Energy consumption in the transport sector

Climate Change Mitigation Potential
Transportation and Climate Change

Part I: Transport accounts for > 20% of current global CO2 emissions

Part II: What role can the transport sector play to facilitate renewable energy generation?
Part I: Green(er) means and use of transportation

Source: International Energy Association and IPCC (2014) Summary for Policymakers
GHG emissions by mode of passenger transport

Opportunity 1: Mode shift
GHG emissions by mode of passenger transport

Opportunity 2: More efficient usage within same mode

(Examples: electric vehicle, more passenger per ride, car sharing)
Opportunity 3: Support green technology innovations
GHG emissions by mode of freight transport

Opportunities: Mode shift + more efficient usage within same mode

(Example: more freight per ride)
GHG emissions by mode of transport

Opportunity: Support green technology innovations
Converting opportunities into impact

Shifting transport modes and promoting efficient uses by addressing key market failures

- Natural monopoly (high fixed and low marginal costs)
- Negative externalities (CO2 emission of own fuel consumption)
- Imperfect information and transaction costs (coordination failure)
- Behavioral issues (e.g., status quo bias, sunk-cost effects, temporal and spatial discounting)
Natural monopoly: examples

Provide necessary infrastructure
Negative externality: example

Internalize external effects
Imperfect information: examples

- Provision of personalized public transport schedule
- Coordination of demand for freight transportation
Behavioral issues: example

Overcome Status Quo Bias

Scrapping incentives

Social comparison messages
Behavioral issues: example

**Rebound effect.** Air conditioner replacement increased electricity consumption in Mexico.
Part II: Transport systems for renewable energy generation
Part II: Transport systems for renewable energy generation
Conclusion

There is actually much we can do

And much to be learned because empirical evidence (from developing countries) super limited (not prese

Contribute to this learning agenda with your project
Thank you!