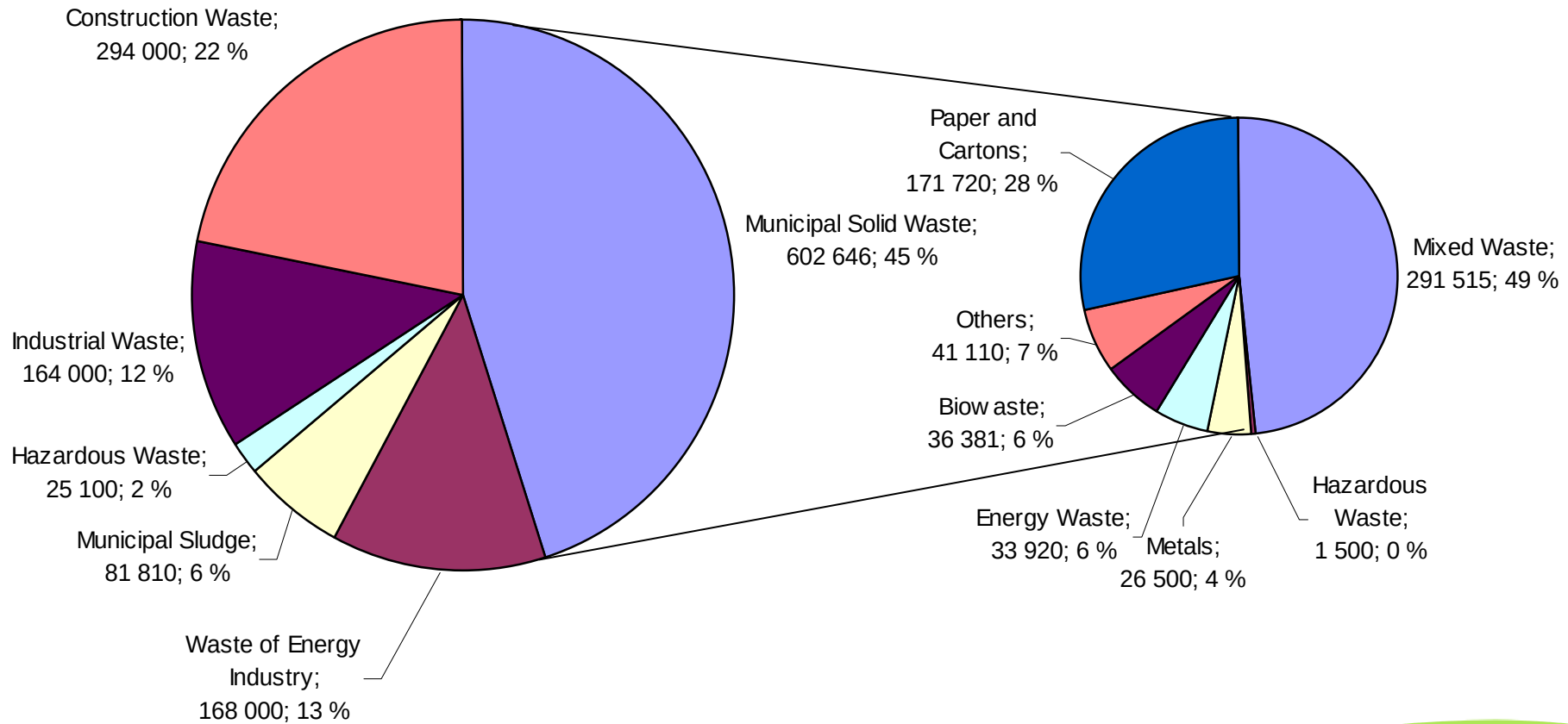
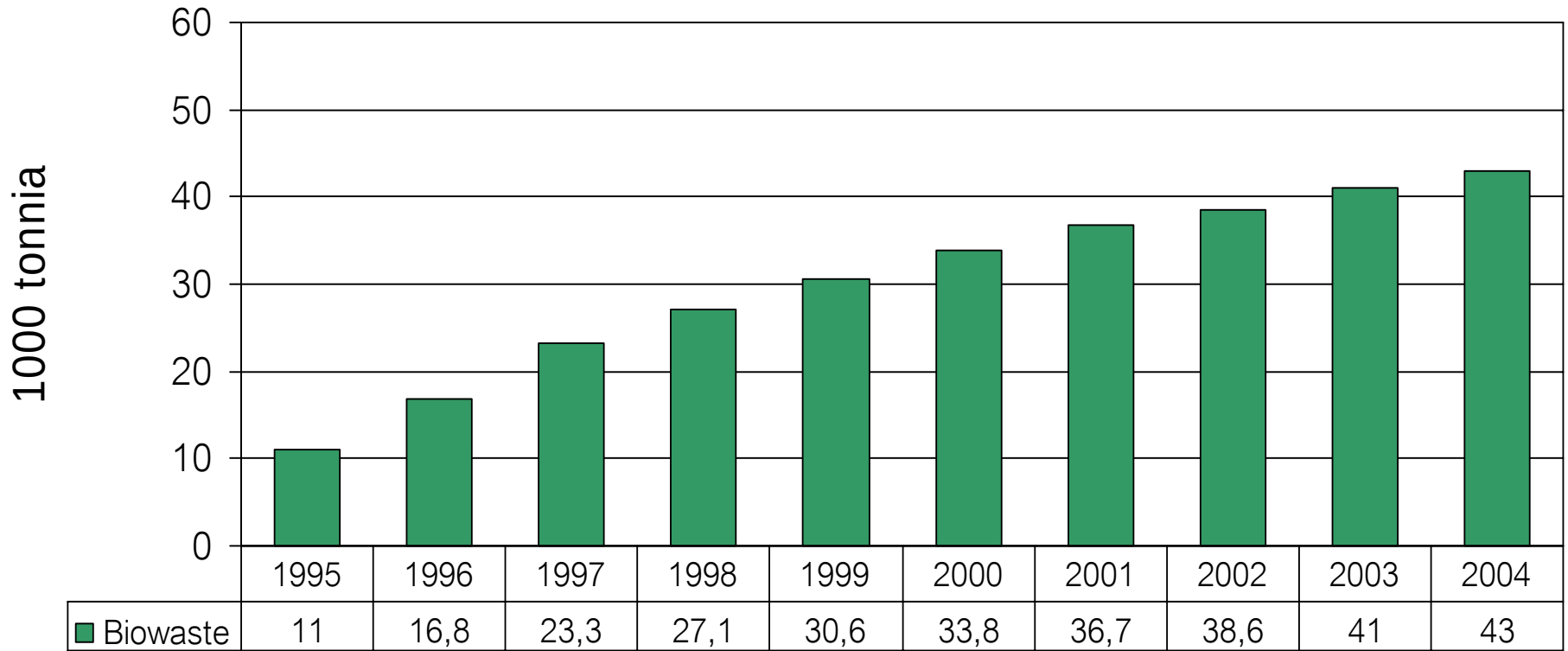


Waste Amounts (t) in the Helsinki Metropolitan Area in 2005



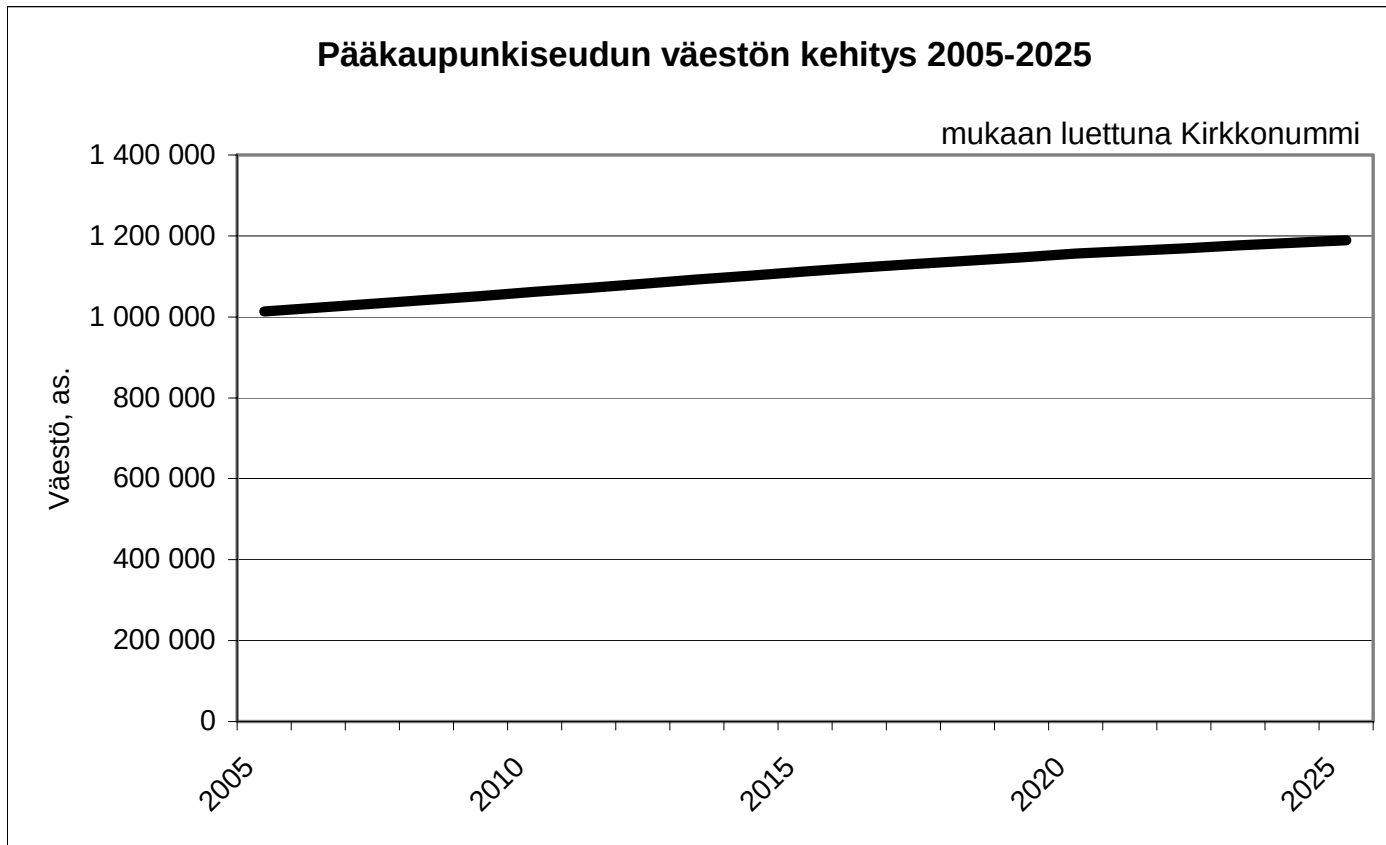
Biowaste amounts at the Helsinki Metropolitan Area



Number of inhabitants at Helsinki metropolitan area

Number of inhabitants:

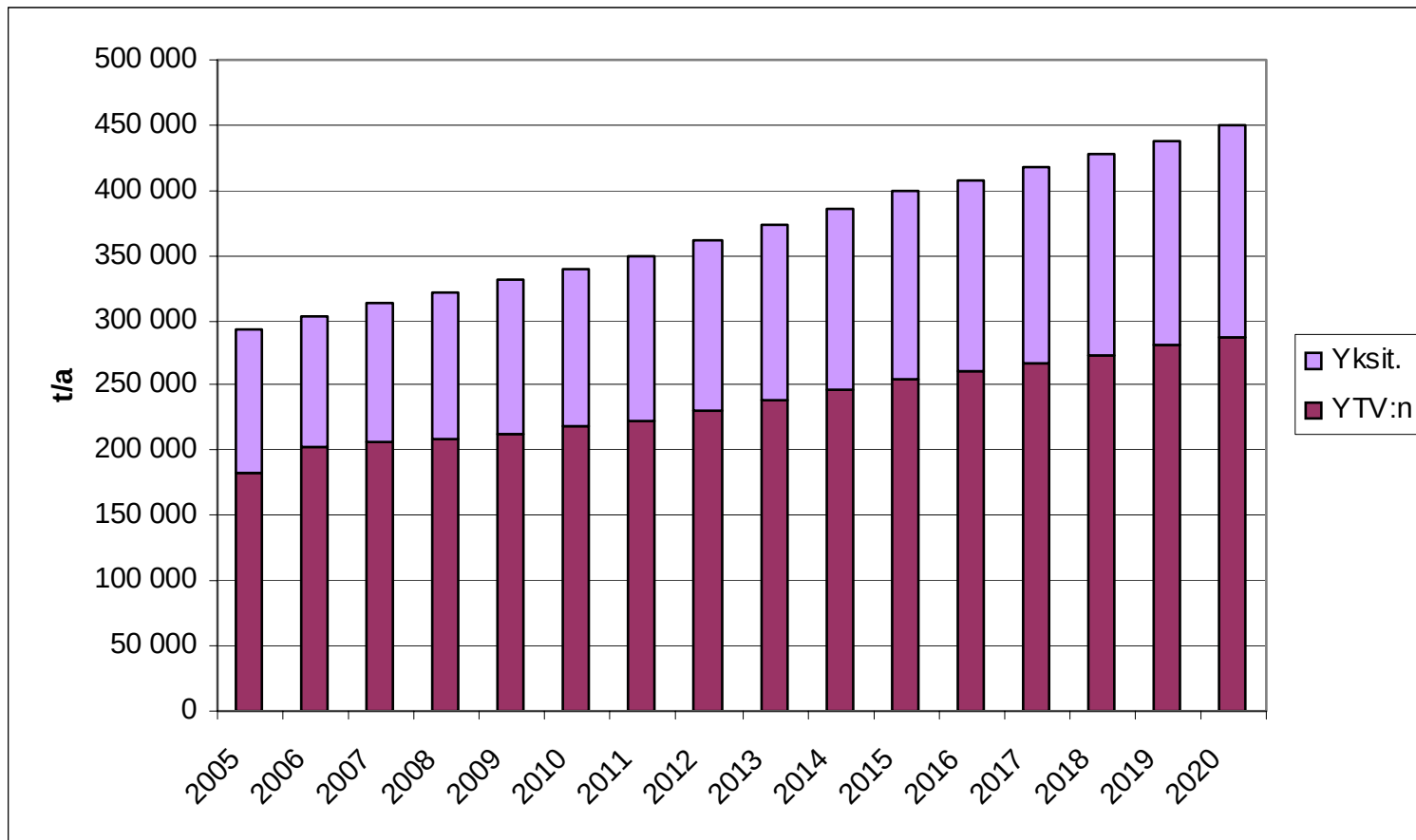
- Based on the prediction made by Union of Uusimaa (regional union)
- Kirkkonummi taken account
- Total growth 2005-2020 is 0,9%



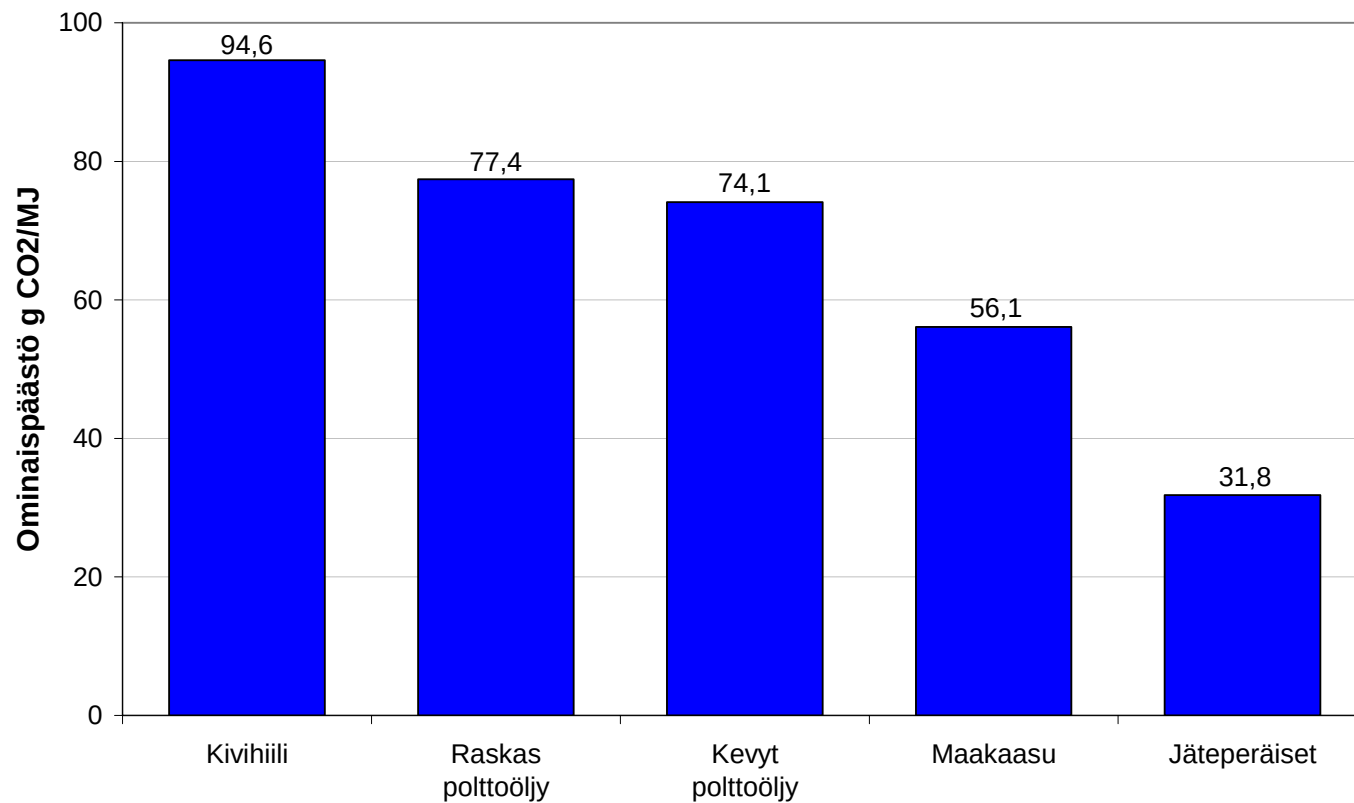
Trend for the combustible waste amounts

Waste amount:

- Estimation based on the GNP predictions (2006-2015 = 3% and 2016-2025 = 2,5%)
- Growth rate for the waste: 2,4% ja 1,5%



Fossil CO₂-emissions for the different fuels



Selected Technique is the Waste Incinerator

Cross Section of the
Waste Incinerator
(Furnace Bed Boiler)

1 Jaw grab

2 Bunker

3 Firing chamber

4 Boiler, superheaters

5 Combustion gas pur.

6 Slag bunker

7 Furnace Bed



Waste incineration

- Many references, familiar technique
- No pre-treatment of the waste
- Best option considering the environmental impacts
 - Emission boundaries are high
 - Replacement of the fossil fuels
- Most efficient considering the landfill disposal capacity
- Metals can be separated from the bottom slugs
- Demand and selling of the heat is the biggest challenge
- Costs:
 - Investment: 101 M€ (might divide to many partners)
 - Treatment cost: 74 €/t (selling the energy not included)
 - When the heat and electricity will be sold, treatment cost can be as low as 30 €/t

Location for the Waste Incinerator

- Utilization possibilities for the heat energy
- Factors considering the use of the land and environment
- Planning situation
- Law for the environment (86/2000) ja Law for the environmental protection (1096/1996)
- Metropolitan area is the first choice for the location
 - Helsinki: Kivikko
 - Vantaa: Långmossaberget
 - Espoo: Ämmässuo ja Juvanmalmi
- M-Real, Kirkniemi, Lohja:
 - Heat demand about 800 GWh/a
 - Operates at the similar level during the whole year