

Modeling of alternative scenarios for decarbonization of the energetic sector of the Dominican through OSeMOSYS to 2050



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Energy Modelling Platform for Latin America and The Caribbean (EMP-LAC)

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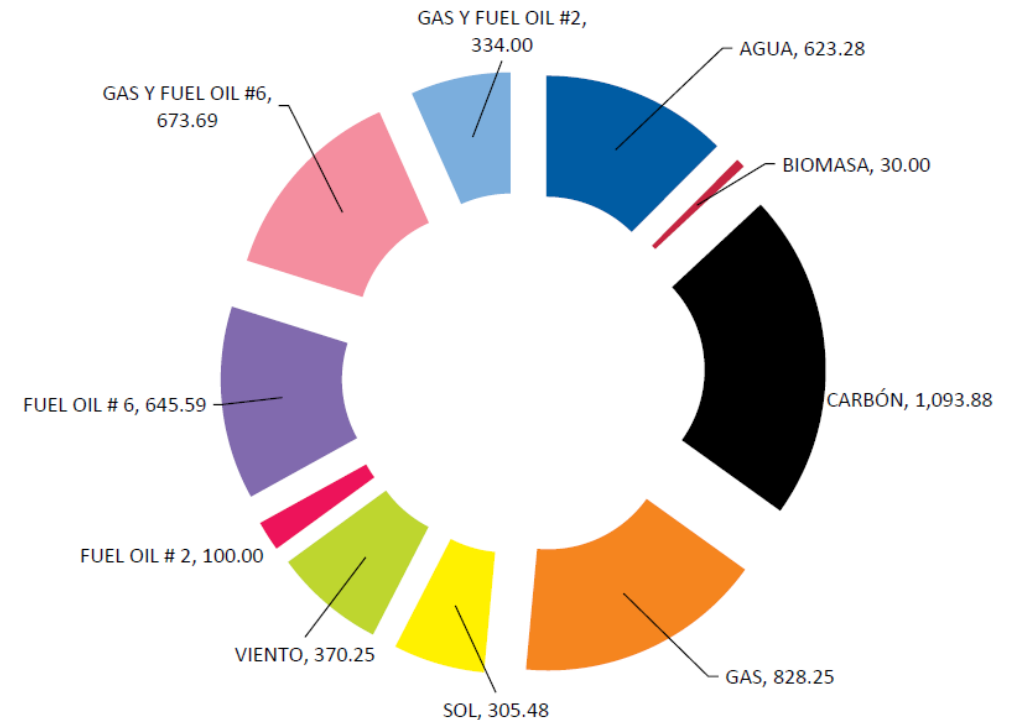
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Context, Challenges, and Main Findings

- Current energy system in Dominican Republic is highly dependent on fossil fuels.
- Total installed capacity 5 004.41 MW of coal plants there are 1 093.88 MW in operation representing 21,8% of the system.

MW installed capacity in the Dominican Republic 2021



2021 Report Organismo Coordinador SENI.

Retrieved from

<https://www.oc.do/Informes/Administrativos/Memoria-Anual>

Scenarios

Using the OSeMOSYS Linear Programming Energy System Model the following scenarios were investigated:

Scenario Label	Scenario Description	Key Assumptions
BAU	Business as usual	The carbon generation is maintained and the tendered energy projects are added.
PENR	Projection of sustainable energy plan (CNE)	The Carbon generation is maintained but all the renewable technologies stipulate in the energy plan 2035 Dominican Republic is considered
RET+REC	Reconversion coal technologies and integration technologies renewables	The 1 093.88 MW of coal plants are converted and the will be integrated all project energy plan 2035 Dominican Republic.

Energy (EN) and **Transport (TR)** datasets and pre-prints are available in the searchable table below.

Search:

Country	Continent	Energy Dataset Zenodo	Energy Pre-print ResearchSquare	Transport Dataset Zenodo	Transport Pre-print ResearchSquare
Colombia	South America	EN- Data	EN- Pre-print		

Photo Credit: Sebastien Bonneval/Unsplash

Context, Challenges, and Main Findings

- **What must be done in the Dominican Republic until 2070 to maintain a more sustainable energy matrix.**
 - What are the possible strategies or scenarios that would allow a transition to a more sustainable matrix?
 - What changes will the energy mix undergo?
 - What changes will CO2 emissions undergo?
 - What role will alternative technologies provide?

BAU

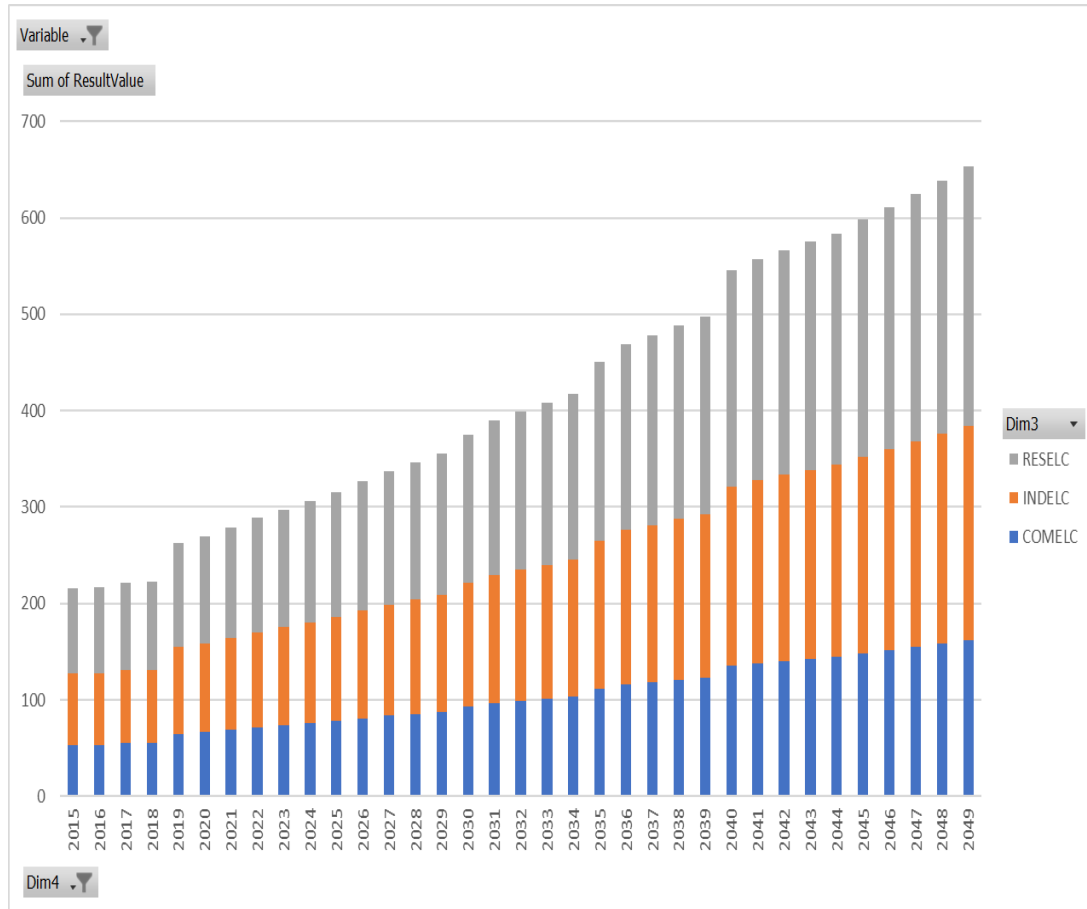
- Fossil Future
- No new investments in renewable or nuclear power generation, electric stoves and heating, electric transport or energy efficiency are permitted.

BAU WOCP Demand

- Fossil Future
- No power plant 2025, no investments in renewable or nuclear power generation, electric stoves and heating, electric transport or energy efficiency are permitted.

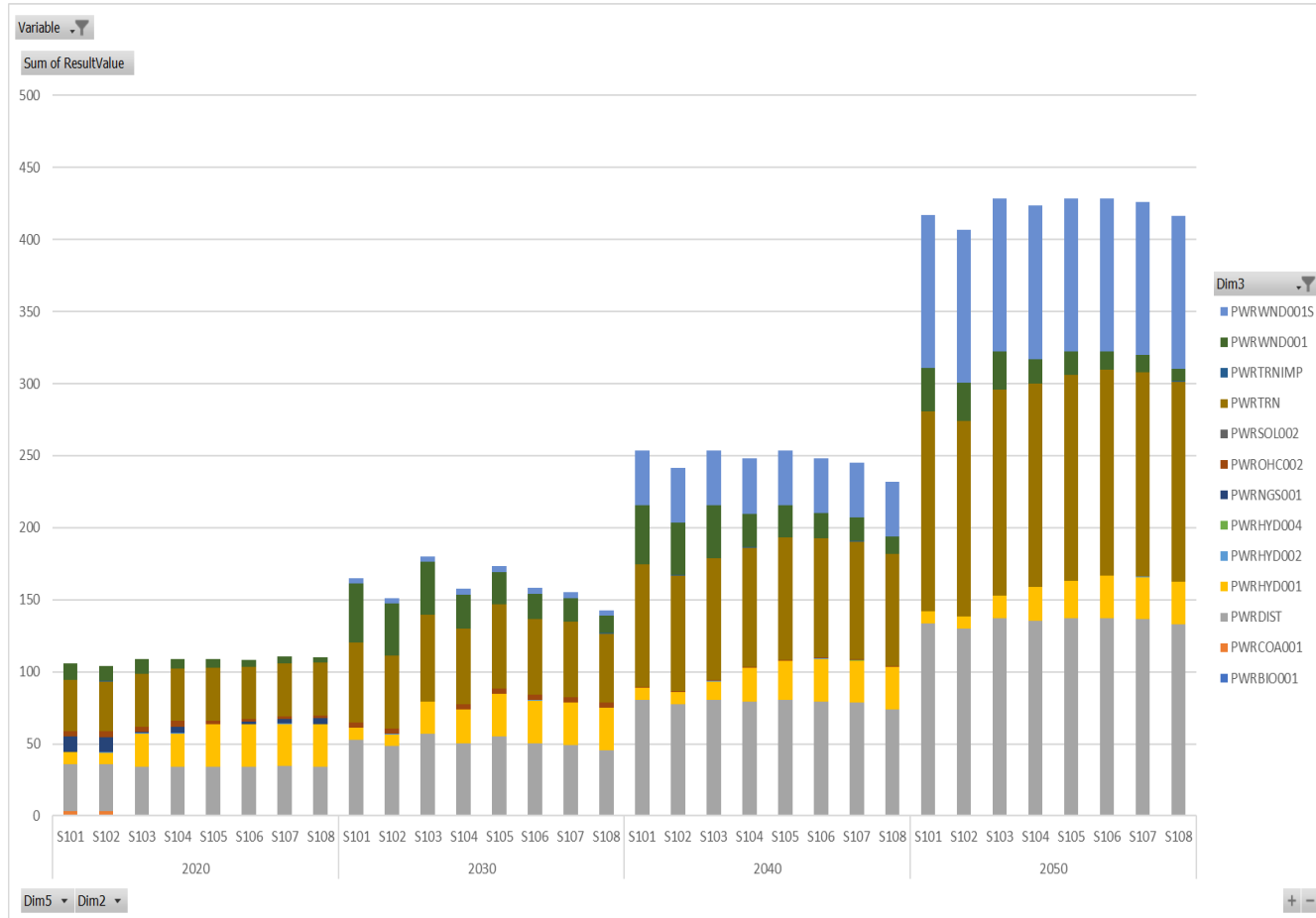
BAU Demand

BAU WOCP Demand



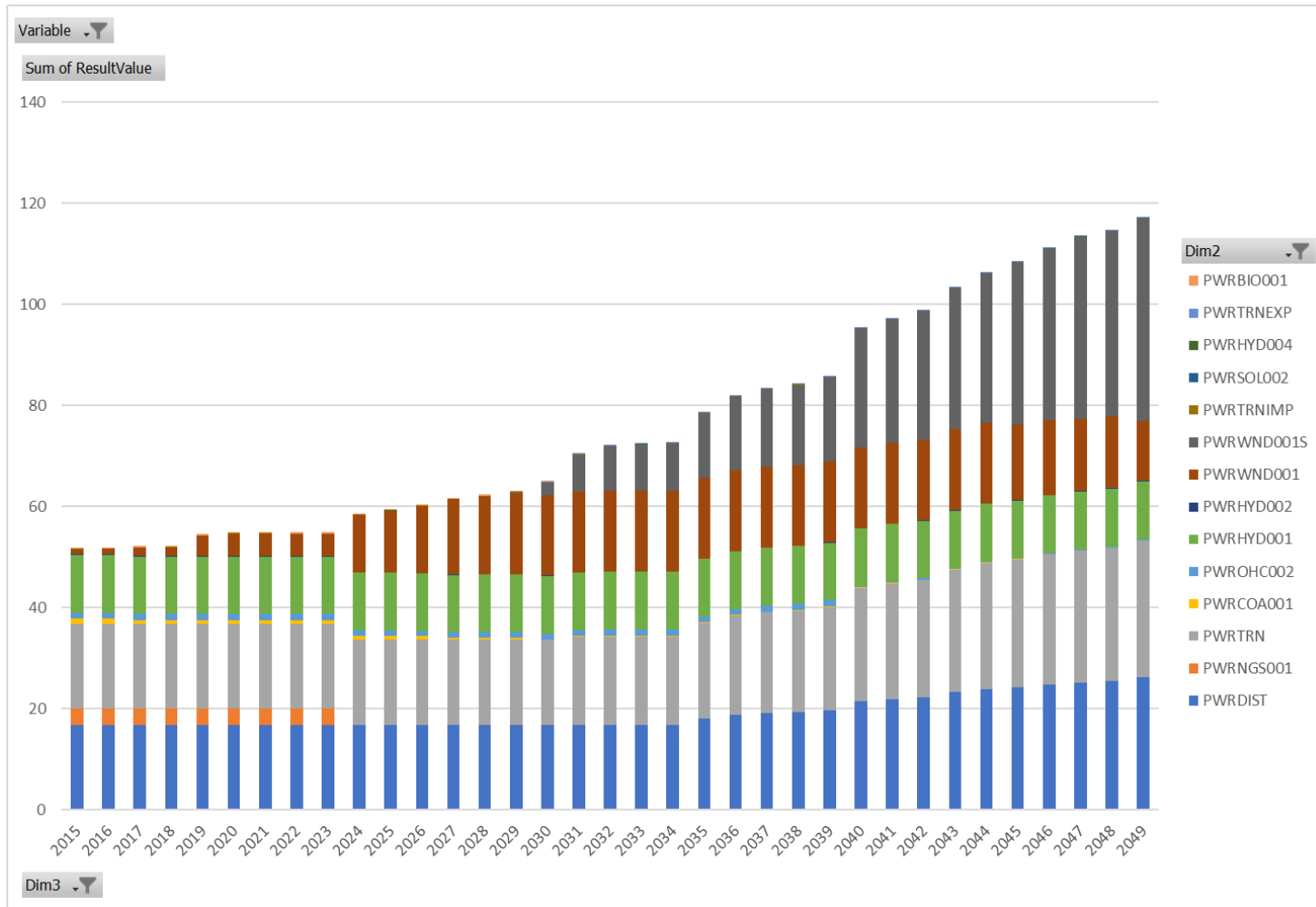
BAU Production by Technology

BAU Production by Technology WOCP



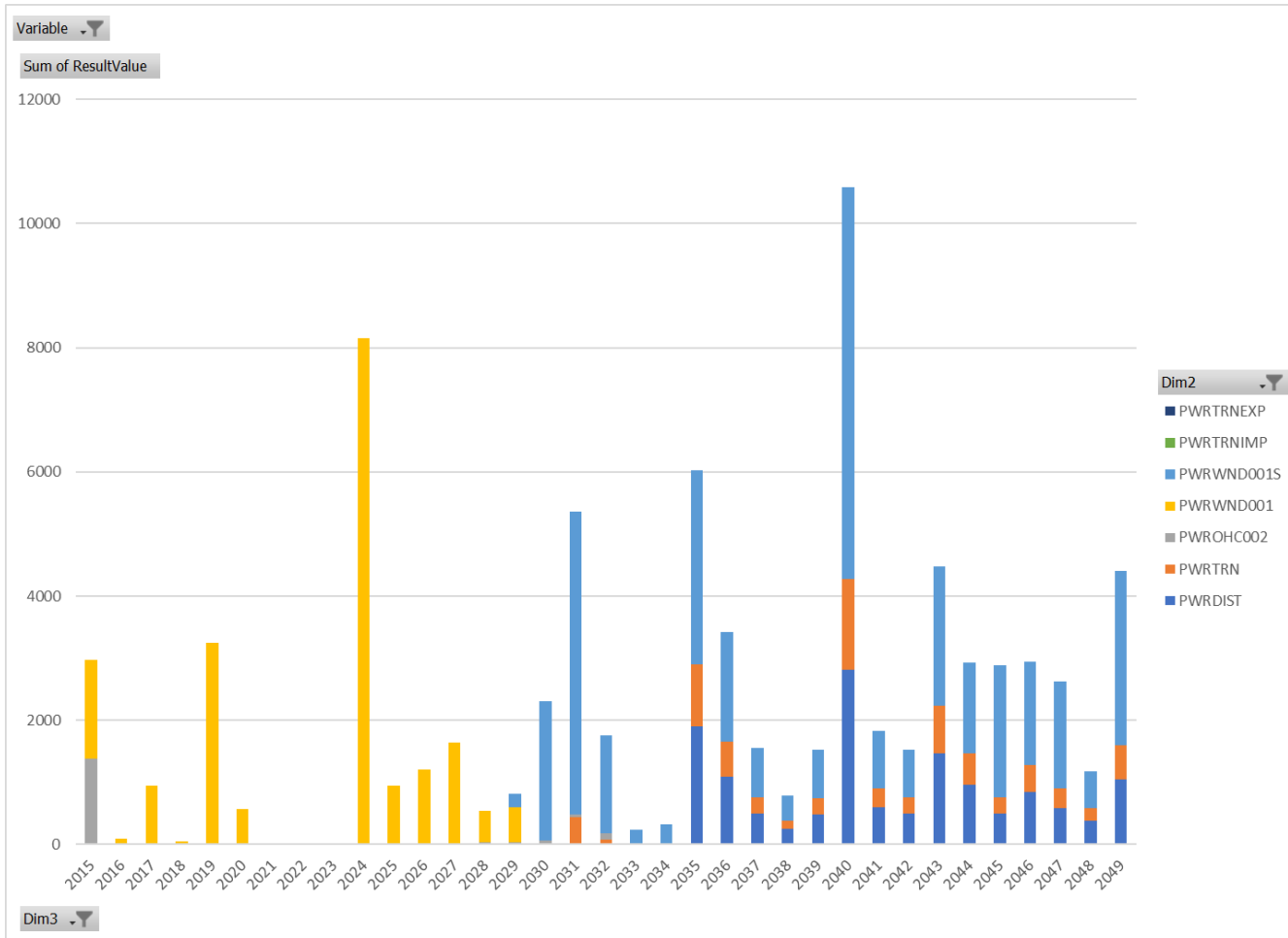
BAU Total Capacity Annual

BAU Total Capacity Annual WOCP



BAU Capital Investment

BAU Capital Investment WOCP



BAU Emission

BAU Emission WOCP

