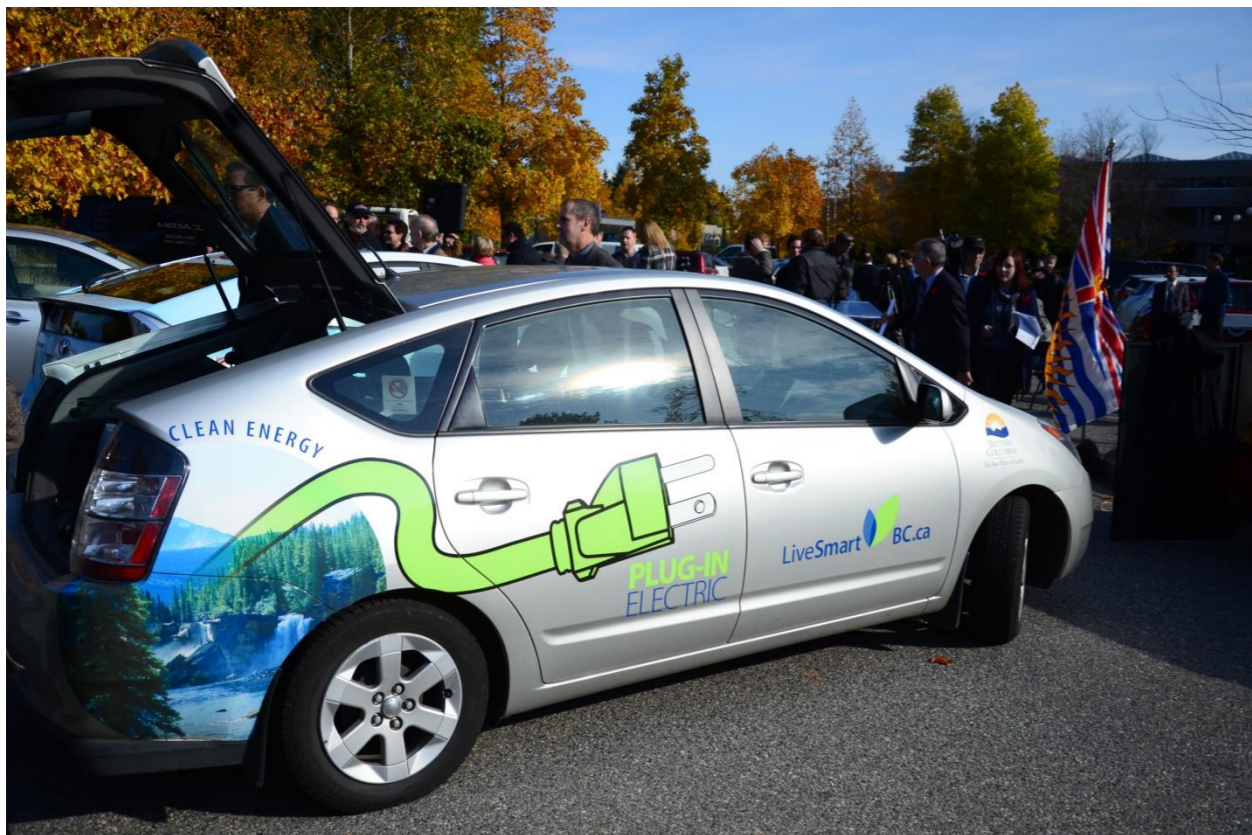


# Regulatory incentives for e-mobility in Colombia

# Why electric vehicles?

- Reduce local and global emissions
- Reduce social and health cost (externalities of vehicular emissions)
- Reduce noise, making cities more friendly
- Reduce operational cost of transportation systems



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# Why electric vehicles in Colombia (I)

- Serious pollution problems caused by vehicles
- Cities with high noise emissions
- High altitude
- Motorized vehicles lose power due to low levels of oxygen in the atmosphere

# Why electric vehicles in Colombia (II)

- Energy matrix dominated by hydroelectricity (78%)
- Hydroenergy produced without generating emissions (life cycle)
- Potential of using electric and plug in hybrid vehicles with lower operating costs than diesel vehicles

- Bus Rapid Transit Systems with segregated lanes and stations
- Colombia has BRT systems with segregated corridors that could facilitate the charging process



Nick matthew flickr



Carlosfelipe Pardo



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# Tax incentives (National Government)



		Diesel & Gasoline	Hybrid & electric
VAT (Value-Added Tax)	Private cars	16%	16%
	Taxis		5%
	Buses		16%
	Trucks		

		Diesel & Gasoline	Hybrid & electric
DUTY TAX	Private cars	35%	250 annual vehicles with 0%*
	Taxis		
	Buses	15%	5%
	Trucks		

		Diesel & Gasoline	Hybrid & electric
CONSUMPTION TAX	Private cars	8% if FOB < US\$30K	0%
		16% if FOB > US\$30K	
	Taxis, Buses, Trucks	0%	

\*2013, 2014 y 2015

**Leader:** Ministry of Environment and Sustainable Development

**National Government Support:** Ministry of Transport, Ministry of Commerce, Ministry of Finance, National Planning Department, Congress

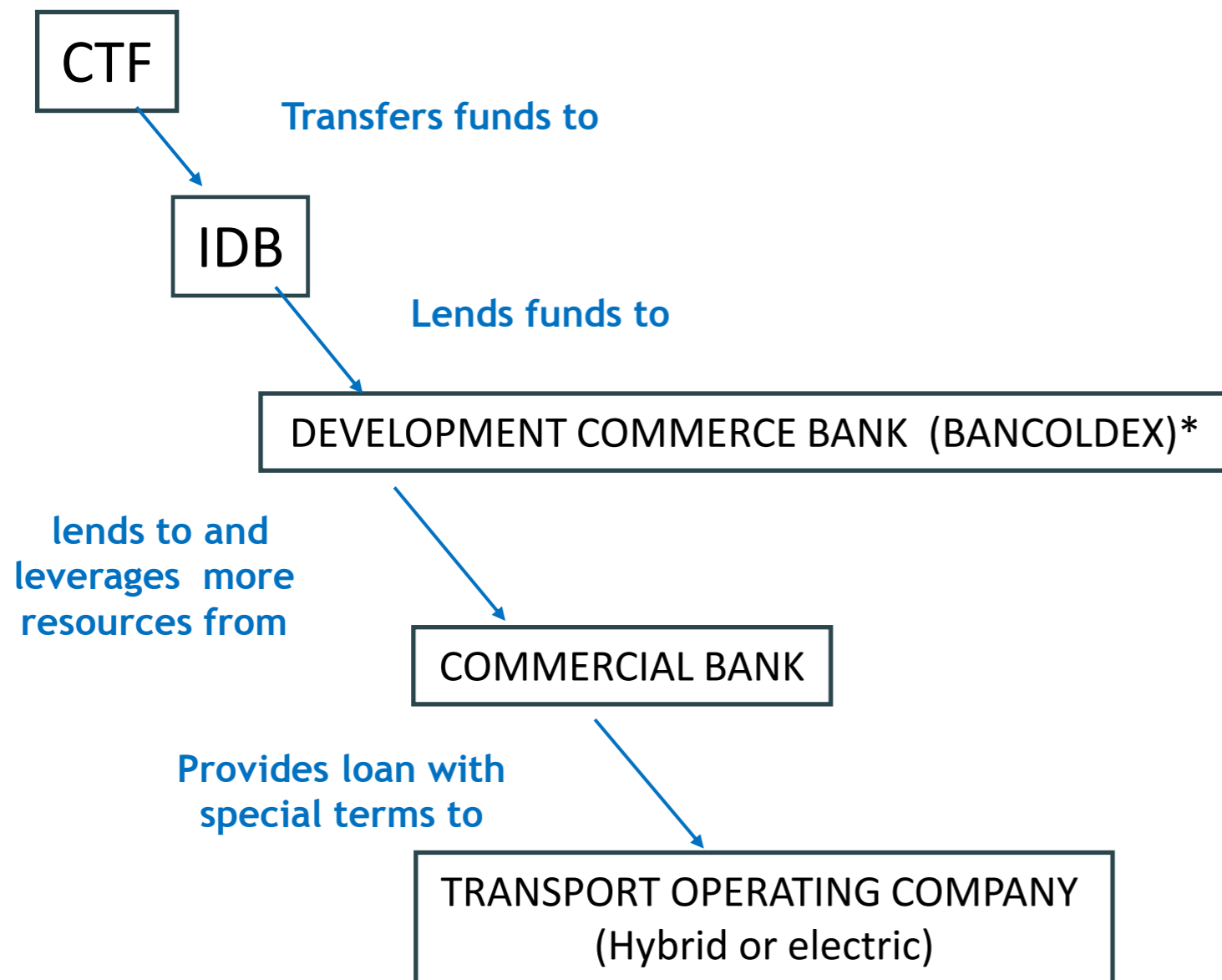
### Some results:

- 50 electric taxis in Bogota (32 operating and 18 in process)
- 200 hybrid buses in Bogota (on import process)
- Some private fleets (Cocacola, Codensa, EPM)
- Particular vehicles electricos e hibridos

# Local projects (financial instrument applied in Bogota)



## Technological Transformation Program Integrated Public Transport System SITP of Bogota. Clean Technology Fund (CTF) Project



- Development of a line of credit to exclusively purchase clean technology buses (hybrid or electric buses)
- Providing financial incentives to SITP transport operator

\*Bank business development and foreign trade Colombia

# Local projects (pilot of electric taxis in Bogota)



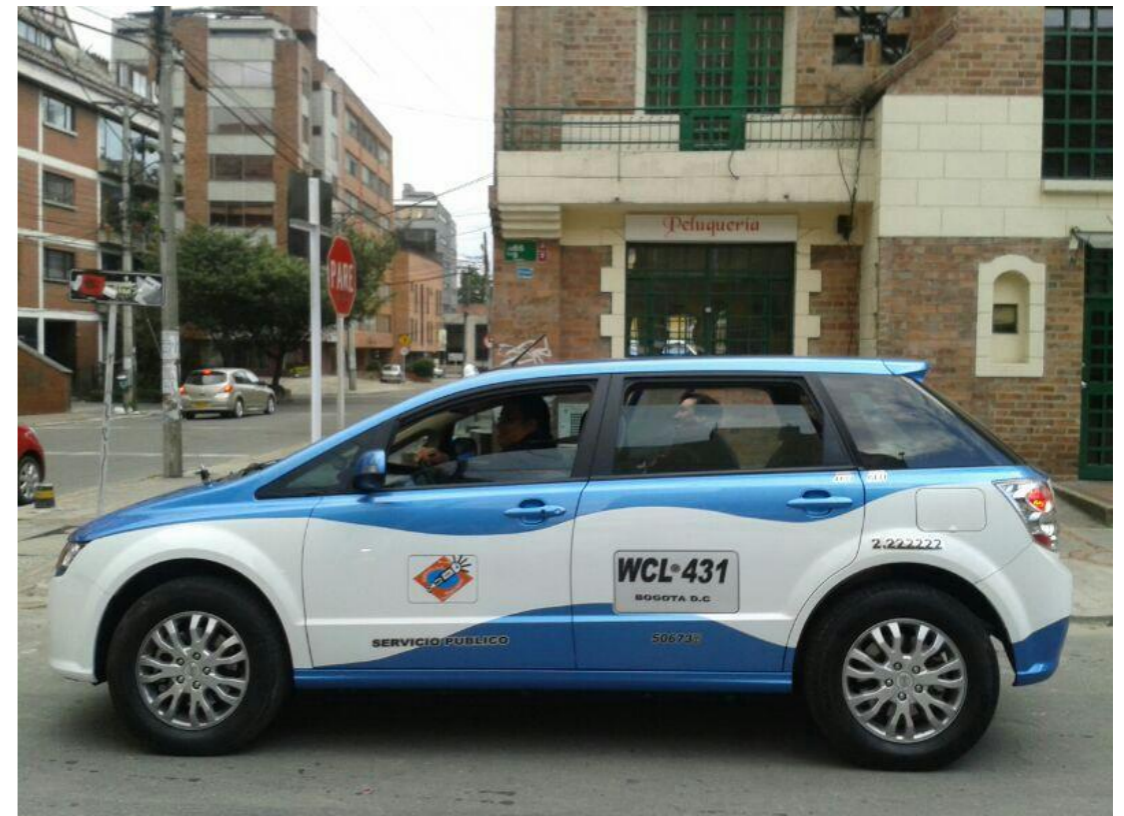
- 50 electric taxis
- Additional local incentives
- Coordinated work between entities and electric enterprises

## Conventional taxi in Bogota: gas-gasolina



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## Electric taxi in Bogota



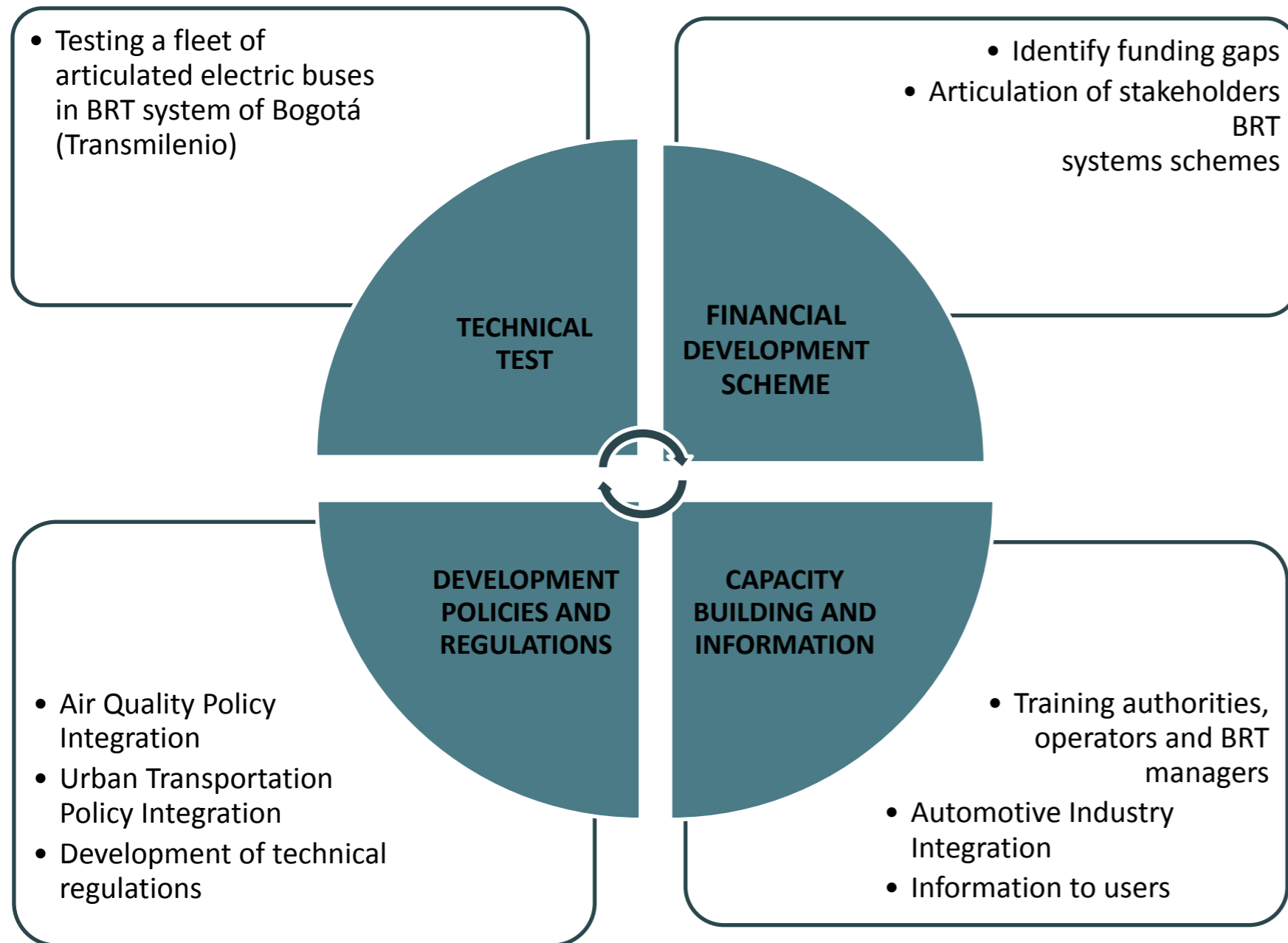
Juan David Serna

# Local projects

## (Pilot project of electric buses in Bogota)



### Demonstration and assessment of electric battery vehicles for BRT systems in Colombia. Global Environmental Facility (GEF) Project



#### PROJECT CO-FINANCING

##### RESOURCES

- **IDB:** non-refundable resources to complement investment
- **Transmilenio operator (express):** Purchase electric buses
- **Private Sector:** Prototype development of articulated electric bus
- **GEF:** Evaluation and testing documentation. Proposal for new policies

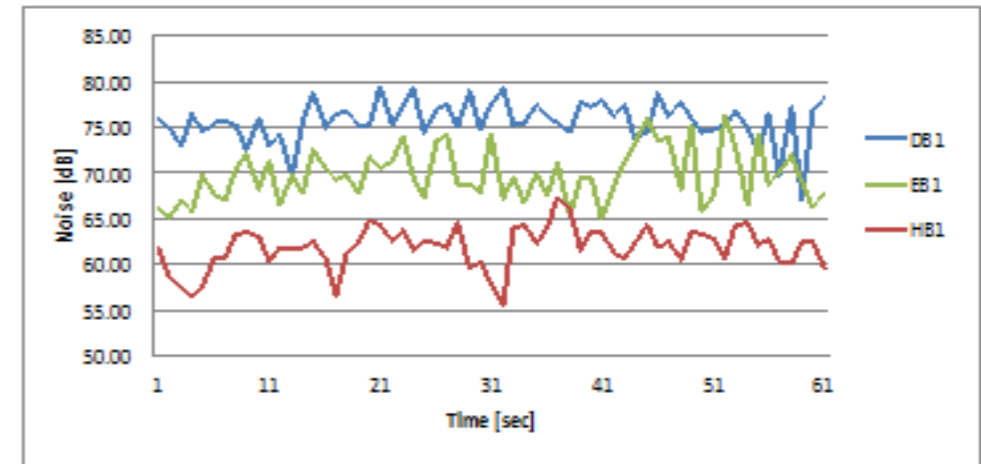
**APPROVED BY THE GEF COUNCIL**



# Test Projects C40CITIES

- Hybrid electric bus test program in Latin America
- Rio, Sao Paulo, Curitiba y Bogotá
- Comparison between diesel, hibrid and electric buses

## Bogota: Cabin noise in route (dB)



## Bogota: Savings

Bus	US\$ pax / 100 km	US\$ consum. / 100 km	Savings in 100 km, %
Diesel	\$ 0,8	59	0
Hybrid 1	\$ 0,5	39	-34%
Electric	\$ 0,3	17	-72% / Die.
			-57% / hb.1

Gallon: \$8000

## Bogota: emissions (g/km)

Bus	THC	CO	NO <sub>x</sub>	CO <sub>2</sub>	PM <sub>2,5</sub>
Diesel	0,51	6,1	11,4	936	0,06
Híbrido	0,04	2,9	1,8	835	0,02
% red.	-92%	-53%	-84%	-11%	-62%

Electric bus: non on-road emissions

# Problems that must be overcome

- Lack of coordination between national and local government: Bogota is the only city that has used the incentives created by the Ministry of Environment in public transport projects.
- Need for greater coordination between environmental authorities and transit authorities
- “Clean congestion” phenomenon, it is a real problem or lack of coordination

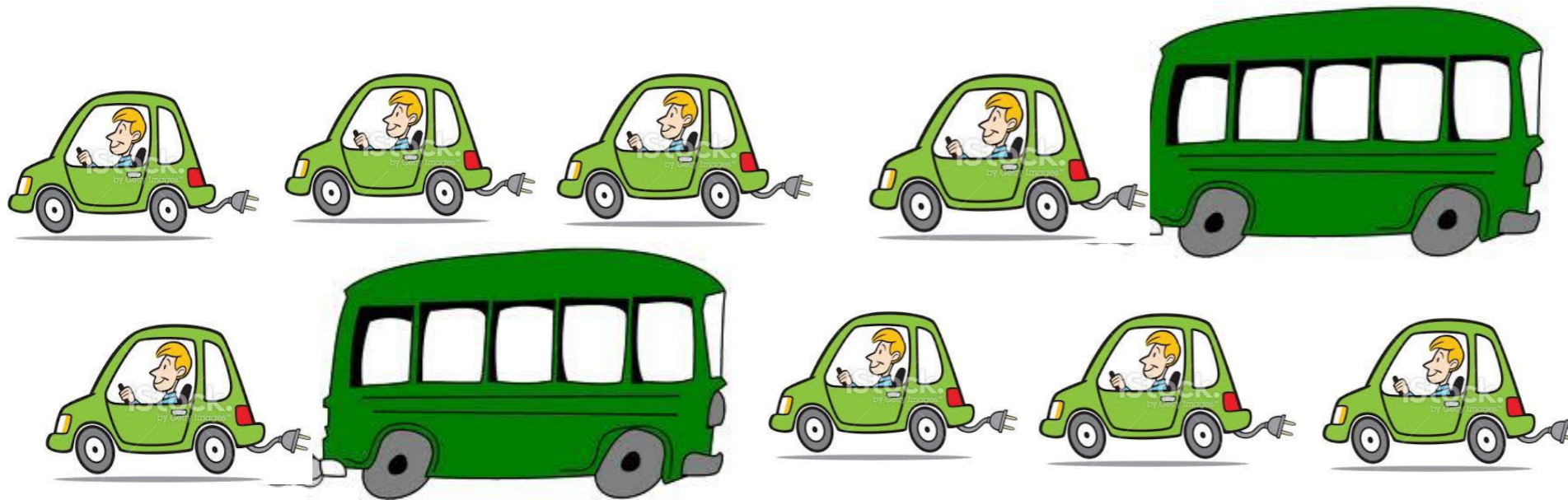


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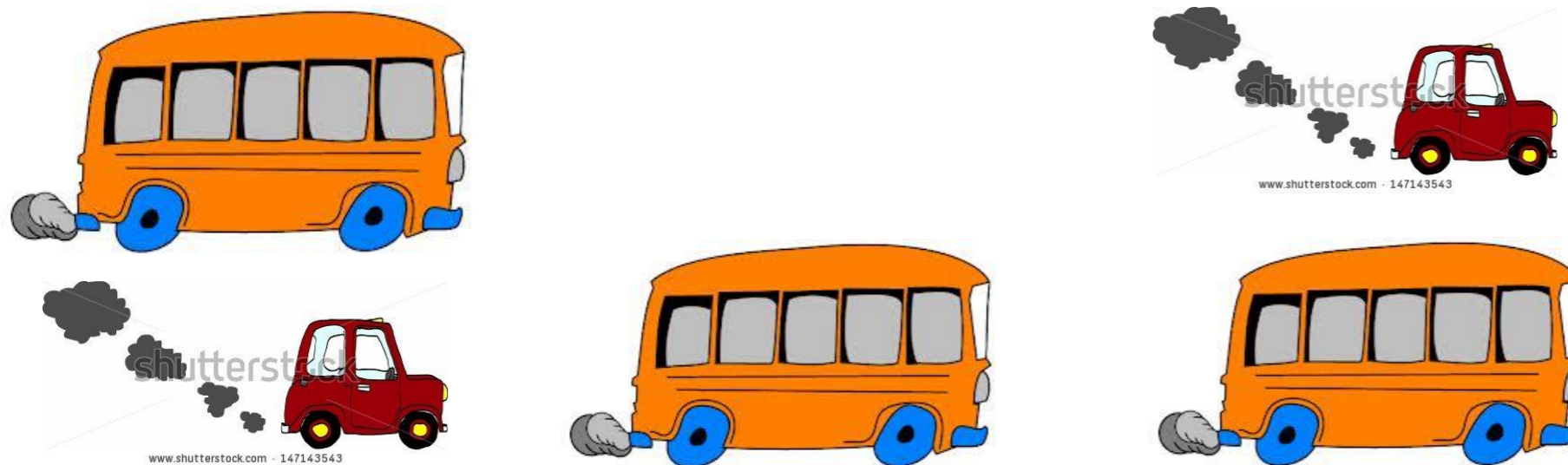
Current situation



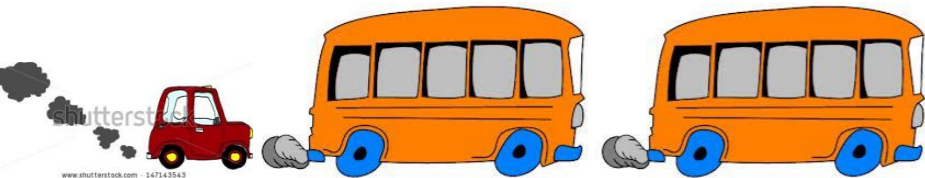
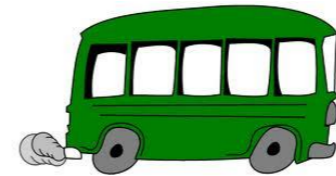
Environmental authorities would do this



Transport authorities would do this



# Which city would you like?



# Final thoughts

- Coordination between local and national entities
- Need more tests, more pilot projects
- Need to modify regulations, operation manuals on public transport systems
- Need to regulate fares for electric energy in public transport systems
- Need to explore different financial schemes
- Analyze life cycle



Thanks!

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