



Seville's oranges add colour and fragrance to Seville's streets, but also create a mess | Photo source [Oxy Design on Unsplash](#)

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SEVILLE'S ORANGES ARE BEING USED TO GENERATE ELECTRICITY

 AGRICULTURE & ENERGY

The Spanish city of Seville is using orange waste to create biofuel, which will run the city's water purification plants

Spotted: Winter is the orange season in Seville, Spain. The trees are beautiful, but the Spanish don't eat the bitter fruit. Instead, most of the oranges grown on local farms are exported to Britain to be made into marmalade. However, Seville's 48,000 trees deposit around 5.7 million kilos of unwanted fruit onto the city's pavements, creating a huge cleanup job. Now the city is doing something about this with a pilot programme that is turning the unwanted fruit into electricity.

The scheme has been launched by the municipal water company, Emasesa, which collects the fruit and uses it in an existing facility that generates electricity from organic matter. Emasesa plans to run one of the city's water purification plants from the resultant bio-energy. After collection, the juice is extracted, and the peel is composted into fertiliser for farming. The juice undergoes an anaerobic digestion process that generates methane-rich biogas, which is in turn used as fuel for the production of electricity.

Emasesa has hired around 200 workers to collect the oranges and has also installed around 340 containers around the city for the public to deposit the oranges and other organic material that can be used to generate biogas. The aim is to eventually put the surplus energy generated back into the power grid.

Trials have shown that if all the city's oranges were recycled and the energy put back into the grid, it would be enough to power 73,000 homes. Benigno López, head of Emasesa's environmental department, says that the company hopes to eventually recycle all of the city's oranges. "It's not just about saving money," he explained, "The oranges are a problem for the city and we're producing added value from waste."

Bio-fuels are a promising source of energy generation, in part because they can be made using fermentation, which means the minimum release of carbon dioxide. They can also be generated from a number of waste products. For example, at Springwise, we have recently covered biofuels generated from [waste cardboard](#) and waste [cooking oil](#).

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Takeaway:

With its organic waste bins and bio-fuel energy generation, Seville is creating an orange-based circular economy. Spain has launched a plan to switch its electricity system entirely to renewable sources by 2050, and fully decarbonise its economy soon after that. The bio-fuel generation could play a major role in that plan, and Seville's unwanted oranges are making their mark. In fact, Emasesa is using its experience in Seville, among other projects, to draw up a manual to help other companies in the water sector to use co-digestion of organic waste to increase gas production.