Cummins Perspective on Fuel Cells

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Cummins

100 years serving customers

1M+ engines annually produced

15M engines in the field

Understands power — past, present and future.
Power of Choice

INTERNAL COMBUSTION ENGINE

HYBRID

BATTERY ELECTRIC

FUEL CELL ELECTRIC
Fuel cell benefits

- Zero carbon, zero emissions (compared to conventional fuels)
- High energy density (compared to battery)
- Quick refueling (compared to battery)
- Improving performance & durability
- Immediate startup (PEM)
- Transient response (PEM)
- Improving TCO
Four Keys to Adoption

- Technology
- Regulations
- Infrastructure Readiness
- Total Cost of Ownership
Cummins is expanding its capabilities across the electrification value chain…
…and seeking to build new ones across the fuel cell value chain too

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<tr>
<th>MATERIALS &amp; MEA’s</th>
<th>MODULE COMPONENTS</th>
<th>SYSTEM COMPONENTS</th>
<th>SYSTEM INTEGRATION &amp; AGGREGATION</th>
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<tr>
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<td>Stack</td>
<td>Fuel cell system</td>
<td>Integrated powertrain system</td>
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<td></td>
<td></td>
<td>H₂ + O₂</td>
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<td>Air handling</td>
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Public
The Cummins Difference

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<th>ONE CENTURY OF POWERTRAIN FOCUS</th>
<th>POWERTRAIN OF CHOICE</th>
<th>CAPABILITIES ACROSS APPLICATIONS</th>
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<td>GLOBAL FOOTPRINT FOR SUPPORT</td>
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