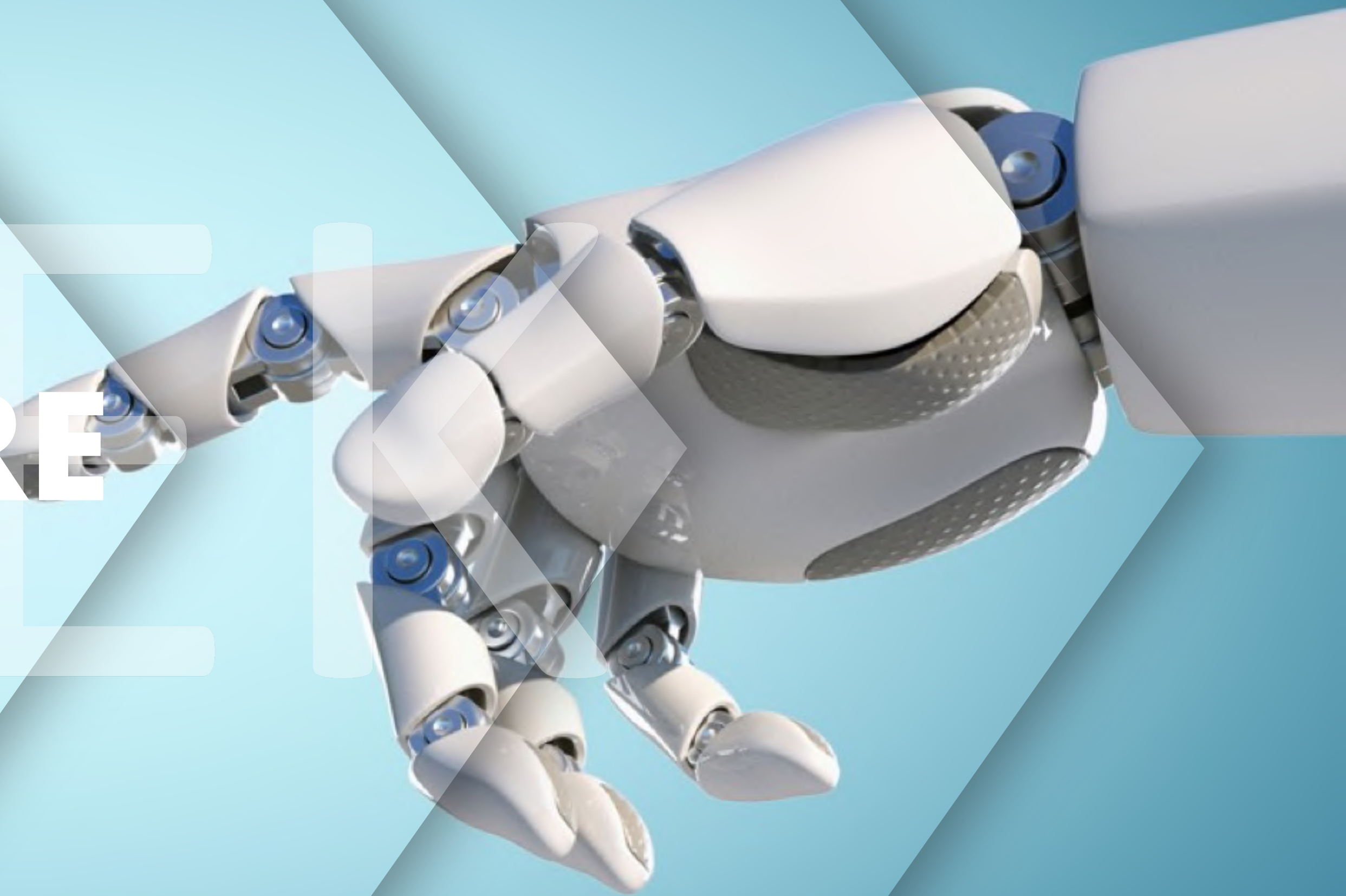


HydraGEN™

DRIVING CHANGE FOR

A GREENER FUTURE



DynaCERT Overview

Reducing carbon emissions, improving diesel fuel economy



GERMAN
INNO
VATION
AWARD '19
WINNER



Carbon Emission Reduction Tech

Reliable effective technology > pure hydrogen & oxygen

DynaCERT Inc., a publicly traded company

Reduce
Carbon
Emissions

Improve Fuel
Economy

Validated

Independently
validated by 3rd party
testing companies



OPEX Savings, Emissions & Fuel Consumption Reduced


Our technology pays for itself – over and again

Example:
For Each 40Ton
Transport Truck

**Reduce CO₂e
~107 Tonnes per year**

**Save >\$8,700 USD
per year in Fuel/DEF**

Improved OPEX
In mining, the key profitability driver is cost control and reduction – HydraGEN™ can make a significant difference in energy costs



UP

EARNINGS

**Saves
8 - 15%**

in diesel fuel &
reduced
maintenance

**CARBON
EMISSIONS**
significantly
reduced

UP TO: 50%

DOWN



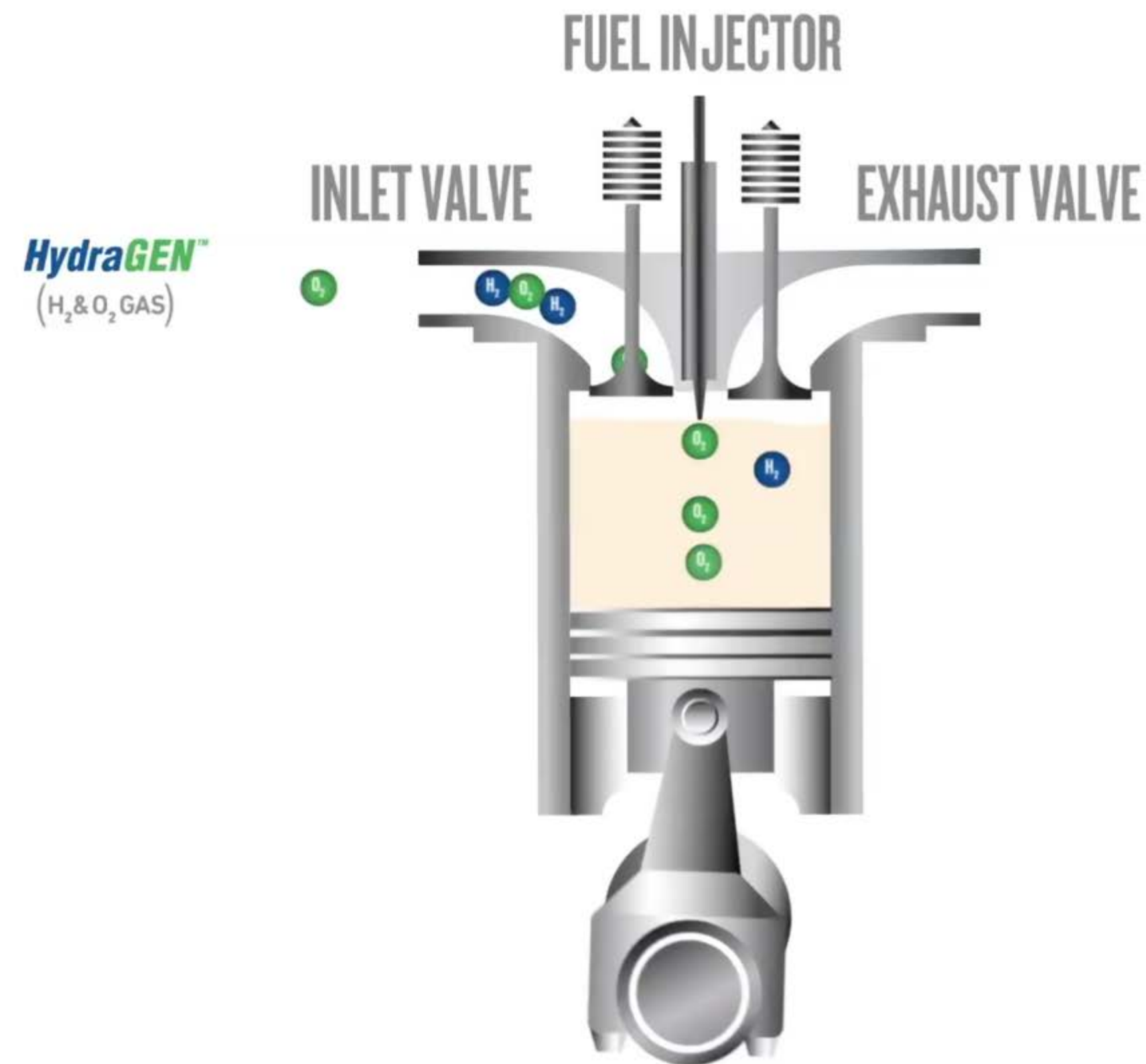
Emissions Reduced
CO₂, CO, NO_x, THC are reduced (varies by emission) for cleaner, more fully combusted fuel—a result of the hydrogen acting like a catalyst

Watch
HydraGEN™
Video by clicking
the link below:

[Click here to go
to YouTube](#)

This is a PDF enabled
link that will open your
browser to view video,
or go to:
shorturl.at/xDFL8

HydraGEN™



dynaCERT

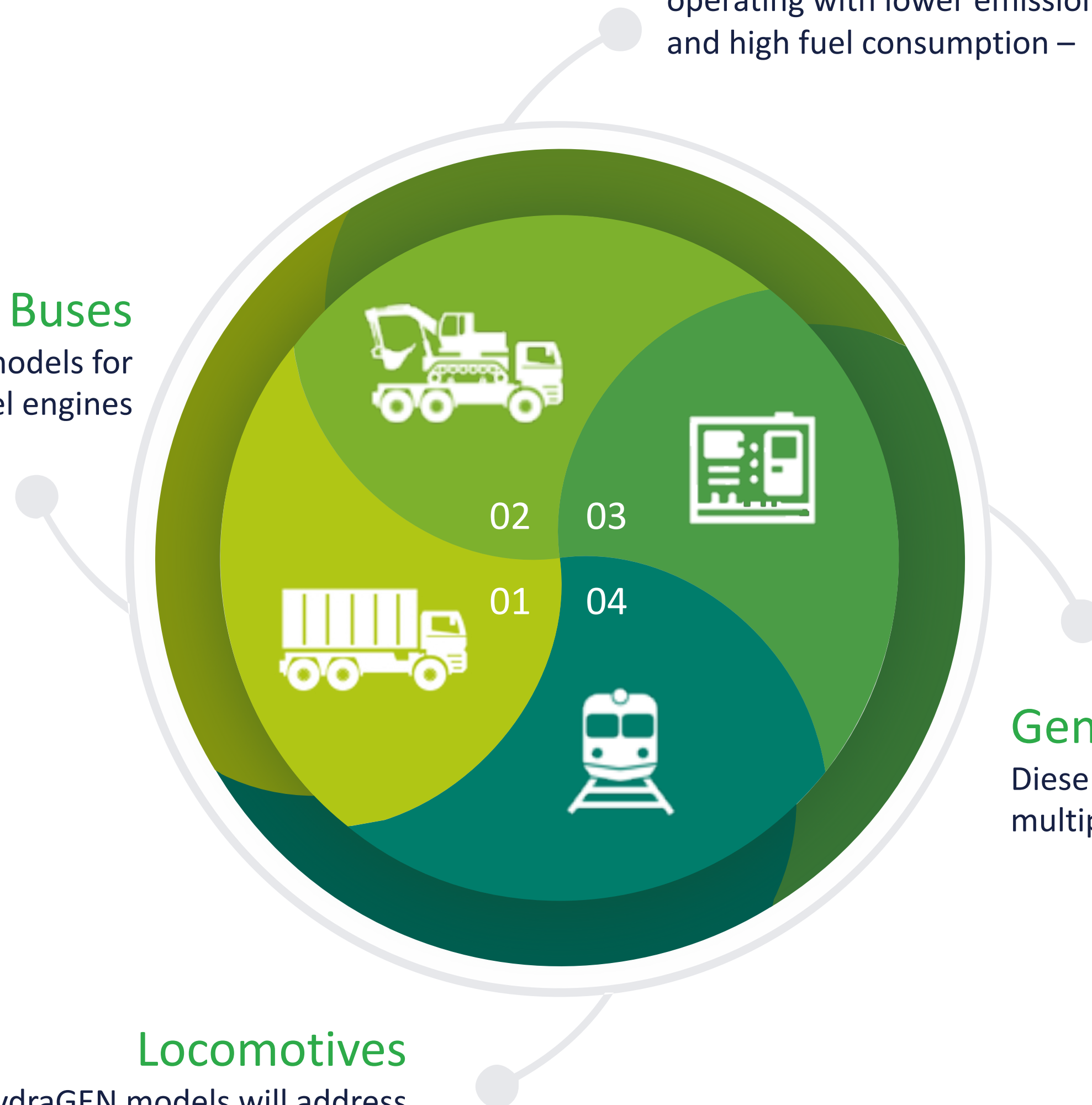


Off-Road | Pumps | Compressors

Optimal results achieved with large diesel engines operating with lower emission control technology and high fuel consumption – up to 100L engines

Trucks | Tractors | Buses

HydraGEN systems include models for 5 to 15 liter diesel engines



Generators

Diesel generators in the multiple megawatt range

Locomotives

Future HydraGEN models will address the rail diesel market segment

All Diesel Engines

HydraGEN™ improves fuel economy and reduces emissions for all diesel engines

Key markets first established in transportation, and now in mining and energy, market segments. Future markets are rail and shipping

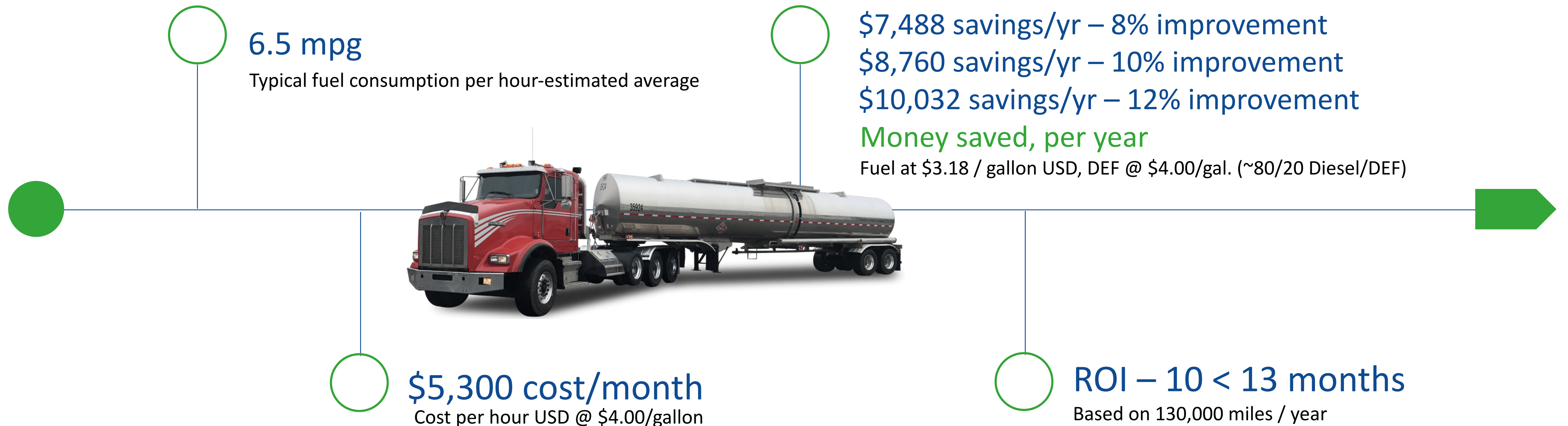


ROI – Transport Trucks

Reducing carbon emissions, improving diesel fuel economy

HydraGEN™

Example: Semi Tractor



**Payback model is only based on fuel savings. End users of HydraGEN™ Technology may also find cost savings from other areas such as reduction of DPF filters used, fewer oil changes and less engine maintenance.*

ROI – Large Engine Applications

Reducing carbon emissions, improving diesel fuel economy

HydraGEN™

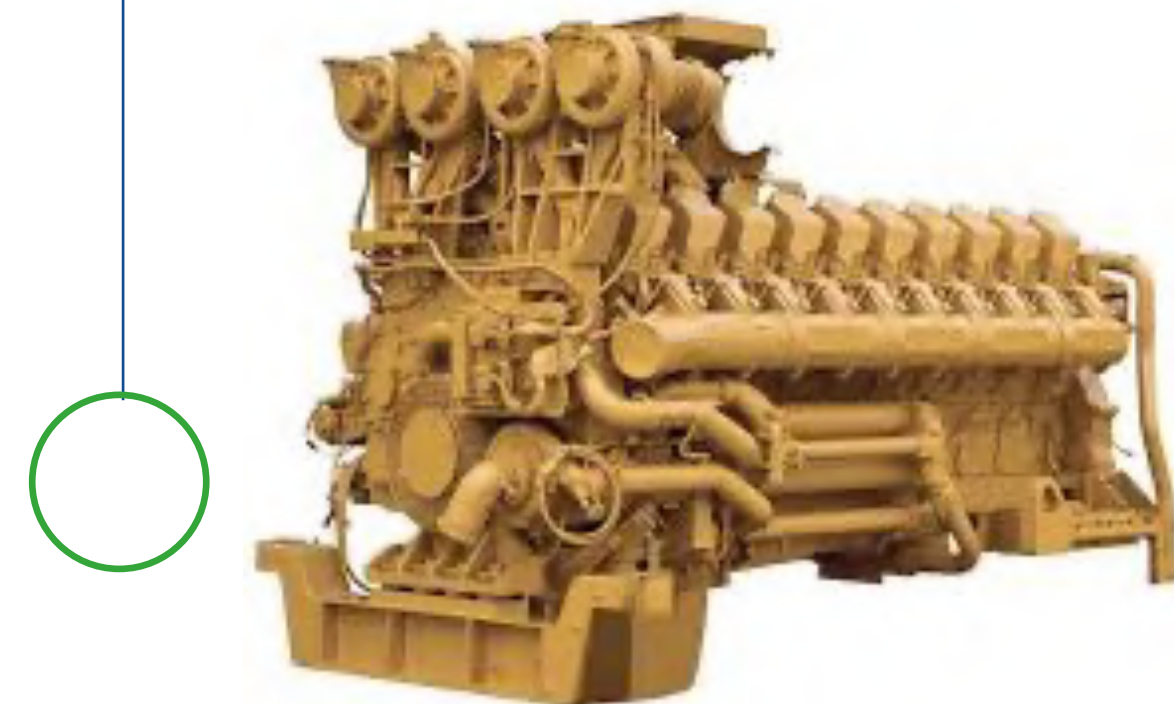
60L - >110L displacement

5% improvement: 1,388-2,100 tons/year
10% improvement: 1,542-2,336 tons/year
15% improvement: 1,700-2,570 tons/year

Emissions reduction/year

5% improvement: \$ 43,000 - \$ 93,000 savings/year
10% improvement: \$87,000-\$186,000 savings/year
15% improvement: \$130,000-\$280,000 savings/year

Money saved/year
Fuel at \$0.90/ L USD *savings can be up to 19%



ROI

2 < 9 months payback
42 - 92% annualized ROI

Based on 7,000 hours / year

**Payback model is only based on fuel savings. End users of HydraGEN™ Technology may also find cost savings from other areas such as reduction of DPF filters used, fewer oil changes and less engine maintenance. Greater savings are achieved in applications where the engine is under high loads for long durations (like generators).*



HydraGEN™ Fleet ROI Analysis—

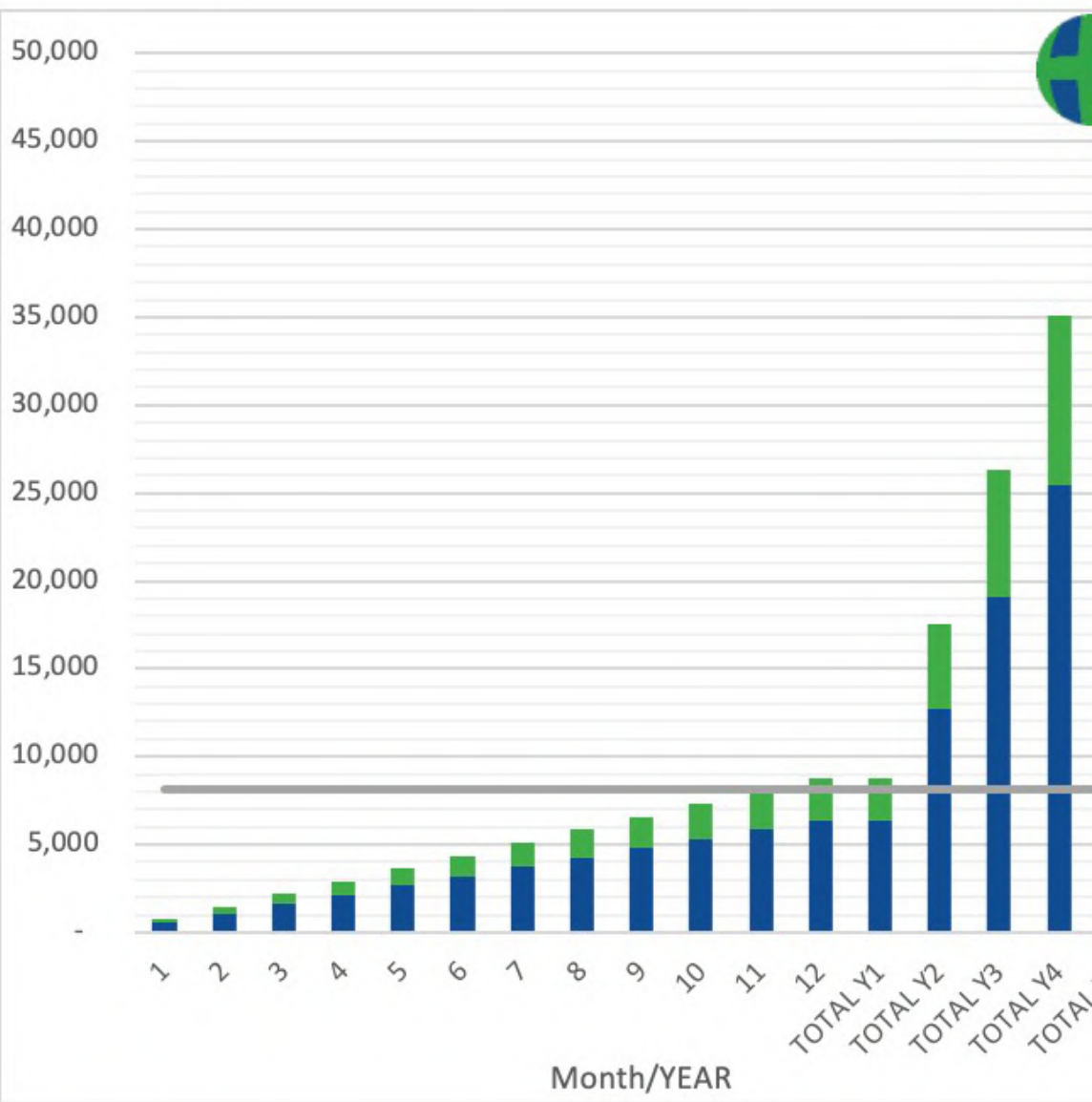
Reducing carbon emissions
improving diesel fuel
economy

Your Fleet Analysis

H2 Tek will complete a
full fleet analysis for
your mine to see the
ROI and benefits

Crowley: Transport Truck, Estimated @ Median (10%) Fuel Savings @ \$3.18 Diesel Cost (USD/Gal.)
Conservative (30%) DEF Savings Included & No Carbon Credits

ROI: Based on: 1 unit(s) of Transport Trucks		
ROI (5 YEARS)		441%
Annualized ROI		40%
Payback Period (Months)		11
Savings (USD)	1 Year	\$ 8,760
	5 Years	\$ 43,800



The analysis is primarily determined by fuel cost savings against the capital cost. Consumables (water) and maintenance cost are negligible against the capital cost and savings proportions and is reasonably more than offset by additional savings achieved in maintenance of a cleaner engine (e.g. fewer oil changes etc.) If DPf, a significant cost item and savings opportunity, is used, this may be factored in the financial analysis. Similarly, once carbon credits are transactable, this too may be factored in. Includes any applicable country specific duties. Commissioning/Installation is dependent on the actual equipment and environment for installation and for general purposes is conservatively estimated at 8% of the CAPEX.

Cost (USD)	1
	USD
	\$7,500
	\$600
	0.00%
	\$3.18
	Median (10%)
	Conservative (30%)
	4.00
Ratio to Fuel	2.5%
Savings Scenario	Median (40%)
Cost/Gal. of diesel	10.1
Carbon Credits Included	No

Costs	Month												YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL Y1	TOTAL Y2	TOTAL Y3	TOTAL Y4	TOTAL Y5



Independent Testing

TüV/EMITEC GmbH – 3rd Party Testing



TECHNOLOGY
INDEPENDENTLY
VERIFIED

8.9%

Fuel Consumption

Controlled testing on a dynamometer resulted in 8.9% improvement in fuel economy and nearly 20% in road testing

88%

NOx

Nitrogen dioxide has a global warming potential (GWP) of 298 – that's of 298 times that of CO₂ and is very toxic to humans

57%

THC

HydraGEN™ testing was 57% total hydrocarbon reduction and 55% in Particulate Matter (PM)

9.6%

CO₂

Carbon dioxide and carbon monoxide (CO) were meaningfully reduced (27% for CO)



8



H2 TEK FOR MINING

Carbon Measurements, Carbon Credits

Reducing carbon emissions, improving diesel fuel economy

HydraGEN™

Carbon Credit Platform

DynaCERT Patents

Measurement (CERs)

Monetization



Timeframe: 18-24 mo.'s

Pending Sector
Standardization >

Savings Captured & Sold as
Carbon Credits

The HydraGEN™ Family

Reducing carbon emissions, improving diesel fuel economy



Validated by 3rd party testing companies



HG6C

Large diesel engines + powergen
60 < 100 L engines



HG4C

MW diesel power generators &
large diesel engines 30 < 60 L



HG1R

Class 6-8 vehicles + powergen <16
L engines

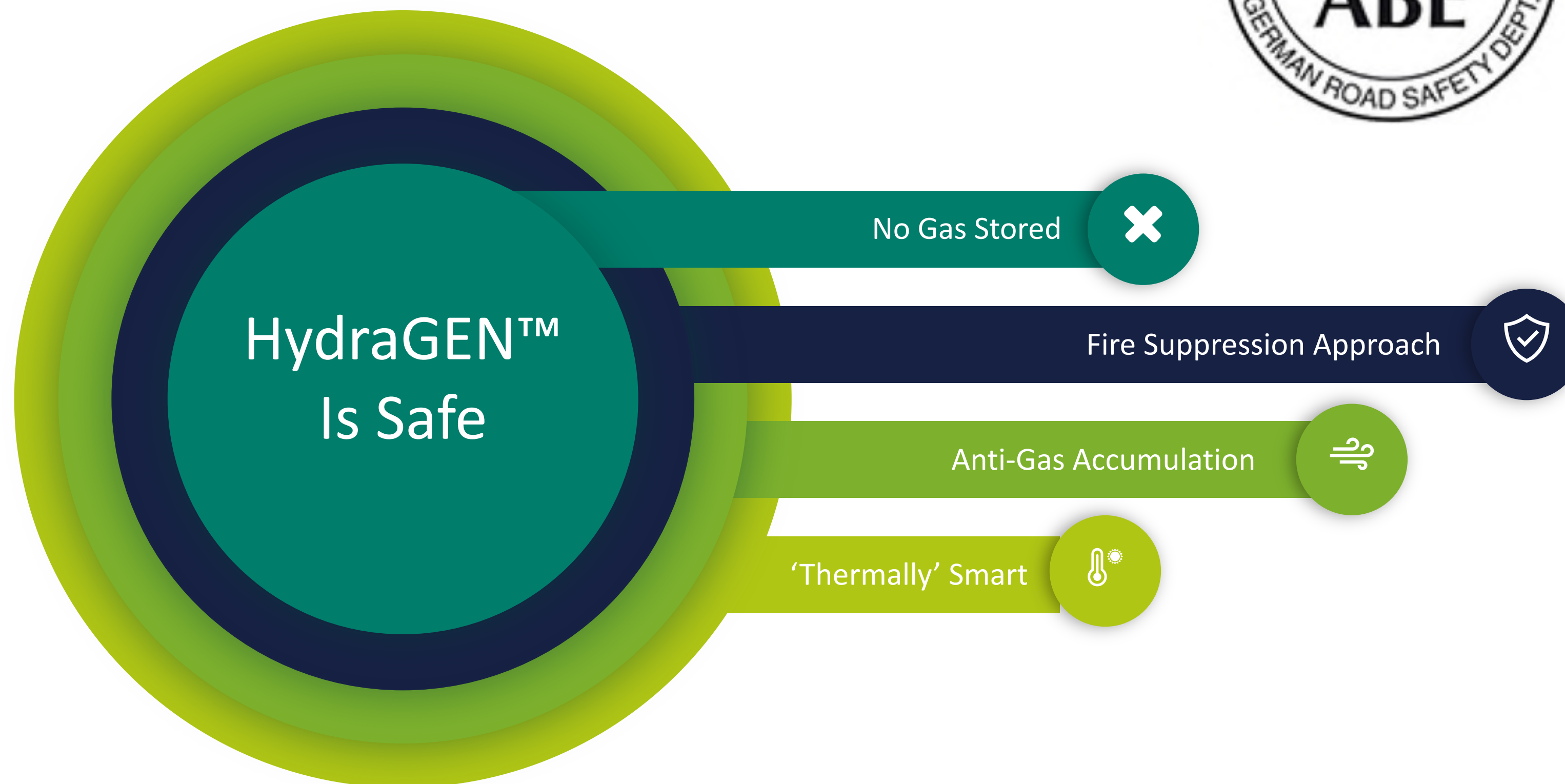


HG2

Class 2–5 vehicles | reefers |
smaller powergen

HydraGEN™ Is Safe

Reducing carbon emissions, improving diesel fuel economy



No Hydrogen Gas Stored

The unit does not store any volume of gas therefore it is not an explosion hazard.

Fire Suppression Approach

HydraGEN™ is powered off a circuit controlled by the existing fire suppression system, should a fire start, the fire suppression system will cut the supply current to the unit stopping hydrogen production.

The supply line and electrical wiring loomed and routed at installation along the path of the fire suppression system to allow it to be protected in the event of a fire.

Anti-Gas Accumulation

In generator application, the unit would be mounted in the path of air flow so in the unlikely event of a leak, the hydrogen produced would be drawn into the engine by the large volume of air being drawn through the air filters limiting the possibility of hydrogen gas accumulating in the airspace.

'Thermally' Smart

The unit is thermally protected internally and will shut down in high temperature situations to prevent it producing hydrogen should a generator fail and cause a fire or arc blast.

Realtime data

Reducing carbon emissions, improving diesel fuel economy



HydraLytica™ App



System information

Know your metrics

Remote access > emissions and fuel data

Track and monitor > individual engine data

Track and report > Carbon Credits

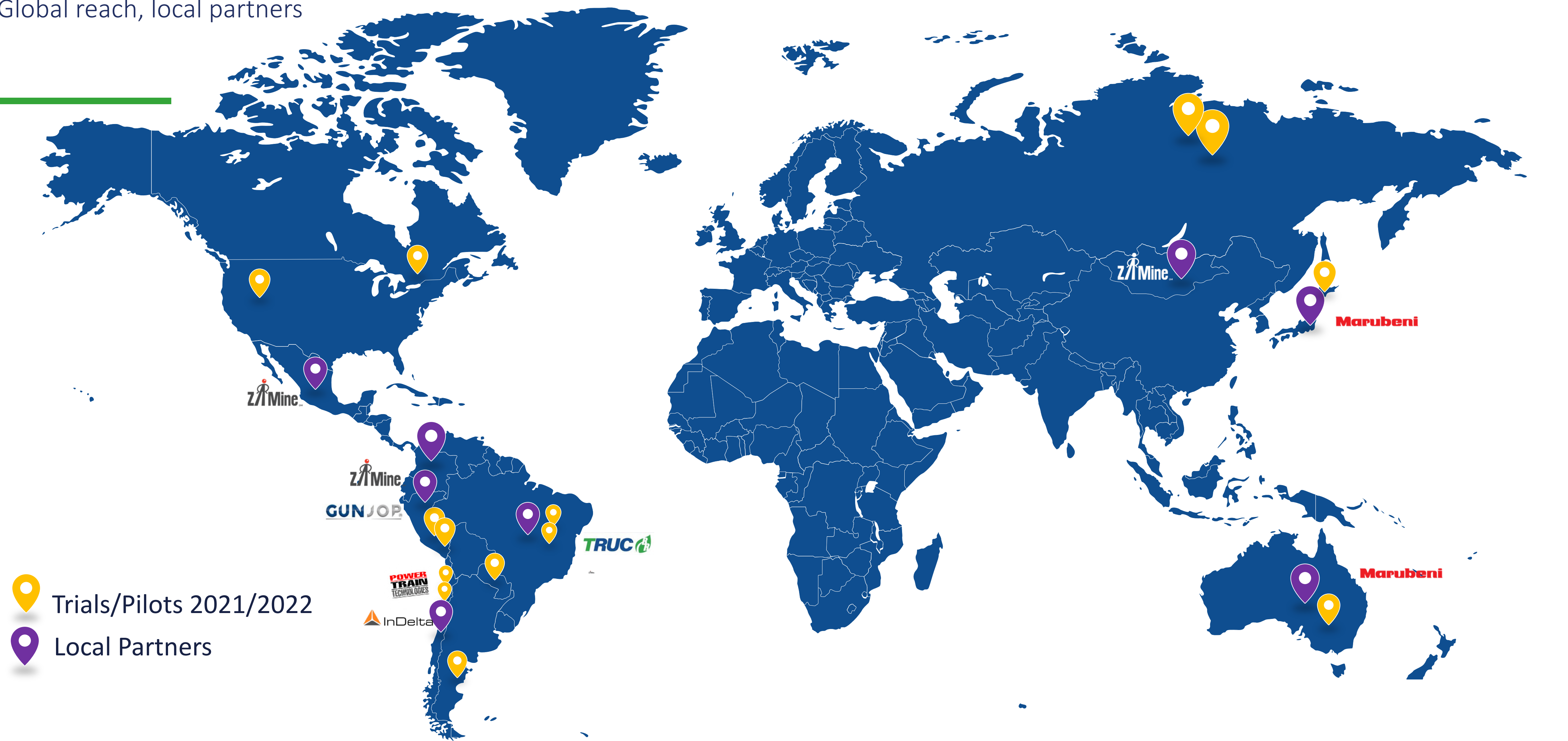
Data & notifications > real-time dashboards

Service notifications



H2 Tek's Global Reach

Global reach, local partners



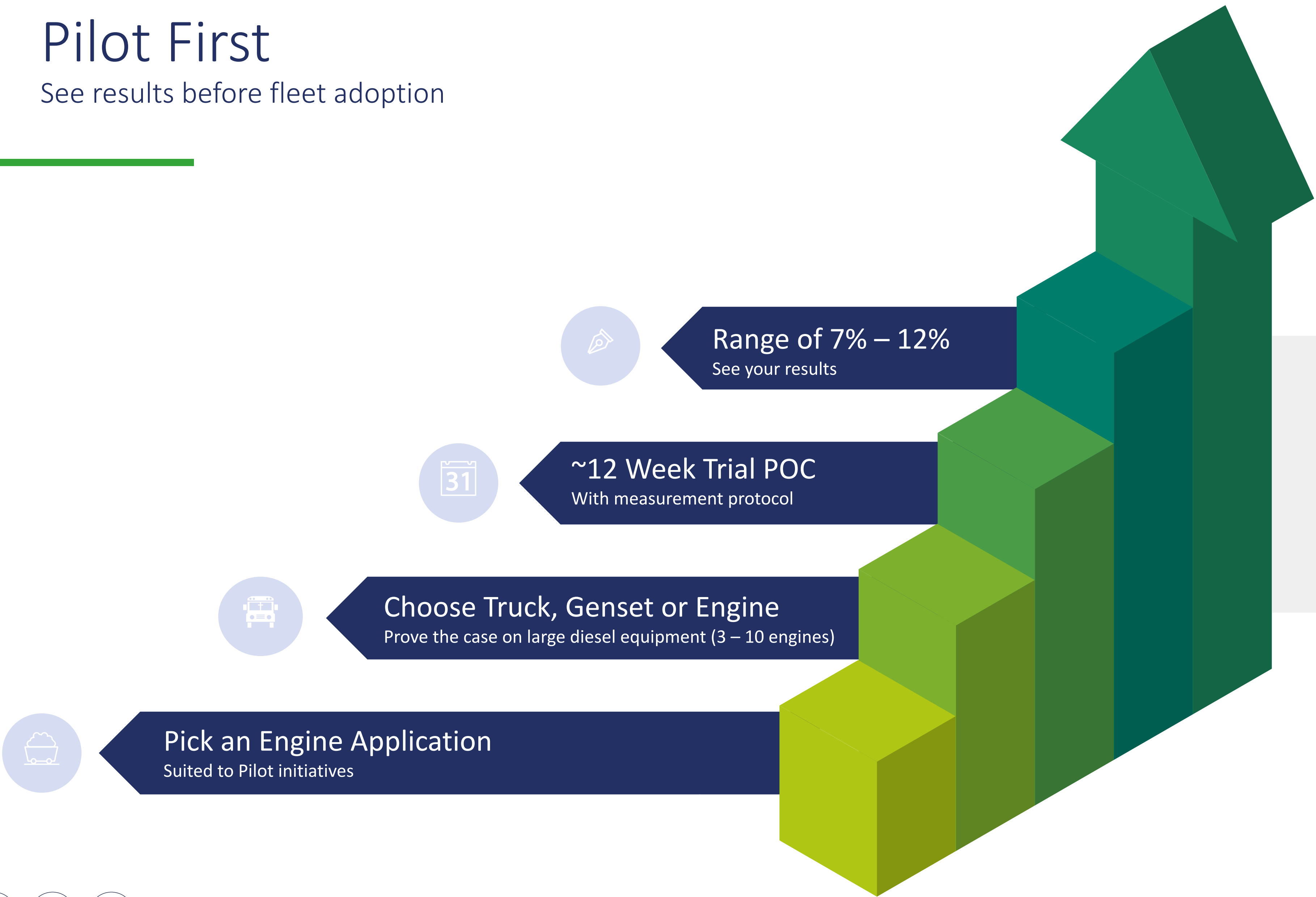
-  Trials/Pilots 2021/2022
-  Local Partners

Pilot First

See results before fleet adoption

Low Risk

Path to energy savings



Seeing is believing.

Especially with innovative new technologies. H2 Tek will work with you to develop a pilot project that will prove the kind of results you want.

H2 Tek™ Contacts:

David Van Klaveren, Vice President Global Sales and Partner

+1 416 389 2184 | dvk@H2Tek.ca

Joao Araujo, Vice President Global Operations and Partner

+1 416 660 0053 | joao@H2Tek.ca

