

Energy Audit Report

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Background

The stimulus for this project was the growing understanding of how a surge in urban energy consumption is contributing to environmental stress and the upward trend of household expenses in Mumbai. I knew that while many residents recognized that their electricity bills were high, very few understood how their energy was being used, or how everyday behaviours and appliances affected their energy efficiency. This gap due to the divide between understanding and acting motivated my development of a residential energy audit project that seeks to understand these patterns and address energy consumption using practical, data-driven recommendations. The intent of the project was not only to assess energy consumption through a technical lens, but to also consider the associated behaviours to not only inform households about their energy usage but, more importantly, to motivate residents of the household to adopt change and a trajectory that fosters responsible energy consumption in the community.

Summary

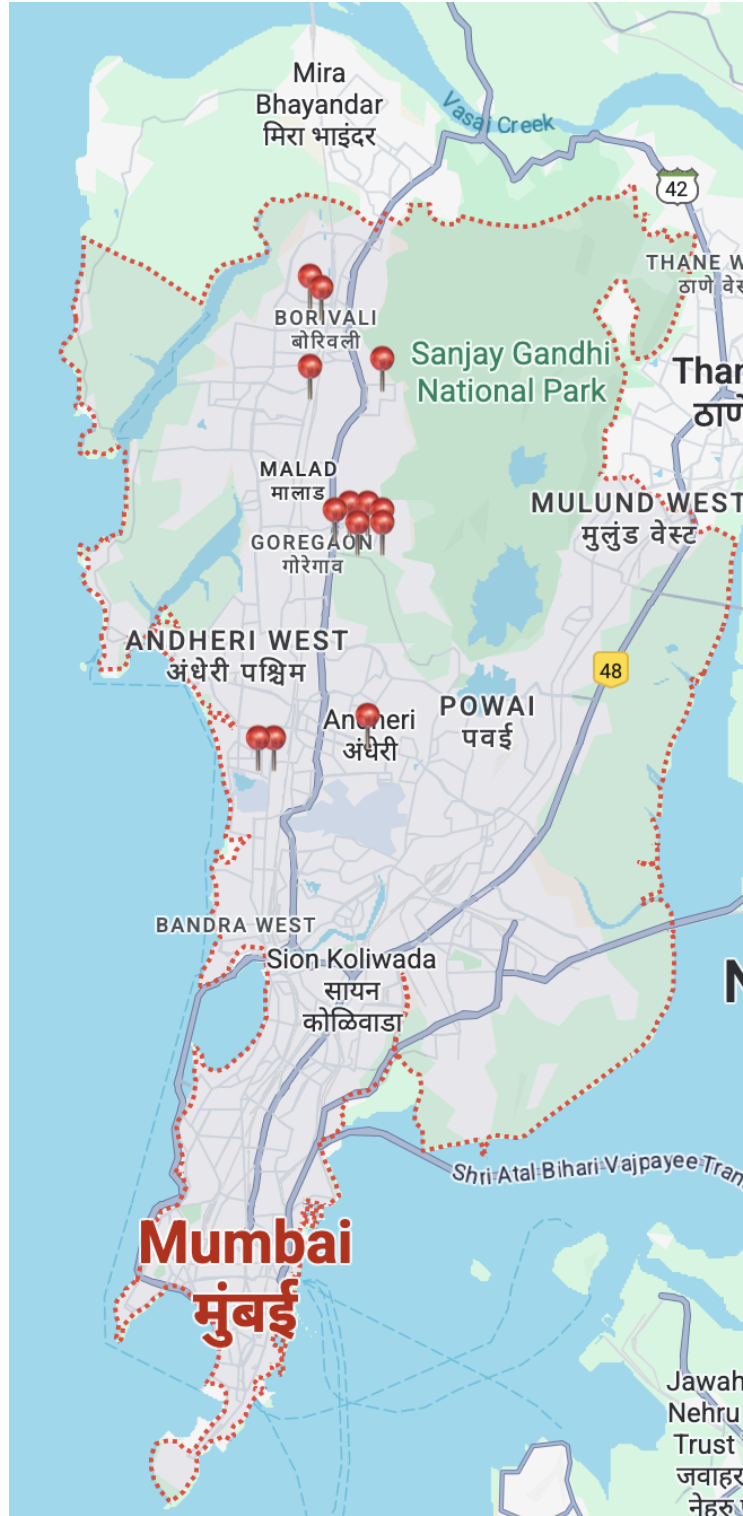
I conducted a systematic residential energy audit across 14 homes in Mumbai to assess baseline consumption patterns, identify high end-usage contributors and provide potential personalised suggestions for efficiency improvements. This work involved collecting monthly electricity use, walking the building for an inventory of the envelope and systems (HVAC, water heating, lighting, and major appliances), and surveying occupant routine and maintenance practices. When there was no direct metering, it was necessary to use feasible end-use assumptions, based on observed equipment and habits, to allocate loads and identify opportunities.

The audit found common themes – predominance of cooling loads due to inefficient or aging HVAC systems, poor window glazing, substantial standby consumption with inconsistent energy saving settings, and inconsistent penetration of efficient lighting. I developed and prioritized a list of suggestions based on these themes, which included reducing cooling demand (equipment replacement and envelope improvements), lighting upgrades, applying simple controls and power management devices to reduce phantom loads, and addressing inefficient water heating. The recommendations highlight interventions that are low-cost, quick to implement, and likely to result in measurable savings once behavioural changes are considered.

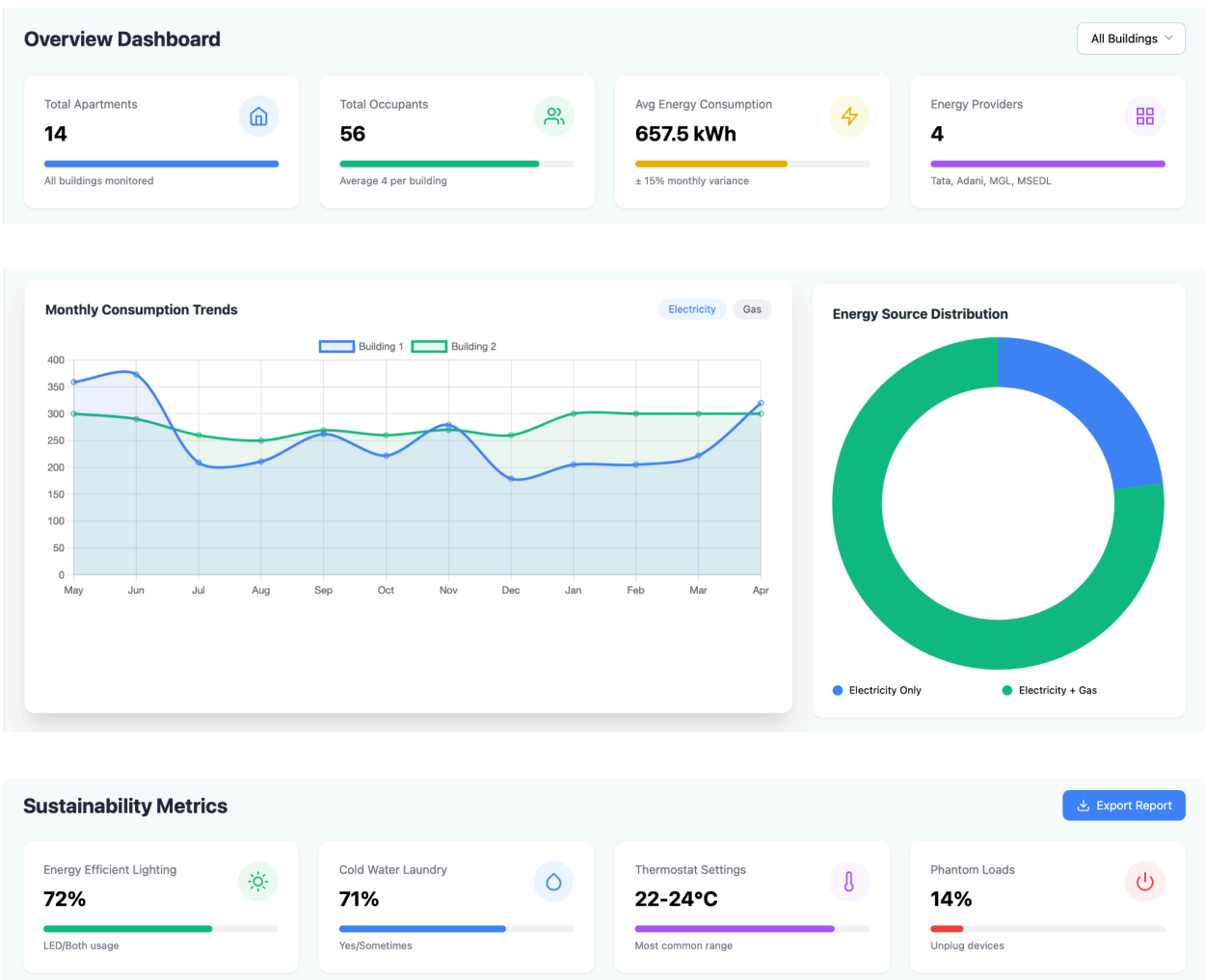
Ultimately, the audit emphasizes the benefits of short-term monitoring and a phase based implementation strategy: first, to install temporary sub-meters or energy monitors which validate the assumed end-use splits, and to implement high-impact HVAC improvements & envelope measures ahead of others and then to follow-up with measurement and verification to confirm savings and opportunities for a future approach, to serve as a clear map for homeowners and/or stakeholders to improve comfort at home, while saving on energy use.

Map View

Locations of the houses that participated in this audit



Overview - Report



Personalised Sample Report

Oberoi Exquisite - B/1702

