# Project Initialization and Planning Phase

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| Date | 22 July 2025 |
| Skillwallet ID | SWUID20250176043 |
| Project Title | Global Energy Trends: A Comprehensive Analysis of Key Regions and Generation Modes using Power BI |
| Maximum Marks | 3 Marks |

**Project Proposal (Proposed Solution) template**

| **Project Overview** | |
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| Objective | To analyze and visualize global energy generation and consumption patterns using Power BI by leveraging multiple datasets, enabling stakeholders to understand regional trends, compare renewable vs non-renewable sources, and gain insights for better energy planning and sustainability. |
| Scope | This project focuses on:<br>• Global energy production by region and by generation mode<br>• Year-wise energy consumption and trends<br>• Comparative analysis of renewable vs non-renewable sources<br>• Regional per capita energy consumption<br>• Creating insightful, interactive Power BI dashboards |
| **Problem Statement** | |
| Description | This project uses six cleaned and transformed datasets representing energy generation, use, and trends across different regions and modes. Through Power BI dashboards, we answer key business questions like:<br>• Which regions generate and consume the most energy?<br>• What is the year-wise trend of renewable and non-renewable sources?<br>• How does energy consumption compare on a per capita basis? |

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| | • What proportion of energy is sourced from renewables? |
| Impact | • Enhances visibility into energy performance across regions<br>• Encourages transition to sustainable energy sources<br>• Supports policymakers and researchers with actionable insights<br>• Reduces time spent on manual data analysis |
| **Proposed Solution** | |
| Approach | • Collect six CSV datasets<br>• Clean and preprocess data using Power Query<br>• Load data into Power BI and create relationships<br>• Build visuals for each business question<br>• Design an intuitive dashboard layout<br>• Present findings with KPIs, charts, and maps |
| Key Features | • Region-wise and mode-wise generation charts<br>• Renewable vs non-renewable comparison visuals<br>• Line graphs for year-wise consumption trends<br>• Per capita consumption visual summaries<br>• Clean dashboard design with slicers and filters |

**Resource Requirements**

| Resource Type | Description | Specification/Allocation |
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| **Hardware** | | |
| Computing Resources | Local machine for Power BI Desktop | 4-core CPU, integrated GPU |

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| Memory | RAM | 8 GB |
| Storage | Disk space | 5–10 GB (datasets, PBIX, visuals) |
| **Software** | | |
| Frameworks | Visualization Platform | Power BI Desktop |
| Libraries | Data prep, DAX, PQ functions | Built-in DAX & Power Query |
| Development Environment | Report Design + GitHub Documentation | Power BI + VS Code / Git for README |
| **Data** | | |
| Data | Sourced from SmartInternz dataset (originally from Kaggle) | Structured CSV datasets covering generation, region, and energy types |