



Investor Presentation

Innovative Hydrogen Solutions Inc.



Climate Change is REAL

Systematic destruction of our
environment by burning fossil fuels



Climate Change

Floods : Sumas Prairie, Eastern Seaboard US





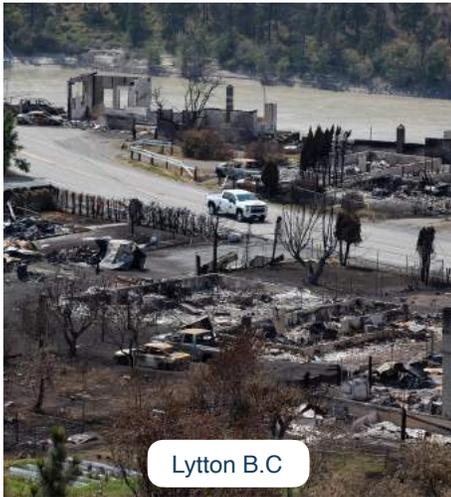
Lytton B.C



South Africa



Cameron Peak, CO



Lytton B.C



New Orleans, LA



Mexico Beach, FL

Global Warming

Temperature Extremes



CO₂



Greenhouse Gas Emissions



Political Will, Public Support & Industry Mandates

“Climate action can’t wait. As we move to a net-zero future, we will continue to do our part to cut pollution and build a cleaner future for everyone.”

- Rt. Hon. Justin Trudeau, PM of Canada

“The United States is not waiting, costs of delay are too great, and our nation is resolved to act now.”

- Joe Biden (United States President)

“Hydrogen alone can be a multi-trillion-dollar global market.”

- John Kerry (U.S. Special Presidential Envoy for Climate)

“Climate Change knows no borders.”

- Angela Merkel (Former German Chancellor)

“It’s one minute to midnight on the Climate Change doomsday clock and we need to act now.”

- Boris Johnson (Britain’s Prime Minister)

Vision

To leave Future Generations a Greener, Healthier Planet by utilizing our extensive Profitable, Scalable, Internationally Patented Hydrogen on Demand product line to Reduce Greenhouse Gases, and Particulate Matter in a Clean, Sustainable way.

Mission

To install Innovative Hydrogen Solutions' Hydrogen on Demand, Patented, Electrolyzer' i-Phi™ on commercial internal combustion engines used in the Mining, Oil & Gas, Transportation, Stationary Power, Military and Marine Markets, resulting in reduced fuel consumption, lower Greenhouse Gases, elimination of particulate matter while embedding IHS as a leader in the developing Hydrogen Economy.

Directors

Peter McLaughlin, Chairman (Independent),
 Joe Williams Founder, President and Director, Ron Bogart CFO and Director, Arness Cordick (Independent)

Management

Joseph Williams Sr. CEO/Founder/Director	With over 30 years experience heading up companies in the Hydrogen Industry, Mr. Williams is considered a founding father of the Green Energy Hydrogen on Demand space. He founded International Hydrogen Solutions Inc., in 2004 after serving as President of two early entrants into the Hydrogen space.
Ronald J. Bogart CFO/Director	15 years of experience in the hydrogen-enhanced combustion field. Former partner of Ernst & Young and founding member of the Mississauga High Technology Association.
David Pacheco VP, Manufacturing	20+ years in manufacturing management, with expertise in supply chain, engineering, operations, sales, and HR. Holds the Professional Engineer (P.Eng.) designation.
Arne Lean EVP, Engineering Special Projects	Previously acted as President of Technology TuneUp Inc. for 15 years and Vice President of the Association of Independent Consultants for 10 years. Holds the Professional Engineer (P.Eng.) designation.
Tim Wardle VP, Procurement & Logistics	30+ years of background experience in emergency and technical operations, service and installation, hazardous materials and health and safety.

PRODUCT DEVELOPMENT

Innovative Hydrogen Solutions Inc. (IHS) founded in 2004 is an Ontario-based company formed to develop and commercialize hydrogen based technologies.

- Looked to the convergence of Chemical Engineering with Mechanical Engineering Sciences to Develop the Best Solution to enhance combustion characteristics of gaseous or liquid hydro-carbon fuels.
- Utilized Chemical Engineering Departments of the University of Winnipeg the Combustion Engineering Departments of Queens University and Wardrop Engineering for Mechanical Engineering
- Development of aftermarket Electrolyzer - The i-Phi™ unit produces hydrogen and oxygen gas-es “on-demand” from the controlled electrolysis of distilled water. These gases are then delivered to the engine’s air intake where they improve overall engine efficiency by aiding in a more complete and faster burn of the air-fuel mixture. The addition of distilled water is the only maintenance required.
- Functions on-demand only when engine is running
- Developed Thermal Regulation of Innovative-Partial Hydrogen Injection System (i-Phi™), Electrolyzer to maximize hydrogen production in all year round climate conditions.
- Studied the exact amount of hydrogen to be injected into air intake of an internal combustion engine to maximize engine performance, minimize fuel consumption: conducted by MAN Energy Solutions Augsburg Germany and Fairbanks Morse, USA.
- Quantified, Certified, Verified by Third-party testing; Wardrop Engineering, 3DATX Corporation, Jomini Environmental Inc, Auburn University, Global MRV.
- Hydrogen produced on-demand by IHS’s Innovative-Partial Hydrogen Injection System (i-Phi™) electrolyzer can be utilized on ANY internal combustion engine whether Diesel, Gas, Natural Gas or Propane increasing fuel efficiency, fuel savings+decreased exhaust emissions + greater thermo-efficiency + increased power, torque + more complete burn of fuel.
- Elimination of On-Board Hydrogen Storage alleviating all safety concerns
- Confirmation that the installation of the i-Phi™ will not affect engine OEM warranties and has letters from all major manufacturers thereto.
- Completed and Approved ISO 14064 Part2 Carbon Plan and Green Print Assessment
- ISO Certified Manufacturing and Assembly Facilities
- Field testing product under all weather conditions, winter cold:summer heat.
- Fully Redundant Supply Chain
- 150,000,000 Road Miles of Transportation Testing!

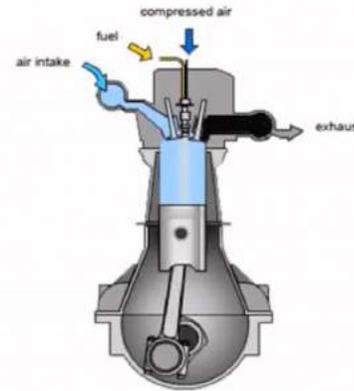


Patent Protection

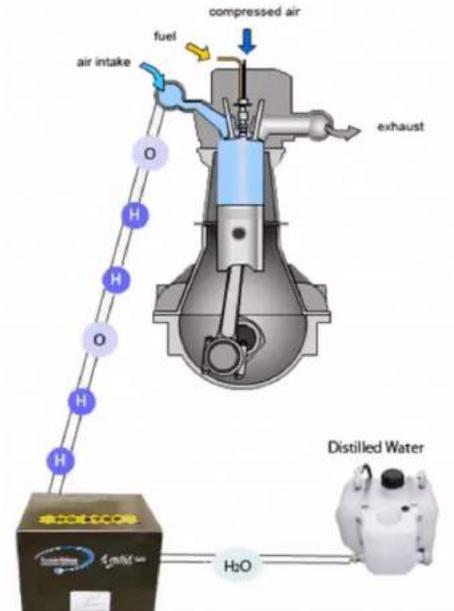
USA & Canada Issued
2020-2021 53 Claims

Europe 2022 73 Claims

Diesel Engine



Diesel Engine With IHS *i-phi*



How does it work?

The i-Phi™ unit produces hydrogen and oxygen gases “on-demand” from the controlled electrolysis of distilled water. These gases are then delivered to the engine’s air intake where they improve overall engine efficiency by aiding in a more complete and faster burn of the air-fuel mixture. The addition of distilled water is the only maintenance required. Installation of the i-Phi™ will not affect engine OEM warranties.

Tests prove that: The i-Phi™ is safer than the alternative of storing volatile hydrogen gas under pressure in an on-board tank, more cost effective than any other known on-board electrolysis systems or the on-board processing of methane gas or liquid methanol to produce hydrogen gas. Importantly, the i-Phi™ avoids the substantial capital investment in new fuelling facilities and infrastructure. Simply put, when the right amount of hydrogen, the purest combustible substance on earth, is injected at the right time into your engine, only through the engine's air intake the combustion of the diesel fuel is quicker, more complete and cleaner than without hydrogen. This enhanced combustion produces a far cleaner and more powerful result.

Observed reductions	Fuel	CO	CO2	PM	NOx	HC
	Highway Driving →	31.0%	38.2%	30.8%	86.1%	23.8%
City Driving →	13.1%	37.6%	12.7%	16.1%	8.6%	16.9%

Source: Test Report prepared by Clean Air Technologies International Inc. (CATI)

Third Party Verification

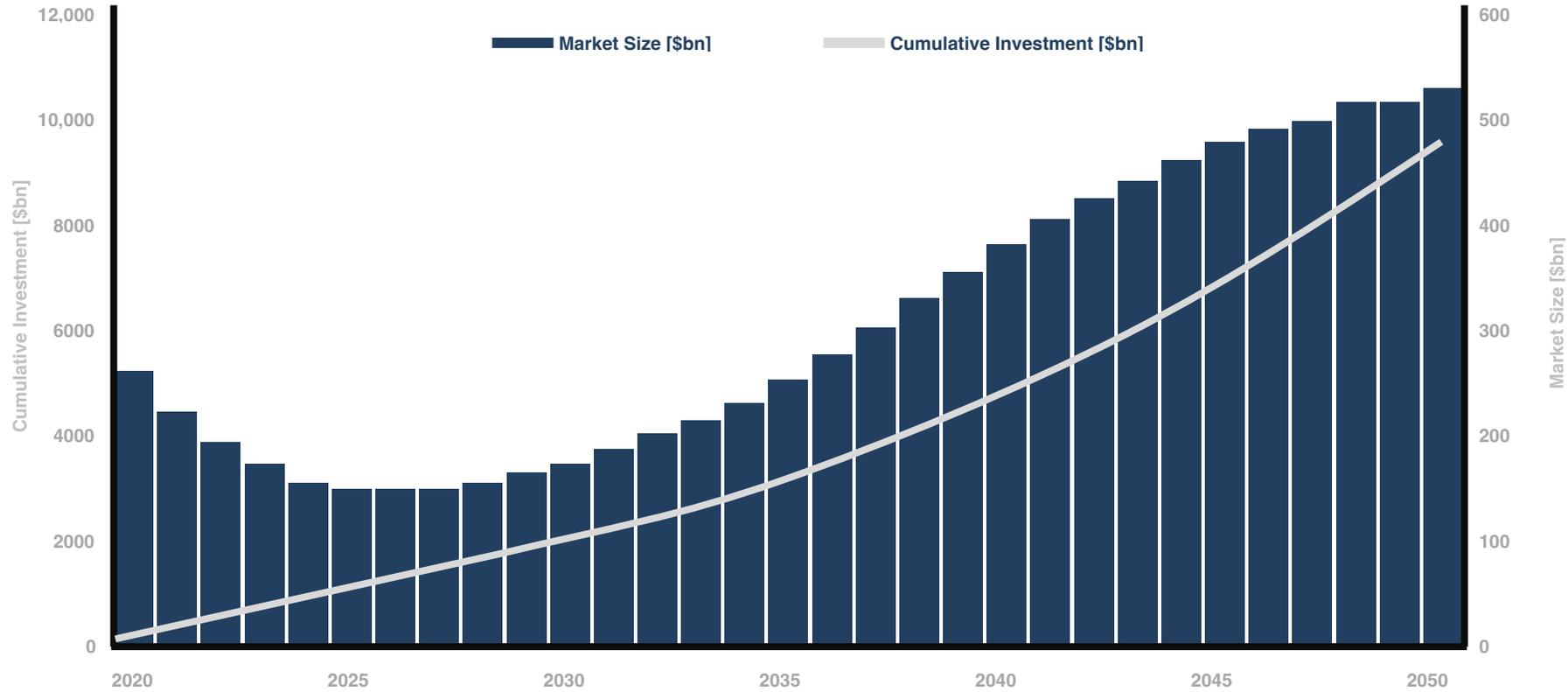
Third parties have verified our technology including Wardrop Engineering, 3DATX Corporation, Global MRV, Jomini Environmental Inc. and Auburn University. Scientists, Engineers, and fleet Owners have documented these improvements.



PRODUCTS - Hydrogen NOW

Today's Solution for a BETTER TOMORROW

Transportation, Marine and Distributed Power Generation



Source: ReTHINK Energy



Transportation Sector

Responsible for 20-30% of global CO2 emissions through the combustion of fossil fuels.

The global automotive market has nearly 750 million road vehicles. Regionally, North America and Europe have over 60% of these vehicles, with over 30 million commercial vehicles in each of these regions. Significant pressure from citizens and other stakeholders to eliminate visible exhaust emissions from diesel engines.

- Fuel costs in the trucking industry are greater than 20% of operating costs, and expected to rise. Strong Industry focus on savings



Marine Sector

Contributes most to carbon emissions. Emits ~ 1 billion tons of CO2/yr., > 25% of all emissions from the global transportation sector & ~3% of greenhouse gas emissions.

*New emissions requirements as of January 1, 2020. Regulation IMO 2020 (Sulphur 2020) limits the amount of sulphur permitted in commercial ship fuel to 0.5% for ships operating worldwide down from the previously permitted sulphur oxides (SOx) emission level of 3.5%. Ships operating within designated emission control areas (ECAs) are the exception. Ships in ECAs must continue to meet more strict sulphur emission levels of 0.1%.

- These emission regulations in 2020 have provided significant opportunity for the i-Phi™ technology. IHS is working with Fairbanks Morse (OEM) in Marine Sector.



Distributed Power Generation Sector

Is dealing with many of the same issues as the transportation sector – notably deregulation, industry consolidation and, for combustion-powered electricity generation, air emissions concerns and the cost of fuel. Burnouts and rotating power blackouts have become common today which has spurred the demand for reliable, uninterrupted power.

- A unit specifically designed for the Genset market has been in customer use for 4 years, generating significant double digit fuel savings. IHS expects product deployments in the Genset market will soon exceed those in the Transportation Sector.
- IHS is working closely with strategic partner GKN Hydrogen, a leader in the hydrogen storage field. IHS has developed a version of our electrolyzer specifically suited for the hydrogen production from wind and solar energy systems, store it for conversion to electricity when wind is not blowing, at night or peak demand periods. The system is particularly suited to smaller and remote systems off the grid.

Emerging Hydrogen Economy

Transitional & Future Opportunity

As commercial markets develop in the “hydrogen economy” many are suited to IHS’s technology, IHS expects to include supplying the i-Phi™ or industrial hydrogen systems for: fuel cell applications, post combustion catalytic applications, hydrogen generation via electrolysis for mobile applications, and hydrogen generation via electrolysis for other industrial applications.

Transitional Markets: Hydrogen Storage and Distribution Companies GKN - Fuel Cell Companies-Ballard Power/Loop Energy

Future Markets: Entire Passenger Vehicle Internal Combustion Engine Market

MARKETING : TIME TO MARKET IS NOW

Strategy-Time to Market Key-Global Reach Control Quality

- 1 Direct Marketing-Hydrogen Plus, in-house Marketing Team
- 2 Licensing OEM-Fairbanks Morse Defense  - US navy
- 3 Licensing of Geographic Regions with Strategic Partners
-  Empowered Hydrogen Technologies Inc., Weston Group, install, service
- 4 Franchise Model for Installation and Service
- 5 Partnering with Industry Companies

Utilize IHS Electrolyzer for
Hydrogen on Demand

- ▶ GKN Hydrogen Hydrogen Storage 
- ▶ Loop Energy Fuel Cells 
- ▶ Ballard Power Fuel Cell 

Attributes and Competitive Advantages

Why *i-Phi*™?

- Only hydrogen injection system on the market that has been proven effective in reducing fuel consumption through aspirating the correct amount of hydrogen along with oxygen into the engine air intake mixing with the atmospheric air which results in enhanced combustion
- The system has undergone extensive third-party testing
- Compact modular engine attachment powered by the alternator, which operates only while the engine is running
- Eliminates the need for on-board hydrogen storage
- The system increases the fuel efficiency of diesel engines by at least 5% and up to 30%, thereby offering a very attractive return on investment and short payback period
- Produces noticeable increases in horsepower and torque
- Designed to work on any internal combustion engine and extends the regen cycles over 100%
- Flexible and Scalable
- Provides hydrogen “on-demand” for a single application on an engine, multiple engines or for larger engines
- Multiple units can be installed to generate the appropriate hydrogen level for the engine to receive maximum benefits
- Maintenance is minimal - requires only the addition of distilled water

Summary of Selected IHS Customer Experiences

Customer	Application	Engine Specifications	Results
Branford Trucking Company	Transportation	A variety of 13-15 litre engines in Fleet including: MACK CXU613, Volvo VNL 64T, Kenworth T800, Western Star Vac Trucks	Diesel Fuel Savings > 20% (average of 24.4%) Oil Change Intervals doubled
Brampton Transportation Company	Transportation	Detroit Diesel CASCADIA 14.8 litre	Diesel Fuel Savings of 17.6% DEF and Regen frequencies extended by 50%
Manitoba Based Trucking Company	Transportation	Volvo D13TC, 13 litre	Diesel Fuel savings of 12.5 to 15%
Manitoba Based Freight Company	Transportation	Volvo D11, 11 litre	Diesel Fuel Savings of 14.5 – 21% Extended Oil use by 30%
Stewardship Ontario (Plein Disposal Inc. & Turtle Island Recycling)	Transportation – Stop & Go	Curbside Recycle Trucks; Plein – International GDT225, 7.6 litre; Turtle Island -Fanotech F175HT3V, 7.2 litre	Diesel Fuel Savings of 7.3% NOx Reduction – 30% PM Reduction – 38%
Danish Marine Autho	Marine	CAT 3412E	Diesel Fuel Savings varies by RPM from 10 to 26.5% NOx Reduction – 20%
Aga Khan University Karachi Pakistan	Power Generation	CAT 3406; 375 – 465 HP; 14.64 litre	Diesel Fuel Savings > 20% Noticeable reduction in black smoke
Daudson's Armoury Pakistan	Power Generation	Cummins NTA855-G1B (250KVA); 14 litre	Diesel Fuel Savings of 21% Noticeable reduction in black smoke
Daudson's Armoury Pakistan	Power Generation	Cummins NT833-GA (320 KVA); 14 litre	Diesel Fuel Savings of 12.5% Noticeable reduction in black smoke
Construction Equipment Supplier Brooks Alberta	Power Generation	Cummins 23 litre	Diesel Fuel Savings of 22 – 25% Black smoke eliminated Oil change interval extended
Germany Power Co.	Power Generation	MAN 400 Natural Gas (NG) Generator	NG Fuel Savings of 6.21%

SUMMARY AND VALUE PROPOSITION

“Be a part of the Solution”

- Works on any Internal Combustion Engine
- Scalable & Flexible
- Quantified+Certified+Verified by 3rd Party testing
- Eliminates Hydrogen Storage requirements
- Fuel Savings
- Maintenance Saving
- 150,000,000 on road performance testing
- Decrease in fixed and variable costs to the customer
- Quick capital Payback
- Leasing Programs available
- Addition of Distilled Water is only Maintenance requirement

- Certified ISO Production Facilities
- Redundant supply Chain
- Completed Green Print Assessment in accordance with ISO 14064 Part2 allowing the deployment of the technology to Measure and Monetize GHG's (Carbon Credits)
- Carbon Credits/ Annuity
- Reach Emissions Goals without sacrificing performance
- Experienced Management and Board
- Access to Capital Markets
- Scalable attainable Franchise expansion marketing model
- Meet Mandated Emissions Requirements Now not 2030
- Make money while going Green!

“Hydrogen is today enjoying unprecedented momentum. The world should not miss this unique chance to make hydrogen an important part of our clean and secure energy future.”

- Fatih Birol, Executive Director of the International Energy Agency

Cap Table

Authorized	Unlimited
Issued & outstanding	35,380,800
Warrants	525,000 @ \$0.60 CDN 350,000 @ \$1.40
Options	None
CUSIP Number	71705M
Stock Symbol	IHS
Yr End	Sept 30th

Comments from the Street



“Sustainable hydrogen will likely receive funding first and should drive the subsequent development of larger hydrogen ecosystems.” - Jean-Laurent Bonnafé, Director and CEO of BNP Paribas



“Hydrogen as an energy carrier is no longer just a fringe idea. Governments and major International Companies are committed to supporting this industry.”

- Jean-Laurent Bonnafé, Director and CEO of BNP Paribas



“As governments bet that hydrogen is part of the solution to the problem of climate change, it will become a far bigger part of the global energy mix.” - Martijn Rozemuller, CEO - Europe of Van Eck



“650% increase of Electrolyzer Market by 2030 and > 8000% increase by 2050. Market Green Hydrogen 2050 Global > 10 TRN EUR.”

- Goldman Sachs Investment Research, EC



“We’re already in the middle of a hydrogen boom. It’s Projected to become a \$175-billion market in five years and an unimaginable \$11 trillion by 2050.”

- Banco Bilbao Vizcaya Argentaria

Disclaimer

This presentation may include certain “forward-looking statements”. All statements, other than statements of historical fact, included herein, including, without limitation, future plans and objectives of Innovative Hydrogen Solutions Inc. (the “Company”) are forward-looking statements that involve various risks, assumptions, estimates and uncertainties. These statements reflect the current internal projections, expectations or beliefs of the Company and are based on information currently available to the Company. Forward-looking statements are subject to risks, uncertainties and assumptions. Although management of the Company believes that the expectations represented in such statements are reasonable, there can be no assurance that such statements will prove to be accurate, and actual results and future events could differ materially from those anticipated in such statements. Important factors could cause actual results to differ materially from the Company's expectations. An investment in the Company is speculative due to the nature of the Company's business. The ability of the Company to carry out its growth initiatives as described in this confidential PowerPoint presentation is dependent on the Company obtaining additional capital. There is no assurance that the Company will be able to successfully raise the capital required or to complete each of the growth initiatives described. Investors must rely upon the ability, expertise, judgment, discretion, integrity and good faith of the management of the Company. The forward-looking statements contained in this PowerPoint presentation are expressly qualified in their entirety by this cautionary statement. The forward-looking statements made herein are made as of the date hereof, and the Company does not undertake any obligation to update such statements to reflect any new information, subsequent events or otherwise.



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[Learn More](#)

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Notes