

Project Initialization and Planning Phase

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| Date | 23 July 2025 |
| Project Title | Global Energy Trends: A Comprehensive Analysis of Key Regions and Generation Modes using Power BI |
| Maximum Marks | 3 Marks |

Project Proposal

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

| Project Overview | |
|-------------------|---|
| Objective | To analyze global energy generation trends across key regions and energy sources using Power BI, enabling data-driven insights for sustainability and policy decisions. |
| Scope | The project focuses on collecting, cleaning, modeling, and visualizing global energy data (e.g., solar, wind, coal, nuclear) from 1961 to 2023. The scope includes scenario analysis, dashboard creation, and final reporting. It excludes real-time sensor integration and forecasting beyond the dataset. |
| Problem Statement | |
| Description | Stakeholders lack a clear understanding of how energy generation has evolved globally and regionally across different sources. This hinders planning for future sustainable energy policies. |
| Impact | Solving this problem provides clarity on energy trends, supports data-driven decision-making, and promotes global sustainability by identifying renewable adoption patterns and regional dependencies. |
| Proposed Solution | |
| Approach | Use Power BI for data visualization and analysis. Collect and clean historical energy data, model it for regional and source-based comparisons, and build interactive dashboards to explore trends and |

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| | insights. Include real-world scenarios such as urban smart grids, industrial energy optimization, and rural electrification. |
| Key Features | <ul style="list-style-type: none"> - Interactive Power BI dashboard with filters (year, region, source) - Visual trends of renewable vs. non-renewable growth - Scenario-based insight blocks - Clean and dynamic user interface - Exportable report for stakeholders |

Resource Requirements

| Resource Type | Description | Specification/Allocation |
|-------------------------|---|--|
| Hardware | | |
| Computing Resources | CPU/GPU specifications, number of cores | Standard personal computer (Intel i7 or equivalent CPU) |
| Memory | RAM specifications | 8 GB RAM or higher |
| Storage | Disk space for data, models, and logs | 1 TB HDD or 256 GB SSD minimum |
| Software | | |
| Frameworks | Power BI Desktop | Power BI Desktop |
| Development Environment | version control | Power BI, GitHub (for version control) |
| Data | | |
| Data | Source, size, format | Kaggle Datasets (e.g., Global Energy Consumption & Renewable Generation), ~50 MB, CSV/Excel format |