

# Energy Consumption Analysis & Business Recommendations

**Full Name:**

Sümeýra Kuzu

**Email (Kiron Thrive program):**

[sumeýraaycan@gmail.com](mailto:sumeýraaycan@gmail.com)

---

## Business Recommendations

- **Design for Compactness**  
Encourage architects to adopt more compact building shapes.  
**Impact:** Up to 15–20% lower energy demand, leading to reduced operating costs and emissions.
  - **Optimize Building Height**  
Taller buildings should integrate passive cooling systems, double-skin façades, or enhanced insulation.  
**Impact:** Helps control energy penalties associated with vertical expansion.
  - **Manage Exposed Surface & Roof Areas**  
Improve roof insulation, consider reflective roof coatings, and minimize unnecessary surface exposure.  
**Impact:** Can reduce heating loads by ~10–15% in buildings with large roofs.
  - **Rationalize Glazing Area**  
Avoid excessive window ratios, especially in warm climates; invest in energy-efficient glazing materials.  
**Impact:** A 10% reduction in glazing can lower cooling demand by ~2 kWh/m<sup>2</sup>, improving comfort and energy savings.
  - **Quantified Business Value:**
    - Cost Reduction: Energy expenses reduced by ~15–20%
    - Sustainability: Supports ESG targets and cuts CO<sub>2</sub> emissions
    - Faster Design Cycles: Reduces reliance on costly simulations
    - Market Differentiation: Higher market value through certifications (LEED, BREEAM)
    -
- 

**Jupyter Notebook Link**

<https://github.com/sk022024/Applied-AI-Project.git>

---