

DELIVERABLE T2.2.4

D.T2.2.4 – Final development of 3D EMS

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A.T2.2 Development of an advance 3D Energy Management System (3DEMS)

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1. Introduction and aims

The deliverable T2.2.4 belongs to the activities related to the development of a 3D Energy Management System solution in order to visualize and query energy information using 3D city models. This solution is the 4th module of the OnePlace web platform.

The document reports the module pipeline realized to allow end-users to access and visualize energy data in the 3DEMS module of OnePlace (<https://oneplace.fbk.eu/3d/>). This is based on ICT and geospatial tools able to give access to heterogeneous information in the field of building energy management and efficiency. The document is restricted to project partners (PP), reviewers and JS.

2. 3DEMS overview

The 3DEMS module of OnePlace (D.T1.4.1, D.T2.1.5) allow to access heterogeneous information (energy-related, cadaster, etc.) by navigating through 3D city models. 8 locations (one more w.r.t. Application Form) were reconstructed in 3D using the methodology reported in D.T1.2.2 and the data collected following D.T1.1.2, D.T1.1.3, D.T1.3.1 and D.T1.3.2. The 3DEMS viewer relies on FME and Cesium tools. FME software is used to transform cadaster shape files into 3D building information and tile them for better handling and visualization. The Cesium viewer then renders online all 3D data on top of geographic information (maps, orthoimages, etc.). For texturing those buildings with PV maps (D.T1.3.2), the georeferencing information of the maps are used in order to project the raster information on top of the 3D geometries. 3DEMS allow end-users (energy planners, energy managers, citizens, etc.) to perform complete energy auditing of building envelopes at urban level. 3DEMS can be easily replicated and deployed in other locations, once data are available. The platform is accessible on the FBK/LP server and will be alive for the next 5 years.

3. Annexes

In the 8 annexes, for each PA location, we present some renderings that show how 3DMES can be used to display energy-related information on top of 3D city models, how information can be queried and how analyses could be performed to better understand (energy) situations in the pilot areas.