MEXCIO ELECTRIFICATION OF TRANSPORT

IN COLLABORATION WITH UC ALIANZA AND THE UC ITS

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4/19/2023
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Implications of Global Electric Vehicle Adoption Targets for the Mexican Light-Duty Auto Industry
Mexico Is a Major player in the North American LDV Industry
Monet tool: allocate production of vehicles based on (forecasted) demand and trade ratios

Production (by country) = f (Sales, Trade Ratios)

Demand by Country \[\times\] Trade Ratios = Production by country

2035 LDV & EV Demand (57M) trade ratio LDV

North America Light Duty EV 2035 flows, S1 - Constant LDV 2010 trade ratios
Shifting Global Supply More Cars and More Electric

- China: 34M LDV, 21.5M EV
- United States: 16.6M LDV, 9.9M EV
- Rest of Europe: 11.9M LDV, 5M EV
- Middle East/Africa: 10.9M LDV, 2M EV
- South America: 9.5M LDV, 1.1M EV
- Rest of South Asia: 7.9M LDV, 2.5M EV
- Japan: 4.7M LDV, 3.7M EV
- India: 5.4M LDV, 925K EV
- Germany: 3.5M LDV, 2.5M EV
- United Kingdom: 3.2M LDV, 1.6M EV
- Indonesia: 2M LDV, 2M EV
- France: 2.3M LDV, 1.3M EV
- Italy: 1.2M LDV, 2M EV
- South Korea: 1.1M LDV, 1.6M EV
- Mexico: 2.1M LDV, 156K EV
- Canada: 208K LDV, 506K EV
- Taiwan: 382K LDV, 150K EV

Light Duty Vehicle Sales 2035

Current Sales, LDV 2019, EV 2021, Region: North America, Europe, South America, Middle East/Africa, South Asia, Greater China, Japan/Korea.
Average National BEV Battery capacity (kWh)

United States: 82 kWh
Norway: 76 kWh
Canada: 75 kWh
South Korea: 72 kWh
Sweden: 69 kWh
United Kingdom: 68 kWh
Netherlands: 67 kWh
Germany: 62 kWh
China: 53 kWh
France: 51 kWh
Japan: 50 kWh
Italy: 49 kWh
India: 33 kWh

Share in global EV Sale (%)

BEV_Avg battery Size per Vehicle (2022) kWh/Veh

% Contribution in Global BEV Sales
Scenarios for Production and Trade

S1 - Constant LDV 2019 trade ratios

S2 - Higher **Domestic** Supply

S2b - Higher **domestic** supply + Free Trade **USMCA**

S3 - Global **free trade** - Specialization in Production
Battery production in Mexico by 2035 is estimated from current production announcements by CATL, BMW, and Cenntro Automotive Mexico.
Total LDV growth can come from Developing Economies

Current Domestic Market and Production:

- Mexico's domestic market for light-duty vehicles is 1.32 million per year, with production at 3.86 million per year.
- Most production is exported to the US, where the light-duty vehicle market is saturated with sales remaining stable.

Expected Growth in Developing Markets:

- Developing countries such as Africa, South America, South Asia are poised to experience significant growth in their light-duty vehicle markets.
- Mexico's higher population growth rate and low vehicle ownership is expected to drive a 62% growth in its light-duty vehicle market by 2035.
EV Market growth is very much depending on the US market

Incentivizing North American EV Exports

• The Mexican automotive industry could have an advantage in the global shift to EVs by incentivizing North American-made parts and provisions established by the Biden administration in the 2022 Inflation Reduction Act. This cements Mexico as the most strategic investment location for foreign automakers to access the massive North American Market.

Dependence on the US Market

• Mexico's heavy dependence on the US market could hinder its ability to compete globally in an open market scenario.
• Diversifying OEMs represented in Mexico and promoting new EV-only OEMs may help reduce dependency and create a more stable industry (post 2035?)
Questions?

Next Steps:
• Further modeling of the demand for batteries and minerals.
• Refining scenarios by interviewing industry experts and considering additional factors such as labor and transportation.
• Expansion of analysis to include the demand from medium and heavy-duty vehicles, as well as electric transit.
• Consideration of the entire supply chain, including tier 1-3 suppliers, and focus on labor implications.

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