Electric Mobility
Opportunities for Latin America

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Global fleet of vehicles to triple in 2050

Today there are **890 million** and it is estimated that more than **2,500 million in 2050**

**90% growth in emerging and developing countries**

Opportunity to promote innovation

- Low motorization in USA and Europe
- Latin America among continents with greater increase of motorization
- Few countries have integral public policies to prepare for this scenario

Scenarios of CO₂ emissions in the transport sector

The objectives of the Paris Agreement at risk from transport emissions

Urgent change of social paradigm, new policies and technology

The future of mobility according to industry leaders

**ELECTRIFIED**
- costs
- motobike
- hybrids
- plugged in
- batteries
- ebike
- power electronics
- freight infrastructure

**AUTOMATIZED**
- autopilot
- legislation
- Emergency brakes
- sensors
- Electric direction
- redundancy
- assistance

**CONNECTED**
- safety
- fleet management
- costs
- services
- communication
- electronic horizon

Source: Adapted from Bosch, 2016
Disruption in the automotive market?

Tesla’s first “Model 3” reserves (at 24hrs) as % of sedans sold per year, exceeds % of “iPhones” sales under the same conditions

- Leadership in reducing the cost of batteries
- “Branding” and motivation of consumers
- Vertical integration saving costs on materials

Source: IHS, Strategy Analytics, data from enterprises, Bernstein analysis, 2017
Global Stock of electric vehicles

- The global fleet of electric vehicles in 2015: 1.3 million
- 90% of sales: China, USA, Holland, Norway, UK, Japan, Germany
- Drivers: battery costs reduction + policies/incentives + efficiency standards and emissions

Globally emissions standards for new vehicles

Source: www.unep.org/transport/pcfv
Subsidy on fuels and electricity in Latin America

Source: IMF 2015
CO₂ emissions x km traveled: low efficiency in Latin America

Source: UN Environment, 2016

[1] El Objetivo de China corresponde al escenario de la flota a gasolina. Si se incluye otro tipo de combustible, el objetivo sería más bajo.
Incentives for electric vehicles in Latin America

- There are several fiscal and no-fiscal incentives at the country level in the region that seek to promote electric mobility.
- Lack of integrated vision: National Strategies of Electric Mobility

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**INCENTIVO /PAÍS**

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<th>BRASIL*</th>
<th>COLOMBIA</th>
<th>COSTA RICA**</th>
<th>CHILE</th>
<th>ECUADOR</th>
<th>MÉXICO</th>
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- Exención de IVA
- Exención de permiso de circulación
- Exención de programas de restricción vehicular
- Exención de impuestos aduaneros
- Exención de impuesto a consumos especiales
- Tarifa eléctrica diferenciada
- Exención de impuesto ambiental

**En el caso de Brasil, los incentivos son a nivel estatal, no federal.**

**Basado en actual propuesta de ley sobre movilidad eléctrica en Costa Rica.**
Electric public transport: strategic priority for the region
Total costs per km traveled and per type of bus operating in Finland

Source: VTT, 2014
Bus Efficiency Scale:

- Use of energy per km traveled. Distance can be traveled with **5 lt. of Diesel**
- **Options in Mexico City**

- **CNG BUS**: 8.6 km
- **DIESEL BUS**: 11.4 km
- **HYBRID BUS**: 19.4 km
- **ELECTRIC HYBRID BUS**: 25.5 km
- **ELECTRIC BUS**: 33.3 km

Source: Volvo, 2016
Electrical installed capacity by type of source in Latin America

Source: EIA, 2016
Roadmap to accelerate electric mobility

**ACCELERATE ENERGY EFFICIENCY**
1. Emissions and fuels standards
2. Labeling
3. CO₂ emissions tax

**ELIMINATE MARKET DISTORTIONS**
1. Eliminate fuel subsidies
2. Regulate the import of used vehicles

**CREATE EV INCENTIVES**
1. Pilots in key sectors
2. Create EV critical mass through incentives

**DEVELOP EV INFRASTRUCTURE**
1. Recharging networks
2. Differentiated tariffs
3. Creation of innovation platforms related to electric mobility
4. Technical training

Source: UN Environment, 2016
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