Deep decarbonization pathways compatible with national priorities and global climate objective

Lessons from a sectoral perspective: Transport

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Deep Decarbonization Pathways for Transport,
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If nothing changes, CO2 emissions from the transport sector is expected to explode and reach 12 GtCO2 by 2050.

Since 1990, CO2 emissions from transport sector increased by more than 60%:

- Road transport remains the dominant emitter (+~65%)
- International marine due to global trades (+69%)
- International and national aviation grow even faster (+95%).

Sources: IEA, CO2 emissions from fuel combustion, 2016; IPCC, AR6, Chap Transport, 2014
“NDCs provide CO2 reduction ambitions, but not yet clear pathways or measures to reach ambitions set by the Paris agreement.”

“Often, measures in the NDCs are desired outcomes and remain vague at the best. In some cases, the mitigation potential of identified “measures” is contestable.”

“The transport ambitions for CO2 reductions of such countries especially need to be intensified to ensure that the “Well-below 2 degree” ambition, as defined at COP21 in Paris in 2015, can be achieved.”

Sources: ITF-OECD, Transport CO2 and the Paris Climate Agreement, April 2018
Key lessons from DDPP - How to raise the ambition and make the link with SDGs!

1. Pathways developed by independent and in-country research teams to ensure consistency with global 2°C climate objective and domestic development priorities

2. Long term pathways by 2050 to inform concrete short-term action plans and think the transition towards the 2050-goals

3. Sectoral pathways to reveal other key “non-energy” indicators and “non-technological” drivers to understand the levers of action
Why developing sectoral pathways is a good approach to raise the ambition of NDCs?

Describing concrete sectoral transformations
-> to inform policy makers and reveal relevant determinants of transformations

1. STORYLINES

    - Open a dialogue on sectoral transformations by providing a disaggregation of sectoral emissions and other transformation indicators (Dashboard)

2. Data Template

    - Describe all technological and non-technological determinants of transformations and articulate them consistently (Storylines & Data template)

3. DASHBOARD

    - Expert analysis
    - Models
Compare national and international scenarios and structure policy dialogues - DASHBOARD

Sectoral dashboard = more than 60 indicators!
Indicator chosen with parties of transport policy dialogue

Scenario 1: Mobility - First

1.a Emission drivers

- Population
- Mobility
- Energy intensity
- Carbon intensity

2010 2020 2030 2040 2050

1.b CO₂ emissions

- Other
- Electricity
- Natural gas
- Oil rail
- Oil road
- Oil air

2010 2020 2030 2040 2050

Scenario 2: Technology - First

1.a Emission drivers

- Population
- Mobility
- Energy intensity
- Carbon intensity

2010 2020 2030 2040 2050

1.b CO₂ emissions

- Other
- Electricity
- Natural gas
- Oil rail
- Oil road
- Oil air

2010 2020 2030 2040 2050

Sources: Dashboards, Pathways to deep decarbonization of the passenger transport sector in France, 2017
Develop a consistent scenario of transformations integrating all transport determinants - STORYLINE

Analysis framework based on literature review
Integrating national priorities, sustainable and transport-related determinants

<table>
<thead>
<tr>
<th>1. demographic and economic changes</th>
<th>5. fuel generation and energy carbon content changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. human settlement, land development and spatial organization</td>
<td>6. car stock and low carbon vehicle penetration</td>
</tr>
<tr>
<td>3. sociocultural practices and lifestyles</td>
<td>7. modal distribution and modal costs</td>
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<tr>
<td>4. vehicles technological assumptions</td>
<td>8. speeds, infrastructure and time</td>
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</tbody>
</table>
Indicator examples of the Dashboard:

**A4. Modal structure**

4.a Metropolitan

6000 pkm/cap/year

4.b Non-metropolitan

6000 pkm/cap/year

PM = Private Mobility (car and 2W), NMT = Non-motorized transport (walking, biking…), PT = Public transport (bus and rail)

Sources: Dashboard for scenario Mobility-first, Pathways to deep decarbonization of the passenger transport sector in France, 2017
Transport-relevant indicators needed!

Indicator examples of the Dashboard:

**A5. Mobility indicators**

**5.a Indicators for constrained mobility**

- Daily time
- Distance
- Budget

**5.b Transport budget**

- Non-constrained
- Constrained

Sources: Dashboard for scenario Mobility-first, Pathways to deep decarbonization of the passenger transport sector in France, 2017
Dashboard

Elements of storyline – modal shift

- Density: population and services
- Space reallocation and city infrastructures for NMT & PT
- Speed changes between the different modes improving NMT & PT
- Cost increase for air tickets

Sources: Scenario Mobility-first, Pathways to deep decarbonization of the passenger transport sector in France, 2017

PM = Private Mobility (car and 2W), NMT = Non-motorized transport (walking, biking…), PT = Public transport (bus and rail)
Sectoral Deep Decarbonization Pathways: what is next?

In 2017:

4 country reports (France, Japan, Mexico, UK): “Pathways to deep decarbonization of the passenger transport sector”
- Authored by in-country research teams, independent of their governments
- Presents and discusses several country-driven sectoral deep decarbonization pathways for each country

In 2018/19:

- Freight transport studies (France, Japan): “Pathways to deep decarbonization of the freight transport sector”
- Other sectoral studies (India, China, South Africa, European countries, Brazil, Mexico...): agriculture, transport, electricity generation, industry...
- DDP Tool: Development of simplified online tool to build decarbonization scenarios
- Monitoring indicator development: “Monitoring the French Transition”
- Prospective Dialogues
- Adaptation trajectories for small islands

Iddri Issue Brief: “Beyond emission targets: how to decarbonize the passenger transport sector?”
- Authored by the DDPP-T consortium, led by IDDRI
- Discusses cross-cutting messages derived from the country analyses
Thank you for your attention!

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