

# Project Report: COFI PowerPlay - Analyzing Global Energy Investments

## 1. Introduction

The **COFI PowerPlay** project focuses on analyzing global energy sector investments funded by Chinese entities under the Belt and Road Initiative (BRI). Using the **China Overseas Finance Inventory (COFI) Database**, this analysis provides insights into the types of energy investments, financial structures, geographical distribution, and alignment with sustainability goals.

This project is an ideal example of leveraging data analysis to inform stakeholders, including policymakers, investors, and environmental organizations, about trends in renewable versus non-renewable energy investments and their implications for sustainable development.

## 2. Objectives

The primary objectives of the project are:

- To analyze the trends in global energy investments over time.
- To compare the allocation of resources between renewable and non-renewable energy projects.
- To identify geographical regions that are key recipients of energy investments.
- To evaluate the role of financing structures, including debt and equity.
- To assess the growth in installed energy capacity and its implications.

## 3. Dataset Overview

- **Source:** COFI Database (available on Kaggle)
- **Key Features:**
  - **Project Details:** Names, locations, and characteristics.

- **Financial Data:** Types of financing (debt/equity), amounts, and years of financial closure.
- **Energy Metrics:** Installed capacity, fuel types, and operational status.

The dataset consists of hundreds of projects across multiple countries, with entries spanning over a decade.

## 4. Methodology

### 1. Data Preprocessing

**Missing Values:** Handled missing values using imputation techniques where applicable

**Data Cleaning:** Corrected errors, standardized categories, and removed duplicate entries.

**Derived Metrics:** Created new variables, such as project lead time, for deeper analysis.

### 2. Tools and Techniques

- **Excel:** Data cleaning and preprocessing.
- **Looker Studio:** Interactive dashboards and visualizations.
- **Google Sheets:** Data integration with Looker Studio.

## 5. Recommended Analysis

- Investment Trends Over Time
- Investment Distribution by Energy Type
- Geographical Distribution of Investments
- Average Investment Size by Energy Type
- Investment Complexity by Number of Lenders
- Renewable vs Non-Renewable Investment Ratio
- Debt and Equity Investment Trends
- Capacity Installation Trends
- Investment by Region and Subregion
- Number of Projects by Energy Type

## 6. Dashboards

### Interactive Visualizations

- **Total Investments Over Time:** Visualized using line charts.

- **Energy Breakdown:** Displayed through pie charts showing the share of renewable vs. non-renewable investments.
- **Geographical Trends:** Mapped on a world chart to highlight regional hotspots.
- **Capacity Trends:** Area charts showing the commissioning of projects.

Explore the dashboards here: [Looker Studio Dashboard](#)

## 7. Conclusion

The COFI PowerPlay project demonstrates how data-driven insights can shape investment strategies and policy-making in the global energy sector. By analyzing trends in energy investments, this project highlights the growing emphasis on renewable energy and offers actionable recommendations for stakeholders to drive sustainable development.

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