



**HPDi**<sup>TM</sup>

**GAME CHANGER. WITHOUT THE CHANGE.**

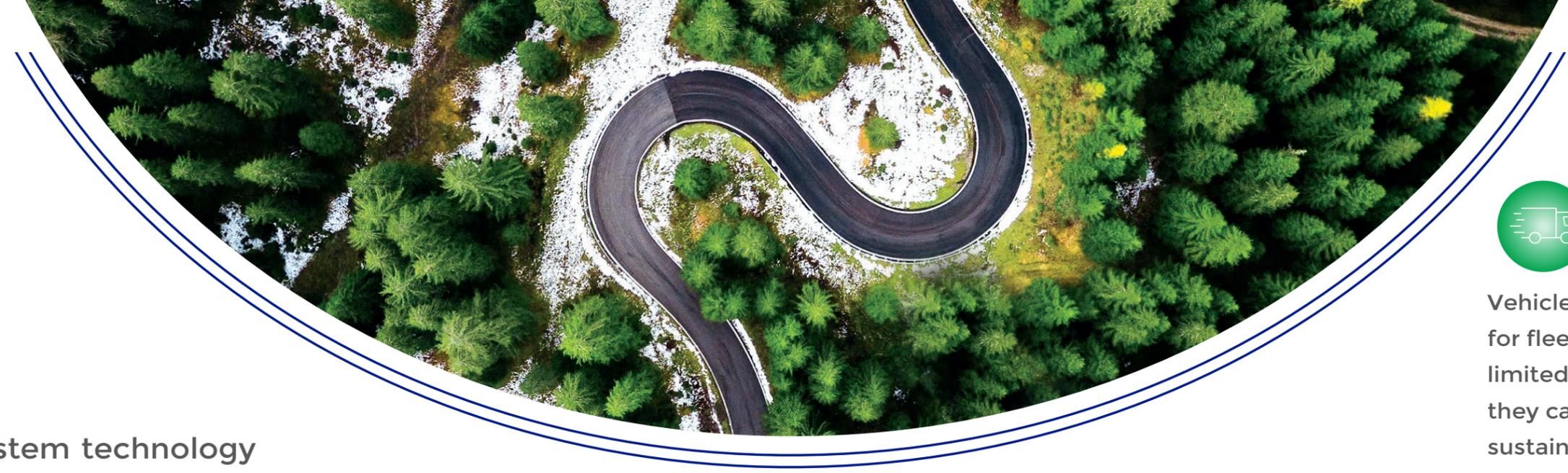
Hydrogen Internal Combustion Mobility





Westport Fuel Systems' H<sub>2</sub> HPDI fuel system technology is a cost effective, high performance solution to support climate neutrality in the heavy-duty mobility sector.

H<sub>2</sub> HPDI fuel system equipped engines optimized to run on hydrogen offer many advantages over other pathways, enabling an accelerated adoption of hydrogen as part of a sustainable road freight system.



## PERFORMANCE



### PRACTICAL

Vehicle performance is critical for fleet managers, who are limited in the compromises they can make to advance sustainability.



### EFFICIENT

H<sub>2</sub> HPDI fuel system equipped engines can exceed the performance of current heavy-duty diesel vehicles, while almost eliminating greenhouse gas emissions.



### ROBUST

The H<sub>2</sub> HPDI fuel system is a robust solution that doesn't require extremely pure hydrogen to run, unlike fuel cells.



### COST EFFECTIVE

H<sub>2</sub> HPDI fuel system equipped engines deliver higher performance than spark ignition H<sub>2</sub> I.C. Engines: significantly higher efficiency and power density; lower operating cost.

# ACCELERATING THE TRANSITION TO SUSTAINABLE HEAVY-DUTY TRANSPORT

# BENEFITS OF HPDI FUEL SYSTEM EQUIPPED ENGINES

HPDI (High Pressure Direct Injection) technology is more cost effective than fuel cells in terms of CO<sub>2</sub> reduction.

HPDI with 40% biomethane delivers the same life cycle CO<sub>2</sub> reductions as fuel cells using blue/green hydrogen blends, and can deliver zero WTW CO<sub>2</sub> with pure biomethane. Biomethane is already broadly available and its availability will grow to reach the share of 40% of total natural gas consumption in Europe, by 2030.

Using technology in commercial use with bioLNG today, H<sub>2</sub> HPDI overcomes many of the challenges of other low carbon solutions for long haul heavy-duty vehicles.

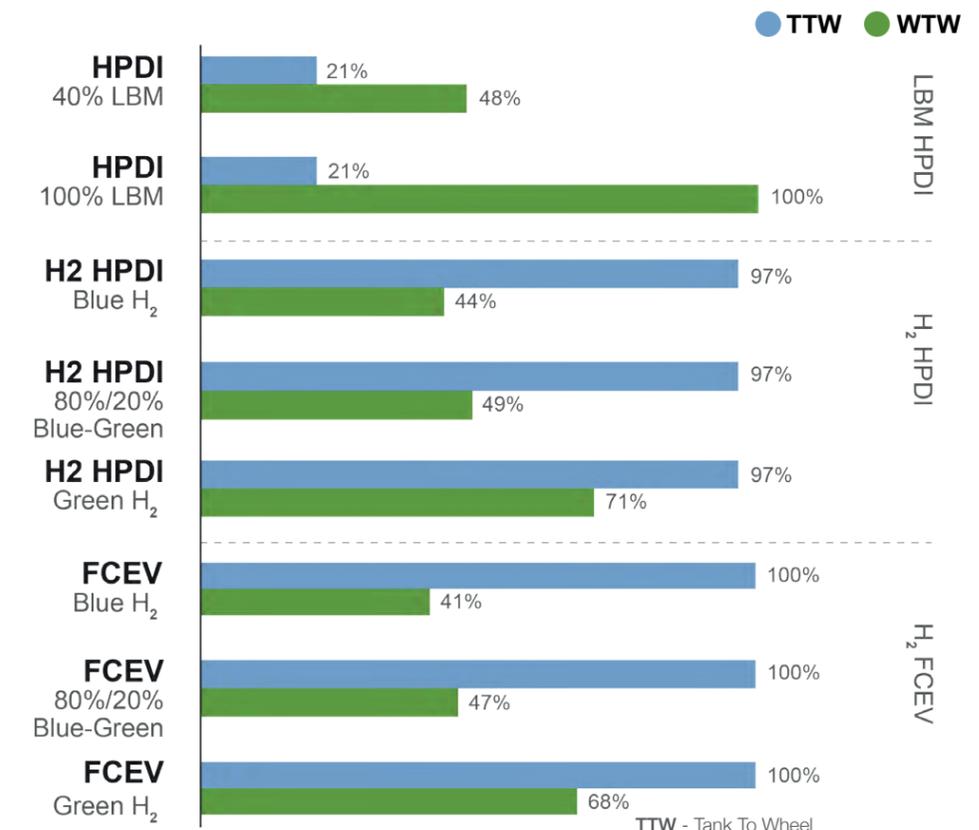
Providing GHG reductions of 20-100% on a well-to-wheel basis while preserving the same performance as a diesel engine, Westport HPDI is an integral part of the full spectrum of measures that the transportation sector will need to combat GHG emissions effectively.

**DRIVING INNOVATION TODAY TO POWER A CLEANER TOMORROW**



## CO<sub>2</sub> EMISSIONS

Whether it uses biomethane or hydrogen, the HPDI technology delivers industry leading CO<sub>2</sub> reductions for long haul transportation.



TTW - Tank To Wheel  
WTW - Well To Wheel, including fuel source and manufacturing emissions

Source: Frontier Economics



 **H<sub>2</sub> HPDI** fuel system equipped engines offers far greater CO<sub>2</sub> reductions for every Euro of public and private investment, compared to fuel cells.

 Based on Westport's current technology, the H<sub>2</sub> HPDI fuel system avoids reliance on the sensitive and expensive minerals used in fuel cell catalysts and batteries, resulting in far lower cost base than fuel cells.

 The marginal cost of the additional NOX reductions that come from using fuel cells far exceeds the societal cost of NOX emissions.

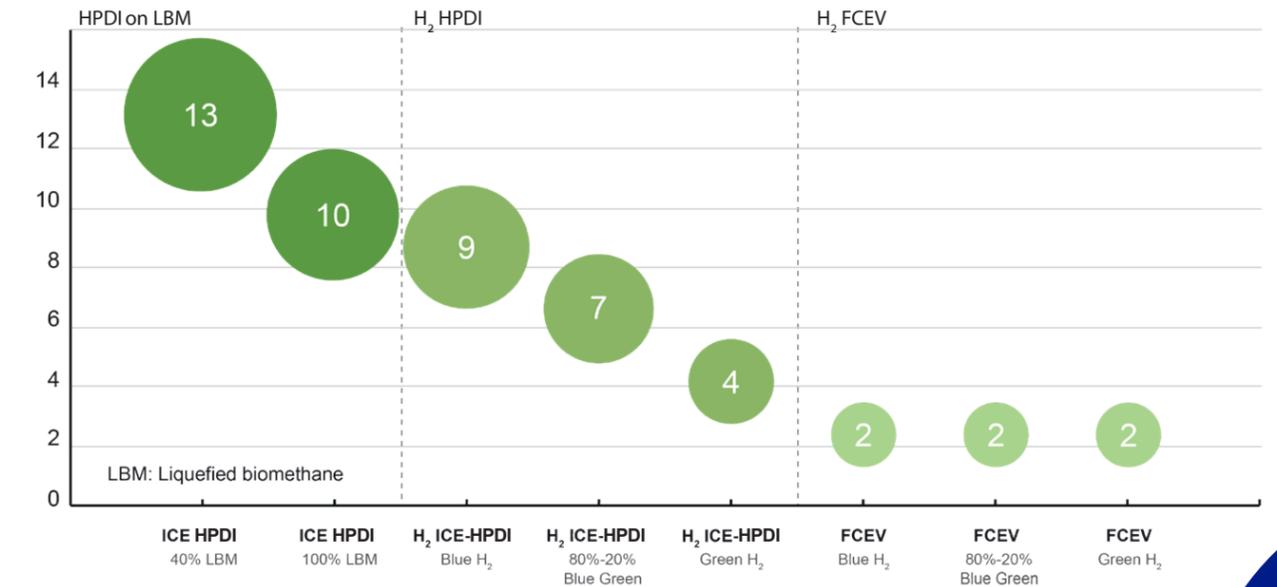
**COST**

## MARKET READINESS

HPDI solutions are more cost effective than fuel cells for CO<sub>2</sub> abatement. H<sub>2</sub> HPDI uses the same technology and shares many of its components with existing LNG HPDI powertrains. As a result, H<sub>2</sub> HPDI can utilise existing manufacturing infrastructure, with reduced capital investments, thus expediting time to market.

The rapid scaling of production means that HPDI can be quickly deployed, stimulating the demand for hydrogen, and accelerating the reduction of cumulative GHG emissions.

Tons CO<sub>2</sub> reduced per € 1,000 invested WTW CO<sub>2</sub> - includes fuel source and manufacturing emissions



# DRIVING CLEANER PERFORMANCE FOR HEAVY - DUTY TRUCKS TO MEET STRINGENT CARBON REDUCTION REGULATIONS.

- Up to 20% more power than diesel
- Up to 15% more torque than diesel
- Near Zero CO<sub>2</sub> emissions
- Preserve existing diesel architecture
- Preserve existing engine manufacturing
- Lowest cost to CO<sub>2</sub> compliance

[westport-hpdi.com](https://westport-hpdi.com)



Drive your future. Today.

