

# Waste-to-Energy

# Heating the Heart of Paris

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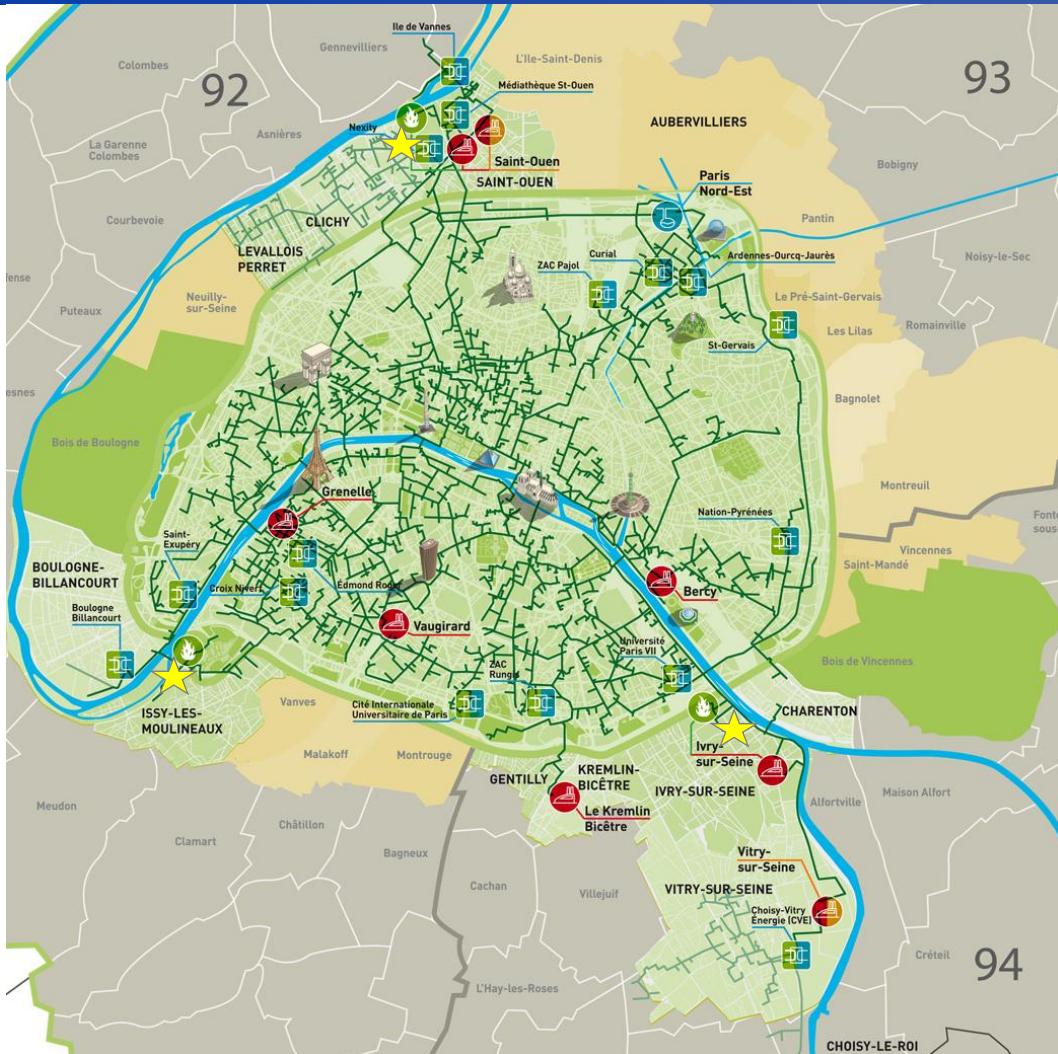
SVDU Board member



Once upon a  
time...

# Paris' district heating network

## CPCU (Compagnie Parisienne de Chauffage Urbain)



**8 CPCU generation sites**

**2 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
- CPCU geothermal site
- SYCTOM Waste-to-Energy sites
- CPCU dispatching
- CPCU steam/water exchange
- CPCU network
- Interconnected networks

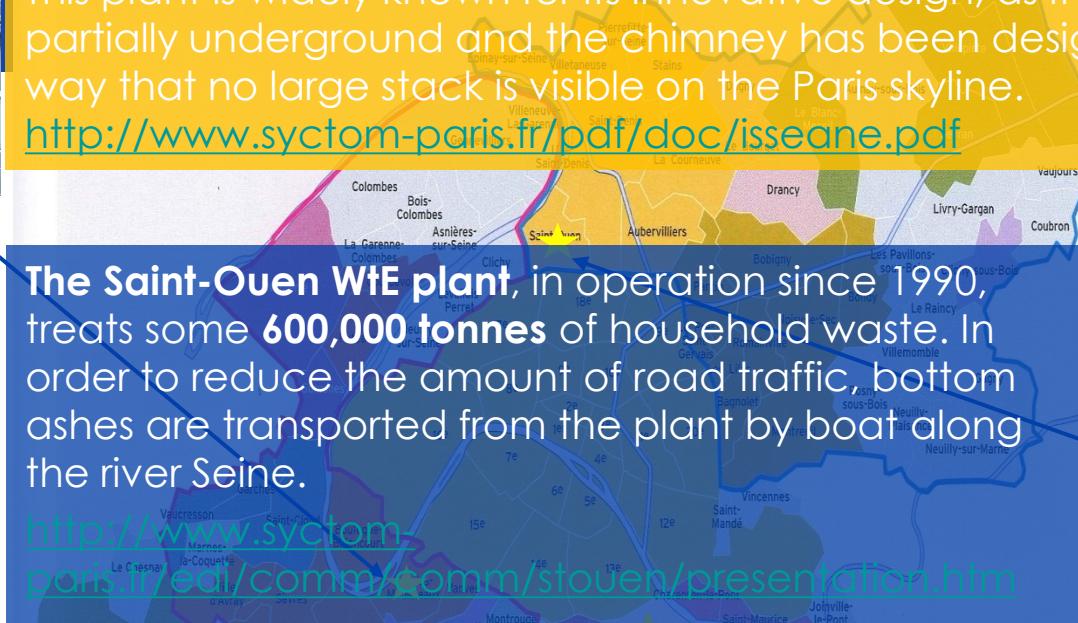
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## ISSY-LES-MOULINEAUX

0.5 TWh thermal  
→ 66 000 homes

The new Issy-les-Moulineaux WtE plant (Isseane) came into operation in 2007 and treats **460,000 tonnes** of residual waste a year. This 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>



## SAINT-OUEN

1.1 TWh thermal  
→ 104 000 homes



## IVRY-SUR-SEINE

0.8 TWh thermal  
→ 75 000 homes

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.syctom-paris.fr/pdf/doc/PlaquetteIvry2006.pdf>

# Paris' 3 Waste-to-Energy plants



l'agence métropolitaine des déchets ménagers



# Waste-to-Energy Plant



# Climate friendly

- ▶ The 3 plants treat household waste not suitable for recycling from some 5.7 million inhabitants of the Parisian Metropolitan area.
  - From 84 municipalities
- ▶ The energy produced by the 3 W-t-E plants prevent:
  - The consumption of 300,000 tonnes of oil equivalent each year and
  - The release of some 900,000 tonnes of CO<sub>2</sub> into the atmosphere each year.

Source: <http://www.syctom-paris.fr/edi/traiter/trait/valo/index.html>

# Energy production

► The steam from the combustion process is used to generate:

- **Electricity**, a small part of which is used by the plants, with the majority being sold to EDF (Électricité de France) to supply the electricity grid.

The 3 W-t-E plants generate some **200,000 MWh of electricity**



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



# 50% of Paris heating network demand is supplied by the 3 W-t-E plants

► 5.1 TWh of heat is distributed by CPCU

- Heating 1/3 of Paris buildings
- 50% comes from the 3 Waste-to-Energy plants in Paris

► 465,000 home equivalent are heated by the CPCU network  
★ i.e. more than 1 million inhabitants ★

- 245,000 home equivalent heated by the 3 W-t-E plants



The CPCU dispatching centre was entirely re-engineered in 2010.  
It is a world first for such a large network.

<http://www.cpcu.fr/La-chaleur-urbaine/SUPERVISION-ET-CONDUITE>



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

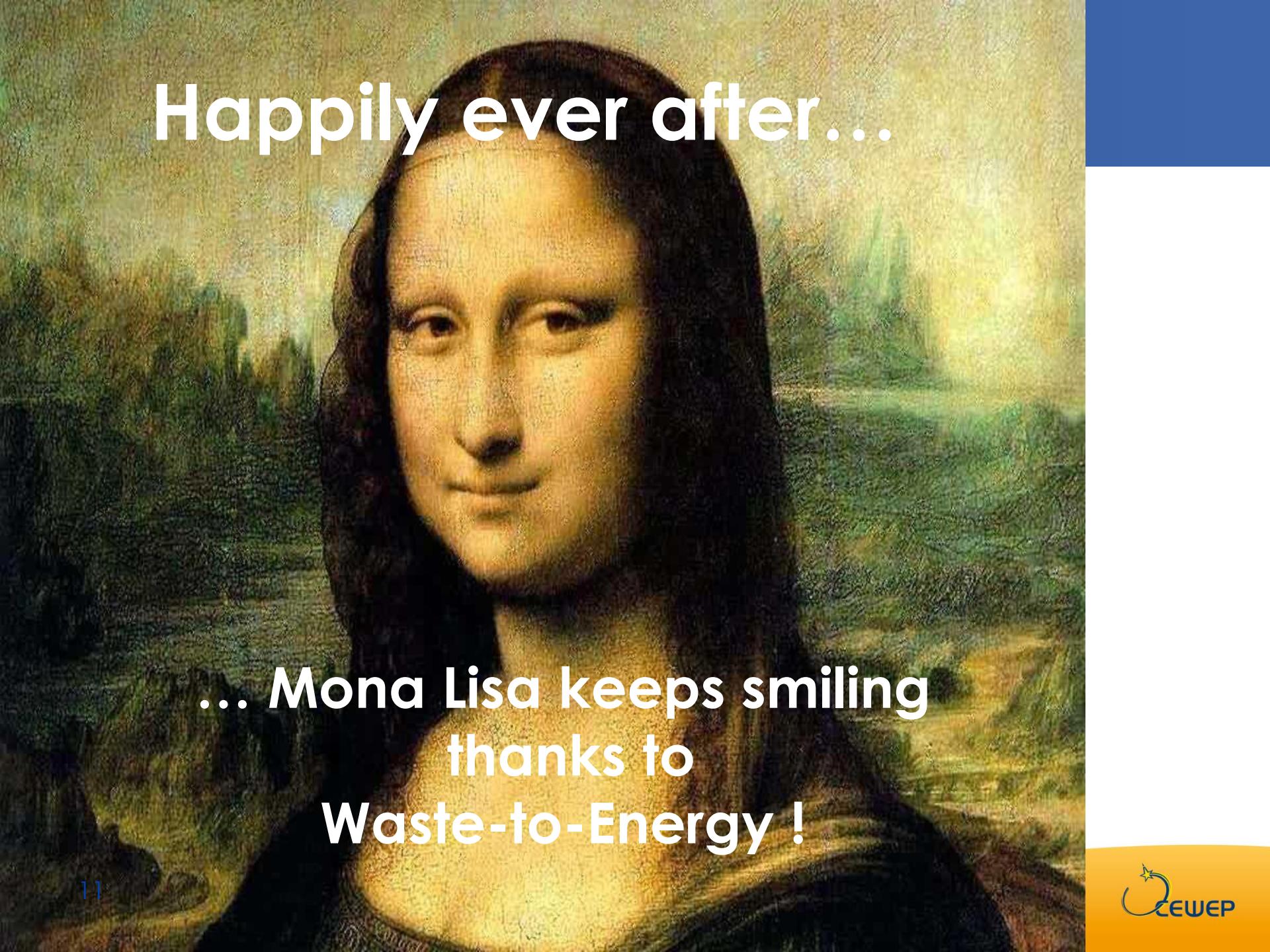
- ▶ 20% of homes are heated by district heating in Paris
- ▶ 100% of Parisian hospitals
- ▶ Most Parisian monuments and museums
  - ★ including the Louvre museum★



# For Parisians, and many French people, waste is as well a source of energy

- ▶ **Renewable** (biodegradable part, directive 2009/28/EC)
- ▶ **Low carbon** (replacing fossil fuels)
- ▶ **Reliable** (not dependant 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 dependant on import of fuel)
- ▶ **Available** (13,000 tonnes of waste/day  
in the Parisian region)



A reproduction of Leonardo da Vinci's Mona Lisa painting, showing the woman with her signature enigmatic smile. The background is a landscape with a winding path through a green forest.

# Happily ever after...

... Mona Lisa keeps smiling  
thanks to  
Waste-to-Energy !