

**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



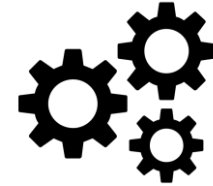
Coalitions

US:

Electric School
Bus Coalition

LatAm:

ZEBRA, C40,
ICCT, WRI



Technology

Solar

Building Decarb

School Buses

Transit Buses



Funding Agency



Implementing Partners





e-Buses in Latin America

E-BUS RADAR

Electric buses
in Latin America

Latin America

Cities

Analysis

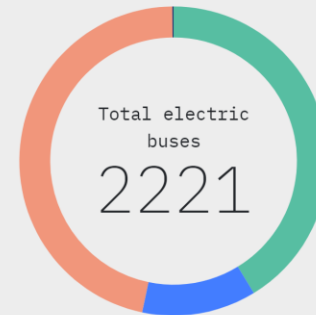
About

Contact

EN / ES / PT



Latin America



by vehicle type by manufacturer

- Trolleybus
- Midi e-bus (8-11m)
- Standard e-bus (12-15 meters)
- Articulated e-bus (>18 meters)

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

234.71 kt

CO₂ savings per year



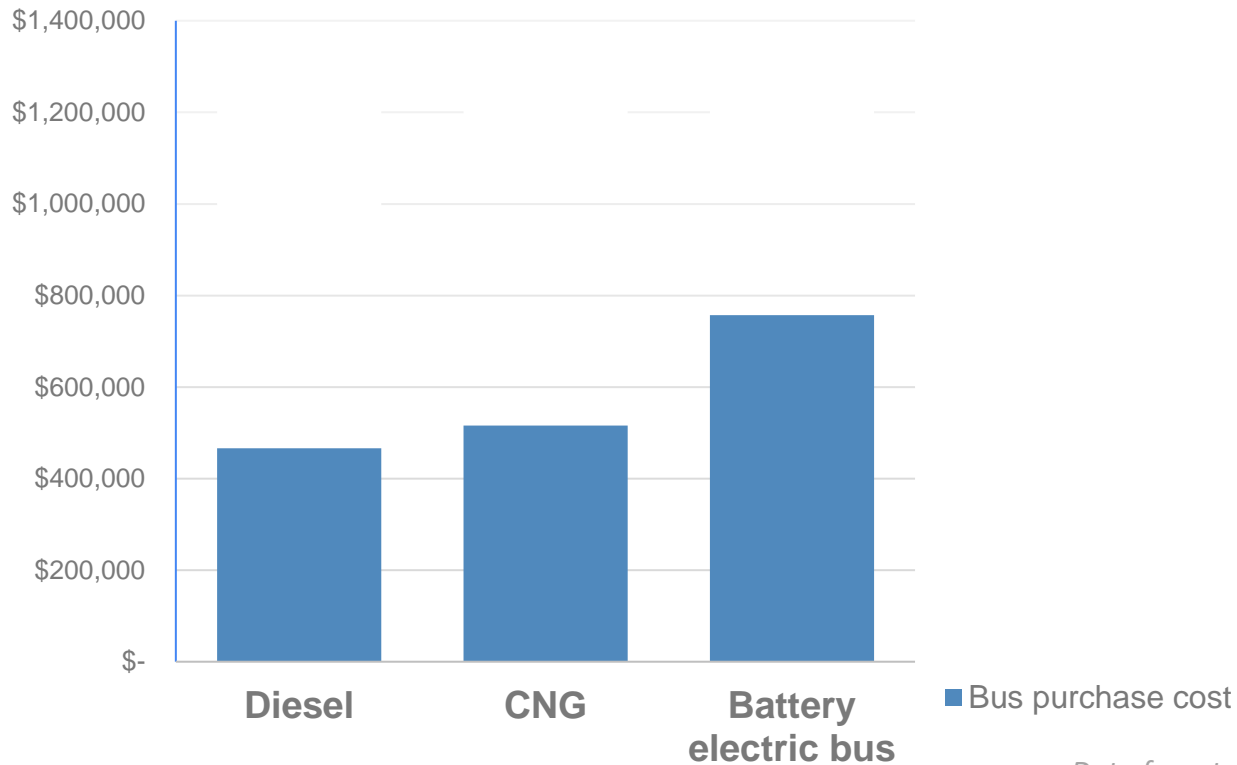


What is slowing progress?

- Higher up-front cost
- Institutional learning
- Regulatory updates
- Industry readiness
- COVID



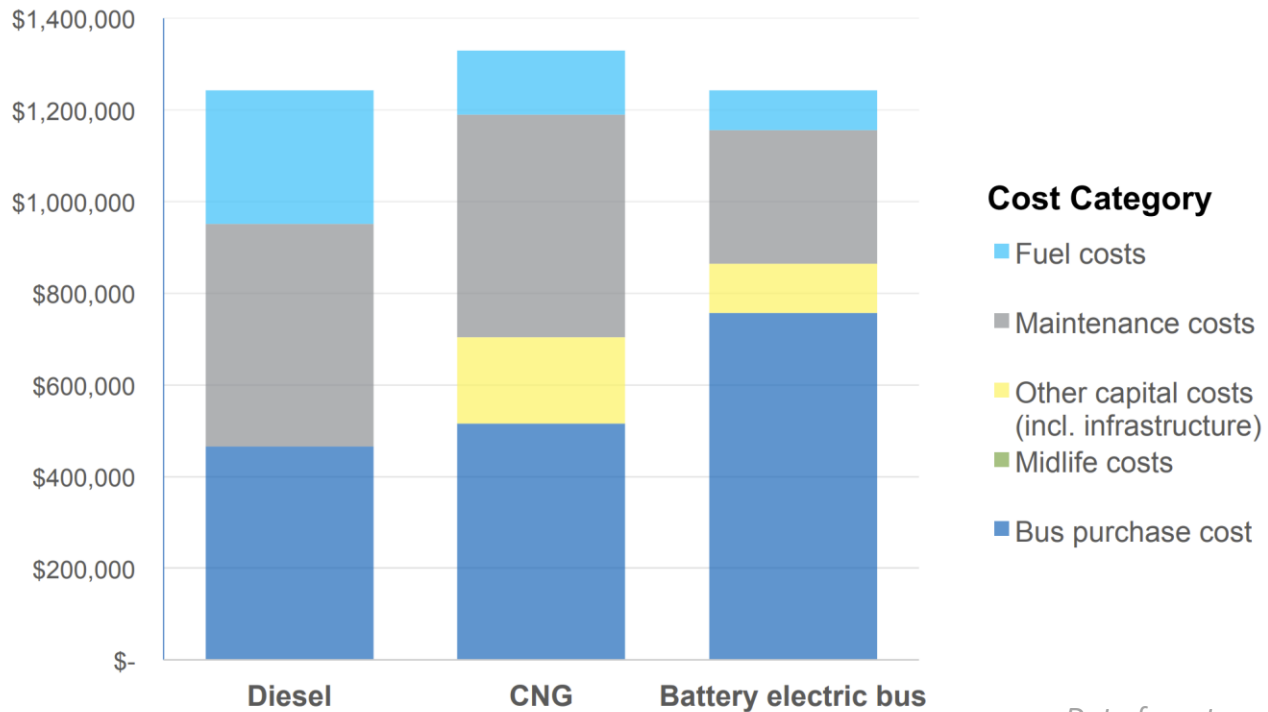
Upfront Cost for e-Buses



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

Models	Cities	Quantity
Classic Model	Medellín	64
Leasing Model	Santiago Cali México City	776 26 10
Bus Ownership and Operation Separation Model / Bids	Bogotá Santiago*	1485 contracted 2030 (proposed)



Business Models for e-Bus

Models	Bus Operators/ Cities	Utilities	Other agents / Investors - SVP
Classic Model	 		
Bus Leasing Model		  	
Bus Ownership and Operation Separation Model/Bids			 
Battery Separation Model (Battery leasing and Pay As You Save/Utility Investment)		 	



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.



[Ideas](#) [Partners](#) [Regions](#) [News & Events](#) [About](#)

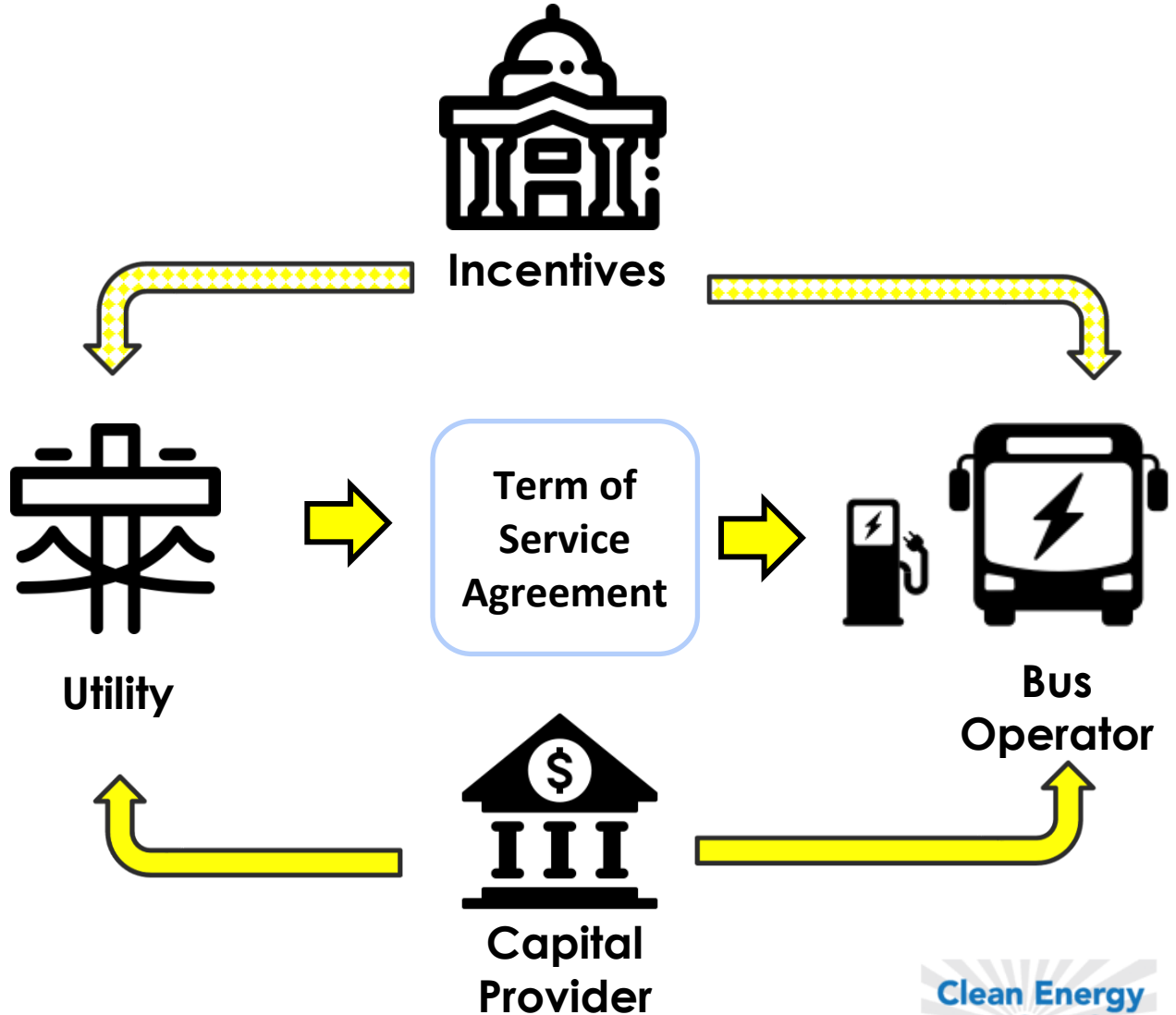




Pay As You Save – How it Works?

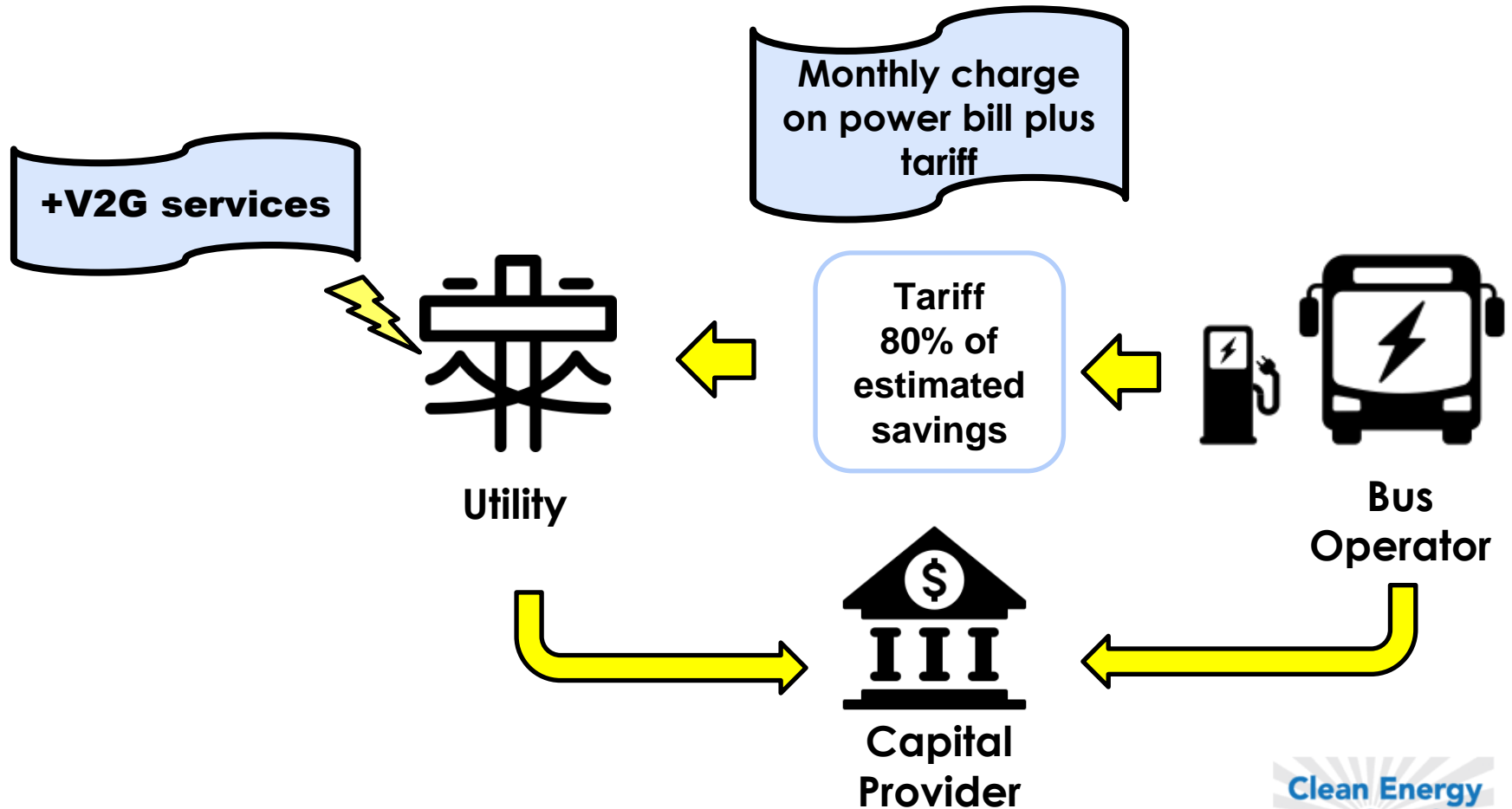


+USD\$450,000





Pay As You Save – How it Works?





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 inf. 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

iThanks!

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