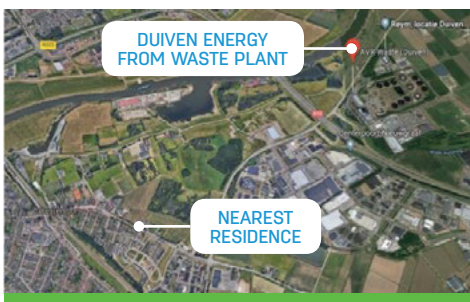


# CASE STUDY *Duiven Energy from Waste plant, The Netherlands*



The Duiven Energy from Waste facility in The Netherlands is owned and operated by AVR and will be the first Energy from Waste facility to store carbon dioxide (CO<sub>2</sub>). CO<sub>2</sub> recovery and reuse will commence in 2019.

It includes a large-scale CO<sub>2</sub> capture system and will supply the nearby horticulture and greenhouse farming communities. The plant is a significant step to a better environment, contributing directly to the CO<sub>2</sub> reduction in the Netherlands and in reaching the nation's climate targets.



The site is located in the Duiven industrial area, near the German border, close to Arnhem Central Railway Station, the 9th busiest station in The Netherlands.

## *Proximity to residential areas*

The nearest homes are in Westervoort, that is 1.3 kilometres from the facility.



## *How does the community benefit?*

The Duiven facility works closely with industry partners, organisations and authorities to generate awareness and strive for positive change on managing waste.

The facility supplies recycled CO<sub>2</sub> to nearby farming communities, which means they don't need to burn natural gases to produce the CO<sub>2</sub> they need for horticulture. This creates significant savings on fossil fuels.

The captured CO<sub>2</sub> is used by farmers to grow vegetables, soft fruit, flowers and other plants.

## *What sort of waste is managed?*

The facility converts thousands of tonnes of residual household and business waste into energy, which otherwise would have gone to landfill.

## *What happens on site?*

When the waste arrives, it is weighed, mixed and maintained in a storage pit under negative air pressure (this means waste odours cannot leak out).

The combustion process produces steam to create electricity using a turbine generator on site.

The ash and metal products remain at the end of the combustion process – 7% of the metals are recycled, and the mineral bottom ash recycled into sustainable building materials. The CO<sub>2</sub> in the flue gas is captured and stored as liquid on site prior to transportation.

## **Key Statistics:**

### *Material to be processed*

Post recycling household and business waste.

### *Waste management capacity*

**360,000 tonnes** per year



### *Energy produced*

The facility produces 18 MW of electricity and 20 MW of heat which is directly exported to the grid.

#### **At Duiven:**

CO<sub>2</sub> - 50 kilotonnes (kt) per year

**Electricity:** 25,000 homes

**Heat:** 18,000 homes

### *Reporting of emissions data*

The averages per half hour and per day are compared to the standards and are published. The values are registered and reported to the environmental protection agency DCMR or ODRA.

### *Meeting European standards*



The site safely and strictly complies with the EU Industrial Emissions Directive (IED) which imposes strict emission limits for all industrial processes including Waste facilities.