Powering Change
Cummins In GSE

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Sustainability achievements
Here are some significant sustainability developments at Cummins in the past year.

2050

PLANET 2050
Adopted strategy to address climate change and other environmental challenges, including science-based goals timed to 2030.

$1 billion
Research & Development
Exceeded $1 billion in annual spending for the first time on research, development and engineering expenses.

2

Hydrogen MW Production
Selected to provide 20 and 5 megawatt electrolyzer to produce hydrogen within North America

100,000
Women’s Equality
Impacted the lives of 100,000 people around the world in the first two years of Cummins Powers Women, a program to improve the lives of women and girls.

365
X15 Diesel Engine
Offered the new Efficiency Series diesel engine, which achieves a 3.5% improvement in fuel economy over the 2017 model, a year ahead of EPA greenhouse gas requirements.
OPERATING SEGMENTS

1. Engine
2. Power Systems
3. Components
4. Distribution
5. New Power
Developing Future Powertrains

Cummins is developing a range of efficient, clean and capable powertrains, using our integration expertise to help manufacturers define the best power source for their equipment.
**PEM & solid oxide fuel cell & hydrogen production technologies** will be important elements in our portfolio of products & technologies.

**NEAR-TERM FOCUS:**
- Strategic commercialization when market conditions such as technology maturity, regulations, economics and infrastructure are favorable

**LONG-TERM FOCUS:**
- Scale up when market adoption indicates appropriate
- Continue to invest in development of differentiated next generation technology
### Fuel Cells - “The Advantages of both Batteries and ICE’s”

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Electric</th>
<th>Combustion Engine</th>
<th>Fuel Cells</th>
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<tbody>
<tr>
<td>Zero Emissions</td>
<td>✓</td>
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<td>Extended Runtime</td>
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<td>Fast Fueling</td>
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<td>Quiet Drive</td>
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<td>High Efficiency</td>
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<td>Route Flexibility</td>
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<td>Renewable Capable</td>
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<td>Maintenance</td>
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Ground Support Equipment - Key OEM partners

TLD - Ground Support Equipment
JBT - Aircraft Ground Support Equipment
ITW GSE (formerly Hobart) - Ground Power Units

RampMaster - Aircraft Refuelers
Wollard International - Ground Support Equipment
Textron GSE (Formerly TUG) - Ground Support

Eagle / Tronair - Ground Support Equipment
RCL - Ground Support Equipment Refurbishment
Air + Mak Industries - Ground Support Equipment
Cummins - GSE applications
Potential H2 early adapters - GSE
Hamburg Airport says “Yes” to Hydrogen

“The Hydrogen tow tractors are already today so mature that in the coming years they can be further-developed for mass production without a problem.”

Axel Schmidt (L.) Department Director Environment, with Wolfgang Schümann (R.), Project leader Hydrogen Tow Tractors at the Hamburg Airport
