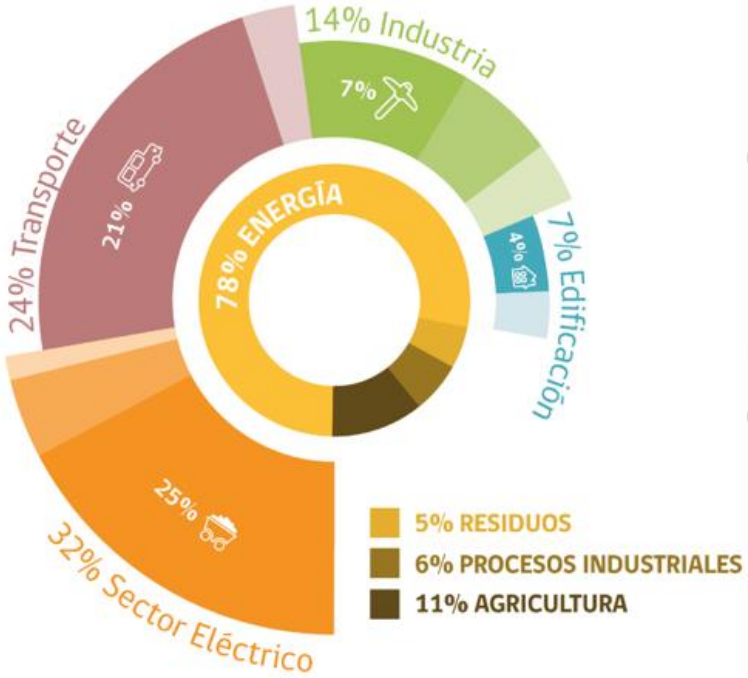
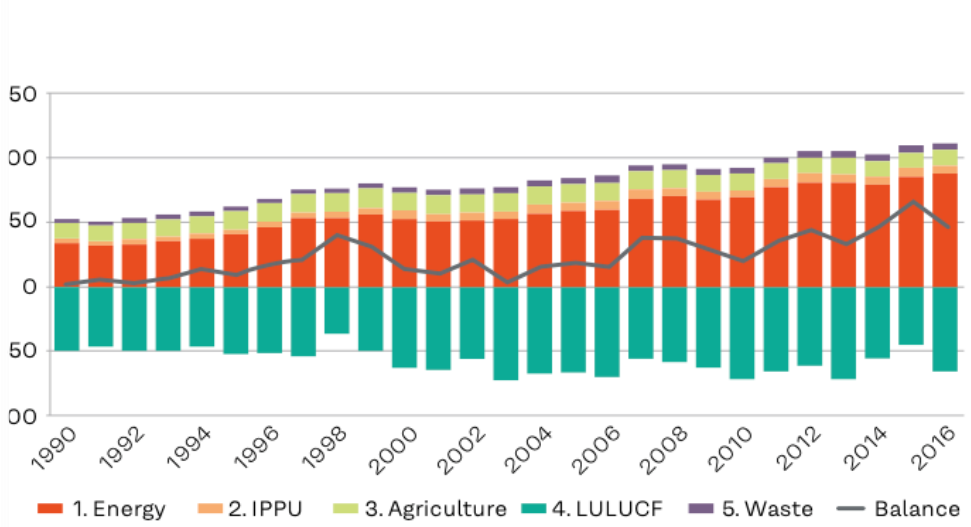
# PRESENTACIÓN DE ANTECEDENTES GENERALES DE CHILE

## Taller 1: Energía (foco en sector eléctrico)





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RAND CORPORATION

Ministerio del Medio Ambiente Gobierno de Chile

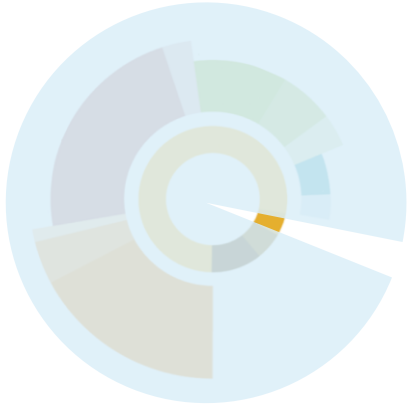
BID Banco Interamericano de Desarrollo

Taller 4: Forestal/Biodiversidad

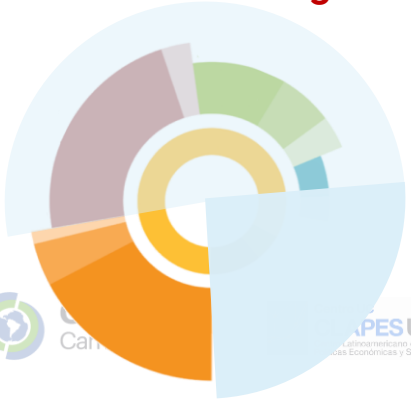
Taller 5: Industrial, Minería e Infraestructura

Taller 2: Transporte y desarrollo urbano

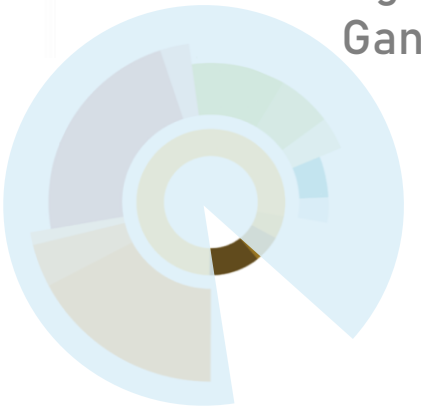

Taller 3: Residuos



Taller 1: Energía



Taller 6: Agricultura/ Ganadería



Carbón
GNL
Otros
Terrestre
Aviación, marítimo y otros

Minería
Industria papelera y otros
Otros
Residencial
Otros

CENTRO DE ENERGÍA
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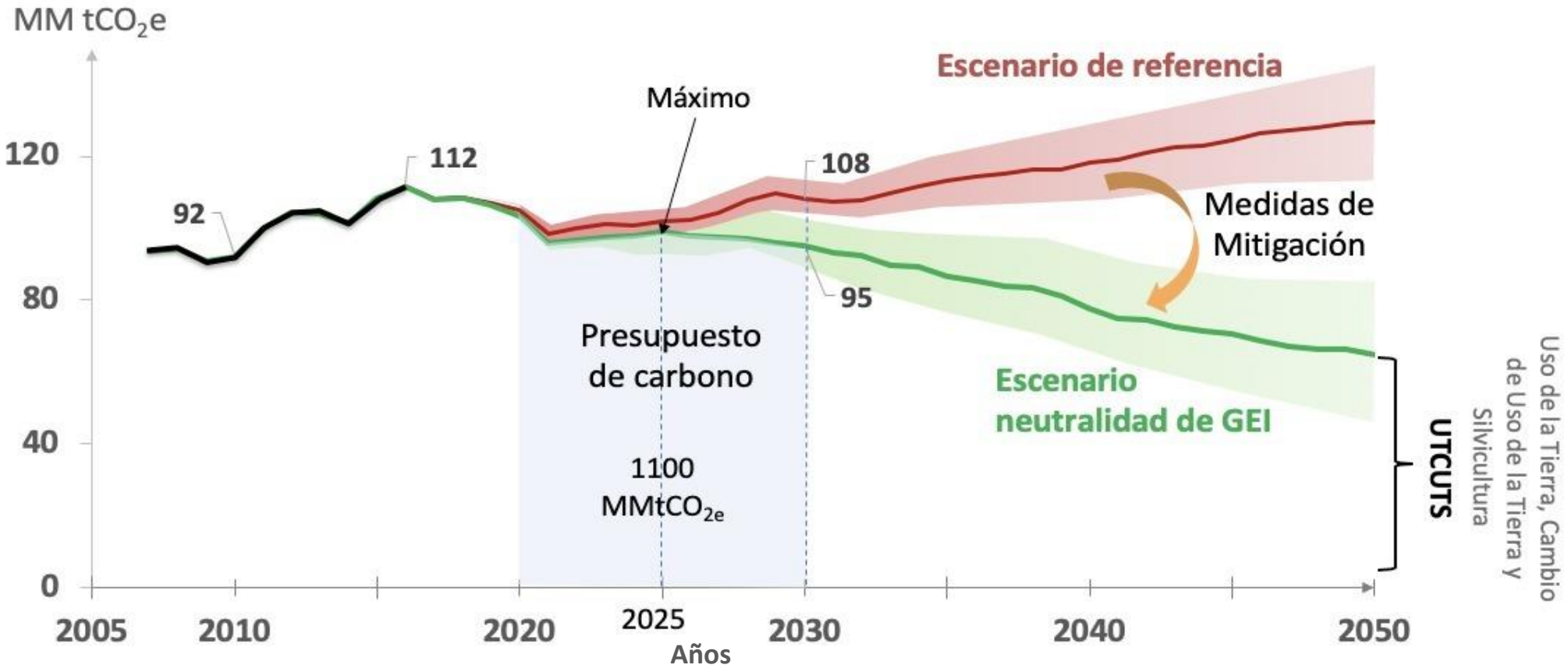
# MOTIVACIÓN

Representación Gráfica del Centro de Energía, U. de Chile

**CONTRIBUCIÓN DETERMINADA A NIVEL NACIONAL (NDC) DE CHILE**

ACTUALIZACIÓN 2020




Note: Figure does not include land use sector, land use change and forestry (LULUCF).

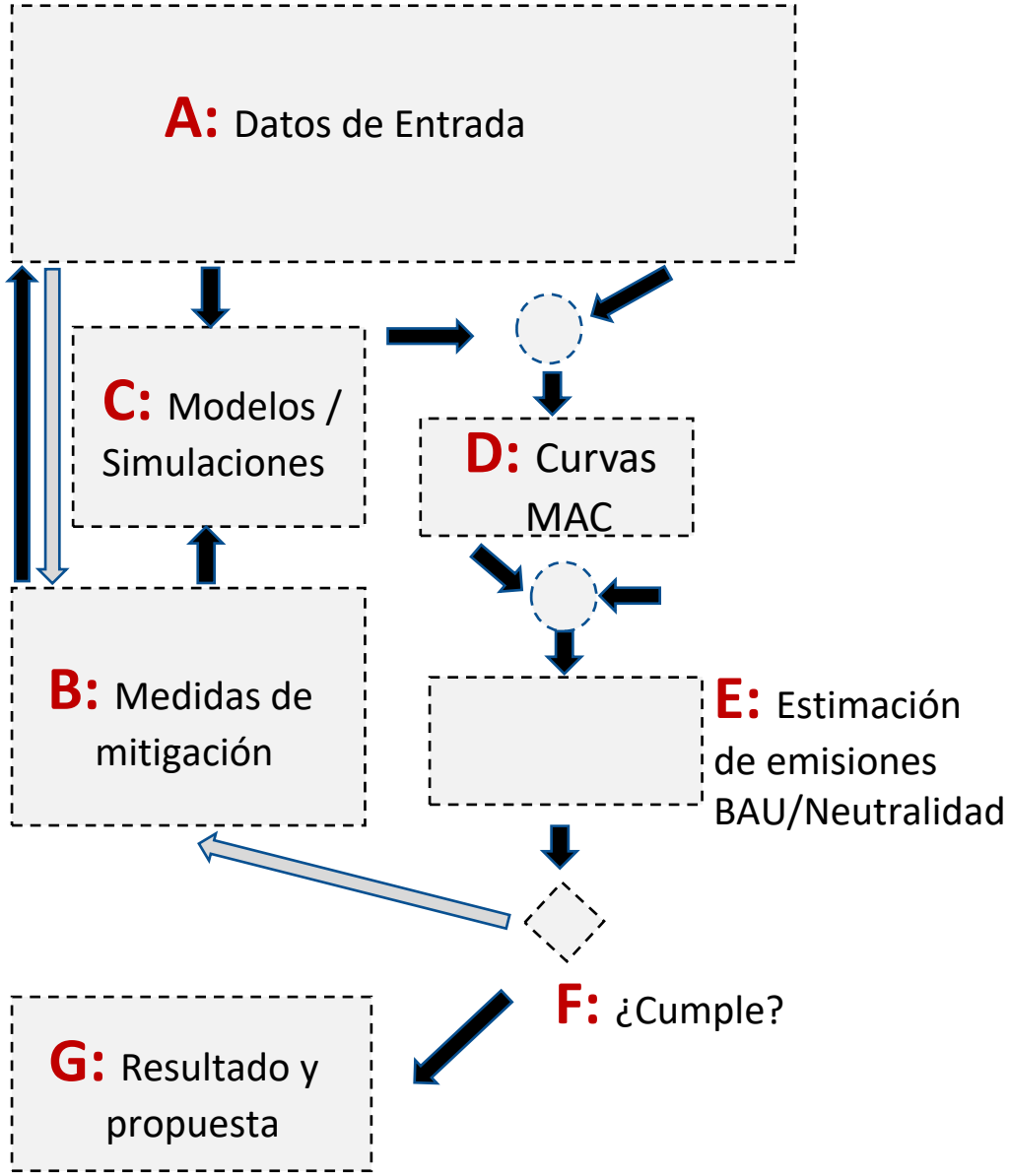
Source: Chilean NDC Mitigation Proposal: Methodological Approach and Supporting Ambition. Mitigation and Energy Working Group Report. Santiago: COP25 Scientific Committee

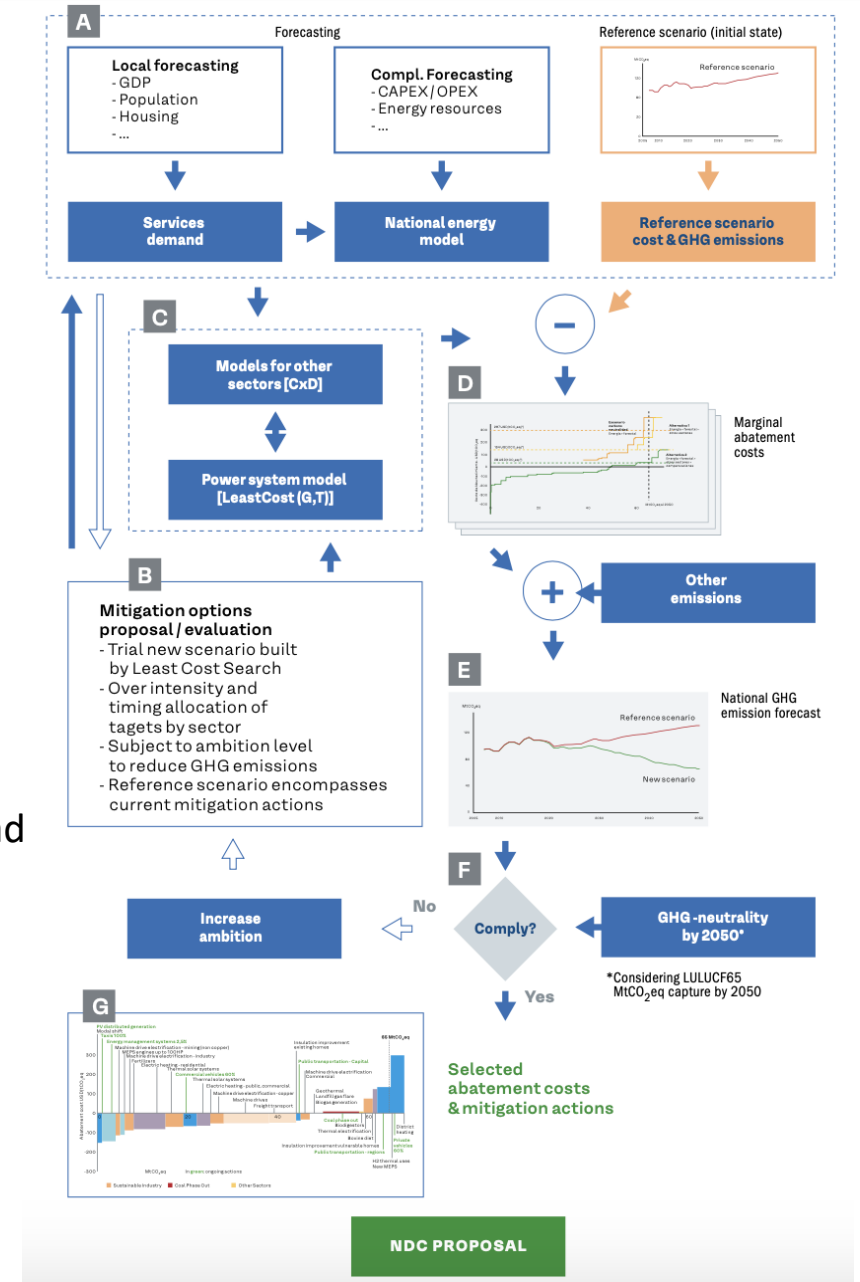
# TRADICIÓN DE PROCESOS PARTICIPATIVOS EN EL SECTOR ENERGÉTICO


Source: Chilean NDC Mitigation Proposal: Methodological Approach and Supporting Ambition. Mitigation and Energy Working Group Report. Santiago: COP25 Scientific Committee

# MODELAMIENTO Y HERRAMIENTAS

## ESQUEMA GENERAL




NDC PROPOSAL

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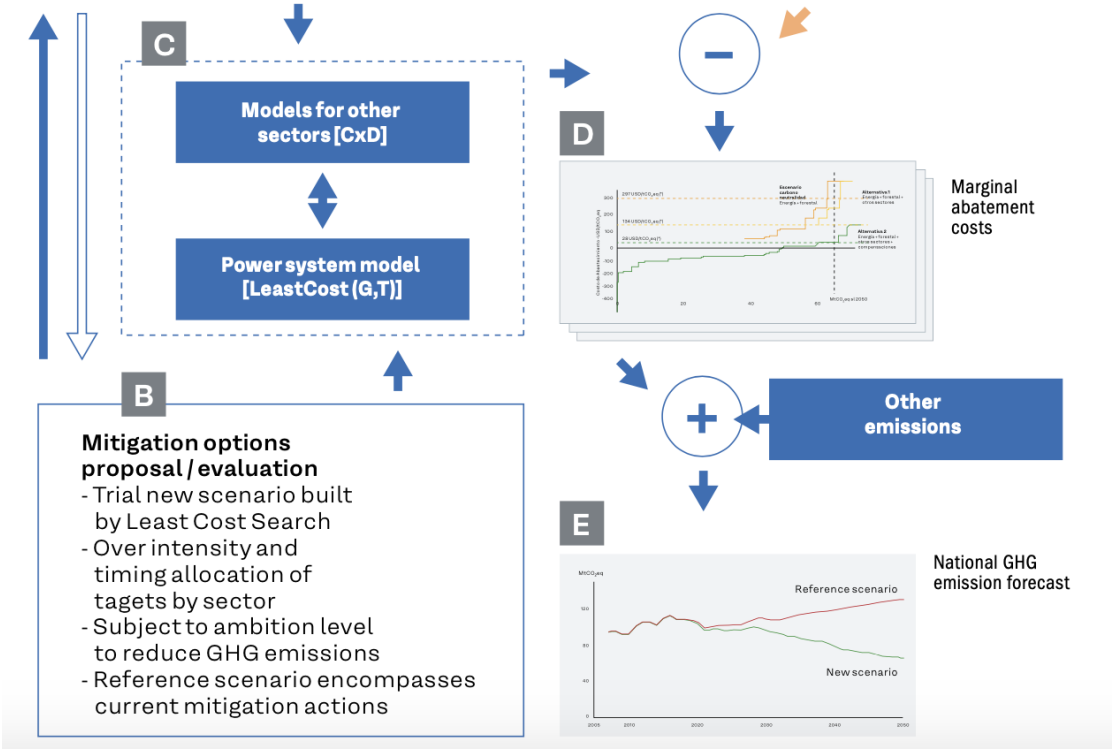
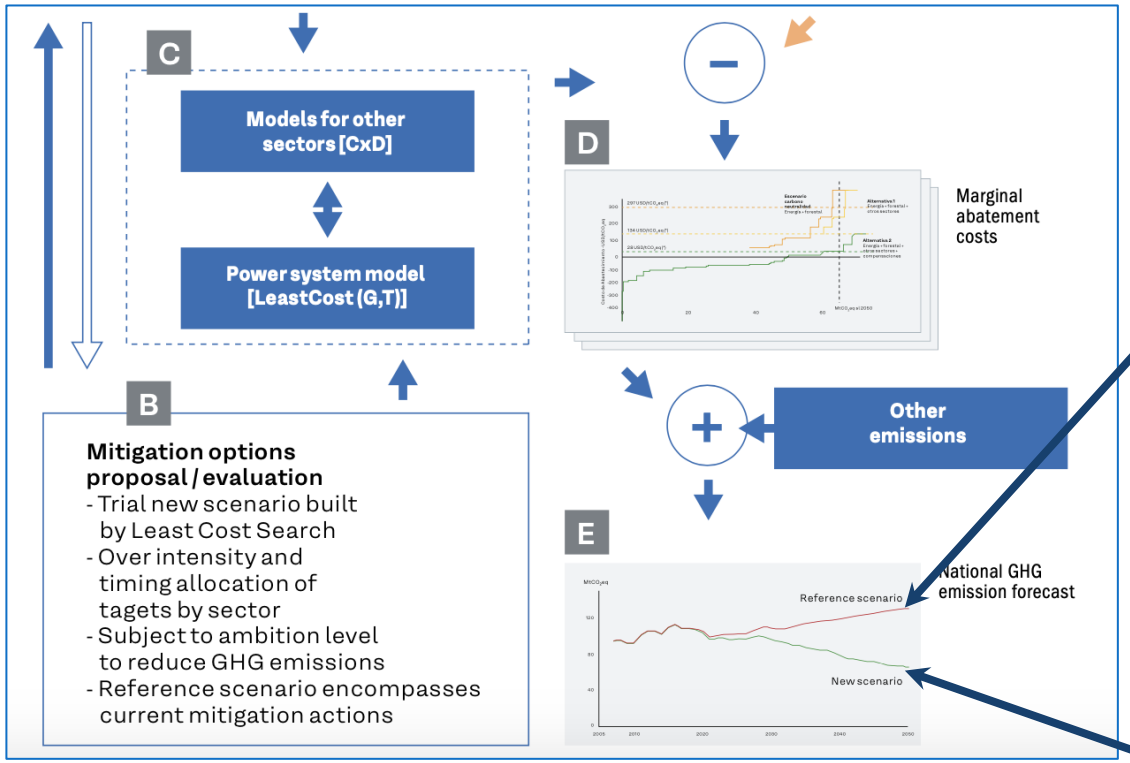
# MODELAMIENTO Y HERRAMIENTAS
## ESQUEMA GENERAL

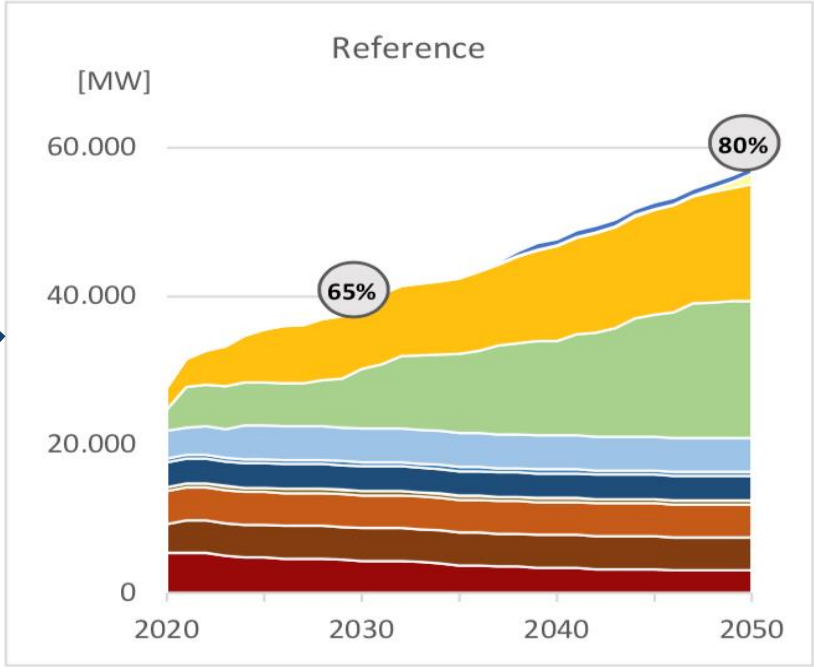


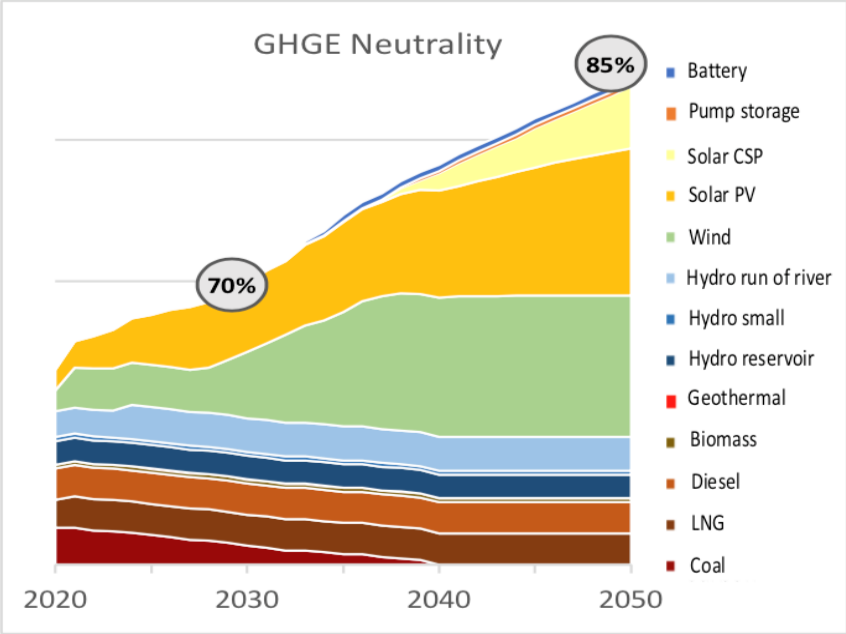

| Description | | | Reference Scenario | GHG-Neutrality Scenario |
|---|---|---|---|---|
| **Action** | **Policy** | **Sector** | | |
| **Coal Phase Out** | Renewable energy in replacement of coal | Energy | Decommission of 2,500 MW by 2050 | Decommission of 5,500 MW by 2040 |
| **Sustainable Buildings** | Insulation improvement and electric heating | Energy | General Ordinance of Urban Planning and Construction (OGUC) | OGUC & 57% of houses (70% of apartments) use electric heating by 2050 |
| | Thermal solar systems | Energy | No actual measures | 52% and 10% for hot water uses in houses and hospitals respectively, by 2050 |
| | PV distributed generation | Energy | 1,278 GWh Residential and 3,633 GWh commercial by 2050 | 1,800 GWh residential and 5,657 GWh commercial by 2050 |
| | Insulation improvement of vulnerable homes | Energy | No actual measures | 20.000 homes per year |
| | New MEPS | Energy | No actual measures | MEPS on TVs, dishwashers, tumble dryers, electric ovens and microwaves |
| | Electric heating in the public and commercial sector | Energy | No actual measures | Supermarkets, retail, private clinics use: 84%,76% and 48% by 2050 |
| | Geothermal heat pumps | Energy | No actual measures | 35 GWh nationally by 2050 |
| | District heating | Energy | No actual measures | 0.2% of the energy matrix for heating |
| **Electromobility and modal shift** | Electric taxis | Energy | 21% of taxis by 2050 | 100% of taxis by 2050 |
| | Public transportation - capital | Energy | 20% urban public transportation in Santiago by 2050 | 100% urban public transportation in Santiago by 2040 |
| | Public transportation - regions | Energy | 0% urban public transportation in regions by 2050 | 100% urban public transportation in regions by 2040 |
| | Private vehicles | Energy | 21% private vehicles by 2050 | 58% private vehicles by 2050 |
| | Commercial vehicles | Energy | 21% commercial vehicles by 2050 | 58% commercial vehicles by 2050 |
| | Modal shift | Energy | No actual measures | Replacement of private motor transportation for buses and bicycles |
| **Hydrogen** | Freight transport | Energy | No actual measures | 71% of freight transport by 2050 |
| | Machine drives | Energy | No actual measures | 12% of machine drives in industry and mining by 2050 |
| | Thermal uses | Energy | No actual measures | Replacing natural gas for thermal use: 7% of housing and 2% of industrial by 2050 |
| **Sustainable Industry** | Thermal solar systems | Energy | No actual measures | 10% thermal use in industry and 16% in copper mining |
| | Electrification of machine drives - mining (non-copper) | Energy | No actual measures | 52% in mining (non-copper) by 2050 |
| | Electrification of machine drives - industry | Energy | No actual measures | 67% in miscellaneous industries by 2050 |
| | Electrification of machine drives - commercial | Energy | No actual measures | 56% in the trade sector by 2050 |
| | Electrification of machine drives - copper mining | Energy | No actual measures | 57% in open pit mines by 2050 and 74% in underground mines by 2050 |
| | Biogas generation | Energy | No actual measures | New landfill sites with electricity-powered centrals |
| | Thermal electrification | Energy | No actual measures | Additional thermal use of 25% in industrial and mining sectors |
| | Energy Management Systems | Energy | Annual savings of 0.6% | Annual savings start at 0.6 % and increase up to 2.5% |
| | MEPS engines up to 100HP | Energy | No actual measures | Full replacement by 2030 |

# MODELAMIENTO Y HERRAMIENTAS

## ESQUEMA GENERAL

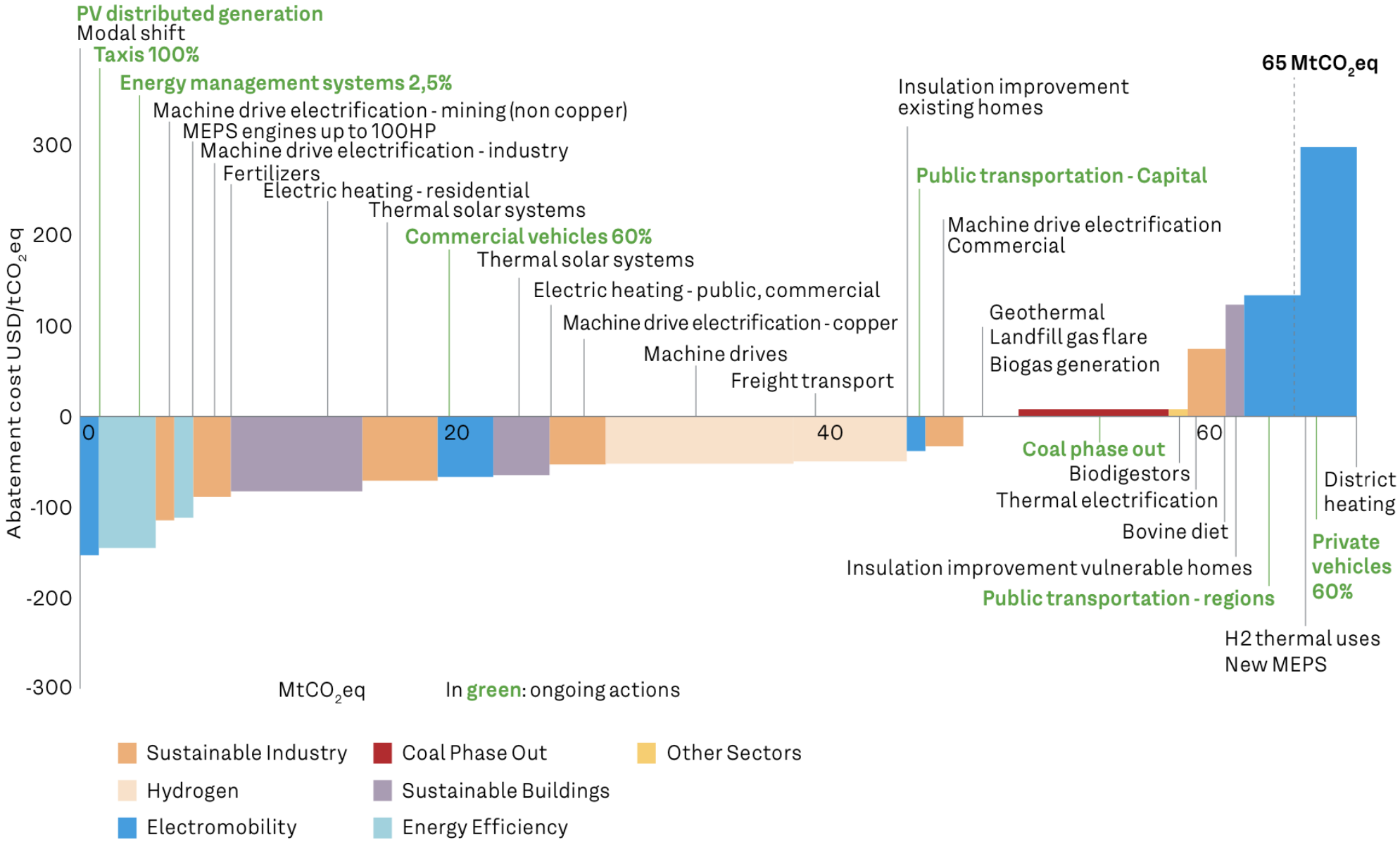


# MODELAMIENTO Y HERRAMIENTAS

## ESQUEMA GENERAL



# INCERTIDUMBRES

Es relevante hacer notar el listado de variables que tendrían un potencial más importante para modificar los resultados y conclusiones de trabajo:

Velocidad de retiro de centrales a carbón

Costo de combustibles

Disponibilidad del recurso hídrico

Desarrollo del hidrógeno

Nivel de penetración de la electrificación y electromovilidad

Demanda por electricidad

Costos de tecnologías

# RECOMENDACIONES E INVITACIÓN AL TALLER

- El nivel de ambición de la **NDC de Chile** plantea importantes desafíos para su implementación.
- Se ha generado una estrategia de **modelamiento y análisis** que sirve de base para proyectar un trabajo sistemático en esta materia.
- Estos desafíos involucran la presencia de importantes **incertidumbres** que pueden condicionar el éxito des estas estrategias.
- Lo anterior requiere de un estudio sistemático del posible **impacto de estas incertidumbres en los planes, programas y políticas públicas** que se propongan en las estrategias de largo plazo.
- **Información clave de entrada, modelos sectoriales, e indicadores de desempeño** pueden servir de insumos para lograr una **toma de decisiones robusta** (RDM) por parte de los distintos actores del sector.

# SECTOR ENERGÍA – Foco Sector Eléctrico

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