WHY EV BUSES MAKE SENSE

Eric J. McCarthy, Vice President, Government Relations & General Counsel
Founded in 2004
- Offices and manufacturing in CA and SC
- 200 employees, strong executive management team
- Backed by industry-leading VC and corporate investors
- 16 customers; 155 firm orders; 316 contracted options
- >63 vehicles delivered; >2,200,000 service miles
- >8,500,000 pounds of CO² emissions avoided

Strong Executive Team

Solid Financial Backing

All-American Company

<table>
<thead>
<tr>
<th>TESLA</th>
<th>Apple</th>
<th>GM</th>
<th>SunPower</th>
<th>Ford</th>
<th>A123 Systems</th>
<th>DENSO</th>
<th>Cessna</th>
<th>Propel</th>
<th>Honeywell</th>
<th>BLUE BIRD</th>
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<td>KPCB</td>
<td>Edison International</td>
<td>EDISON</td>
<td>VENTURES</td>
<td>Mitsui</td>
<td>Constellation</td>
<td>Tao Capital Partners</td>
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</table>
EXPERIENCED TRANSIT AND TECHNOLOGY LEADERSHIP TEAM

RYAN POPPLE
Chief Executive Officer

CHARLIE PLUMMER
Chief Financial Officer

GARY HORVAT
Chief Technical Officer

MATT HORTON
Vice President
Sales & Marketing

ERIC McCARTHY
Vice President
Government Relations and General Counsel

ED LYGHTEL
Sr. Director
Manufacturing

SHERI BEBB
Vice President
Human Resources
155 orders from 16 public agency and university customers

Operating more than 3,200 miles per day
WE ARE LIVING IN THE CENTURY OF THE CITY

BY 2050
75% OF WORLD’S POPULATION WILL LIVE IN CITIES

1M NEW PEOPLE MOVE TO URBAN AREAS EVERY WEEK

Source: Out of the Mountains, David Kilcullen
After a brief period of suburbanization, the U.S. is returning to its Cities
Transit use is growing

- Americans took 10.7 billion trips on mass transit last year—the most in six decades.
- Young people 16 to 34 drove 23% fewer miles in 2009 than in 2001.
- Bus Systems > 50% of U.S. mass transit

Access to Transit has never been more important.
EV MARKET PROVIDED THE SCALE AND COST REDUCTIONS

U.S. HYBRID & EV SALES (000s Units)

PROTERRA BATTERY COST ($/kWh)

ADVANCED BATTERY TECHNOLOGY HAS DECLINED IN COST TO THE POINT OF DISRUPTION IN THE TRANSIT MARKET

Sources: Navigant Research, green.autoblog.com, Electric Drive Transportation Association.xEV = PHEV, HEV, EREV and BEV.
ECONOMIC & SUSTAINABLE

BUS TRANSIT
LOWEST COST PER PASSENGER

ELECTRIC VEHICLE
LOWEST CO₂ PER PASSENGER MILE

Lowest Cost, Lowest Environmental Impact for Urban Transportation

More Transit. Zero Pollution.
ACCELERATING MARKET DEVELOPMENT

PROTERRA

PRICE

2010 - 2014

$1.2M

2015 - 2016

$800K

2017

$700K

UNIT SALES

EV EVANGELISTS

✓ Tech Proven
✓ Small Orders
✓ Safety
✓ Reliability

EARLY ADOPTERS

✓ Full Route Adoption
✓ Revenue Service
✓ 1,000,000 miles
✓ Mainstream Financing

EARLY MAJORITY

• Price Parity to Hybrid
• 10% Penetration
• Best Practices Developed
More cities = more transit.
More transit = more pollution?

Total fuel consumed by buses per year:
• Diesel fuel: 389,600,000 gallons
• CNG fuel: 150,000,000 gallons

Total GHG per year:
• From diesel buses: 12,500,000,000 lbs
• From Natural Gas buses: 4,600,000,000 lbs
HEAVY DUTY VEHICLE EMISSIONS MUST BE ADDRESSED

“The biggest reason for the continued increase in emissions from the heavy-duty sector is the simple fact that truck efficiency has remained stuck in the 1970s at about 6 miles per gallon.“

(1990-2011 data from EPA; 2012-2040 data from EIA)
Over the past 65 years, CO2 levels have skyrocketed, setting a record of 400 ppm in August 2015.
Millennials: driving less and seeking out transit more

Universities: strategic Climate Action Plans enable faculty, administrators, staff and students to be drivers of sustainability innovation

Proterra:
- Working to guarantee that riders have clean, quiet, emission-free transportation
- Helping to inspire and catalyze transportation providers to lead the global sustainability transformation
- Bringing more zero-emission buses to university campuses around the U.S--an integral part of our mission

UTC Climate Action Plan:
- Increase the availability and feasibility of using alternative transportation options; create incentives for using the same.
- Partner with the City of Chattanooga to expand use of buses into neighborhoods with University residents.
- Consider alternative vehicle/fuel infrastructure, such as EV charging stations, as a retrofit to current parking lots and a design requirement for future lots.
- Increase campus and neighborhood housing options to decrease commuting and transportation.

An Inspiring Example: The Associated Students of the University of Montana (ASUM) was the first student-run transit agency in the U.S. to bring zero-emission battery-electric buses to a university fleet and represented Proterra’s first university customer.
• New York’s Truck Voucher Incentive Program offers $60k per Proterra bus
• FAST Act: LoNo grants increased >100% to $55M annually; introduction of innovative procurement methods

• Washington has draft rules open for comment requiring local governments to purchase ZEB for transit if lifecycle cost ≤ Hybrid
• Colorado now funds up to $35k per vehicle for Class 8 vehicles
• California has moved from a 2012 Fuel Cell focus to a 2015 Battery-Electric focus, and plans to have 100% Zero Emission buses by 2040 or sooner
• Indianapolis E-Bus Rapid Transit plans electrification of its biggest and most traveled corridor
• Chicago’s Drive Clean Truck Voucher Program offers $150k per Proterra bus
PARTNERING WITH PROTERRA ON LOW-NO GRANT APPLICATIONS

FY 2013/14 Low-No Application Round:
Transit agencies that partnered with Proterra won a majority of the Low-No grants for zero-emission vehicles. Those agencies included:
• Dallas Area Rapid Transit (DART)
• Duluth Transit Authority (DTA)
• Transit Authority of Lexington (LEXTRANS)
• San Joaquin Regional Transit District (RTD)
• Transit Authority of River City (TARC) and
• Worcester Regional Transit Authority (WRTA)

FY 2015 Low-No Application Round:
Nineteen customers partnered with Proterra in the subsequent FY 2015 Low-No round. Those who received funding included:
• Foothill Transit
• King County Metro
• Southeastern Pennsylvania Transit Authority (SEPTA)
BUS TRANSIT
THE (LEGACY) WORKHORSE OF URBAN TRANSPORT

DIRTY
LOUD
ULTRA HEAVY
UNRELIABLE
INEFFICIENT
There is a better way.
TIME TO REIMAGINE BUS TRANSIT

CLEAN
QUIET
LIGHT
SPACIOUS
COST EFFICIENT
EASY TO MAINTAIN
ELECTRIC TRANSIT VEHICLES OUTPERFORM FOSSIL FUELED VEHICLES

CLEAN
Tailpipe Emissions
Annual lbs CO₂ (000’s)

QUIET
Noise
dB

EFFICIENT
Fuel Economy
MPGe

AFFORDABLE
Lifetime Fuel Costs
000s

D=Diesel, DH=Diesel Hybrid, CNG= Compressed Natural Gas, Pro=Proterra EV
Introducing the Proterra Catalyst™ platform

The Proterra 35 and 40-foot Catalyst™ platform is designed to deliver a turn-key electric vehicle system, fully customized to meet the needs of your most demanding routes.

Proterra Catalyst™
- Highest Performance

TerraFlex™ Energy System
- Ultimate Flexibility

Multiple Charging Options
- Meet Every Route Need

Financing and Services
- Ease of Ownership
PROTERRA WILL INTRODUCE A 35’ CATALYST BUS IN 2016
**THE PROTERRA CATALYST PLATFORM**

**Most efficient** in its class

- Highest efficiency of any vehicle in its class
- Longest range per kWh of energy storage
- Lowest fuel cost per mile
- 1.7 kWh/mile

**Lightest** transit vehicles on the market

- Increased passenger capacity
  - 40’ vehicle: 77 passengers
  - 35’ vehicle: 60 passengers
- Lowest rear axle weight in industry
- Less damage to roadways

**Highly durable** for greatest safety

- Advanced carbon fiber composite material: used in Formula 1 race cars with proven durability
- Super strong, lightweight and impact-resistant
- Non-conductive and rust-resistant

Proterra’s use of advanced composite materials makes the Proterra Catalyst™ not only the lightest, most efficient vehicle, but the most durable and safe as well.
Each Proterra Catalyst™ vehicle can be configured with the ideal type and number of battery packs to fit an existing route, and later reconfigured to serve different routes as needs change.

The Proterra TerraFlex™ Energy Storage System offers a choice of two battery packs:

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>TerraVolt FC</th>
<th>TerraVolt XR</th>
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</thead>
<tbody>
<tr>
<td>Battery Chemistry</td>
<td>LTO (Lithium Titanate Oxide)</td>
<td>NMC (Nickel Manganese Cobalt Oxide)</td>
</tr>
<tr>
<td>Charge Rate</td>
<td>up to 500 kW</td>
<td>up to 100 kW</td>
</tr>
<tr>
<td>Energy Density</td>
<td>13.1 kWh/pack</td>
<td>32.1 kWh/pack</td>
</tr>
<tr>
<td>Configuration Options</td>
<td>53-131 kWh</td>
<td>128-321 kWh</td>
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</table>
MULTIPLE CHARGING TECHNOLOGY OPTIONS

- **On-route Overhead Charger**
  - Variable-rate conductive charging
  - Intelligent charging system adjusts to vehicle energy storage capabilities
  - 500kW maximum charge rate

- **Fast-Charging Technology**
  - Enables overhead charging
  - Option on all configurations

- **Wireless Interface**
  - Vehicle and charger automatically connect and communicate charging needs

- **Depot Charger**
  - Industry-standard chargers available

- **Depot Charger Port**
  - Compatible with industry-standard SAE J1772 combo connector

- **Wireless Charging**
  - Validating technology for future deployment

**All Proterra Catalyst™ vehicles can be configured for both on-route and depot charging at a variety of rates to maximize any available charging opportunities.**

- **Configuring for “Smart Range” – the Most Efficient Combination of Energy Storage and Charging Options**
Battery-electric vehicles have the **lowest operational lifecycle cost**:

- High EV energy efficiency, low electricity rates, and high annual vehicle mileage combine to create significant fuel savings
- **30% fewer parts** dramatically reduce maintenance and operating costs
- Electricity prices far more **stable** and predictable than volatile fossil fuel prices

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**12-yr Operational Savings per Bus**

- **$448k** vs. Diesel
- **$459k** vs. Hybrid
- **$408k** vs. CNG

---

**Proterra EV** vs. **CNG Bus** vs. **Diesel Bus** vs. **Diesel-Hybrid**

<table>
<thead>
<tr>
<th></th>
<th>Proterra EV</th>
<th>CNG Bus</th>
<th>Diesel Bus</th>
<th>Diesel-Hybrid</th>
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<tbody>
<tr>
<td>VEHICLE</td>
<td>$749</td>
<td>$470</td>
<td>$454</td>
<td>$650</td>
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<tr>
<td>ENERGY/FUEL</td>
<td>$81</td>
<td>$294</td>
<td>$378</td>
<td>$302</td>
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<tr>
<td>MAINTENANCE</td>
<td>$238</td>
<td>$432</td>
<td>$389</td>
<td>$475</td>
</tr>
<tr>
<td>TCO</td>
<td>$1,067</td>
<td>$1,196</td>
<td>$1,221</td>
<td>$1,428</td>
</tr>
<tr>
<td>TCO $'s/mile</td>
<td>$2.47</td>
<td>$2.77</td>
<td>$2.83</td>
<td>$3.30</td>
</tr>
</tbody>
</table>

--- est. over 12 year lifetime / $ in thousands, except TCO $'s/mile ---
NASHVILLE MTA: A MODEL OF INNOVATION FOR PUBLIC TRANSIT

• Start of service: 11/8/15

• Route characteristics:
  o Downtown circulator
  o Low speed
  o Frequent stops and braking
  o Worst conditions for transit bus fuel efficiency – diesel average 3 MPG

• Performance:
  o Miles: 1400 miles per week
  o Estimated diesel fuel saved: 8,800 gals
  o Total estimated greenhouse gas emissions prevented compared to diesel: 221,760 lbs (111 tons) CO2 equivalent

What Nashville MTA is saying about our buses:

• “Drives like a Cadillac”
• “Reliable and easy to maintain”
• “Attention grabbers – everyone stops to get a better look”
• “Quiet”
OUR MISSION

TO PROVIDE CLEAN, QUIET TRANSPORTATION FOR ALL, BY REPLACING HEAVY-DUTY FOSSIL FUEL TRANSIT BUSES WITH ZERO-EMISSION ELECTRIC VEHICLES
QUESTIONS?

PROterra

BATTERY ELECTRIC
EXTENDED RANGE / ZERO EMISSIONS