-80% of the cost of green hydrogen production is associated with the electricity price; thus, production efficiency matters (kWh/kg of H₂)
- With support from National Research Canada, Next Hydrogen is working towards exceeding the U.S. Department of Energy's targets relating to cell efficiency which reduces operating costs



Energy Efficiency and Current Density



Advantages of Next Hydrogen's Electrolyzer Design

Higher Current Density to reduce CAPEX

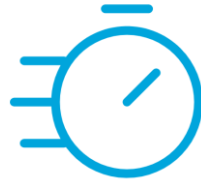
Direct connection to Renewables to capture cheap electrons

Efficient use of electricity to produce H₂

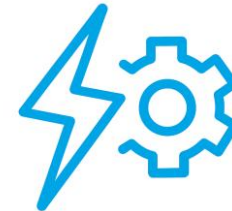
Scalable Design with economies of scale



Up to 2-4x higher current density; produce more hydrogen using less materials; widely recognized as the most practical way to reduce CAPEX.



Superior dynamic response enables Next Hydrogen's electrolyzers to capture fluctuations in energy at 10% per second compared to conventional alkaline systems with capabilities of up to 5-10% per minute.



60-80% of the cost of hydrogen production is the cost of electricity. Next Hydrogen is exceeding US DOE targets with respect to cell efficiency.



With approximately the same footprint, Next Hydrogen's electrolyzers are able to scale up its power by a factor of 300% providing economies of scale

Next Hydrogen's electrolyzers can produce more hydrogen per capex dollar spent when compared to other leading systems⁽¹⁾

1. When compared against competing alkaline electrolyzer technology.

Purpose Designed for Direct Connection to Renewables

Highest Current Density Alkaline electrolyzer on the Market

Generates more hydrogen when compared to a competing product with the same active surface area; reduces cost and footprint. Patents on PEM design as well

Enhanced Dynamic Response Enables Load Following for Renewables

Fluid flow restrictions eliminated

Inherently Scalable Design

Multi-MW scale for single units driving economies of scale



Enhanced Safety

Reduced gas fractions during strenuous operating conditions, no external gas liquid separator reducing contamination and leaking risks

Modular Design

electrolyzer modules consist of standard modular sections; skids and panels are packaged in sea containers for ease of shipping and on-site installation

Durable Products

Commercially proven materials with an estimated operating lifetime of ~80,000 hours. Natural circulation reduces needs for pumps which represent failure points

Partnership Opportunity: Deliver Turn-Key Solutions

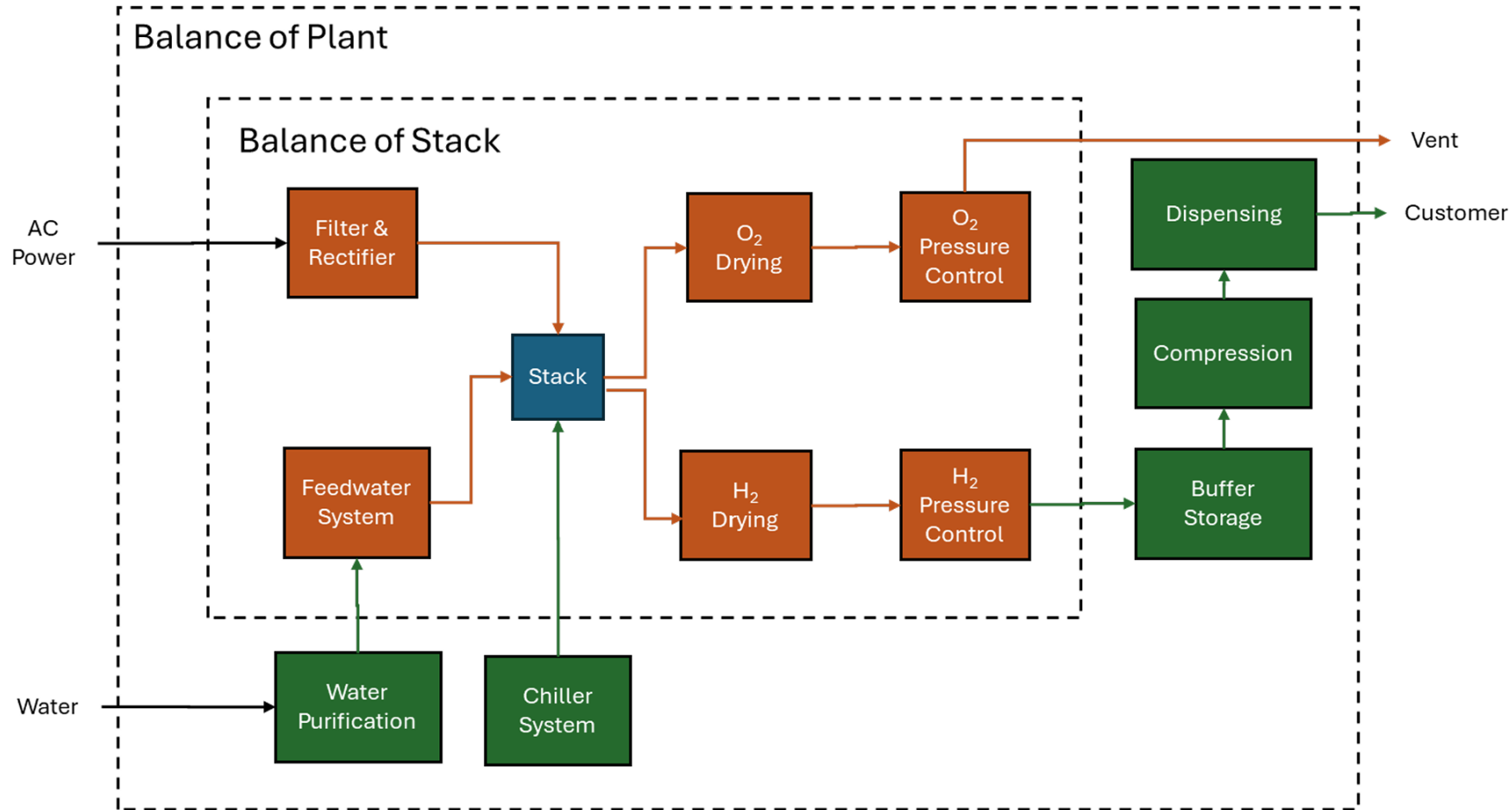


Figure 2.1 – Balance of Stack Illustration

Next Hydrogen

Next Hydrogen's
standardized Balance
of Stack

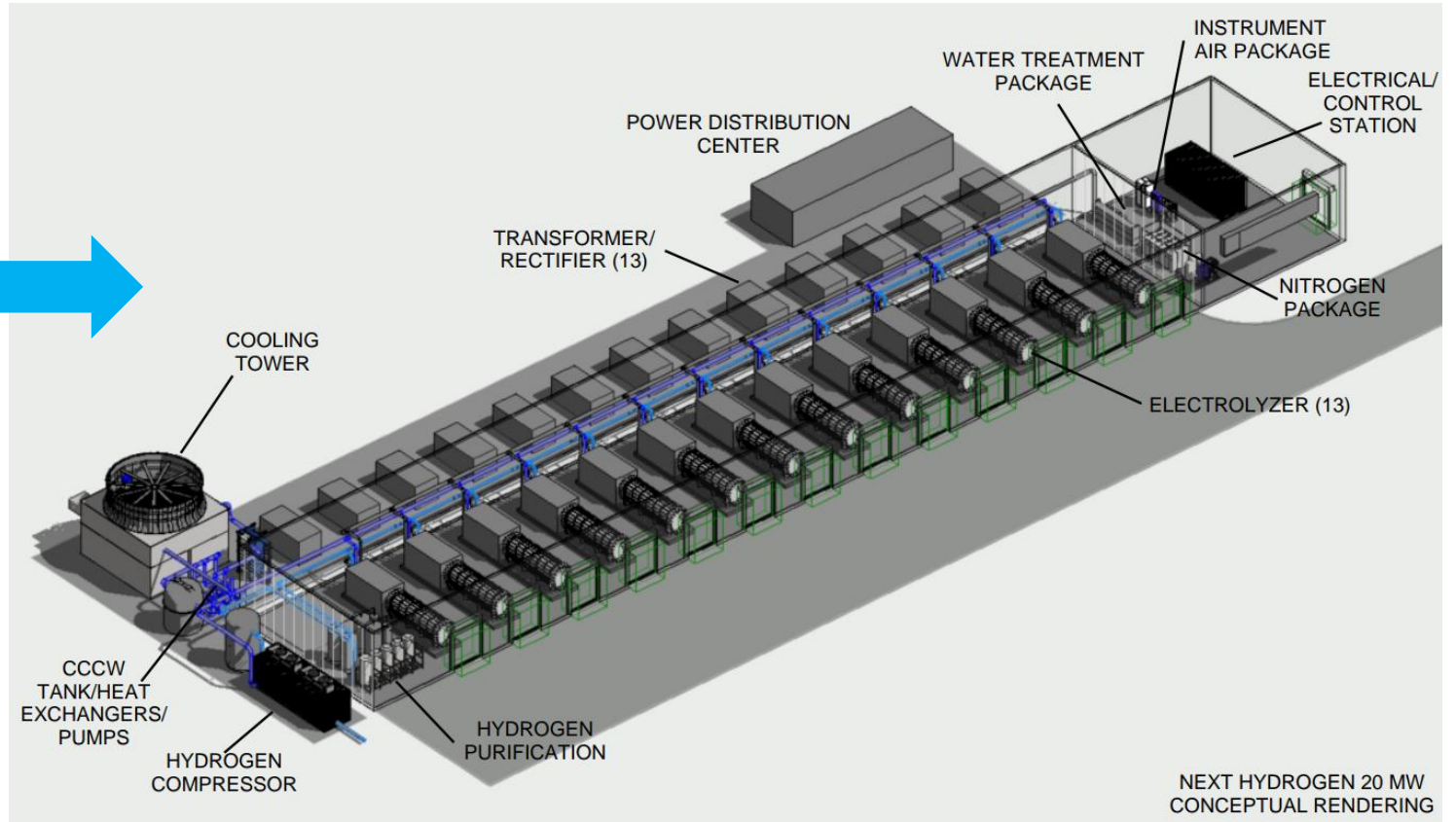
Provided by third-
parties and customized
for the project

Ready to Scale



Current

Next Hydrogen's 1.5MW project



Future

Next Hydrogen's 20MW to 100MW projects

Supported by All Levels of Canadian Government

chrystiafreeland



Liked by walter.sobczak and others

chrystiafreeland Next Hydrogen in Mississauga is changing the game in renewable energy and clean hydrogen production! With our new investment tax credits, we're helping businesses build and innovate and create good-paying, meaningful jobs for every generation.

//

Next Hydrogen à Mississauga change la donne en matière d'énergie renouvelable et de production d'hydrogène propre. Nos nouveaux crédits d'impôts à l'investissement aident les entreprises à construire, innover et créer des emplois valorisants et bien payés pour chaque génération.

- \$10M in Government Grants received to date from SDTC, IRAP, INSAT, HIF, OVIN
- \$6M in friendly debt financing received from Export Development Canada and FedDev Ontario
- Clear visibility on follow on grants and debt financing from the agencies listed above as well as CIB, BDC and CGF in the future
- Benefits from Clean Technology Manufacturing Tax Credit (30%) and Investment Tax Credit (25-40%)
- 75% of the World GDP has policies and incentives to catalyze the hydrogen economy



Doug Ford • Following

Premier of Ontario

1w • 🌐

Ontario's energy sector has incredible potential, with some of the world's best and brightest minds creating the technology that will power our province's growth.

Yesterday, I visited Next Hydrogen and Candu Energy in Mississauga, where I met their hardworking teams and learned more about how we can support their work in the energy sector. Thanks for the chance to stop by!





THANK YOU