Daily Renewable Energy Generation Monitoring in State Control Areas

Power BI Dashboarding Project Proposal

1. Executive Summary:

This project involves analyzing and reporting renewable energy generation across different states and regions in India. The dashboards will visualize daily contributions from renewable sources like wind, solar, and others (e.g., biomass, bagasse, small hydro).

2. Problem Statement:

Due to a lack of centralized, visible monitoring tools, data on renewable energy generation across Indian states is frequently underutilized, restricting timely insights into daily and regional performance. This project aims to develop interactive dashboards that analyze and visualize daily generation from wind, solar, and other renewable sources across various states and regions, enabling better insight into trends, regional contributions, and overall energy planning.

3. Data Sources:

The primary data source for this project will be a dataset containing columns such as:

1. Country
2. Year
3. Month
4. Calendar day
5. State
6. Region
7. Wind energy in daily renewable generation report (in Million Units)
8. Solar energy in daily renewable generation report (in Million Units)
9. Others renewable energy sources (res) (in Million Units)

The data is sourced from the website: https://ndap.niti.gov.in/dataset/8061?filter_id=3835.

4. Methodology:

Data Integration: Power BI will be used to integrate the core dataset containing daily renewable energy generation data.

Dashboard Design: The dashboards will focus on making everything clear and easy to use, with clean visual layouts, well-organized charts and graphs, uniform color schemes, and easy-to-use navigation.

Interactivity: The dashboards will allow users to explore the data through filters, slicers, and drill-down capabilities. The dashboard will let users explore trends, compare geographies, and analyze renewable generation patterns in depth.

5. Expected Outcomes:

- Interactive dashboards and reports providing insights into daily renewable energy generation by source, state, and region.
- Identification of generation trends and patterns to support operational planning and energy distribution strategies.
- The dashboard will let users explore trends, compare geographies, and analyze renewable generation patterns in depth.

6. Tools and Technologies:

- Power BI(Desktop)
- Power BI(Service)
- Excel

7. Risks and Challenges:

- Data quality and completeness: Ensuring the accuracy and completeness of the data is crucial for reliable analysis.
- User adoption: Training and support may be required to help stakeholders effectively use Power BI/Tableau dashboards for analysis and decision-making

8. Conclusion:

The Daily Renewable Generation Report project leverages Power BI/Tableau to deliver valuable insights into renewable energy performance across India's states. This project will improve regional energy planning, facilitate data-driven decision-making, and assist the effective and sustainable expansion of the renewable energy industry.