Data Collection and Preprocessing Phase

Date	2 October 2025
Team ID	SWUID20250207636
Project Title	**Global Energy Trends: A Comprehensive Analysis of Key Regions and Generation Modes using Power BI**
Maximum Marks	10 Marks

Data Exploration and Preprocessing

Section	Description
Data Overview	The dataset contains multiple files detailing energy consumption (in TWh) over time by Continent (Continent_Consumption_TWH.csv) and by Country (Country_Consumption_TWH.csv), as well as power generation data for both renewables (renewablesTotalPowerGeneration.csv) and non-renewables (nonRenewablesTotalPowerGeneration.csv) by source.
Data Cleaning	Handle missing values, duplicates, and correct errors. Filter Rows to remove non-data entries like the Year row found in Country_Consumption_TWH.csv files . Convert numeric data loaded as text to numerical types to address errors.
Data Transformation	Use of Power Query for filtering, sorting, pivoting, and creating calculated columns. The essential transformation is Unpivoting the annual data columns (e.g., in Continent_Consumption_TWH.csv and Country_Consumption_TWH.csv) to create a single Country/Continent column and a single TWh column.
Data Type Conversion	Rectifying Datatype. Apply Change Type in Power Query to convert the Year column to Whole Number and the value columns (e.g., Contribution (TWh)) to Decimal Number for accurate calculations and time-series visualization.
Column Splitting and Merging	Split or merge columns as needed. Not explicitly required based on the provided file snippets, as dimension columns like Country and Mode of Generation appear distinct and ready for use.
Data Modeling	Define relationships between tables and create measures. Establish relationships between the unpivoted fact tables (Consumption and Generation) and a shared dimension table (Year table) to enable consistent filtering and cross-table analysis.
Save Processed Data	Save the cleaned and processed data for future use. Apply all transformation steps by clicking Close & Apply in the Power Query Editor to load the clean data into the Power BI Data Model.