

Energy Emissions Application – Aalborg | Infrastructure Summary

Introduction to TURAS

Transitioning Towards Urban Resilience and Sustainability (TURAS) is an FP7 funded European-wide research and development programme. The “TURAS” project aims to bring together urban communities, researchers, local authorities and SMEs to research, develop, demonstrate and disseminate transition strategies and scenarios to enable European cities and their rural interfaces to build vitally-needed resilience in the face of significant sustainability challenges. As part of this process, the TURAS project has developed a suite of Geo-ICT tools for the project to demonstrate some of the research topic address over the lifespan of the project.

Design Intent

TURAS has helped to develop a Heat Mapping Application for Aalborg. This web map will help citizens and municipalities understand energy demands in Aalborg and plan for better energy saving. This is a web-map that illustrates data on material and energy use in cities. The goal is to provide an intuitive way of understanding this complex problem using an interactive interface. We have analysed data across the Aalborg area and generated energy intensities.

Principal Elements

The analysis is based on the energy consumption of a building against the area of each parcel, the application generates a density visualisation to present low to high consumption.

1. *Users can zoom in and out on basemap from city level down to building level (to better interrogate data)*
2. *Users are encouraged to share and disseminate this data. This is done by clicking on the icon in the top right corner of the map box. Allows the users to share map via social media or embed the application on their own websites or blogs with no coding experience required.*
3. *Users can see precise measurements for specific parcels by hovering over/or clicking on each parcel.*
4. *Users can toggle on/off layers from the panel ‘visible layers’ relating to*
 - a. *Demand Saving (Mwh/Year)*
 - b. *Current Demand (Mwh/Year)*
 - c. *Heat Density (Current) (Kwh/M2)*
 - d. *Heat Density (Saving) (Kwh/M2)*

Infrastructure

The infrastructure underpinning the dashboard can be considered in three parts:

The Aalborg Heat Atlas is a web-based GIS viewer that was developed as part of the TURAS project to map the distribution of energy consumption across the Aalborg built up area. It aims to support a better understanding of energy demand and energy saving within the city for future sustainability planning.

1. *Heat Density (Current) (Kwh/M2)*

Current data on energy consumption for each building in Aalborg. Actual consumption data is then divided by footprint of the building to establish heat density metric.

2. *Heat Density (Saving) (Kwh/M2)*

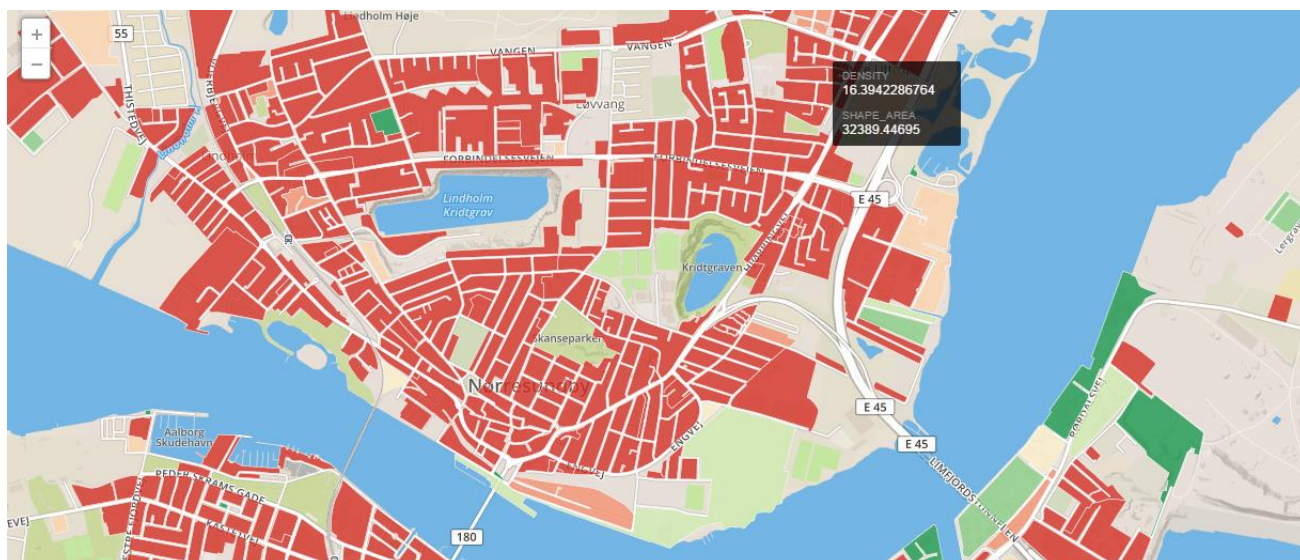
Simulated reduced scenario for energy consumption for each building (based on the HEAT DENSITY (CURRENT)). Actual consumption data is then divided by footprint of the building to establish heat density metric.

3. *Current Demand (Mwh/Year)*

Actual current MWh consumption of buildings in Aalborg

4. *Demand Saving (Mwh/Year)*

Simulated reduced scenario for MWh consumption of buildings in Aalborg



Wider Application Dissemination

In order to create the best environment for re-use, modification and visibility of the TURAS Geo-ICT tools we package all code and documentation for each application and have made them directly available to the public in zip file or available on GitHub @ <https://github.com/UCDTURAS>.

Compressed Archive File

- To make the development and coding accessible to the public and researchers interested in using, adapting, or further developing the TURAS tools, we have packaged the information (code, development operations and documentation) into a single compressed file which can be downloaded from the final TURAS interface. This package will contain a computer program as well as necessary metadata for its deployment.

GitHub Repository

- The aim of the TURAS project is to bring urban communities and businesses together with local authorities and researchers to collaborate on developing practical new solutions for more sustainable and resilient European cities. Following this, we recognise the importance of having a dedicated modern interface with which to disseminate all the Geo-ICT tools developed as part of the project. TURAS has created a GitHub account to allow end-users, technical developers etc to push/pull data code from the TURAS account.