Project Design Phase
Solution Architecture

Date	18 February, 2026
Team ID	LTVIP2026TMIDS40169
Project Name	Plugging into the Future: An Exploration of Electricity Consumption Patterns Using Tableau
Maximum Marks	4 Marks

Solution Architecture:

◇ **Goals of the Architecture**

1. ☑ Visualize state-wise, region-wise, and time-based electricity consumption trends.

2. ☑ Define system structure using Tableau for dashboard creation and data processing.

3. ☑ Enable interactive filtering and drill-down for better analysis.

4. ☑ Provide scalable architecture for future data expansion.

📐 **Architecture Components**

Layer	Component	Description
Data Layer	Source: Electricity Consumption Dataset (.csv)	Contains fields like State, Region, Year, Month, Quarter, Usage
Processing Layer	Data Cleaning & Calculated Fields	Handle null values, format dates, create Growth % and Lockdown Impact fields
Application Layer	Tableau Logic Engine	Filters, calculations, ranking logic, and chart rendering
Presentation Layer	Interactive Tableau Dashboard	Maps, KPI cards, line charts, bar charts, quarter analysis
Users	Energy Officials, Policy Makers	Access via Tableau Public or exported PDF reports

🔄 Development Phases

Phase Description

Phase 1 – Data Preparation Clean dataset, convert date fields, handle missing values

Phase 2 – Basic Visuals Create state maps, bar charts, KPI cards

Phase 3 – Advanced Visuals Add Top N, Quarter charts, Lockdown analysis, calculated fields

Phase 4 – Dashboard + Story Combine visuals, enable filters, build Tableau Story

Phase 5 – Final Deployment Publish dashboard and export reports