FUEL CELLS AND HYDROGEN ENERGY

brief overview

Patrick Serfass, VP, National Hydrogen Association
GREENHOUSE GAS POLLUTION
billion tonnes CO2 equivalent per year

- 60% below 1990 levels
- 80% below 1990 levels
- 1990 levels

- **gasoline internal combustion engine vehicle scenario**
- **gasoline internal combustion / electric hybrid vehicle scenario**
- **battery electric vehicle scenario**
- **ethanol internal combustion / plug-in hybrid vehicle scenario**
- **hydrogen fuel cell electric vehicle scenario**
ANNUAL COSTS & REVENUES OF HYDROGEN FUELING INFRASTRUCTURE
$billions per year

2023: cumulative net cash flow becomes positive (revenues outpace costs)
top 10 American cities by population
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