Understanding Karnataka State Energy Calculator, 2050

The Karnataka State Energy Calculator, 2050 (KSEC, 2050) is a scenario building tool, which generates the energy demand and supply scenarios for the state up to 2050. These scenarios are generated in light of economic growth, structural changes, and adoption of technology interventions. KSEC, 2050, has the capability to aggregate both the energy demand and supply choices provided by the user.

For each demand and supply sectors, user has the option to select one of the four levels. Level 1 is defined as the 'Least Effort' scenario which is based on past trends, Level 2 is known as the 'Determined Effort' scenario which is based on the most achievable pathways by implementation of current policies and programmes, Level 3 is the 'Aggressive Effort' scenario which is based on level of effort needing significant change, and Level 4 is the 'Heroic Effort' scenario which is based on the best possible option for each demand and supply sector. Users can change the assumptions for various demand and supply sectors in the excel sheet to develop their own scenario.

This is an IT enabled web tool, backed by a detailed, open-source excel model, which offers user-friendly graphic representations of the energy demand and supply scenarios for the state. The user can witness implications of options selected on cost to the economy, greenhouse emissions, electricity imports/exports and land-requirements. The cost outputs provided in this calculator, generate the cost of shifting from base level (all level 2s) to selected levels. For a selected level, the cost output shows change in costs due to the technology/demand/price.

Guiding principles of KSEC, 2050

- Energy demand for manufacturing sector corresponds to the level of manufacturing within the state.
- Emissions from fuel consumed within the state is shown as energy emission in the state.
- Supply for primary fuels like coal, oil and gas has been considered to be equal to demand, as all these resources are governed mainly by the central government.

What it is and what it is not?

- Known energy resource potential and factors like optimistic and pessimistic outlook on policy, cost, economic growth, and other assumptions have been considered while preparing the scenarios. Hence, it is a useful tool to understand the broad picture of the worst and the best case options.
- The data relating to implications on economic costs, land requirements, and CO_2 emissions are indicative and not firm estimates. Therefore, this is a scenario building exercise and not an energy model.
- This tool is aimed to institutionalize a robust data collection mechanism in the state for informed policy making.