Dashboard Design

Date	17 December 2025
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Project Name	Global Energy Trends: A Comprehensive Analysis of Key Regions and Generation Modes
Maximum Marks	5 Marks

This three-page Power BI dashboard delivers an interactive analysis of global energy generation and consumption (TWh) by region, country and source. It highlights total and renewable energy KPIs, source-wise trends, regional consumption patterns and country-level insights to support policy and planning decisions.

Design goals & principles

- **Clarity & hierarchy:** Present primary KPIs prominently (Total Energy, Total Renewable, Renewable Share) and arrange visuals by purpose (trend, composition, ranking).
- **Simplicity & focus:** Limit the number of visuals per page to reduce cognitive load, each visual answers a single business question.
- **Consistency:** Use consistent card styling, fonts, and color coding across pages for quick visual recognition.
- **Interactivity first:** Provide slicers (Year, Region, Country, Energy Type), cross-filtering and drill through to enable ad-hoc exploration.
- **Accessibility:** Ensure legible font sizes and sufficient contrast for readability.

Target audience

- Energy policy makers and government planners.
- Sustainability analysts and researchers.
- Utility and grid operations teams.
- Academic evaluators and project examiners.

Dashboard pages & visual inventory

Page 1 - Global Overview

Purpose: High-level snapshot of global scale and composition.

- **KPI Cards:** Total Energy (TWh), Total Renewable Energy (TWh), Renewable Energy Share (%).

- **Donut / Pie:** Renewable vs Non-Renewable composition (latest year).
- **Column chart:** Energy Consumption by Continent (latest year).
- **Horizontal bar:** Total Country Consumption (Top N countries).
- **Controls:** Global Year range slider (top-right), Region filter.
  What it answers: "How big is global energy, how much is renewable, and where is consumption concentrated?"

Page 2 - Renewable Deep Dive

Purpose: Detailed trends and composition of renewable sources.

- **Area chart:** Renewable generation by source (Hydro, Solar, Biofuel, Geothermal) over time.
- **Bar chart:** Renewable Energy Growth (total renewables per year).
- **Donut / Pie:** Share of renewable sources (selected year).
- **Horizontal bar:** Top Renewable Sources (absolute TWh).
- **Controls:** Source filter, Country/Region selector.
  What it answers: "Which renewable sources are growing fastest and which dominate generation?"

Page 3 - Country & Regional Analysis

Purpose: Drill into countries and regions for actionable insights.

- **Large column:** Total Energy (TWh) by Region.
- **Horizontal bar:** Total Country Energy (Top countries).
- **Line chart:** Year-wise trend for selected country.
- **Stacked bar / Donut:** Country composition (renewable vs non-renewable).
- **Controls:** Region checkboxes, Country search, drillthrough to country detail.
  What it answers: "Which countries/regions drive demand and what is their energy mix?"

Interactivity & UX details

- **Slicers:** Year (range), Region (multi-select), Country (search), Energy Type (Renewable/Non-Renewable). Place Year range top-right on all pages.
- **Cross-filtering:** Clickable charts filter related visuals, KPIs update with selections.
- **Drill through:** Enabled from country bar to a country detail view (KPIs, trend, composition).
- **Tooltips:** Show numeric values, share and YoY change.
- **Bookmarks:** Default view, Compare Regions, Country Deep Dive for quick navigation.

Key Outcomes

- Primary KPIs give executives instant visibility into scale and renewable progress.
- Regional charts surface that Asia and OECD regions drive most of global consumption.
- Source-level analysis reveals hydropower's absolute dominance and solar's fastest growth.
- Country page pinpoints top consumers for targeted policy and infrastructure focus.
- Dashboard supports exportable data and drill through for reproducible analysis.
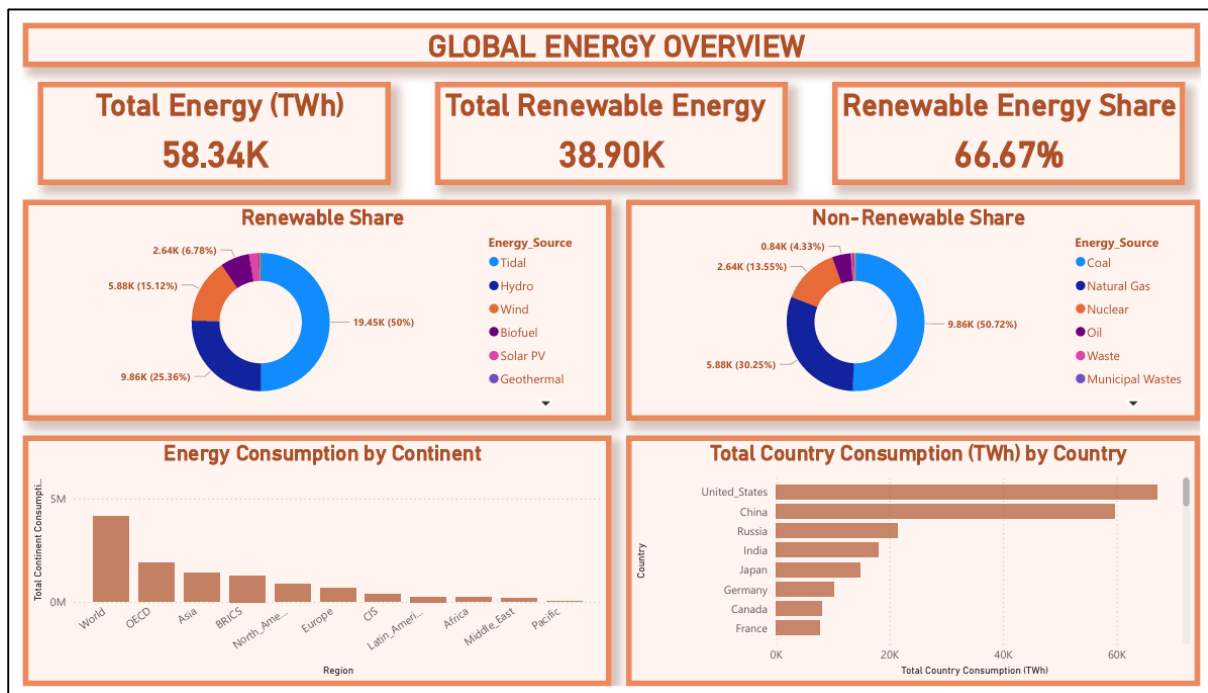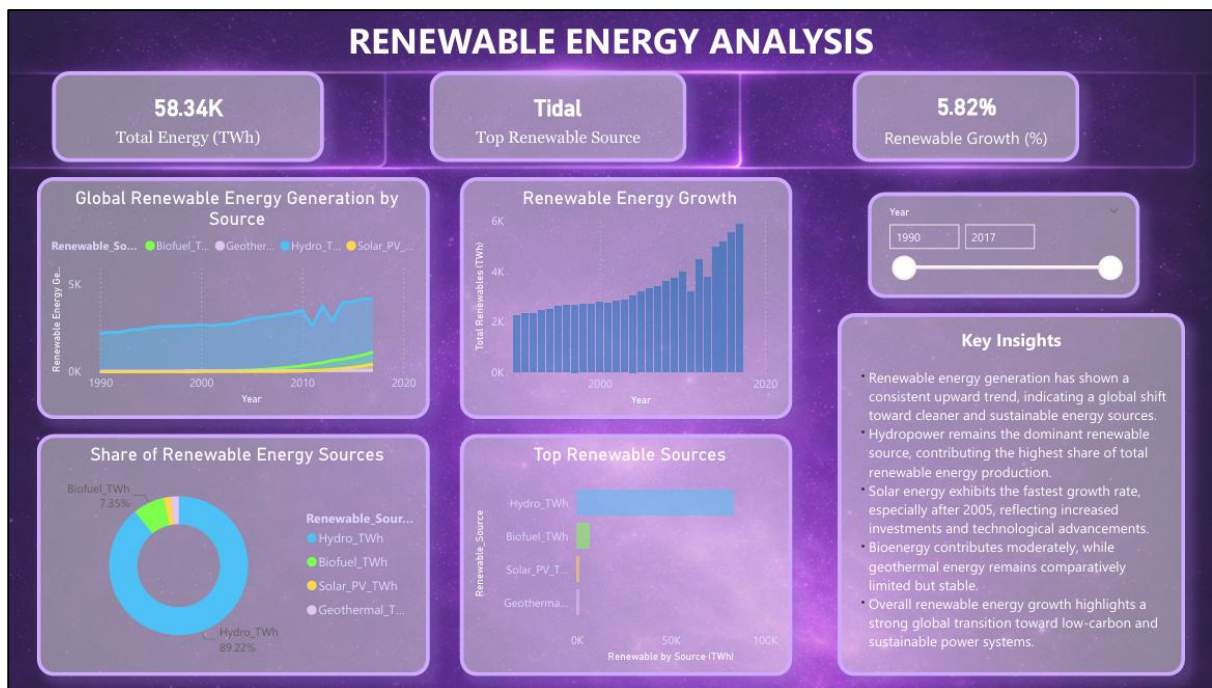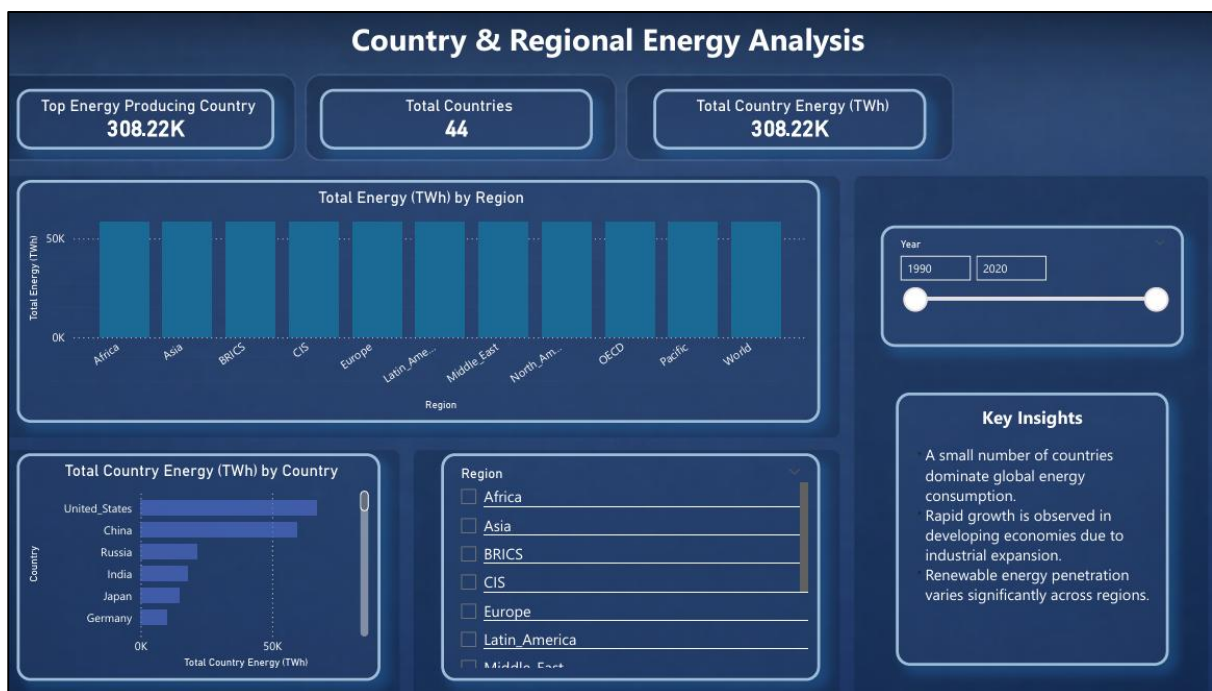
Dashboards

Fig 1: Global Overview

Fig 2: Renewable Deep Dive

Fig 3: Country & Regional Analysis