

smar+ en. ci+y



The Implementation Energy Efficiency & Retrofitting VITORIA-GASTEIZ LH FINAL CONFERENCE

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14th June 2022

(GIROA – VEOLIA)
(VISESA)

TOWARDS SMART ZERO CO₂ CITIES ACROSS EUROPE

VITORIA-GASTEIZ + TARTU + SONDERBORG



DELEGATED PROMOTER ROLE OF VISESA:

Regarding retrofitting works, Visesa acts as **one-stop shop** for

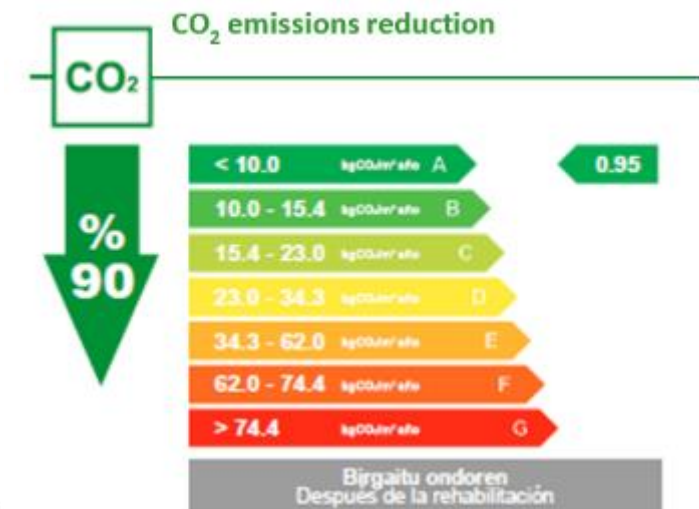
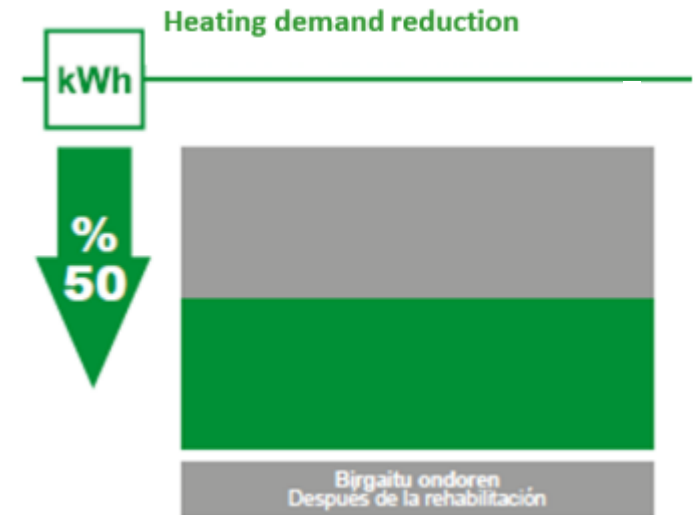
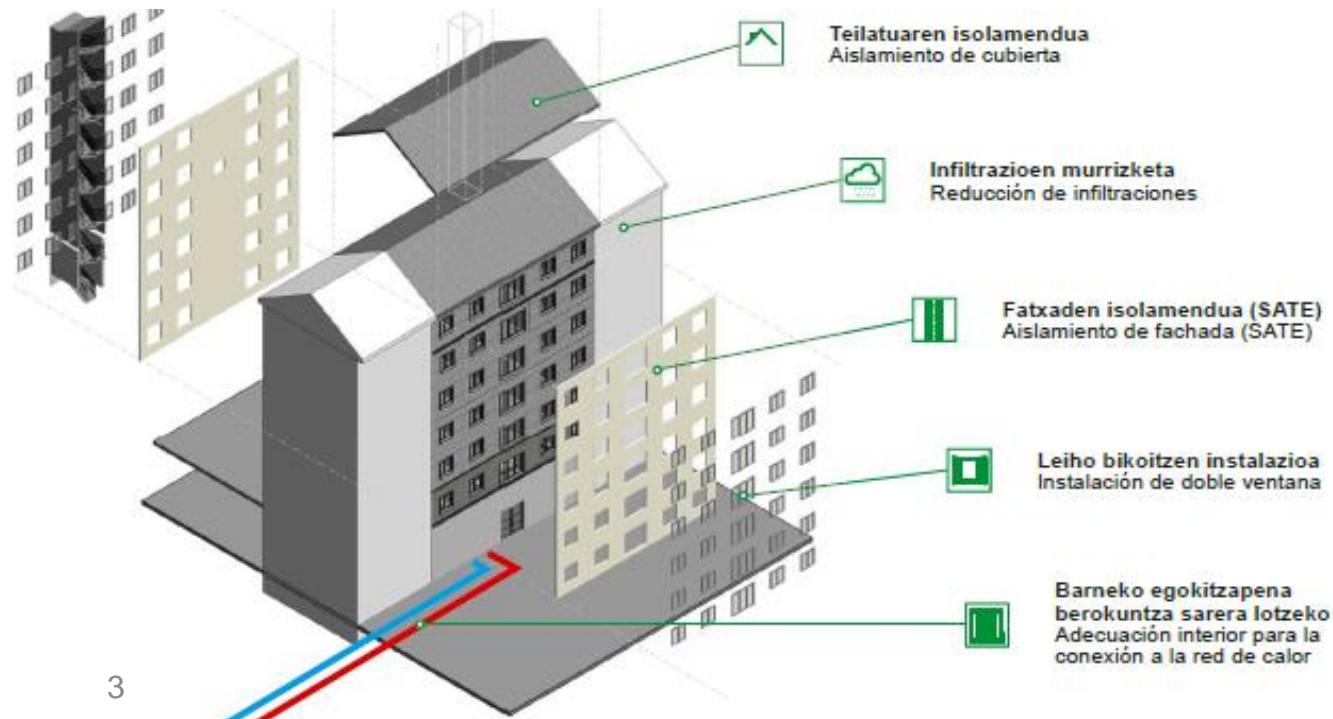
- **administrating**,
- **contracting** and
- **supervising** both the **design** and **execution** of the rehabilitation

following a **turnkey model** as well as administrating the financing on behalf of the beneficiaries.



Retrofitting proposal to homeowners

- **Technical approach:** improvement of the energy efficiency and indoor quality
 - **Update of the building envelope**
 - Insulation of the façade and roof (12-14 cm) ETICS or VENTILATED
 - Installation of a double window or replacement of the existing one
 - **Improvement of heat distribution system** (inside the building) and **connection** to the district heating network



- Buildings joining the project: all retrofitting works finished in July 2021



- | | | | |
|----|--------------------------|----|-------------------------|
| 0 | Sala de Calderas | 18 | Manuel Díaz de Arcaya 2 |
| 1 | Eulogio Serdán 4 | 19 | Manuel Diaz de Arcaya 5 |
| 2 | Eulogio Serdán 8 | 20 | Aldabe 3 |
| 3 | Aldabe 5 | 21 | Coronación 8 |
| 4 | Aldabe 7 | 22 | Coronación 13 |
| 5 | Aldabe 10 | 23 | Domingo Beltrán 18 |
| 6 | Aldabe 12 | 24 | Domingo Beltrán 22 |
| 7 | Aldabe 16 | 25 | Siervas de Jesús 43 |
| 8 | Badaia 8 | 26 | Siervas de Jesús 45 |
| 9 | Coronación 6 | | |
| 10 | Manuel Diaz de Arcaya 12 | | |
| 11 | Pasaje Eulogio Serdán 4 | | |
| 12 | Aldabe 19 | | |
| 13 | Aldabe 26 | | |
| 14 | Badaia 5 | | |
| 15 | Badaia 7 | | |
| 16 | Cercas Bajas 35 | | |
| 17 | Coronación 3 | | |

**26 buildings
302 dwellings**

BADAIA 8 (12 dwellings)



CORONACIÓN 6 (12 dwellings)



MANUEL DIAZ DE ARCAYA 12 (14 dwellings)



ALDABE 19 (10 dwellings)



BADAYA 5 (12 dwellings)



BADAYA 7 (12 dwellings)



CERCAS BAJAS 35 (12 dwellings)



MANUEL DIAZ DE ARCAJA 2 (8 dwellings)



CORONACIÓN 8 (dwellings)



CORONACIÓN 13 (dwellings)



DOMINGO BELTRAN 18 (dwellings)



DOMINGO BELTRÁN 22 (dwellings)



SIERVAS DE JESÚS 43 – 45 (9+10 dwellings)



Buildings retrofitting

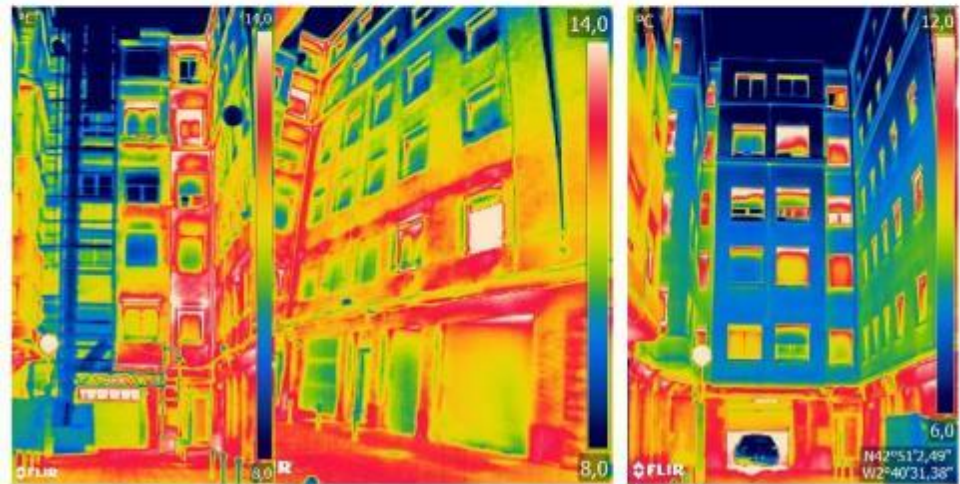
ALDABE 10-12-16 (30 dwellings)



BADAIA 8 (12 dwellings)



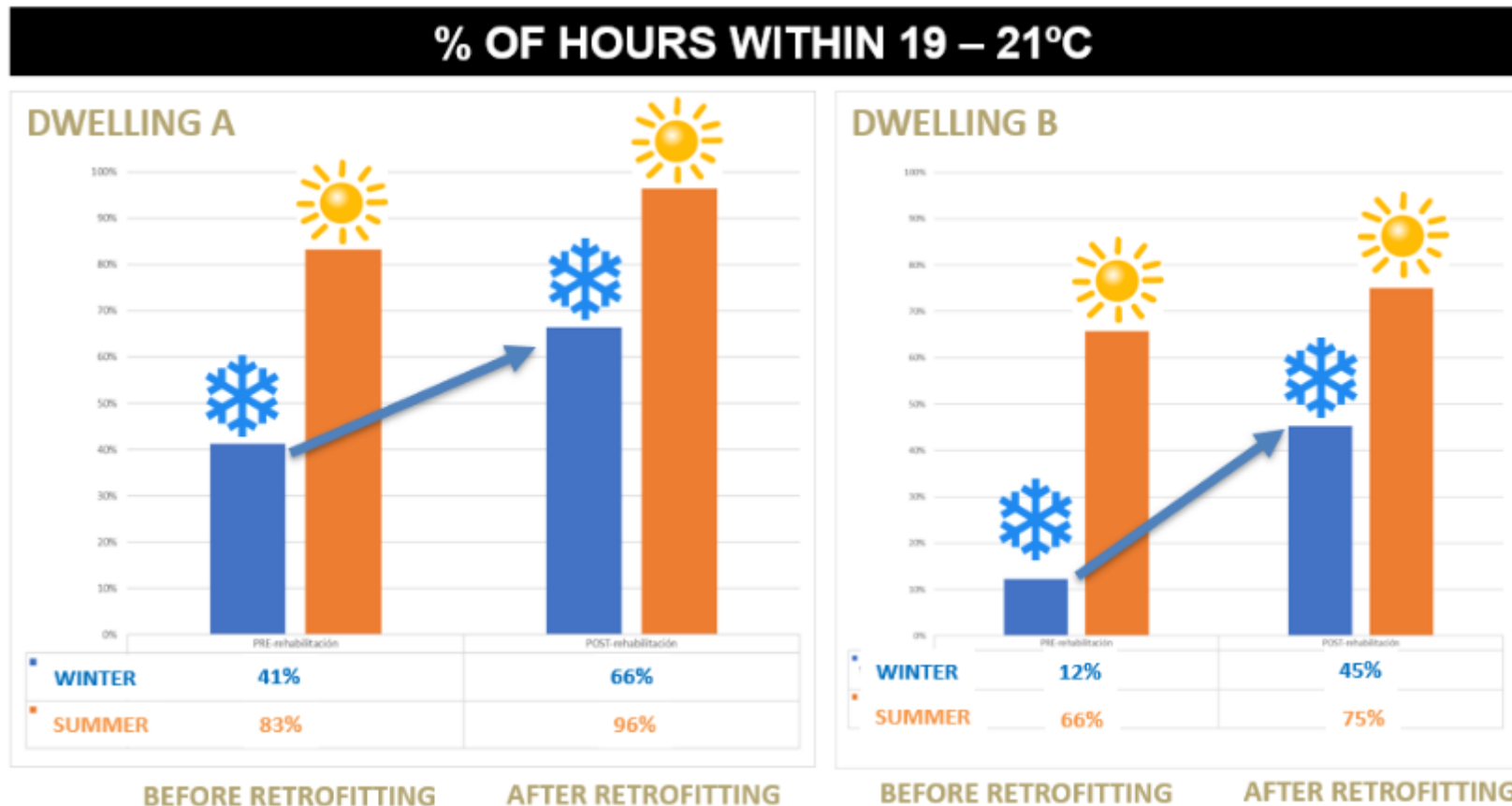
CORONACIÓN 6 (12 dwellings)



- General satisfaction of the residents, specifically with Visesa's **one-stop-shop** role.
- Mirror effect on other buildings and neighbourhoods not connected to the project. Up to **50 dwellings** retrofitted.
- 90% reduction of **CO2 emissions**
- Savings of up to **50% in energy consumption**
- **Energy Certification A** in all the rehabilitated and connected properties.
- Total **substitution of gas** by renewable energy sources for domestic hot water and heating: local biomass. Lower CO2 print.
- **Aesthetic Improvement** of the neighbourhood and increased property values.
- Efficient use of rehabilitated dwellings by **informed residents** with better controlling capability thanks to the installed monitoring systems.



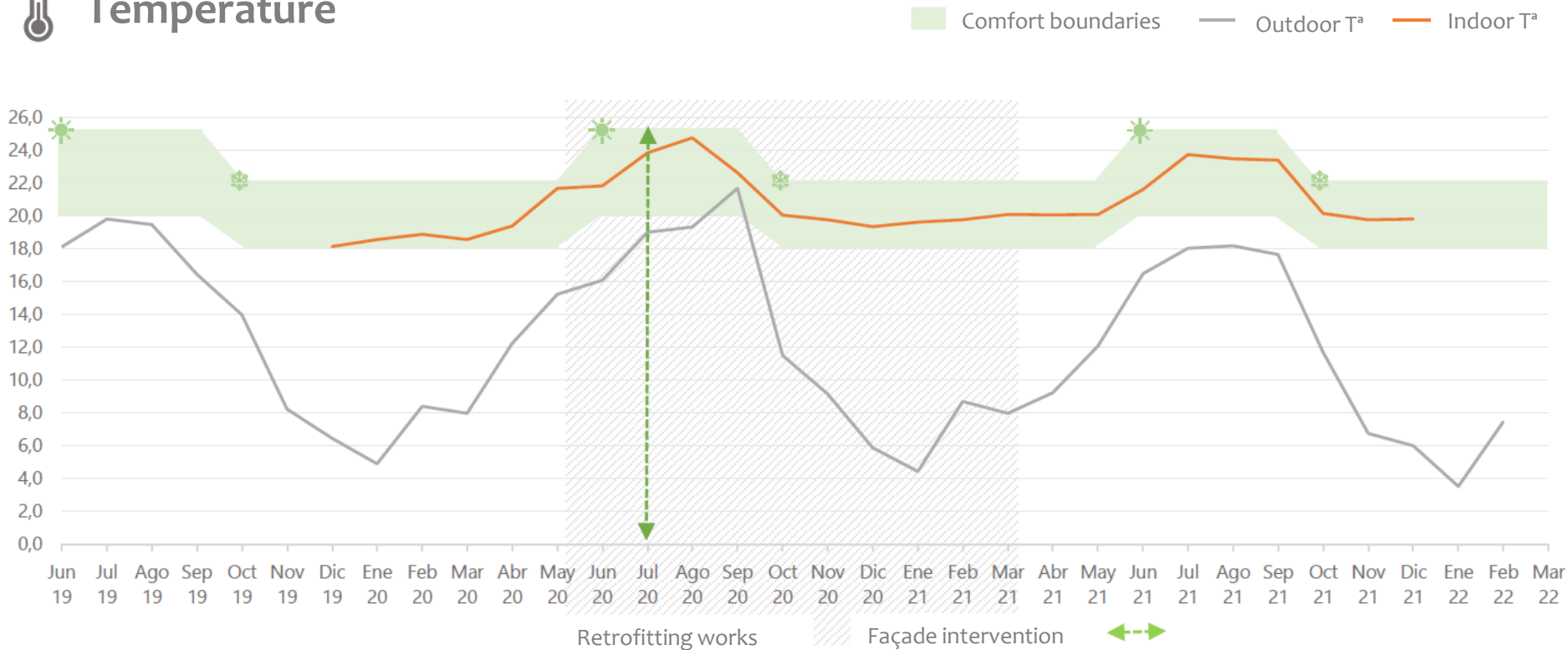
“The amount of hours between comfort temperature boundaries (19 to 21°C) has triple after the retrofitting works. Both in Winter and Summer seasons”



Benefits for participants

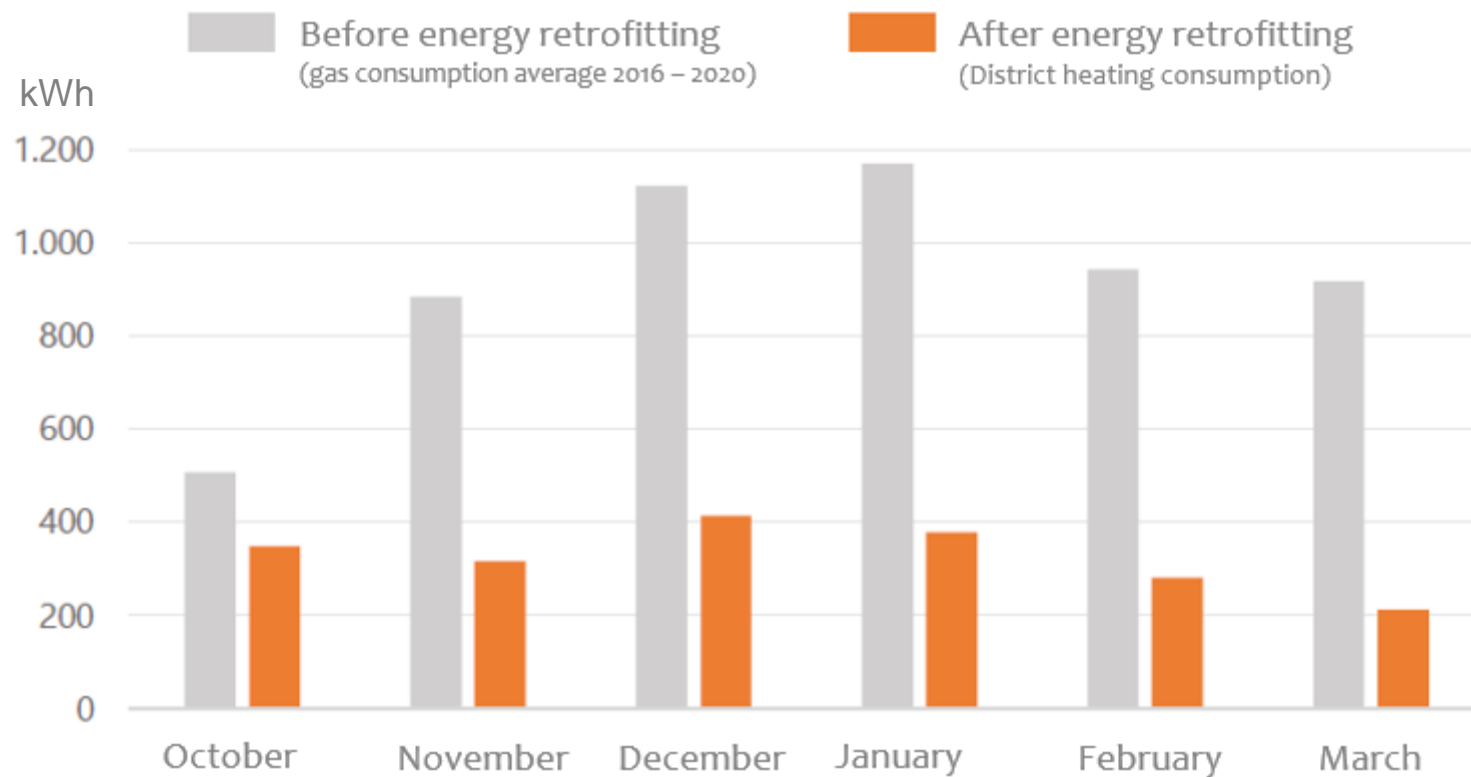


Temperature



Benefits for participants

Up to
- 65%



“SmartEnCity has not only been a DISTRICT project but a CITY project”

Fostering **local employment**:

- **14 architectural firms**
- **5 building companies**
- **Dozens of SMES** (scaffolding and construction materials, energy certification, termographies, professional photographers, notaries, property management companies, etc.)

District
actuation,
city effect



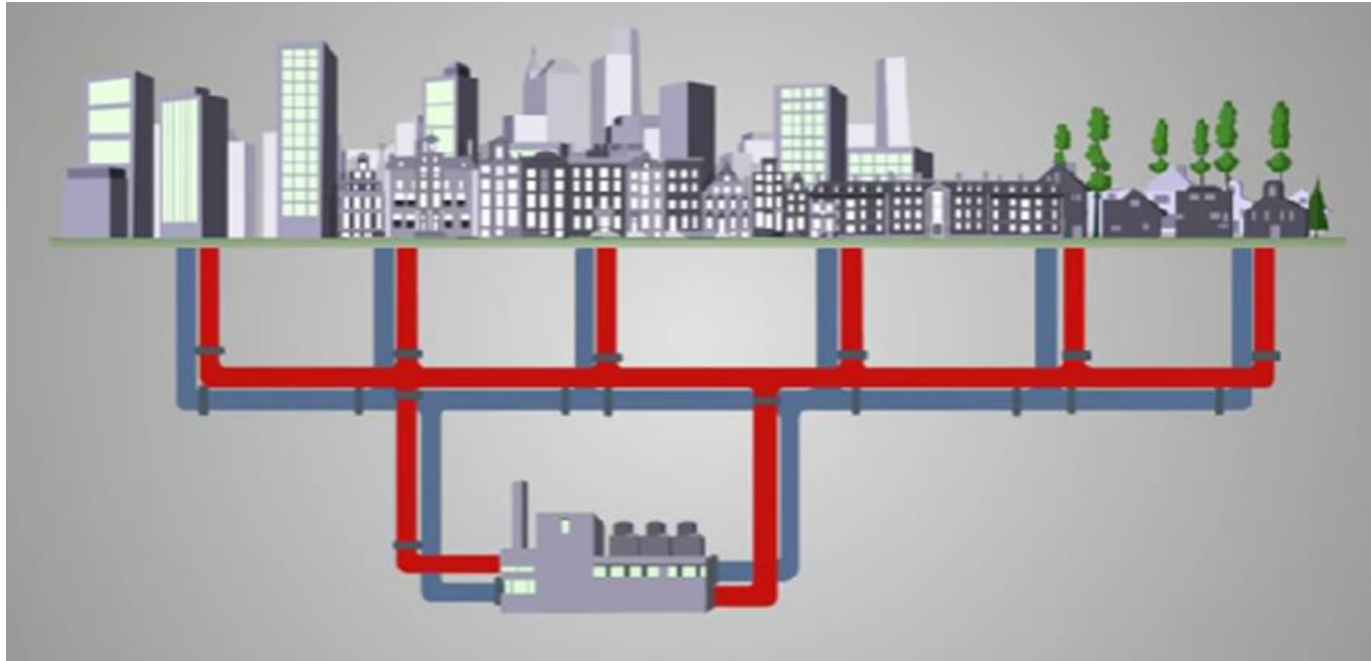
National & International recognition



TXAPELDUNAK!

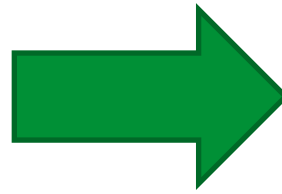


- **District Heating** is an underground infrastructure asset where thermal energy is provided to multiple buildings from a central energy plant for heating and hot water.



- The key to achieving a **Low-Carbon communities**.

- Initially designed **for the whole district** (not only the buildings joining the project)



- Oct 2019, redesigned **with a new approach**: “tailored” solution, deploying a first phase of distribution network **for buildings joining the project**.
- Jan 2020, City Council **awarded GIROA** with the concession for “private use of the public domain” for DH Network construction and deployment.

New biomass district heating

- Jun 2020, deployment **works began**, and were **completed** in June 2021.
 - **291** dwellings → Retrofitted and connected within SmartEnCity.
- Additional commercial → effort was carried out by GIR to engage new users.
 - **141** additional dwellings → Not participating in SmartEnCity but fostering District Heating economic sustainability.
 - **217** additional equivalent dwellings → Gym & Spa and district parish church.

Lesson
learned!

Engage citizens out from
project boundaries

649 dwellings



- Buildings not participating in SmartenCity but connected to District Heating



- A Church
- B Gym & Spa
- 27 ET Kutxa 3-5
- 28 ET Kutxa 9-11
- 29 Coronación 2-4, Aldabe 34
- 30 Plaza Zaldiaran 9-12, Cruz blanca 3

6 buildings
141 dwellings
217 equivalent dwellings

New biomass district heating

- Boiler room:
 - ✓ Located attached to the Aldabe Civic center.
 - ✓ 2 biomass boilers → local biomass.
 - ✓ 2 gas back-up boilers → to attend eventual consumption peaks and maintenance tasks.

**Lesson
learned!**

**Local biomass will keep you
away from issues with 3rd
countries**



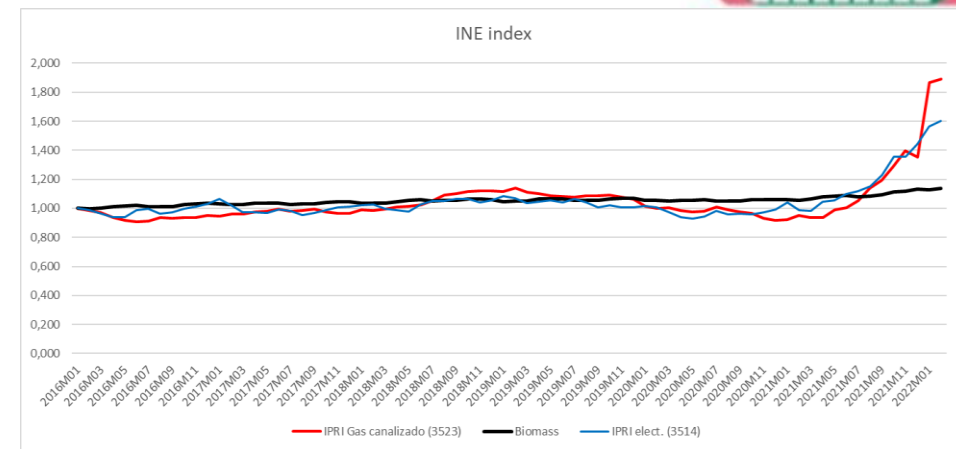
- Key figures:



- ✓ Installations connected in the Hubgrade center.
- ✓ Smart monitoring center for energy, water and waste management.
- ✓ Allow immediate action or a roadmap for improvements.
- ✓ Optimize consumption of municipal, commercial and industrial clients.
- ✓ Control over costs, their systems are fitted with sensors (transmit data in real time).



- Benefits:
 - ✓ Greater intake in renewable energy.
 - ✓ Reduced dependency on fossil fuels.
 - ✓ Reduced CO₂ emissions to the atmosphere.
 - ✓ Reduced Power consumption due to the use of a “district” boiler.
 - ✓ Reduced maintenance costs.
 - ✓ Enhancement of own resources with the use of forest biomass from nearby woods to Vitoria - Gasteiz.
 - ✓ Stability on the prices with the use of biomass use.



THANK YOU !

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