Tableau Advanced Project

Residential Technology Cost Modelling Dashboard

Business Scenario

You are hired as an **Energy Cost Analyst** by a residential energy consulting firm.

The government wants to:

- Understand cost trends of residential technologies
- Compare new construction vs retrofit economics
- Analyze long-term affordability
- Identify high uncertainty technologies
- Evaluate regression reliability

You are given a dataset containing:

Technology × Projection Year × Scenario level cost modeling data.

Your task:

Build an interactive Tableau dashboard that provides strategic cost and investment insights.

Dataset Granularity

Each row represents:

Technology × Projection Year × Projection Scenario

Students must explicitly mention this in their report.

Required Analysis Sections

Cost Trend Analysis

Questions to answer:

- How do technology costs change over projection years?
- Are retrofit costs decreasing?
- Which category shows highest inflation?

Must include:

- Line chart (Year vs Cost)
- Dual axis comparison

New vs Retrofit Comparison

Questions:

- Is retrofit always more expensive?
- Which technologies have highest cost gap?

Must include:

- Cost difference calculation
- Ranking
- % difference

Lifetime Economics

Students must calculate:

Cost per Year = Installed Cost / Lifetime

Questions:

- Which technologies are cheapest over lifecycle?
- Which are high upfront but low lifetime cost?

Cost Uncertainty & Risk

Students must calculate:

Cost Spread = High – Low

Questions:

- Which technologies have highest cost variability?
- Does uncertainty change over time?

Regression Reliability

Use:

- R-squared
- Sample Size
- Data Age

Questions:

- Which technologies are based on strong regression?
- Which are risky due to weak modelling?

Mandatory Tableau Features

Students must use:

- Minimum 6 calculated fields
- 2 LOD expressions
- 1 parameter
- 2 quick table calculations
- 1 dual axis chart
- 1 ranking
- 1 bin

Submission

1. Tableau Workbook (.twbx)
2. 3-page PDF including:
    - Business Questions
    - Data Grain Explanation
    - All Calculations Written
    - Key Insights
    - Investment Recommendation