



Session 3 - Getting models and modellers to inform national low carbon strategies: institutional and methodological challenges

Models allowing for Brazilian Stakeholders Engagement in Scenario Exercises

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Recent Scenarios by Centro Clima



- **Objective:** Contribution to new Brazilian NDCs and to the preparation of a LTS (LEDS).
- **Background:** bottom-up sectorial modelling of emission scenarios from 1991 to 2011 (based upon energy scenarios building since the 70's).
- New generation of studies on Economic and social implications of low-carbon scenarios in Brazil, with support of the Deep Decarbonization Pathways Network led by **IDDRI: DDP Project 1, IES Brasil 2030, DDP Project 2, IES Brasil 2050, Brasil Zero Carbon in 2060, ICAT, PMR-WB/ Brasil, DDP-BIICS, ACT-DDP**, made possible by:
 - the development of a **CGE model** in 2011-2015, **IMACLIM-BR** (adapted from **CIREN's IMACLIM**) -> modelling framework integrating bottom-up sectorial models & a CGE model, with continuous support of the **IMACLIM Network led by CIREN**;
 - use a stakeholders' driven approach through the convening of a **Scenario Building Team** gathering experts from the government, business sector, NGOs, academy, trade unions, to select pertinent scenario assumptions, mitigation actions and costs, validate the results, identify decarbonization barriers and suggest instruments to overcome them.



Currently Ongoing Scenarios Update by Centro Clima



DDP Network IMAGINE Project (EU Commission)

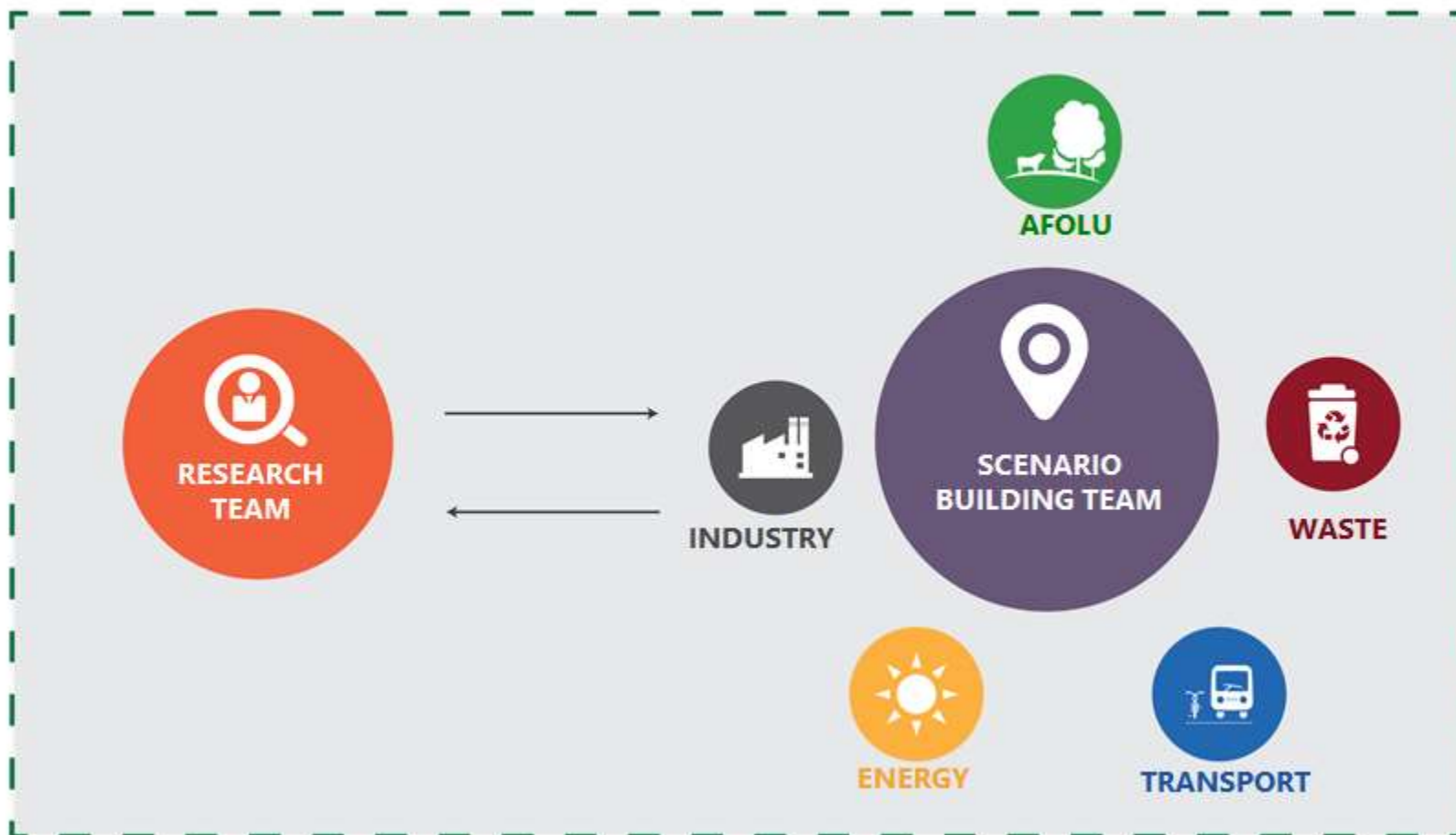
Update of DDP-BIICS after COVID-19 and New Federal Government:

- **Continuity Scenario** – Pursue of the previous federal government policies up to 2030
- **NGCPS1 & NGCPS2** – New Government Current Policies Scenarios including 2023 mitigation actions trying to meet the announced NDC targets by 2025 (1.32 GtCO₂e) and 2030 (1.20 GtCO₂e) with no further ambition up to 2050;
- **NGCPS1** – moderate success in reducing deforestation x **NGCPS2** – High success in reducing deforestation.
- **DDS** – Deep Decarbonization Scenario with additional mitigation: net zero GHG emissions by 2050 (negative CO₂ emissions in 2040), with available technologies only (no CCS, just EOR; higher share of O&G production to exports).

Dialogue Process



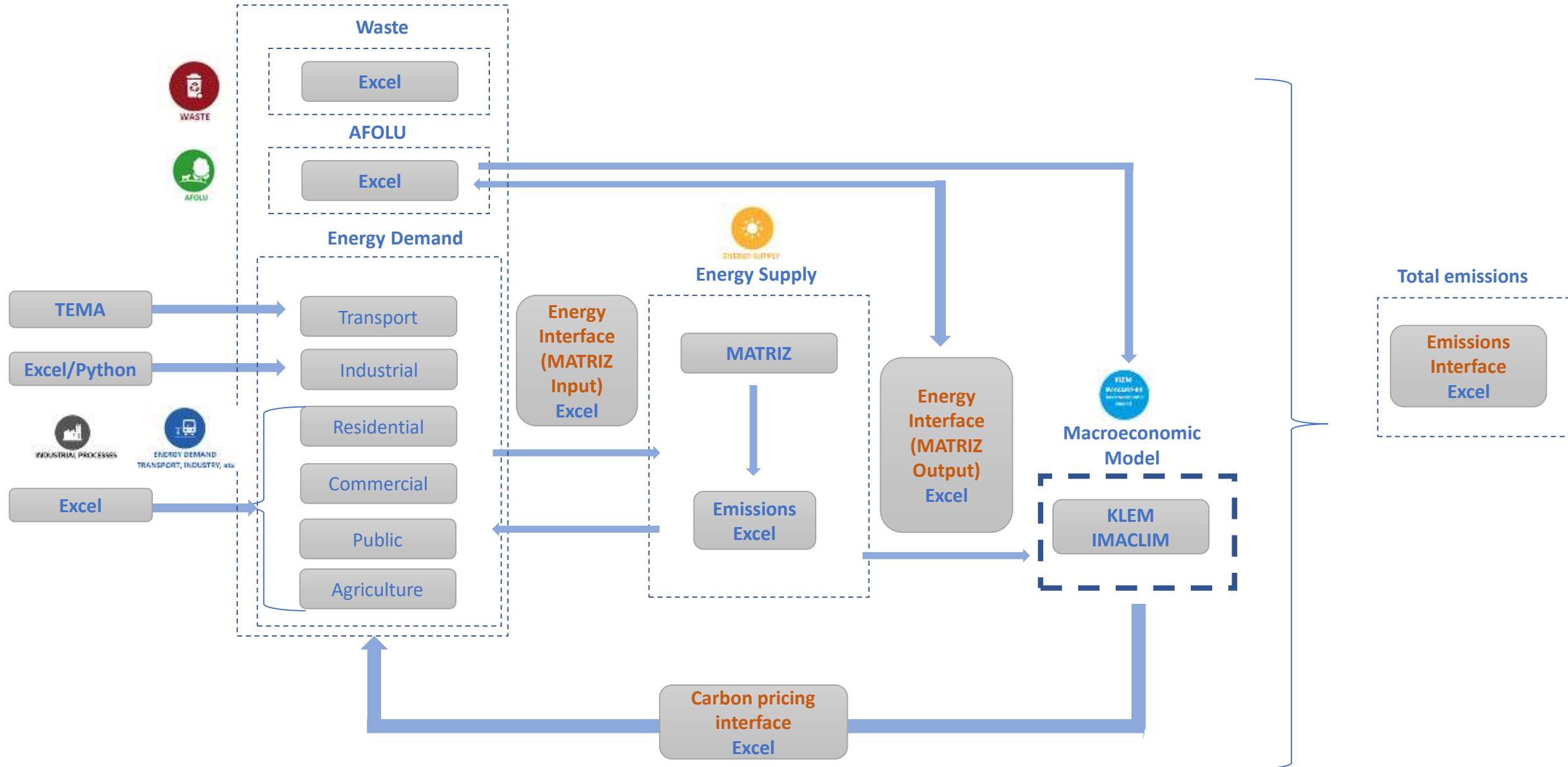
COORDINATION



PLENARY

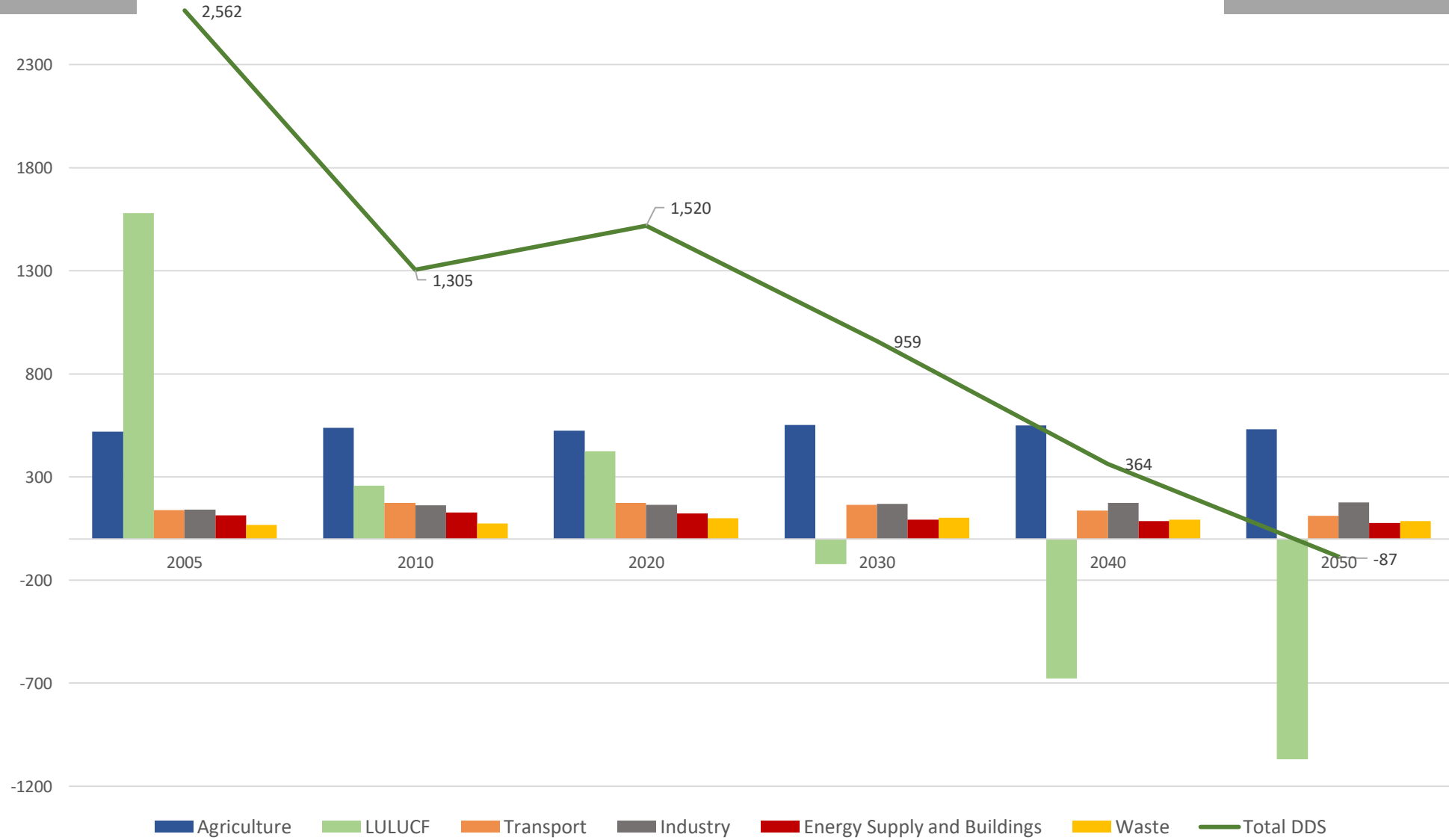
- ACADEMIA**
- PRIVATE SECTOR**
- GOVERNMENT**
- CIVIL SOCIETY**
- NGOs**
- OTHERS**

Integrated Modelling Framework - IMACLIM-BR



Economy-wide GHG emissions -DDS

Total Emissions by Sector (MtCO₂e)



Main macroeconomic results -DDS

Scenario	2015	2020	Reference Case (2030)	Reference Case (2050)	DDS (2030)	DDS (2050)
GDP (Billion 2020 USD)*	1,438	1,405	1,810	2,692	1,814	2,695
GDP variation in relation to Reference Case	-	-	-	-	0.3%	0.1%
GDP per capita (Thousand 2020 USD)	7.07	6.64	8.05	11.56	8.07	11.57
Trade Balance (% of GDP)	-0.4%	-1.0%	-0.4%	-0.2%	-0.5%	-0.9%
Unemployment rate (%)	9.5%	7.6%	6.9%	7.4%	6.8%	7.2%
Price index (Reference Case = 1)	-	-	-	-	1.01	1.04
Total net emissions (Gt CO ₂ eq)	1,564	1,511	1,679	1,868	957	-87
Per capita emissions (t CO ₂ eq)	7.70	7.13	7.46	8.02	4.25	-0.37
Carbon price (2020 USD/t CO ₂ eq)	-	-	-	-	19.0	49.3
Carbon pricing revenues (Billion 2020 USD)	-	-	-	-	16.0	43.0

* exchange rate: 5.15 R\$/USD (2020).