

Mitigation boost

Municipal regulation on buildings and electricity production from biogas

A Covenant of Mayors 2016 Case Study

In a nutshell

Since 2010, Vila Nova de Gaia has been implementing a new policy at municipal level on the promotion of sustainable construction. The city also initiated landfill biogas recovery for electricity production at the Suldouro municipal solid waste management plant.



Background

Vila Nova de Gaia is the most populous municipality in the Northern Region of Portugal. Along with Porto and 12 other municipalities, Vila Nova de Gaia is part of the Porto Metropolitan Area. The municipality's competencies in climate and energy matters are limited to its legal area and to its own facilities. Regarding legislation, the local authority is limited to their urban-planning regulations. One of the most relevant laws in Portugal is the implementation of the European Performance of Buildings Directive through the Decreto-Lei No. 118/2013.

Vila Nova de Gaia was amongst the first municipalities to sign up to the Covenant of Mayors back in 2008. Its energy agency, Energaia, was created in 1999 under the SAVE II programme and, with its energy management team, is in charge of implementing the city's commitments. Vila Nova de Gaia participates in several national and European projects on energy efficiency, renewables, climate change mitigation and adaptation, such as Vila Nova de Gaia ELENA Facility, Mi Ciudad AC2 and one of its flagship projects "Global Gaia" (e-government area, with a budget of €6.4 million, co-financed under the Operational Programme for Knowledge Society).

Promotion of sustainable buildings

One of the measures implemented by the municipality and Gaiurb - Urbanismo e Habitação, EEM (the company responsible for Urbanism, Social Housing and Urban Rehabilitation of the Municipality of Vila Nova de Gaia) is the "Municipal Regulation of Urbanistic Fees and Compensation", which introduces a new policy at municipal level on the promotion of sustainable construction. Implemented in 2010, the purpose of this measure is to give a boost to the sustainable construction processes and environmental protection mechanisms. Therefore, those who opt for sustainable construction certification (such as LEED or BREEAM), will enjoy a full or partial tax reduction.

Vila Nova de Gaia in numbers

Number of inhabitants: 312,000

CO₂ reduction target: 25% by 2020
(Baseline year 2005)

Number of Covenant of Mayors signatories
in Portugal: 118



Within the Sustainable Energy Action Plan, the expected impact of this measure was estimated to 2,260 tonnes of CO₂ equivalent avoided per year. Due to external economic factors, third party constructions have decreased, thus limiting the amount of avoided emissions to 224 tonnes of CO₂eq/a and energy savings to 603 MWh/a. The implementation of the measure did not require extra costs besides human resources which were needed to validate new urban-planning projects.

Electricity production from landfill biogas recovery

Another measure worth mentioning is the landfill biogas recovery for electricity production at the Suldouro municipal solid waste management plant. Suldouro is a company owned at 25% by the municipality of Vila Nova de Gaia, 15% by the municipality of Santa Maria da Feira and 60% by Empresa Geral de Fomento, a leading company in waste recovery in Portugal.

Since 2009 and until 2015, the electricity production was 262 MWh (96,696 tonnes of CO₂eq) with a maximum production of 49 MWh (18,272 tonnes of CO₂eq/a) in 2014, which represented 4% of the total electricity consumption in Vila Nova de Gaia. The electricity production of the plant is entirely injected into the national power grid, thus generating revenues.

The full project implementation costed €2.5 million entirely funded by Suldouro's own resources and includes 6 motor generators of 1 MW each to transform biogas from the landfill into electricity. Two turbines of 145 kW were recently installed, recovering the heat rejected from the exhaust gases of the motor generators, to produce even more electricity and increase efficiency. Energaia developed the first evaluation of biogas recovery in 2001 and has been engaged in the project development and implementation ever since.

Project numbers

Legislation on buildings:

224 tonnes of CO₂eq/a saved, corresponding to 603 MWh/a

Electricity production from biogas:

4% of the total electricity consumption

€2.5 million invested

More information

<http://www.cm-gaia.pt>

<http://www.gaiurb.pt/>

<http://www.energaia.pt/>

<http://www.suldouro.pt/producao-de-eletricidade/>



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