## **Reference list landfill gas projects**

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## Spain

Orkonera Iandfill 8 ha	<ul> <li>Several landfill gas emission research campaigns.</li> <li>Design landfill gas recovery system and treatment.</li> <li>Cost-effectiveness calculations on landfill gas management options.</li> <li>On-site assistance during installation of new landfill gas recovery system.</li> <li>Extensive recovery test with low calorific flare.</li> <li>Design integrated methane oxidation fields in the top cover.</li> </ul>	
Eibar Iandfill 4.5 ha	<ul> <li>Landfill gas generation, recovery and emission modelling and research.</li> <li>Yearly landfill gas emission research campaigns.</li> <li>Design landfill gas recovery system (horizontal and vertical) and treatment.</li> <li>Cost-effectiveness calculations on landfill gas management options.</li> </ul>	
Elgoibar Iandfill 4.5 ha	<ul> <li>Landfill gas generation, recovery and emission modelling and research.</li> <li>Feasibility study on landfill gas recovery and utilization project.</li> <li>Design and operation landfill gas recovery system (vertical wells) and biofilter.</li> </ul>	
Jata Iandfill 7 ha	<ul> <li>Research on malfunctioning existing landfill gas recovery system.</li> <li>Quantification of CH<sub>4</sub> emissions.</li> <li>Drafting a landfill gas control plan.</li> <li>Preliminary design rehabilitated landfill gas recovery system and flare.</li> </ul>	

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Arbizu landfill 6 ha	<ul> <li>Landfill gas control plan including cost-effectiveness calculations for landfill gas management.</li> <li>Design landfill gas collection system.</li> <li>Preliminary design methane oxidation window integrated in top cover.</li> </ul>	
Artigas Iandfill cell 3.5 ha (total 29 ha)	<ul> <li>Design landfill gas recovery system on 3.5 hectare cell.</li> <li>Integration of new recovery system into the existing landfill gas recovery system.</li> </ul>	
Urteta Iandfill 8 ha	<ul> <li>Research on malfunctioning existing landfill gas recovery system.</li> <li>Advise on improvement of landfill.</li> <li>TDL500 CH<sub>4</sub> emission research and quantification of CH<sub>4</sub> emissions.</li> <li>Advise on rehabilitation and optimisation of landfill gas recovery system and flare.</li> <li>Pre-feasibility of landfill gas utilisation.</li> </ul>	
Irun Iandfill 4,5 ha	<ul> <li>Several landfill gas emission research campaigns.</li> <li>Quantification of CH<sub>4</sub> emissions.</li> <li>Methane oxidation research landfill top cover.</li> <li>Design landfill gas recovery system and treatment.</li> <li>Cost-effectiveness calculations on landfill gas management options.</li> <li>Design and implementation integrated methane oxidation fields in the top cover.</li> </ul>	

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lgorre landfill 14 ha	<ul> <li>Huberg Laser One CH4 emission research and quantification of CH4 emissions.</li> <li>Design landfill gas recovery and utilization system</li> <li>Lab research CH4 generation of different waste streams.</li> </ul>	
Barcelona - 'Vall d'en Joan' landfill 100 ha	<ul> <li>Landfill gas modelling</li> <li>Landfill gas emission research and analysis of current recovery system</li> <li>Temperature profiling of landfill gas wells</li> <li>Advise on subsurface firefighting and lfg recovery strategy.</li> </ul>	
Menorca - Es Mila landfill 27 ha	<ul> <li>Landfill gas modelling</li> <li>Landfill gas emission research and analysis</li> <li>Temperature profiling of landfill gas wells</li> <li>Advise on subsurface firefighting</li> <li>Design of combined horizontal and vertical landfill gas recovery system and flare.</li> </ul>	
Basque government	<ul> <li>Author of "Practical Guidance document for methane emission reduction on landfills" for the Basque Government (IHOBE). The goal of the guidance document is threefold:</li> <li>to transfer knowledge on landfill gas generation and technology for landfill gas recovery to landfill operators and competent authorities and utilisation and to give guidance to project development;</li> <li>to define and explain state-of-the-art methods and technology, which results in minimisation of methane emissions from landfills.</li> <li>to promote compliance with EU and Basque guidelines/regulations with regard to emission reduction from landfills.</li> </ul>	<pre>ihobe </pre>

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