Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	18 June 2025
Team ID	LTVIP2025TMID51709
Project Name	Plugging into the Future: An Exploration of Electricity Consumption Patterns Using Tableau.
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

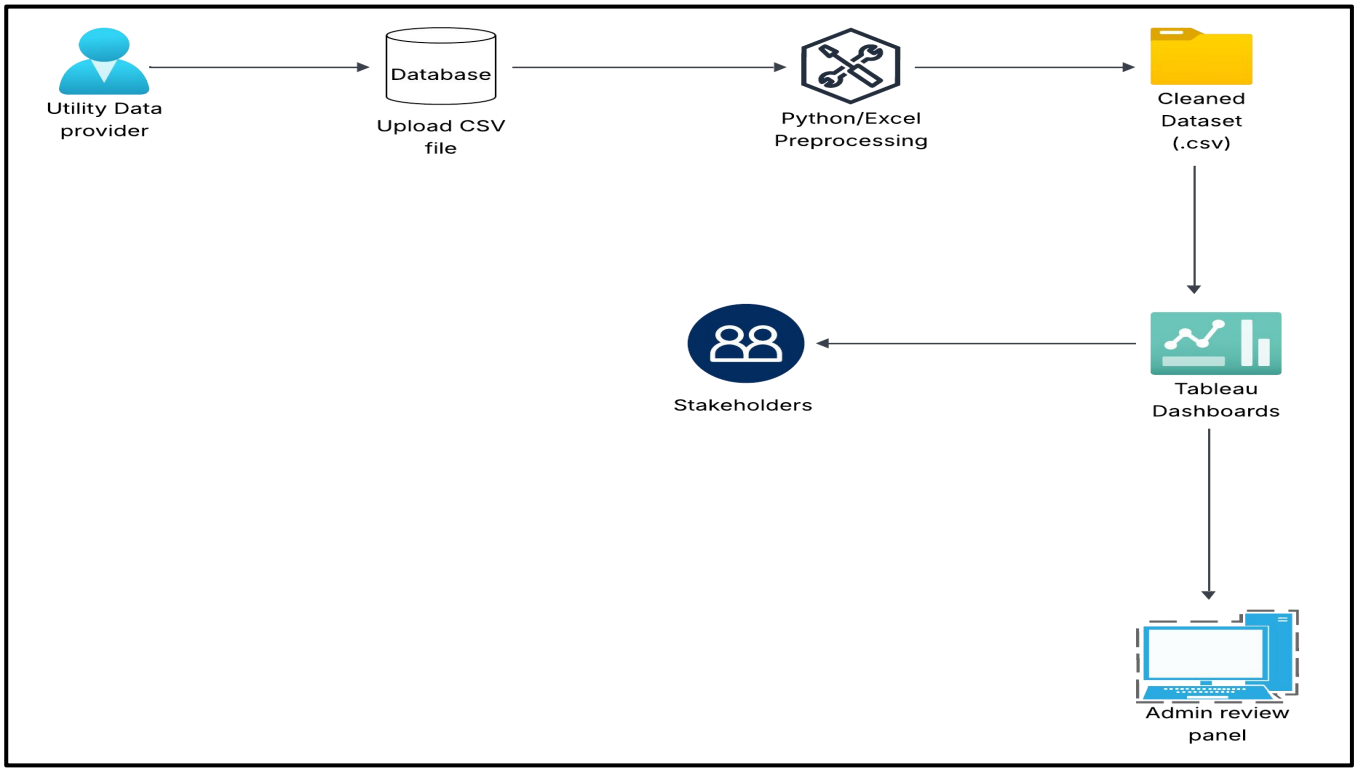

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Data Source	Raw electricity consumption data from various sectors, times, and regions	Excel / CSV / SQL Database
2.	Data Cleaning & Prep	Preprocessing and structuring raw data for analysis	Microsoft Excel / Python (Pandas - optional)
3.	Data Visualization	Creating interactive dashboards to analyze patterns and trends	Tableau Desktop / Tableau Public
4	Data Hosting	Platform to publish dashboards for access by team members or stakeholders	Tableau Public / Tableau Online
5.	Dashboard Interaction	Filters, parameters, and tooltips for exploring specific usage patterns	Tableau Features (filters, slicers, tooltips)
6.	Report Export	Share dashboards and visual insights externally	Tableau export as PDF/Image
7.	Collaboration Tools	Team collaboration and visual planning (ideation, journey maps, DFDs)	Miro / Draw.io / PowerPoint
8.	Documentation	Writing user stories, requirements, and problem statements	Google Docs / MS Word
9.	Presentation	Final project showcase	PowerPoint / Google Slides
10.	Real-Time Data Source	If using live sensor or IoT data in future updates	APIs / Webhooks / Live Excel feed
11.	Automation & Forecast	Optional use of Python for forecasting or scheduling dashboards	Python (fbprophet, pandas)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Usability	Easy-to-use interactive dashboards for non-technical users	Tableau (drag-and-drop UI, filters, tooltips)
2.	Performance	Dashboards load within seconds for medium-sized datasets	Tableau's in-memory engine + optimized extracts
3.	Scalability	Can handle growing data over time (e.g., more regions, months, sectors)	Tableau extracts / SQL backend
4.	Availability	Dashboards accessible online or shared via link 24/7	Tableau Public / Tableau Online
5.	Maintainability	Easy to update or revise dashboards as new data or requirements emerge	Tableau Workbook (.twbx) format
6.	Security	Optional access control if hosted on secure platforms	Tableau Online / Tableau Server (role-based access)
7.	Portability	Dashboards can be viewed on web browsers, desktops, and exported as PDF/images	Tableau Public, PDF Export
8.	Interactivity	Users can filter data, hover for tooltips, drill down into specific insights	Tableau filters, parameters
9.	Visual Appeal	Clean, engaging visuals using charts, heatmaps, line graphs	Tableau templates and formatting options

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d