

GIS-Based Residential Building Energy Modeling: An Irish Case Study By Usman Ali



Buildings play a significant role in urban energy demand





Energy modelling at a large scale is complex and timeconsuming task



- Energy and emission reductions are possible through building energy analysis at a local level
- Geometric and non-geometric data required for individual building.
- Building-types that represent similar technical, operational and geometrical characteristics of a large group of buildings
- Uncertainty associated with the national level buildings archetypes.
- Small areas concept is used for detailed analysis.







Methodology for GIS-based residential building energy modelling at urban scale





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Energy modelling result of Irish residential buildings shows area need of renovation





GIS-based modelling will aid the local authorities or city planners to identify priority areas for implementing energy efficiency measures and further improve sustainable energy policy decisions.

Conclusion & Future Work



- A generalized methodology for GIS-based district energy modelling using bottom up and data driven approach.
- Instead of mapping results directly to districts, the **small areas** concept is used for detailed analysis.
- GIS-based modelling will aid the local authorities or city planners to identify priority areas.





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