

AVR's water heating system

The incineration of residual waste induces three types of products: ash, energy and steam. Steam, in particular is reused to produce electricity and to heat up water. This steam is used to heat water which is then transported to over 160 000 households, companies and hospitals in the area. The steam is also conducted through a turbine and used to produce electricity to supply the area.

For AVR however, the production of electricity is less profitable than the production heating of the water since it involves more energy transfer and therefore loss. This system also requires a great flexibility on AVR's part since the needs in hot water and electricity vary depending on the season and the time of the day. For example, in winter hot water consumption is higher than in summer.

At the AVR plant; two water circuits exist independently: on one side a closed circuit with water heated to 102 degrees by the steam coming from the incinerator and on the other side a circuit with water at a temperature of around 60 degrees that comes from Rotterdam. These two different systems get into contact through a metal plate that is heated by the hot water and then transfers its heat the coldest water. This hot water is then transported to Rotterdam.

In 2015 AVR delivered over 1,400 GWh (more than 5,100 TJ) of heat to heating networks in Rotterdam and the region of Arnhem. This makes AVR one of the largest sustainable district heating producers of the Netherlands. This enormous quantity of heat goes to around 160,000 homes equivalents. They are connected to one of the heating networks of Nuon, Eneco or WBR. Currently AVR works together with the South Holland Province in order to create a heat roundabout from Rotterdam to The Hague and for the greenhouse farming sector in the Westland.

By using this heat, AVR each year prevents the emission of more than 324 thousand tons of CO₂ due to gas consumption in households. If one solar panel saves around 100 kg of CO₂ per year, the amount AVR saves by supplying heat is equivalent to three million solar panels. That's equivalent to 280 football fields the size of the De Kuip or Gelredome stadiums covered with solar panels.



Tower where hot water is heated and stocked