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H°TMAPS

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**IKER MARTINEZ, FOMENTO SAN SEBASTIAN
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DESARROLLO ECONÓMICO DE SAN SEBASTIÁN
DONOSTIAKO GARAPEN EKONOMIKOA
SAN SEBASTIAN ECONOMIC DEVELOPMENT



**DONOSTIA
SAN SEBASTIÁN**

**Ekonomia Bultzatzeko Zinegotzigoa
Concejalía de Impulso Económico**





Summary

- San Sebastian short overview
- Background
- Work developed
- Heating Strategy



San Sebastian



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- Small to medium city. Size 60,89km². Location South-western Europe: soft climate conditions.
- Population: 186.062 inhabitants. Density 3000 in/km². Metropolitan area: 436.500 inhabitants.
- Economic activity: Services, Innovation. Local Clusters. High standard of living
- City Branding: Culture, Gastronomy, Tourism
- Innovation Ecosystem:
 - 4,700 Researchers; R&D investment: 2.7% GDP; Research centres: 34
 - Advanced companies: 4,800; 4 Universities; 31,2% University Degrees



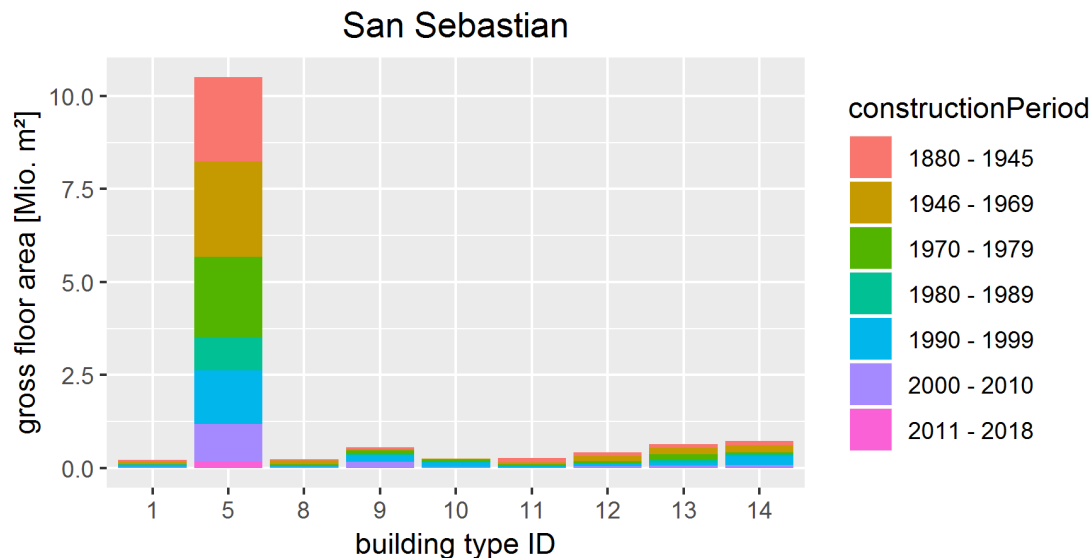
Background

- A first public DH is in operation since 2018 using biomass for heating and DHW of around 1500 dwellings promoted by Fomento San Sebastian.
- There are two more DH private installations in the city, one of them has been renovated including biomass boilers and new household connections.
- Existing plans in the city: SmartCity Plan, Climate Strategy, Sustainable Mobility, Green City, Agenda 21, SEAP, etc.
- A strategic plan for heating and cooling did not exist in San Sebastian.
- Demand for cooling is not remarkable in households, in offices and commerce during summer it is.



Work developed

- Energy Demand Calculation of San Sebastian.
 - Bottom-Up approach: building stock (GIS File) + energy demand per floor area.
 - Top-Down approach: EU data bases
- Calculation of different Scenarios with renovation strategies and DH development, renewable energies and excess heat.
- Stakeholders meetings with the Municipality
- Development of a Heating Strategy Document with interesting results

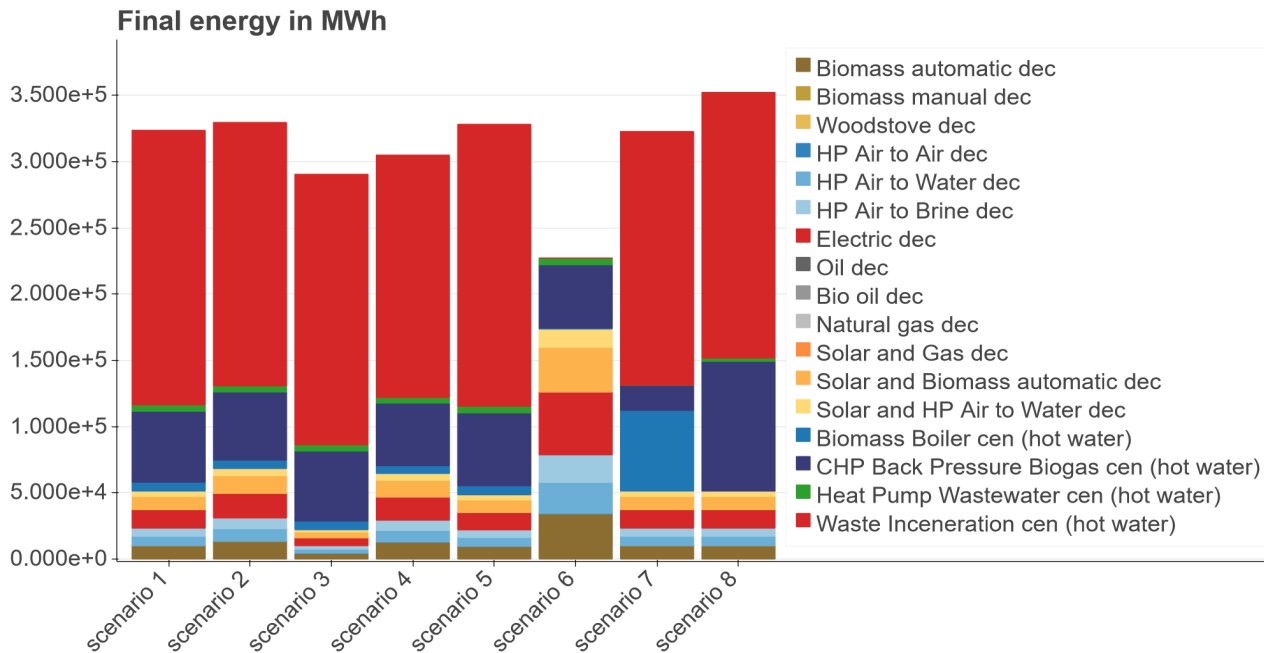


		number of buildings [-]
1	single family houses	1,960
5	multi family houses	8,028
8	public offices	62
9	private offices	249
10	wholesale & retail	62
11	hotels & restaurants	113
12	health	77
13	education	146
14	other non residential	192
	Residential	9,988
	Non-residential	901
	Total	10,889



Work developed

- Scenarios and Portfolios



Portfolio 1

Biomass Boiler
CHP Back Pressure Biogas
Waste Inceneration

Portfolio 2

Biomass Boiler
CHP Back Pressure Biogas
Heat Pump Wastewater
Waste Inceneration

Portfolio 3

Biomass Boiler
CHP Back Pressure Biogas
Heat Pump Wastewater
Waste Inceneration
heat storage

Portfolio 4

Biomass Boiler
CHP Back Pressure Biogas
Heat Pump Wastewater

Portfolio 5

CHP Back Pressure Biogas
HP Wastewater
Biomass Boiler



Heating Strategy

- It is the first experience for San Sebastian in Heating Planning. The process has been very interesting: calculation of energy demand, renovation strategies and cost optimization, portfolios and scenarios, excess heat potentials, etc.
- The work done within the Hotmaps project could be the first step to activate this kind of planning and strategy development in the city.
- Internal analysis and consideration in the Municipality and FSS. Local stakeholders involved to use the Toolbox and learn from the project.
- Work with European experts and experienced cities Aalborg, Frankfurt, Genève...
- Main results and conclusions:
 - Heat savings through retrofitting of around 25 - 40% of the overall heat demand in the buildings seem cost-efficient. Between 40 and 74% of the entire buildings gross floor area would be renovated.
 - The excess heat of Waste Incineration plant would allow a high share of DH in the city, with lower energy costs.
- Further investigations have to be carried out to analyse in detail the renovation strategies, the excess heat potential of Waste Incineration, and the technical transformation from individual heating to the DH system.



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