

MTD
thrive

H₂ ZERO
EMISSION
HYDROGEN FUEL CELL ELECTRIC



Champaign-Urbana Mass Transit District



~12 million rides



57,000 students



118 buses



98% hybrid



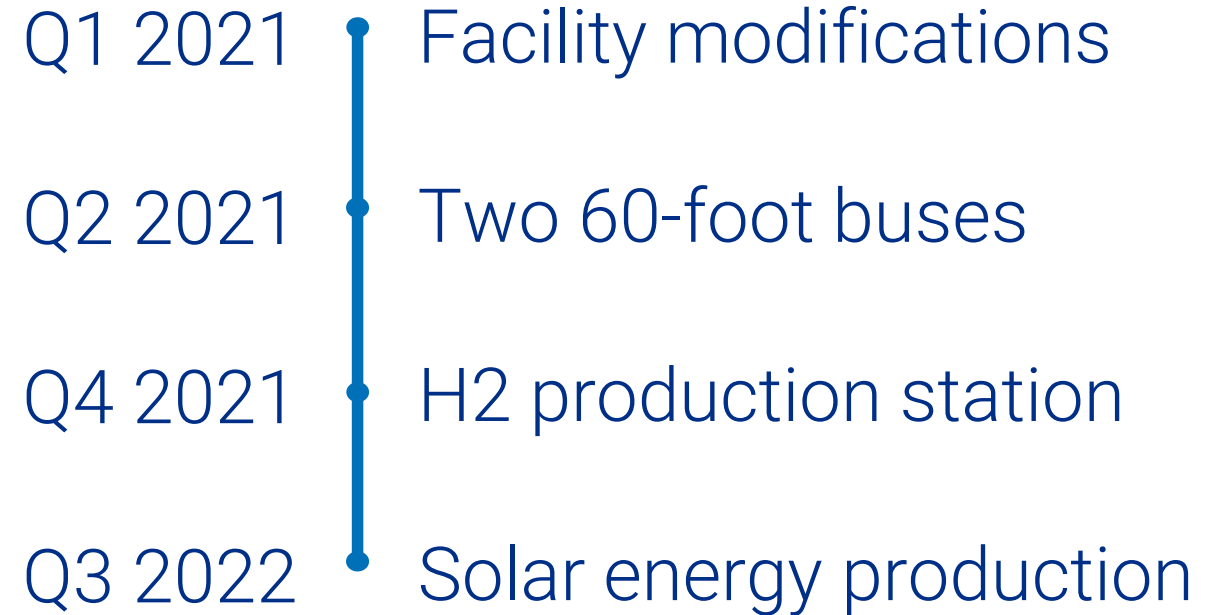
Hydrogen Fuel Cell Bus Project: Phase 1



Goals

- Zero emissions
- Reduce fossil fuel consumption
- Minimal operational impact

Timeline





Zero Emissions

On-Site H2 Station

1 MW Electrolyzer

Production
420 kg max daily

Gaseous Storage
1,000 kg

7-10 min refueling

Refueling Pressure
380 bar

Footprint
50 ft by 250 ft





Zero Emissions

Powered
by
Solar

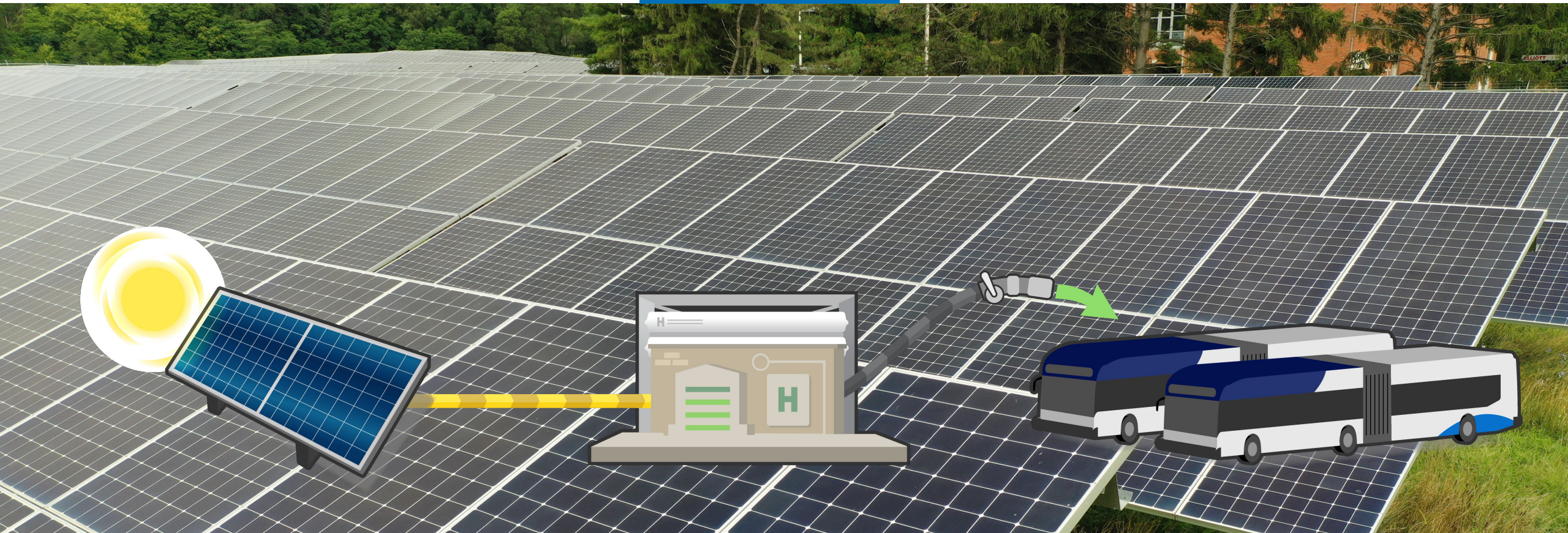
2-megawatt solar array

3 MWh estimated annual production

5,500 ground & roof mounted panels

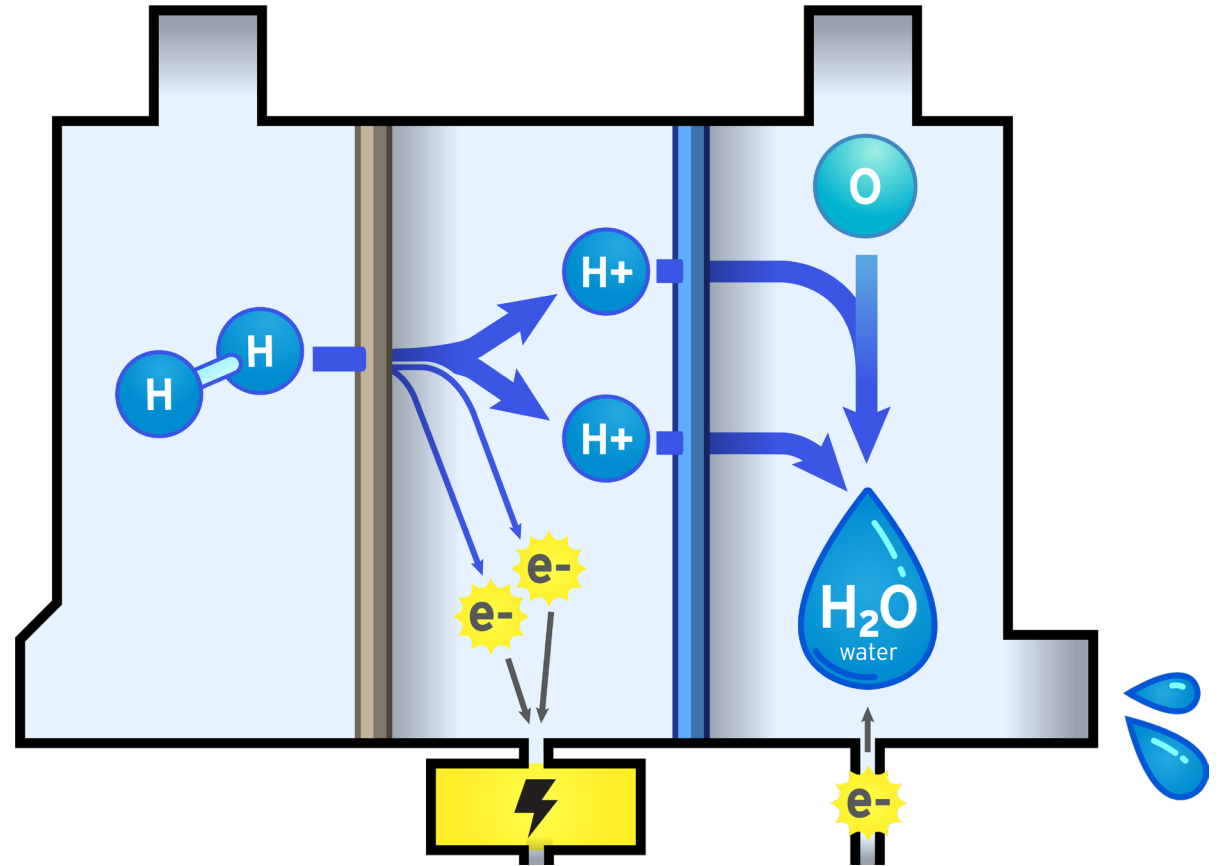
8 acres of land leased from neighbor

Direct connection to hydrogen station





How does hydrogen fuel cell technology work?



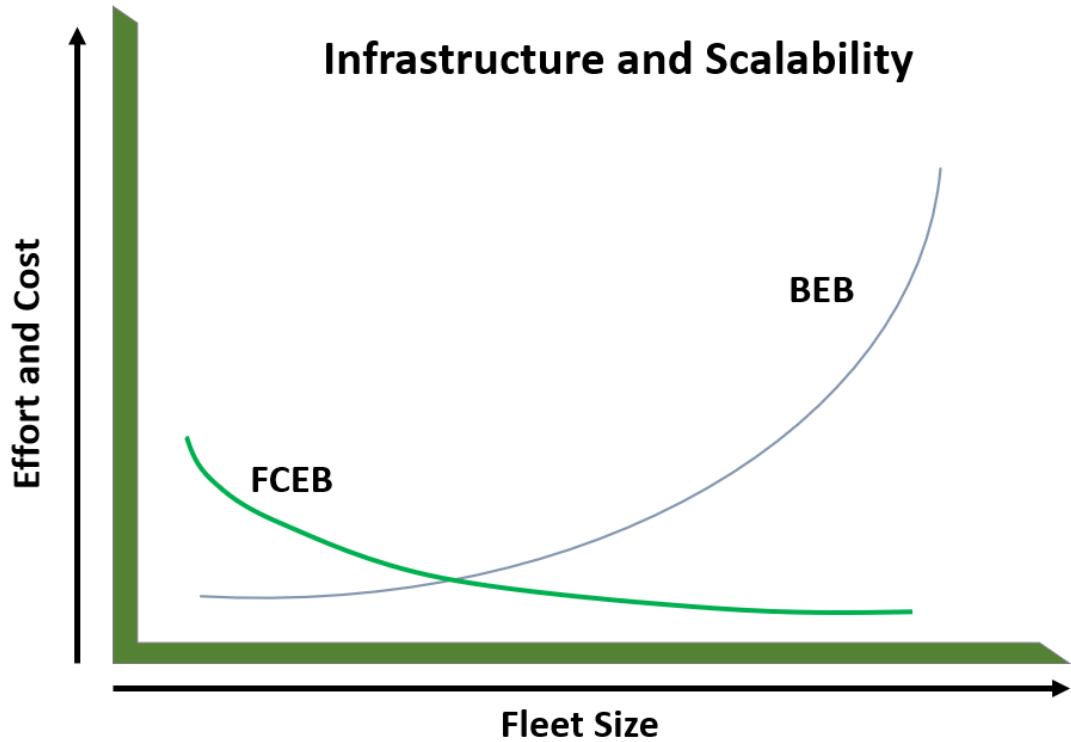
The fuel cell separates electrons from hydrogen molecules. The electrons generate electricity to charge the battery while the remaining hydrogen ions combine with oxygen to create water.

60-foot Articulated New Flyer Buses

Range	Up to 250 miles
Fuel Efficiency	To be determined
Fuel Cell	85 kW Ballard
Batteries	150 kWh of storage
H2 Tanks	9 type IV composite tanks
Usable H2 Capacity	65 kg
Curb Weight	49,900 lb

Future Plans

Infrastructure and Scalability



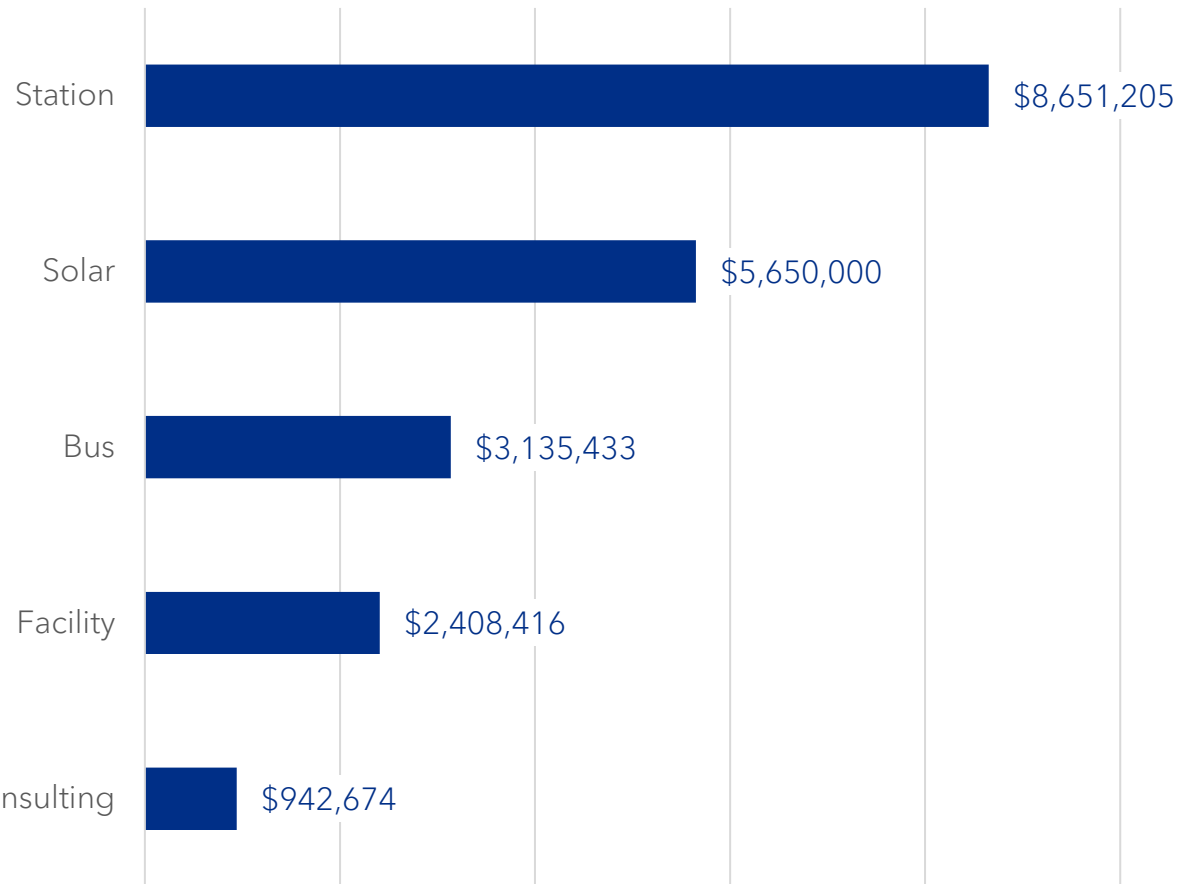
Fiscal Year	Purchase	Total FCEBs
2021	Two 60-foot FCEBs	2
2024	Ten 40-foot FCEBs	12
2027	Four 60-foot FCEBs	16
2029	Ten 40-foot FCEBs	26

H2 Station Expansion

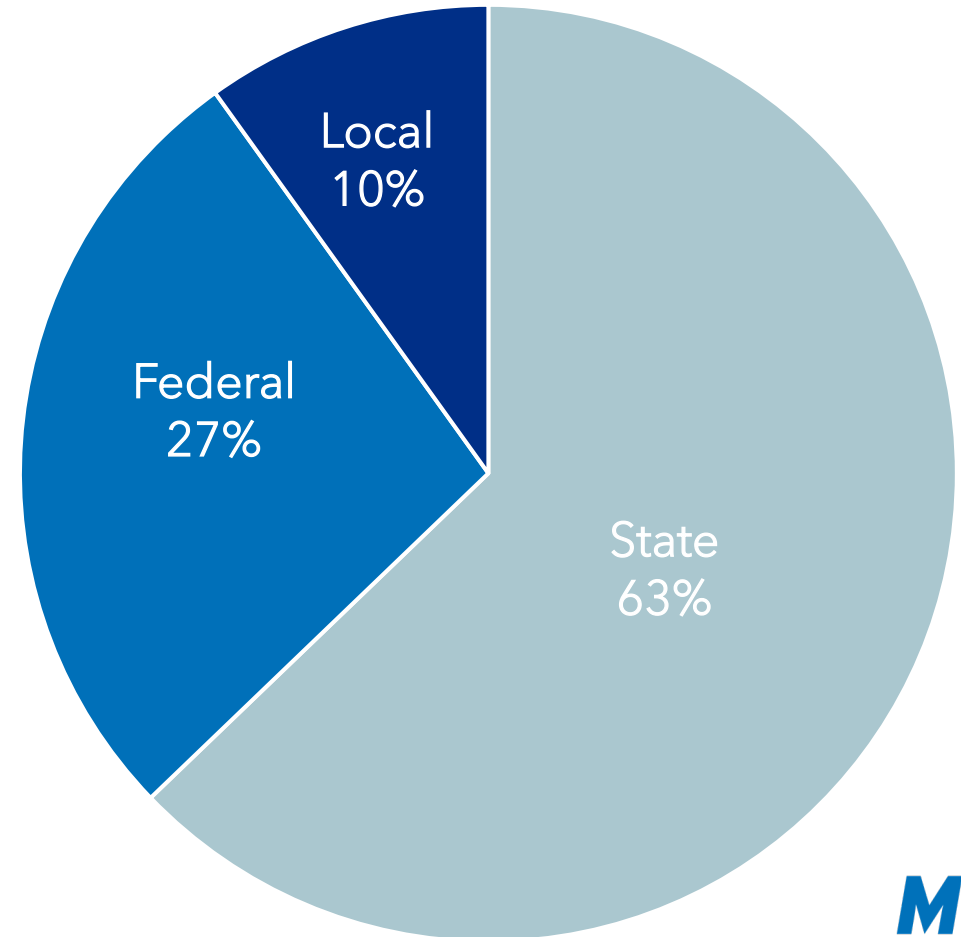


Project Cost

Total = \$20,800,000



Funding Source



Project Partners



Champaign-Urbana Mass Transit District
Hydrogen Fuel Cell Electric Bus Project
High Level Overview

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