Electric Mobility in Latin America and the Caribbean
MOVE

BUSINESS MODELS FOR e-BUS ELECTRIFICATION

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Clean Energy Works
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Our mission

Clean Energy Works accelerates investments in cost-effective distributed energy solutions to open the clean energy economy to all.
What we do

We provide advisory services to public interest groups, policy-makers, and companies interested in rapidly scaling up investment in the clean energy economy.
Our strategy

Geography
US: Federal, CA, CO, NC, NJ, MN
LatAm: Colombia, Peru, Brazil

Coalitions
US: Electric School Bus Coalition
LatAm: ZEBRA, C40, ICCT, WRI

Technology
Solar
Building Decarb
School Buses
Transit Buses
e-Buses in Latin America

Total electric buses: 2221

2.20% of buses in the cities on the platform (101 095)

234.71 kt
CO₂ savings per year
What is slowing progress?

- Higher up-front cost
- Institutional learning
- Regulatory updates
- Industry readiness
- COVID
Upfront Cost for e-Buses

Data from transit case in North Carolina
Total Cost of Ownership for e-Buses

Data from transit case in North Carolina
Funding/financing

- **Funding:**
  - Government incentives
  - State/local funds
  - Carbon funds (Green Climate Fund)

- **Financing:**
  - Loans,
  - Leasing
  - New business models, including utility investments
# Business Models for e-Bus

<table>
<thead>
<tr>
<th>Models</th>
<th>Cities</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classic Model</td>
<td>Medellín</td>
<td>64</td>
</tr>
<tr>
<td>Leasing Model</td>
<td>Santiago</td>
<td>776</td>
</tr>
<tr>
<td></td>
<td>Cali</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>México City</td>
<td>10</td>
</tr>
<tr>
<td>Bus Ownership and Operation Separation</td>
<td>Bogotá</td>
<td>1485 contracted</td>
</tr>
<tr>
<td>Model / Bids</td>
<td>Santiago*</td>
<td>2030 (proposed)</td>
</tr>
</tbody>
</table>
## Business Models for e-Bus

<table>
<thead>
<tr>
<th>Models</th>
<th>Bus Operators/Cities</th>
<th>Utilities</th>
<th>Other agents / Investors - SVP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classic Model</td>
<td><img src="image" alt="Bus" /> <img src="image" alt="Battery" /></td>
<td><img src="image" alt="Battery" /></td>
<td></td>
</tr>
<tr>
<td>Bus Leasing Model</td>
<td><img src="image" alt="Bus" /> <img src="image" alt="Battery" /> <img src="image" alt="Battery Charger" /></td>
<td><img src="image" alt="Battery" /> <img src="image" alt="Battery Charger" /></td>
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</tr>
<tr>
<td>Battery Separation Model (Battery leasing and Pay As You Save/Utility Investment)</td>
<td><img src="image" alt="Bus" /> <img src="image" alt="Battery" /> <img src="image" alt="Battery Charger" /> <img src="image" alt="Battery Charger" /> <img src="image" alt="Battery Charger" /></td>
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New Business Model: Battery Leasing

- **United States.** Proterra manufacturer leader with Mitsui-financial institution. The operator purchases the bus chassis, and leases the battery and charging infrastructure from the manufacturer (100 buses)

- **São Paulo.** BYD manufacturer leader with transport company TransWolf. The operator purchases the bus chassis, and leases the battery and charging infrastructure from the manufacturer, which in turn is the energy company (15 buses)
New Business Model: Pay as you Save

- The operator purchases the bus chassis, and the utility invests in the battery and charging infrastructure, recovering costs in the operator's electricity tariff. It is a model not yet implemented but it is endorsed by the Global Innovation Lab for Climate Finance.
Pay As You Save – How it Works?

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Pay As You Save – How it Works?

Monthly charge on power bill plus tariff

Utility

Tariff 80% of estimated savings

Bus Operator

Capital Provider

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Benefits: Pay as you Save

- Co-investments allow for multiplying effect: more buses on the road!
- PAYS could benefit operators in secondary cities.
- Utilities have better access to financing or have their own equity.
- Utilities are the providers of the fuel for the future!
Ideas to power New Business Models

- Create incentive programs (fiscal and more) for e-mobility assets: bus, batteries, charging info. for all asset owners.
- Design risk reduction mechanisms for all actors, including appropriate insurance policies and guarantee funds.
- Ensure concessions for a time period that allows cost recovery, in some cases 15 years.
Ideas to power New Business Models

- Accelerate the update of power regulations to facilitate more investment of utilities on all segments of e-mobility.
- Making sure V2G and smart charging technologies can be used from the start!
Questions & Comments

¡Thanks!

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