

Waste-to-Energy

Heating the Heart of Paris



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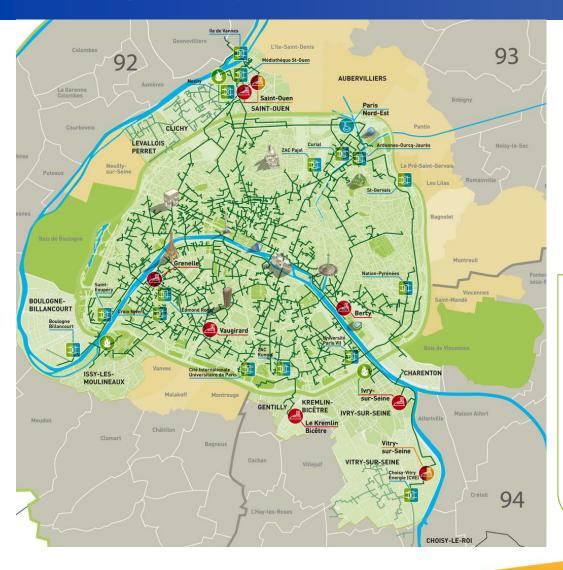






Paris' district heating network

CPCU (Compagnie Parisienne de Chauffage Urbain)



- 8 CPCU generation sites2 of which are CHP
- 3 Waste-to-Energy (WtE) plants
- 470 km heating network
- 12 municipalities
- 16 hot water loops
- CPCU generation sites
- CPCU co-generation sites
- **S** CPCU geothermal site
- SYCTOM Waste-to-Energy sites
- CPCU dispatching
- CPCU steam/water exchange
- CPCU network
- Interconnected networks

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ISSY-LES-MOULINEAUX

0.5 TWh thermal → 66 000 homes The Issy-les-Moulineaux (ISSEANE) WtE plant came into operation in 2007 and treats 460,000 tonnes of residual waste a year. The ISSEANE plant is widely known for its innovative design, as it has been built partially underground and the chimney has been designed in such a way that no large stack is visible on the Paris skyline.

http://www.syctom-paris.fr/pdf/doc/isseane.pdf

The Saint-Ouen WtE plant, in operation since 1990, treats some **600,000 tonnes** of

Asnières- Saint Yuon Aubervilliers

household waste. In order to reduce the amount of road traffic, bottom ashes are transported from the plant by boat along the river Seine.

http://www.syctom-

paris.fr/edi/comm/comm/stouen/presentation.htm



The Ivry-Paris XIII WtE plant was built in 1969. It has been regularly modernized over the years and currently has a treatment capacity of **700,000** tonnes of household waste per year.

http://www.syctomparis.fr/pdf/doc/Plaquettelvry2006.pdf



SAINT-OUEN

1.1 TWh thermal → 104 000 homes

IVRY-SUR-SEINE

0.8 TWh thermal → 75 000 homes

Paris' 3
Waste-to-Energy plants



Waste-to-Energy Plant Animation





Climate protection

- The plants treat household waste not suitable for recycling from some 5.7 million inhabitants of the Parisian Metropolitan area.
- By treating this waste they prevent:
 - The consumption of 300,000 tonnes of oil equivalents each year and
 - The release of some 900,000 tonnes of CO_2 into the atmosphere each year.



Energy production

- ► The steam from the combustion process is used to generate:
 - Electricity, some of which is used by the plants, with the majority being sold to EDF (Electricité de France) to supply the electricity grid.



The 3 WtE plants generate some 200,000 MWh of electricity

 Heat is sold to the CPCU (Compagnie Parisienne de Chauffage Urbain) the Parisian company for district heating.



50% of Paris is heated by the 3 WtE plants

- ▶ 5.1 TWh of heat is distributed by the CPCU
 - 50% comes from the 3 Waste-to-Energy plants in Paris
 - Heating 1/3 of Paris' buildings

- ► 465,000 home equivalents are heated by the CPCU network ☆ i.e. more than 1 million inhabitants ☆
 - 245,000 home equivalents heated by the 3 WtE plants



The 21 Parisian hospitals are heated by Waste-to-Energy

- ▶ 20% of homes are heated by district heating in Paris
- ▶ 100% of Parisian hospitals
- Most Parisian monuments and museums
 - ☆ including the Louvre museum
 ☆



For Parisians, and many French people, waste is also a source of energy

- ► Renewable (biodegradable part, directive 2009/28/EC)
- Low carbon (replacing fossil fuels)
- Reliable (not dependent on weather conditions) operating 7/7 (days) and 24/24 (hours)
- ► Affordable (Steam Paris = 1.63 c€/kWh versus gas = 4.17 c€/kWh European average)
- Local (not dependent on import of fuel)
- ► Available (13,000 tonnes of waste/day in the Parisian region, of which 50% is not suitable for recycling)





