

## **Integrated Modeling Approach for Energy Planning and Climate Change Mitigation Assessment in the State of Florida**

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**Abstract :** An integrated modeling approach was used in this study to (1) track energy consumption, production, and resource extraction, (2) track greenhouse gases emissions and (3) analyze emissions for local and regional air pollutions. The model was used in this study for short and long term energy and GHG emissions reduction analysis for the state of Florida. The integrated modeling methodology will help to evaluate the alternative energy scenarios and examine emissions-reduction strategies. The mitigation scenarios have been designed to describe the future energy strategies. They consist of various demand and supply side scenarios. One of the GHG mitigation scenarios is crafted by taking into account the available renewable resources potential for power generation in the state of Florida to compare and analyze the GHG reduction measure against 'Business As Usual' and 'Florida State Policy' scenario. Two more 'integrated' scenarios, ('Electrification' and 'Efficiency and Lifestyle') are crafted through combination of various mitigation scenarios to assess the cumulative impact of the reduction measures such as technological changes and energy efficiency and conservation.

**Keywords :** energy planning, climate change mitigation assessment, integrated modeling approach, energy alternatives, and GHG emission reductions

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