

Challenges in the decarbonization of the Colombian Transport market

Panel Energy Transition: Beyond the electricity generation matrix

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Ambitions of Colombia for 2030 - 2050

- Road Transport is next to Land Use an important source of emissions
- Decarbonizing Road Passenger transport requires
 - Modal change away from car use to rail, cable car, E-bus and bike
 - Penetration of Electric cars and Electric busses
- Decarbonizing Road freight transport requires
 - Modal change: Increase the role of freight rail from 7% now to 20% in 2030 and 42% in 2050
 - Penetration of electric trucks
- Decarbonization of long distance passenger transport

A European perspective at Colombia's ambitions

- Courageous Colombia as it is costly but side benefits in terms of health in agglomerations are important
- Transport in Urban agglomerations:
 - In EU the E-bike (25 to 45 km/h) is a success
 - The electric car is strongly promoted but..
 - Small electric trucks
- Interregional freight transport
 - Modal shift is strongly subsidized but..
 - Electric trucks may be distant future but Electric motorways are an important option
- Interregional long distance passenger transport

The new role of bikes

- Up to 15 to 20 km distance from the workplace
- Is also used for transporting children, shopping etc.
- Success is due to low costs and to congested agglomerations
- Replaces
 - small motorbikes (great health benefits)
 - public transport
 - car use
- Requires bike culture and decent bike lanes

The electric car is strongly promoted but..

- Car manufacturers are forced to increase role of electric cars and do this by cross-subsidization
 - Fear of cheap EV from China
- EV's are still 10 000 \$ more expensive to buy and governments subsidize charging equipment and give them tax advantages
- Be careful: Gasoline cars pay a 1\$ excise tax per liter (or some 300 \$/ ton of CO₂) while EV's pay no car use tax at all
 - This leads to more congestion and less tax revenues
 - Important to start taxing the use of EV (cfr. Work for OECD)
- Batteries of Electric cars are an important complement of renewable electricity – Vehicle to Grid will take care of part of the fluctuations in renewable electricity supply

Interregional freight transport: shift to rail?

- Modal shift has been planned since many years but not much happened in the EU...
- The EU has historically already an extensive rail network, international coordination has been improved but result was very limited
- Colombia wants to increase role of rail in freight transport from 7% to 42% and this is not realistic
 - Status of rail network?
 - More diversified industrial production?

Penetration of electric trucks

- Small electric trucks in agglomeration: health benefits
- Interregional trucks:
 - Focus on electric motorways for most important links
 - Allows to operate with trucks that have smaller battery for local connecting trips
 - Smaller investment and maintenance costs than new rail links
 - Merits a serious Cost Benefit Analysis

“Electric” highways with catenary trucks or overhead line trucks



Source: Akerman (Siemens) (2018).)

Interregional passenger transport

- In the EU: High Speed Rail is an option for up to 1200 km
 - When network exists
 - But is still more expensive for user than trip by air
- The EU climate policy for intra aviation is based on its carbon cap (“ETS”)
 - Industry, power sector and aviation reduce emissions to net zero in 2050
 - It complements this policy with a blending mandate for Sustainable Aviation Fuels (SAF) that will reach 62 % in 2050
 - This is not a good policy – expensive fuels and the blending attenuates the carbon pricing signal – my estimates are that this type of policies has a welfare cost 4 times higher than a simple carbon tax

Thank you