



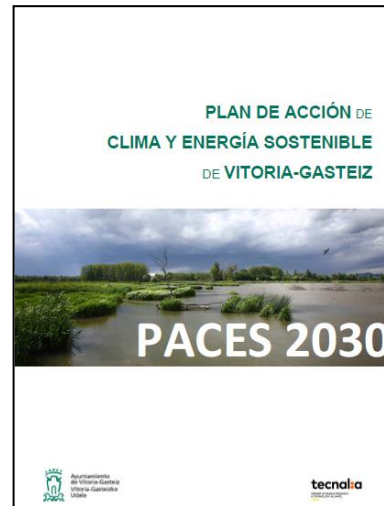
Ayuntamiento
de Vitoria-Gasteiz
Vitoria-Gasteizko
Udala



MUNICIPAL HEATING AND COOLING NETWORKS WITH RENEWABLE ENERGY SOURCES



BACKGROUND. THERMAL GRID AS A BASIC LEVER FOR NEUTRALITY

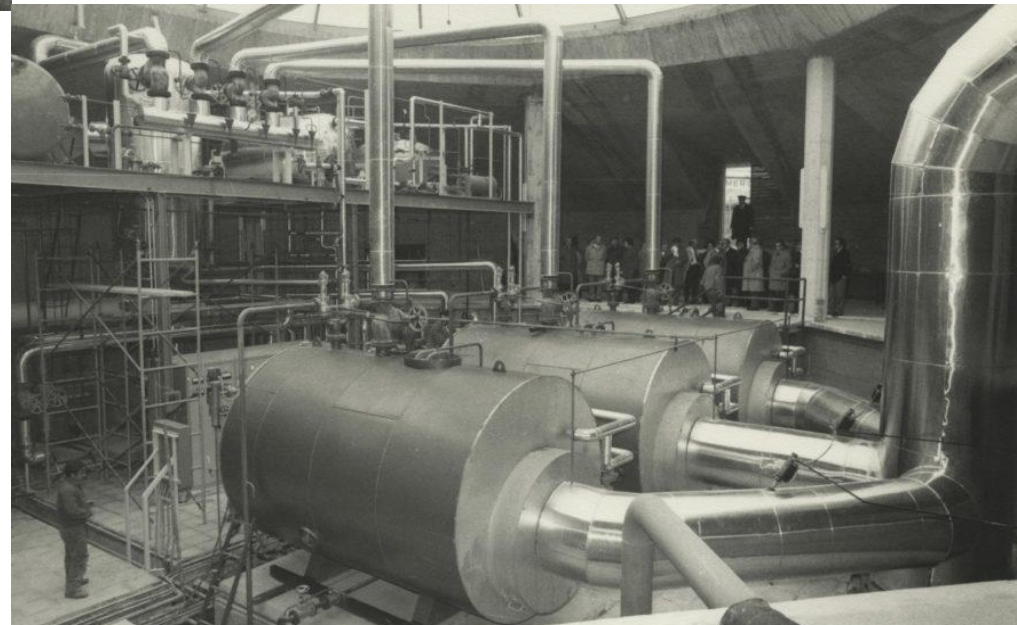


THERMAL GRID AS A BASIC LEVER ON THE ENERGY AXIS TO ACHIEVE ENERGY NEUTRALITY.



Thermal power station
between Chile and Argentina
streets in 1974.

770 homes connected
Initially Diesel / Currently
natural gas



- It serves the four buildings of the sports complex: swimming pools, pelota courts, sports centre and social centre.
- 3 biomass boilers of 330 kW each



SmartEnCity Project (Horizon 2020)

- Refurbishment of public space.
- Energy renovation of residential building envelopes.
- Centralised heat network for DHW and heating powered by biomass.



- Granting demanial for 40 years (ie administrative concession of public domain). On completion property will pass to City Council.
- 2 x 500 kW forest biomass (pellets) and gas boiler for peaks and backup.
- Currently 450 dwellings connected, 302 of which were energy rehabilitated in 26 communities.
- Also connected the church of Coronation Parish, equivalent to 11 dwellings.



PREMISES:

- Vitoria-Gasteiz comprises the city and also more than 60 rural area entities surrounding it.
- Forests are mainly property of each rural administrative entity.
- Biomass not aimed to be used in the city, but in the rural area.

ABERASTURI DISTRICT HEATING PROJECT

1.13 MWt bi-fuel system:

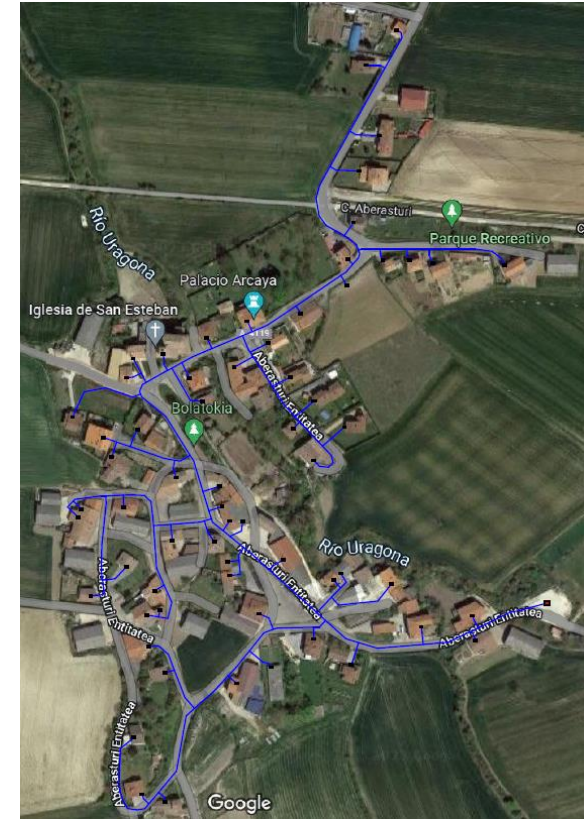
- Cereal Straw from surrounding fields.
- Woodchips from local forest.

0.65 MWt straw boiler

2 x 0.24 MWt woodchip boilers

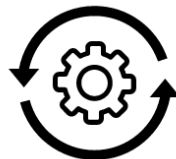
63 houses to be connected

Replication potential in remaining rural entities



NEW THERMAL NETWORKS. BACKGROUND:

- Private companies interested in developing 3G district heating
- City comprises around 100,000 dwellings and 250,000 inhabitants.
- Previous experience in parts of the city and any benchmarking should not be directly applied in the rest of the city:
 - Technical evolution.
 - Differences between cities.
 - Even the city is composed of quarters/zones that themselves are mini-cities, with different building characteristics and urban development.
- Holistic approach.
- Think about future needs of the city and how it will evolve.
- Not only technical doubts, also legal ones and which proper business model choose.
- ...



Plus, the recently approved Revised Energy Efficiency Directive obligation: local heating and cooling plans in large municipalities having populations above 45,000.

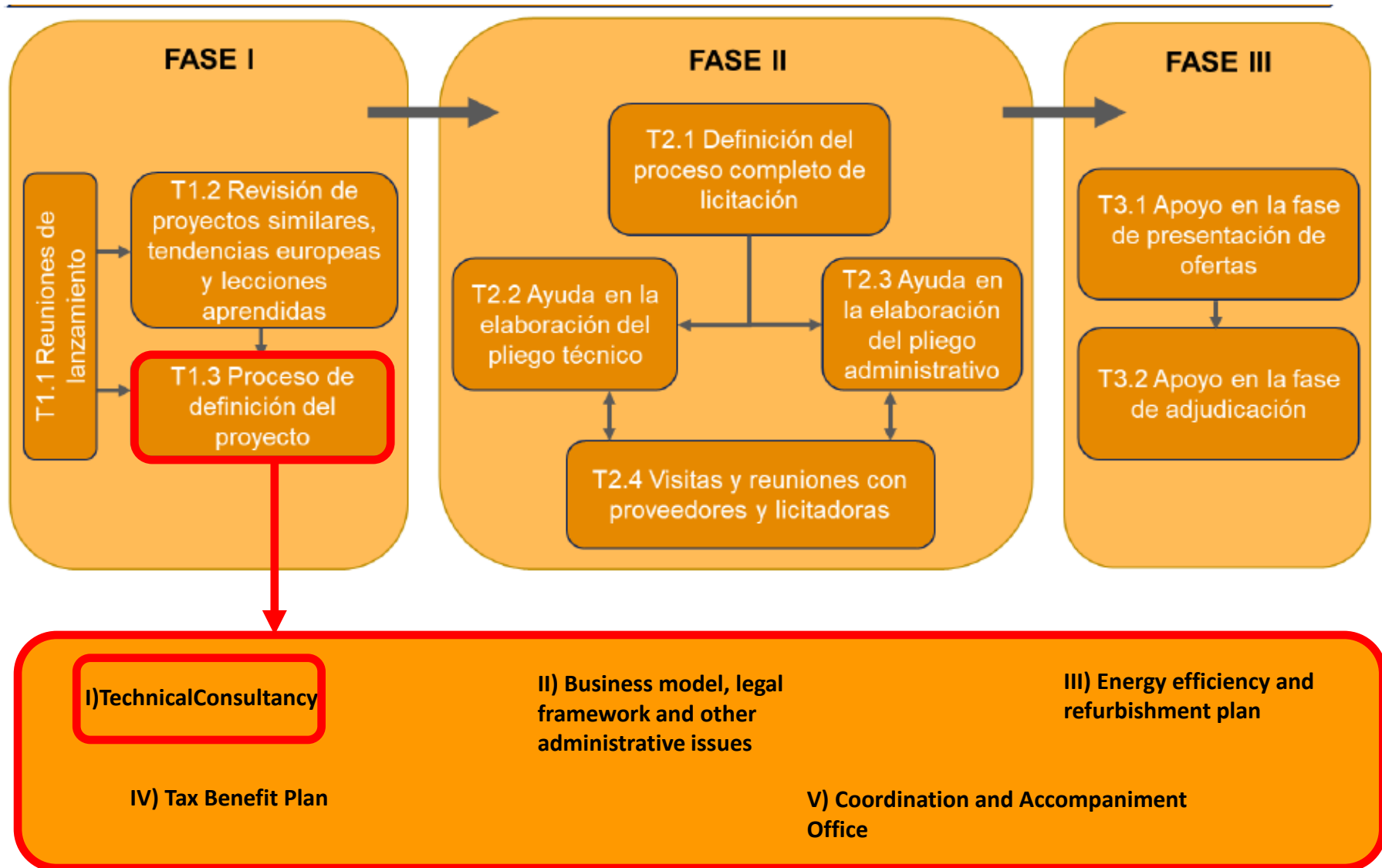
NEW THERMAL NETWORKS. AIMS:

- Decarbonized district energy.
- Supply heat and possibly cooling.
- Renewable energy (new installations and taking advantage of existing ones, such as already existing biomass boilers).
- Circularity concept: surplus energy recovery (cooling towers, sewage, data center,...).
- Prosumer and circularity concept: building not only consumers, but also producers. Building energy surplus energy recovery.
- ...



NEED TO HIRE CONSULTORY SERVICES

PHASES AND CURRENT STATUS OF THE WORK



GIS MODELLING



GIS MODELLING - EXAMPLE MAP



** Draft map, pending completion and calibration of consumption data.*



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THANK YOU

