

April 2020

NDC and Carbon Neutrality Plan



Chile
en marcha

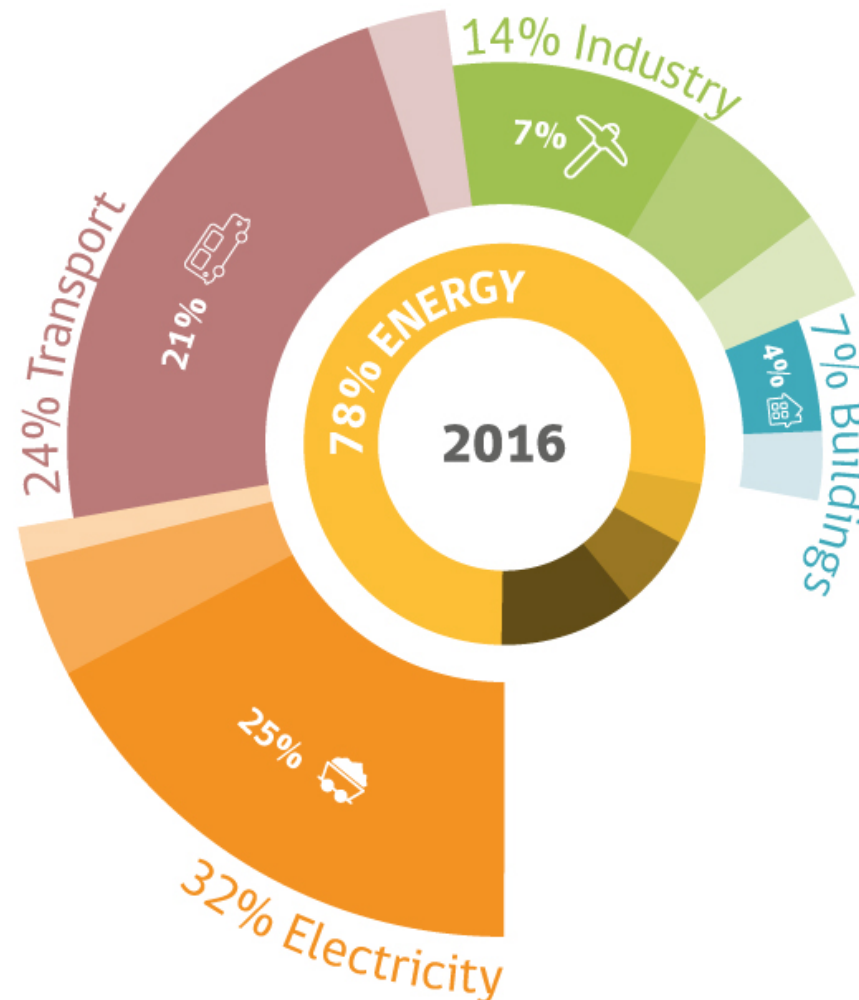
In Chile, the energy sector accounts for 78% of CO₂e emissions

CO₂e

All references to CO₂e, refer to greenhouse gases (GHG) such as:

- Carbon dioxide (CO₂),
- Methane (CH₄),
- Nitrous oxide (N₂O),
- Hydrofluorocarbons (HFC),
- Perfluorocarbons (PFC),
- Sulfur hexafluoride (SF₆),

measured in CO₂ equivalent units



- Coal
- Natural gas
- Other
- Road transportation
- Aviation, navigation, other
- Mining
- Paper industry
- Other
- Housing
- Other
- **5% WASTE**
- **6% INDUSTRIAL PROCESSES**
- **11% FARMING**

Projection and evaluation of two scenarios by 2050

Reference Scenario

- Current policies
- Coal power plant phase out according to life span and economic merit
- Tendency projection of the energy matrix (business as usual)

VS

Carbon Neutrality Scenario

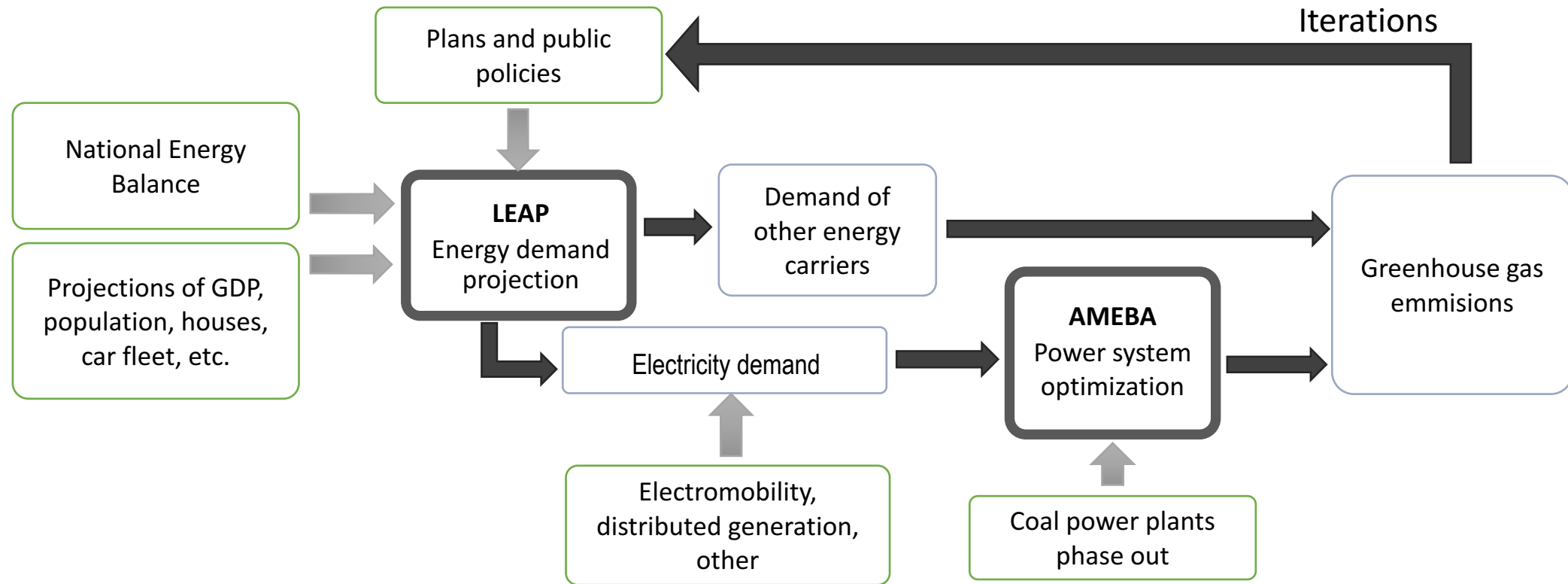
- Policies to achieve C-N by 2050
- Coal power plant phase out by 2040, according to public-private agreement
- Projection with new CO₂e mitigation measures

Common elements: GDP 2,6 % period 2019-2029 and GDP 2,3% period 2030 -2050

Costs of the carbon neutrality (C-N) scenario are evaluated:

- Capital expense (CAPEX) and operating expense (OPEX) of each mitigation measure.
- Only direct financial impacts are considered.

Over 200 simulations to determine the most cost-efficient strategy to achieve Carbon Neutrality



Team: 20 engineers and economists from 5 Ministries

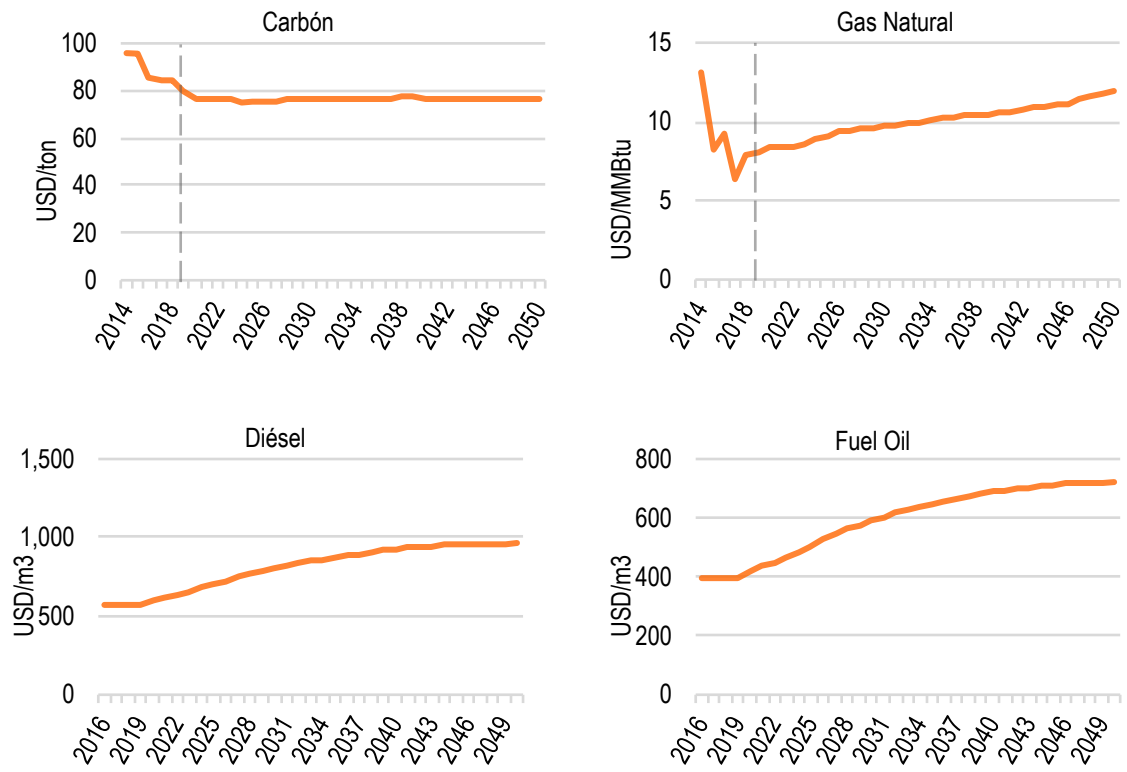
Data sources: INE, CASEN, Bloomberg, IEA, DOE (US), NREL, other

Strategy to select mitigation measures:

- Cost-efficient selection through iterative analysis of their individual and joint impact, along with an analysis of the economic and emission reduction effects.
- The entrance and weight of each measure, is decided according to its abatement cost (\$/tCO₂e reduced).

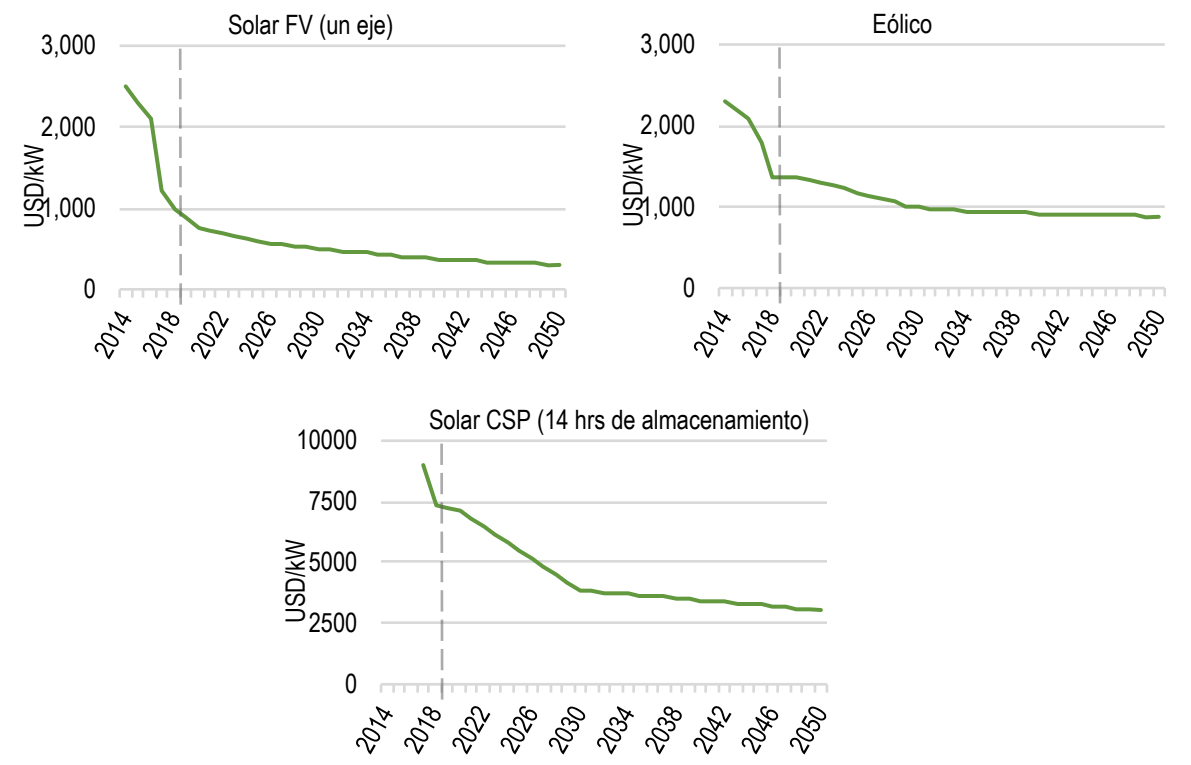
Cost projections

Fossil fuels



Sources: IEA, World Bank, Bloomberg New Energy Finance y McDaniel & Associates Consultants Ltda

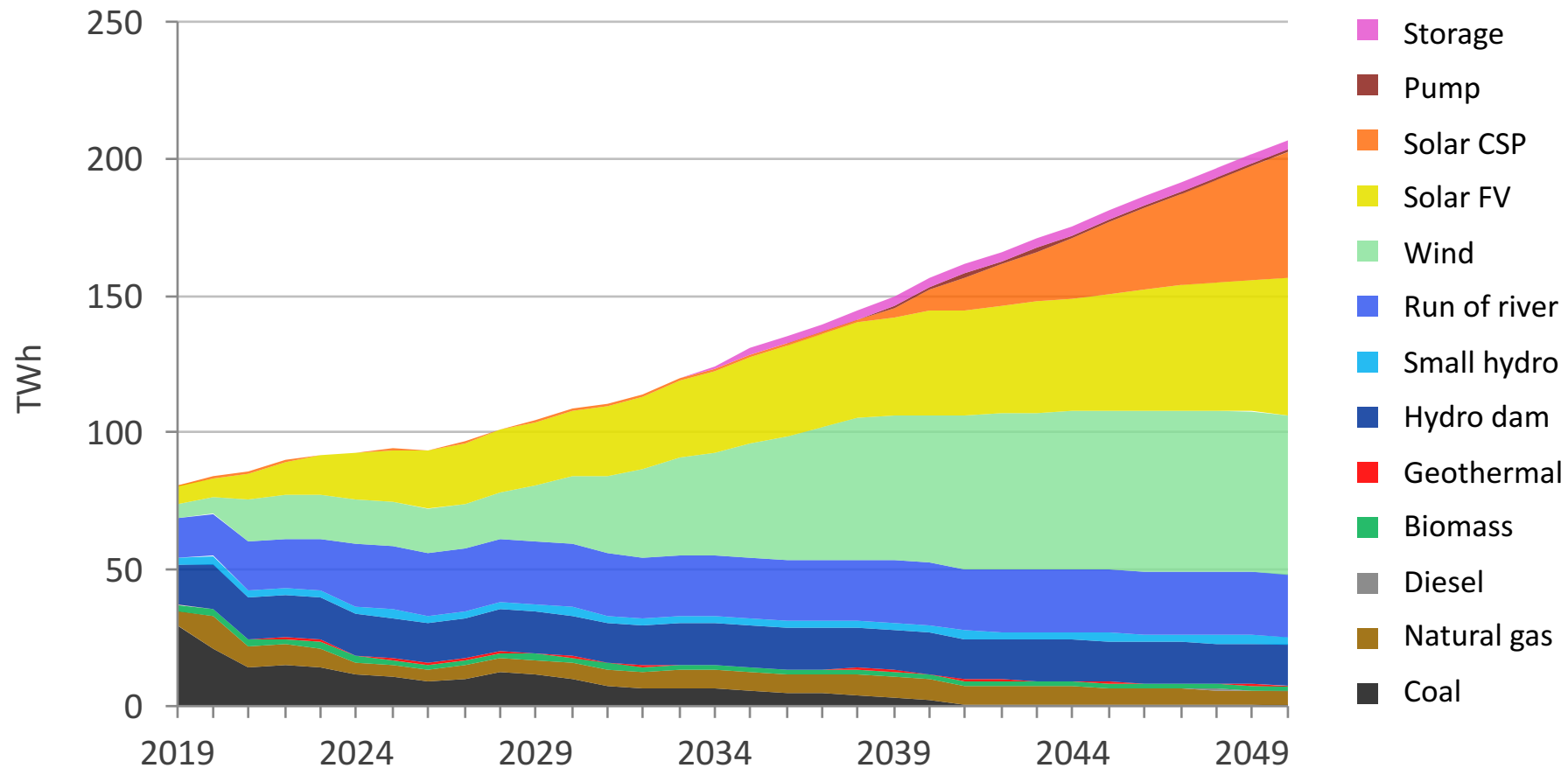
Renewables



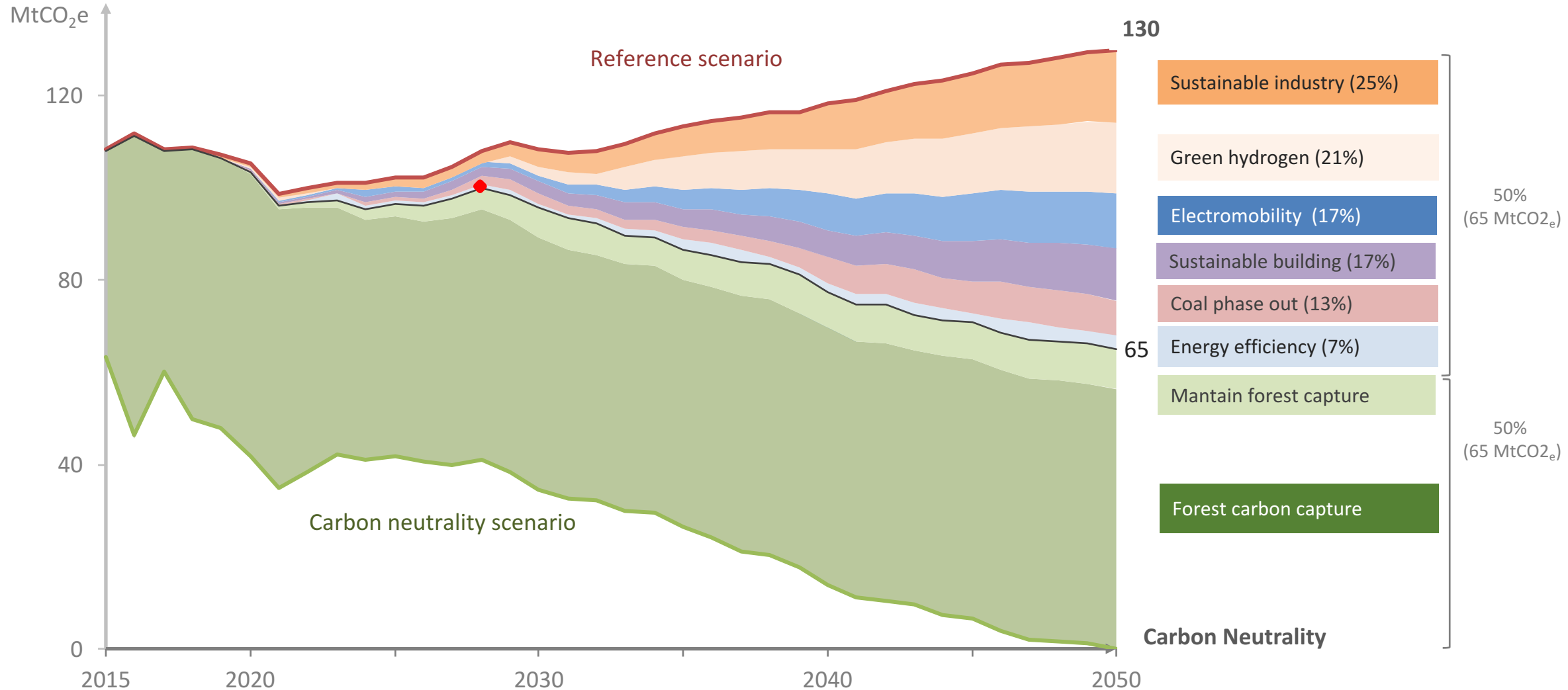
Sources: Informe Precio Nudo de Corto Plazo (CNE), NREL, BNEF, IRENA.

Power generation in the Carbon Neutrality scenario

Expected power generation by technology (TWh)

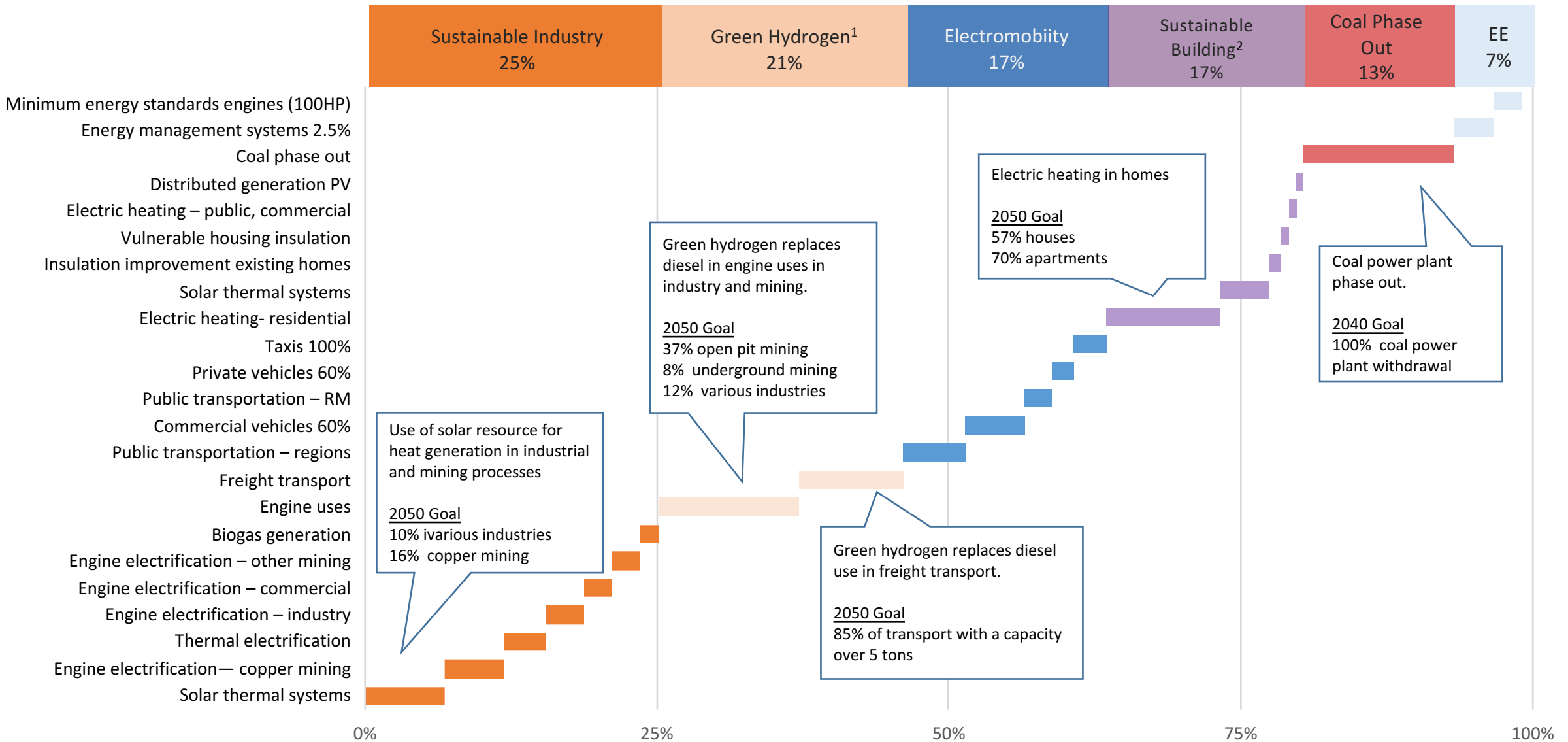


Carbon Neutrality 2050



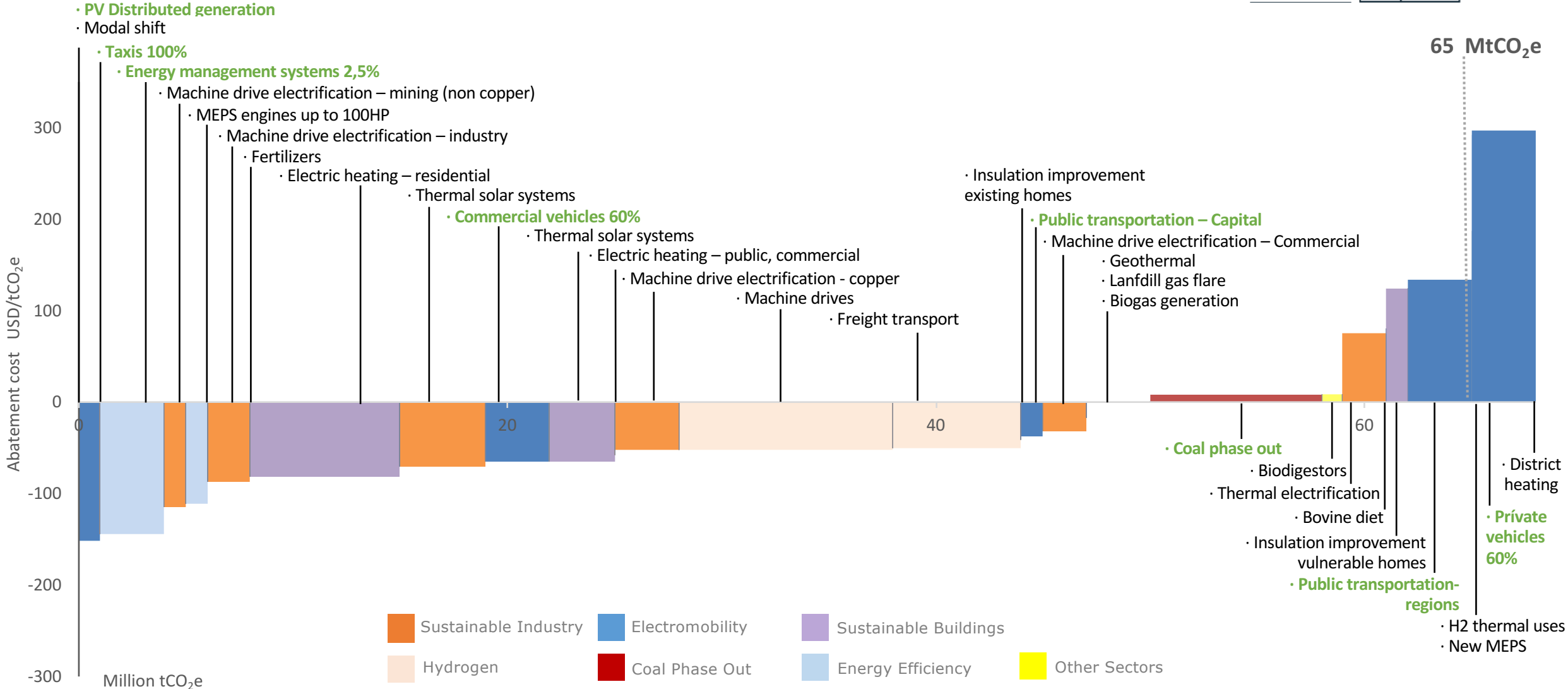
Note: considers a capture of 57 MM tons per year from the forestry sector, plus an increase of 8 MM tons in 2050. The reduction percentages represent the aggregate for the period 2020-2050.

Measure contributions by 2050



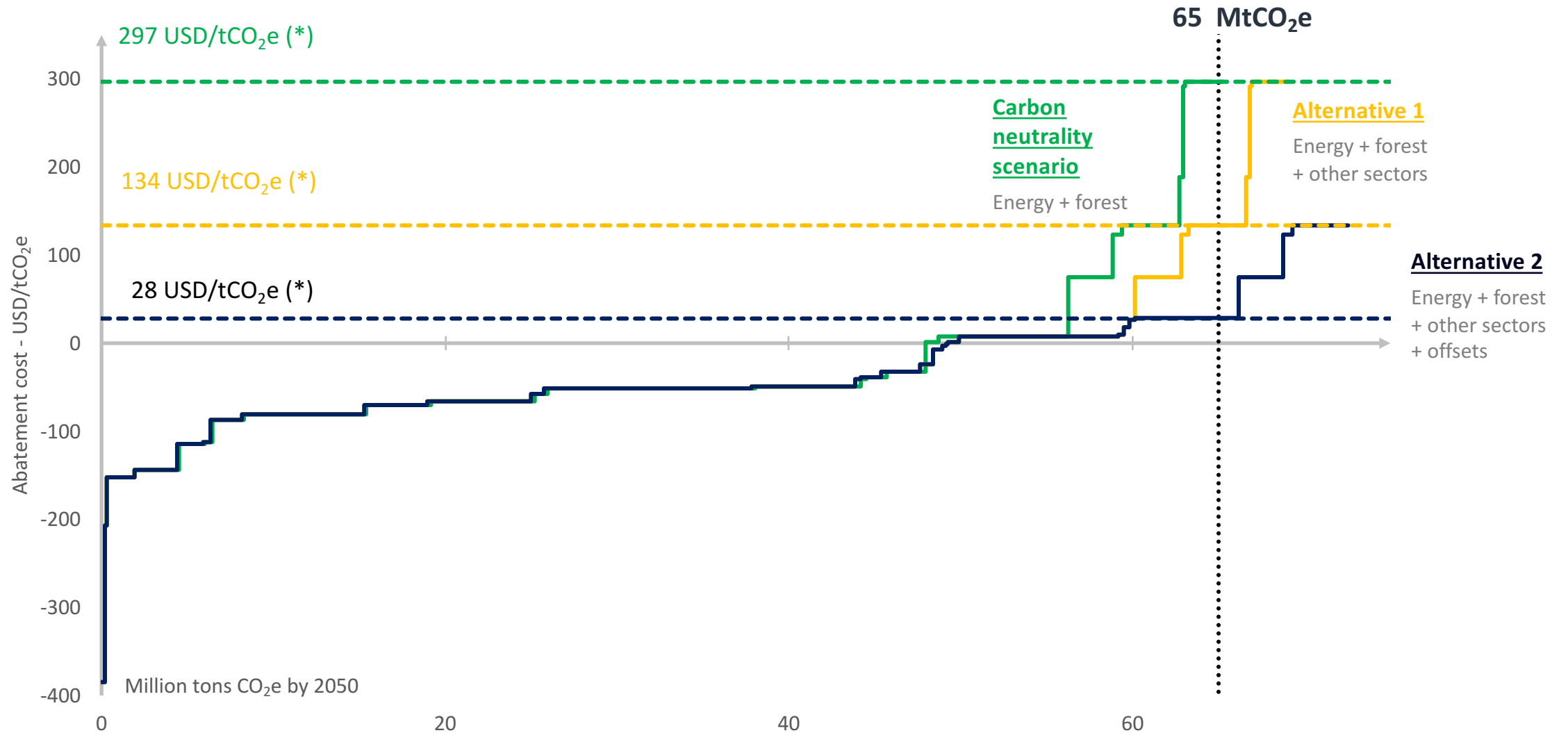
¹ Gas pipelines measure is not graphed (<1%). ² District heating and geothermal are not graphed (<1%). ³ EE: Energy efficiency. Modal shift and new minimum energy performance standards are not graphed (<1%).

Abatement cost curve



In green: ongoing actions

Escenarios de costo de mitigación al año 2050

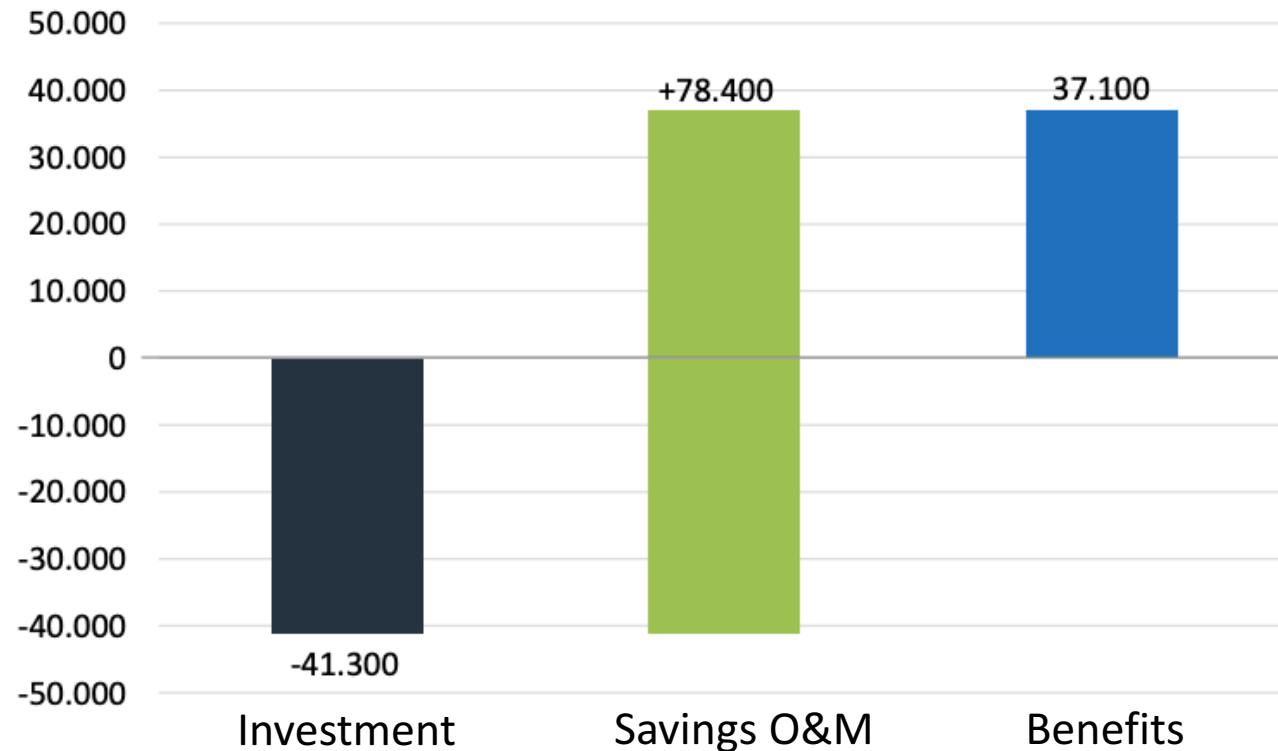


(*) value of the last abated unit to achieve a total emission of 65 MtCO₂e

Cost of Carbon Neutrality

Carbon Neutrality Scenario: Energy + Forests + Other sectors

Benefits and costs of carbon neutrality (NPV)
[Millions USD]



- Net values correspond to the difference between Reference and Carbon - Neutrality Scenarios.
- Does not include offsets or emissions trading market.
- Does not include co-benefits for reducing local emissions and improving health effects.

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