Architecture Design Document (ADD)

Global Energy Trade Analysis (1990-2014)

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Introduction

Taking place primarily in the fossil fuels sector, global energy trading is rising steadily on a total volume basis. The distribution of fossil energy production and consumption is highly imbalanced, requiring the capability to optimize allocations of energy resources across the world. Transnational and intercontinental energy trade flows have been expanding increasingly along with the development and improvement of energy transport networks, including ocean transport, railway, and oil/gas transmission networks. In 2013, transcontinental fossil energy trade flows globally amounted to 6.3 billion tons of standard coal, with oil, gas, and coal accounting for 63, 22, and 15%, respectively.

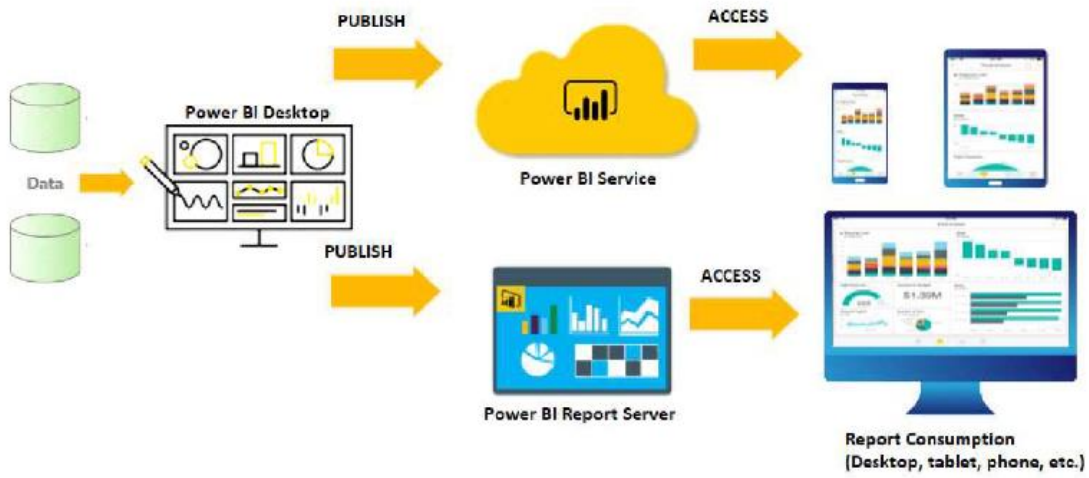
In the world rising and developing new technology and infrastructure, the demanding of energy is rising rapidly. In this scenario Data Analysis can help them to understand their (energy sectors) business in a quite different manner, like- helps to improve the quality of services (import, export, etc.) and helps to reduce/minimize the uses of coal & oil, helps to protect the environment, helps to more focus on solar & wind energy etc.

This study demonstrates how different analysis help to make better business decisions and help to end user and help to produce less carbon in our environment. Different analysis performed such as Exploratory Data Analysis & Descriptive Analysis on variety of use cases to get the key insights from this data and based on data business decisions will take.

Scope

Architecture Design Document (ADD) is an architecture design process that follows a step-by-step refinement process. This process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the design principles may be defined during requirement analysis and then refined during architectural design work.

Architecture



- Power Query

  Power Query is the data transformation and mesh up the engine. It enables you to discover, connect, combine, and refine data sources to meet your analysis need. It can be downloaded as an add-in for Excel or can be used as part of the Power BI Desktop.

- Power Pivot

  Power Pivot is a data modelling technique that lets you create data models, establish relationships and create calculations. It uses Data Analysis Expression (DAX) language to model simple and complex data.

- Power View

  Power View is a technology that is available in Excel, SharePoint, SQL Server and Power BI. It lets you create interactive charts, graphs, maps, and other visuals that bring your data to life. It can connect to data sources and filter data for each data visualization element or the entire report.

- Power Map

  Microsoft's Power Map for Excel and Power BI is a 3D data visualization tool that lets you map your data and plot more than a million rows of data visually on Bing maps in 3D format from Excel table or Data Model in Excel. Power Map works with Bing maps to get the best visualization based on latitude, longitude, or country, state, city, and street address information.

- Power Bi Desktop

  Power BI Desktop is a development tool for Power Query, Power Pivot, and Power View. With Power BI Desktop, you have everything under the same situation, and it's easier to develop BI and data analysis experience.

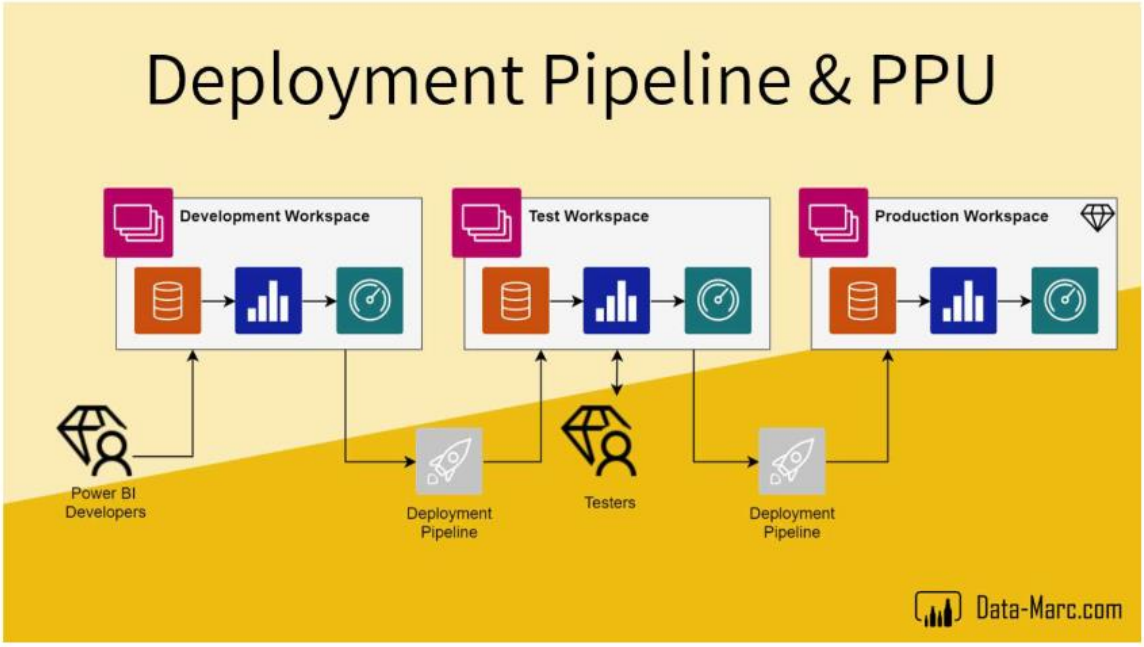
- Power BI Service

  Power BI Service is the Software as a Service (SaaS) part of Power BI. It is also known as Power BI Online. To access Power BI Service, you need to log in to Power BI service.

- Power Q&A

  The Q&A feature in Power BI lets you explore your data in your own words. It is the fastest way to get an answer from your data using natural language. An example could be what was the total coal export in a year by a particular country. Once you've built your data model and deployed that into the Power BI website, then you can ask questions and get answers quickly.

Deployment



- There are multiple ways to deploy the dashboard in Power BI. The simplest way is to publish directly on Power Bi Services server from online mode. One ca easily publishes the work from the desktop and then it will open in browser, then user has to sign in and the work will be published.
- This work can see all the viewers around the world. You can share it via a shareable link.
- Thus, you can deploy the dashboard and reports using Power Bi Services.

---------- Thank you ----------