



NAVARRA, A REGION SUPPORTING THE SUSTAINABLE ENERGY

## D6.1 Specific training programmes developed

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## 1 Training and capacity building

Europe and its Member States are adopting policies and programmes that are intended to saving energy and to reducing CO<sub>2</sub> emissions into the atmosphere. Some of these policies imply changes in the methods of production and distribution and the incorporation of renewable energies. Other policies are more focused on consumers and users' behaviour for a more efficient and responsible energy consumption.

Finally, it is also necessary to educate consumers on the use and management of energy efficient technologies. Task 6.1 of WP6 proposes the development of a training programme in energy efficiency and renewable sources oriented to different target groups both in the public and private sectors. Its main goal is increasing the efficiency of investments in sustainable energy developed under the sustainAVility project. Target Groups for these training actions are for example: city councils, companies, foundations, cooperatives of users, social partners, educational institutions, taxis and buses, communities of neighbours and citizens in general.

Different proposals of training in the field of efficiency and renewable energy according to the different target groups have been defined within the project.

To this end, training courses on energy have been organized as well as awareness-raising days for target groups.





## 2 Training courses on energy

### 2.1 District heating

#### 2.1.1 Course organiser, date and participants

The course has been organized by CITINA (College of Graduates and Technical Industrial Engineers of Navarra). This course took place on October 17 and 18, 2019 from 4 p.m. at 8 p.m. This course was attended by 5 people.

#### 2.1.2 Course objectives and program

-  Know and understand what the binding regulations associated with centralized facilities with exchangers and Biomass is.
-  Economic profitability analysis in collective use facilities
-  Design and execution of a type installation.
-  Visit to a Biomass installation with district heating.

#### 2.1.3 Satisfaction surveys

After the course, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 9.0 on average.

### 2.2 Energy plans for local entities

#### 2.2.1 Course organizer, date and participants

The course has been organized by CITINA (College of Graduates and Technical Industrial Engineers of Navarra). This course is taking place every Monday between October 2019 and January 2020 from 9 a.m. at 1 pm. This course is attended by 7 people.

#### 2.2.2 Course objectives and program

##### 1. OBJECTIVES

- 1.1. Know energy context.
- 1.2. Help training to be able to assume responsibilities related to energy management.
- 1.3. Introduce the practice of energy saving and acquire the deepest possible knowledge about the use and control of energy to achieve maximum efficiency in energy management.
- 1.4. Describe the main energy consuming equipment and processes

##### 2. PROGRAM

SustainAVility

- 2.1. Introduction. Basic concepts in energy. Current Energy Panorama.
- 2.2. Normative
  - 2.2.1. Application regulations.
  - 2.2.2. ISO 50001 Energy Management Systems Standard.
  - 2.2.3. Standard EN 16247-1 Energy Audits.
  - 2.2.4. UNE Standard 216501 Energy Audits.
- 2.3. Inventory of energy, emissions and money.
- 2.4. Energy efficiency of facilities
  - 2.4.1. Thermal energy, electrical energy, mechanical energy.
  - 2.4.2. Energy accounting, energy diagnosis of a building.
  - 2.4.3. Definition of energy audit and energy diagnosis. Benefits of an energy audit in the building
- 2.5 Facilities and air conditioning systems. Main energy consuming equipment and optimization of its efficiency.
  - 2.5.1. Street lighting.
  - 2.5.2. Town planning
  - 2.5.3. Edification
  - 2.5.4. Transport
- 2.6. Definition of trend scenario.
  - 2.6.1. Definition of objectives to achieve
  - 2.6.2. Development of an action program.
  - 2.6.3. Specification of indicators for monitoring.
- 2.7. Possible application of renewable energy in buildings and / or industry. Municipal competences in the matter. Ordinances and regulations to manage your possible installation.



2.7.1. Thermal solar energy

2.7.2. Photovoltaic Solar Energy

2.7.3. Biomass

2.7.4. Geothermal

2.7.5. Microcogeneration

2.8. Energy Project Management

2.8.1. Calculation of investment budgets. Justification of investments. Economic profitability analysis.

2.8.2. Energy management tools

2.8.3. Energy service companies.

2.9. Practical examples

### 2.2.3 Satisfaction surveys

After the course, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 9.0 on average.

## 2.3 Self-consumption

One course divided in seven modules related to self-consumption have been held.

### 2.3.1 Course organiser, date and participants

The course has been organized by CITINA (College of Graduates and Technical Industrial Engineers of Navarra). These modules took place on October 17 and 18, 2019 from 4 p.m. at 8 p.m. 159 people enrolled, 127 of whom attended, so there was a 80% attendance compared to those enrolled.




### 2.3.2 Course objectives and programs

#### 2.3.2.1 First module: Economic Analysis and Economic Aid in photovoltaic self-consumption facilities

- Know and understand what the binding regulations associated with self-consumption and know its implications at the economic level.

- Analysis of economic profitability in photovoltaic self-consumption facilities.

- Assess the business model of leasing systems or leasing.
- Assess the business model of space rental or Rent-the-space. Evaluate the direct buy-sell business model or PPA.
- Existing financial aid in self-consumption facilities photovoltaic

-  At the municipality level.
-  At the level of the Comunidad Foral de Navarra.
-  At IDAE level (Energy Saving Diversification Institute)

### 2.3.2.2 *Second module: Study of current regulations and legalization requirements in photovoltaic self-consumption facilities*

- Study the Regulatory framework of the Electricity Market
- Know and understand what is the binding regulation associated with photovoltaic self-consumption and know its implications at the level of legalization.
- Royal Decree RD244 / 2019 and amendments regarding RD 15/2018 and RD900 / 2015
- Study of the simplified compensation mechanism (PVPC), and the influence of the PV consumption and generation profile, on the peak and valley periods of the different rates

### 2.3.2.3 *Third module: Technical-Theoretical Design of photovoltaic self-consumption facilities*

- Basic concepts and operation of photovoltaic power generation systems. Elements that integrate a self-consumption installation: structure, modules, inverters, Regulation and control.
- Know each of the elements that make up a photovoltaic self-consumption installation. Calculation and dimensioning of main elements
- Understand the connections between the various components for integration into the installation.
- Know the different schemes and architectures that allows a self-consumption installation.
- To be able to configure and design the most important elements in an installation of this type.
- Know the concept and basic elements of self-consumption shared.

#### 2.3.2.4 *Fourth module: Technical-practical analysis of photovoltaic self-consumption facilities.*

- Technical elements that must be incorporated into the photovoltaic self-consumption systems for their connection, as well as their architecture and components through practical cases.
- Conductor connection
- Types of photovoltaic module connectors
- Mounting elements in photovoltaic self-consumption installations.
- Communication with investors.
- Commissioning of facilities
- Maintenance in photovoltaic installations
- Study the different equipment and systems that make up the smart grid: active control, protection systems, power electronics, sensors and measurement systems.

#### 2.3.2.5 *Fifth module: Electric vehicles and points recharge*

- Learn the main components of the vehicle, storage systems, vehicle design, power electronics, both electric and hydrogen recharge, and the regulations associated with this sector.
- Know the hybrid and electric vehicles, the current state of development of the technology and its associated regulation
- Know the possibilities of integration of the electric vehicle in the network (model V2G)
- Study the relationship between current renewable energies and the electric vehicle
- Know the main components of an electric vehicle. Learn the different types of electric vehicle
- To know in depth the operation of the vehicle: auxiliary systems of the electric motor braking and energy recovery system, the suspension and steering circuits and of the motors and transmission systems in the electric vehicle
- Study the interconnection of the charging points to the electricity grid. Business models and demand management (Model V2G).
- Understand the concept of electric recharging and the applicable regulations. Know the architecture of the charging post and its operation.

### 2.3.2.6 *Sixth module: Electrical storage and microeolic complementarity in photovoltaic self-consumption installations*

- See the interesting possibilities or not of electrical storage in distributed facilities when more than what is consumed is produced instantly.
- Develop the practical skills necessary to design, install and maintain electrical energy storage systems in conventional systems and renewable energy in low voltage, as well as establish the mechanisms of correspondence between generation, storage and distribution of energy
- Concepts of accumulator, battery and battery and the difference between primary and secondary cells.
- Basic principles of operation of the accumulators as well as their life cycles.
- Comparison and choice of the right battery. Sizing criteria for batteries and associated power electronics.
- Study the possibilities of integration of wind energy in self-consumption systems.

### 2.3.2.7 *Seventh module: Microgrids. Grids*

- See the interesting possibilities or not of electrical storage in distributed facilities when more than what is consumed is produced instantly.
- Develop the practical skills necessary to design, install and maintain electrical energy storage systems in conventional systems and renewable energy in low voltage, as well as establish the mechanisms of correspondence between generation, storage and distribution of energy
- Concepts of accumulator, battery and battery and the difference between primary and secondary cells.
- Basic principles of operation of the accumulators as well as their life cycles.
- Comparison and choice of the right battery. Sizing criteria for batteries and associated power electronics.
- Study the possibilities of integration of wind energy in self-consumption systems.

### 2.3.3 *Satisfaction surveys*

After the different modules of the course, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 8.7 on average.

## 2.4 1st Congress Navarra self-consumption and distributed energy generation

### 2.4.1 Course organiser, date and participants

The congress has been organized by COIINA (Official College of Industrial Engineers of Navarra). This Congress took place on Thursday, October 10, 2019 from 9am to 2pm. 202 people enrolled, 118 of whom attended, so there was a 58% attendance compared to those enrolled.

### 2.4.2 Congress program

The event began with the reception of registered from 9h to 9h30. Next, the presentation of the Congress took place from 9:30 am to 9:45 am, by Elena Alemán (director of the College of Industrial Engineers of Navarra and the Navarra Industrial Foundation) and Manu Ayerdi (Counselor of Economic and Business Development of the Government of Navarra ).

During the presentation of the event, Gonzalo Franco (Training Manager of the Navarra Industrial Foundation), informed that the action is part of the Navarra 2030 Energy Plan and the support of the Energy Plan Section of the Department of Economic Development was appreciated so that this event was possible.

The first block of interventions began with the conference of Alicia Carrasco (Executive Director of the Spanish Association for Aggregation and Flexibility - ENTRA) on local communities of energy, technologies, digitalization, business models and their development, from 9h45 to 10h15.

Next, Raquel Vázquez (IDAE project manager) took the floor to talk about the current situation of the development of distributed energy generation, self-consumption and demand management, from 10:15 am to 10:45 am.

The block closed with the exhibition by Javier Zardoya (Manager of the Municipal Energy Operator of Pamplona) to talk about how to integrate energy management, municipal production and purchase of public energy into a Municipal Energy Strategy, from 10h45 to 11h15.

From 11:15 to 11:50 a break took place where attendees were able to have coffee and network with the rest of the attendees and speakers.

Congress restarted with the block of national and European examples. Irma Soldevilla (Project Director of the Barcelona Energy Agency) spoke about the program to boost solar energy generation in Barcelona, from 11h50 to 12h10. His intervention was followed by Aintzane Iriberry, (Energy Manager of the Development Agency of the Sakana) to present the project of the Microrred de Lizarraga, from 12h10 to 12h30.

Then, the block of European examples began with the presence of Xabier Alonso (Analyst of the Trading Department of Next Kraftwerke) who spoke of successful energy models in

Europe such as Virtual Power Plants, from 12:30 to 12:50. Finally, Kristian Petric (Consultant in eco-union and partner of the Horizon 2020 PROSEU project) spoke to talk about self-consumption and energy communities in Europe, from 12h50 to 13h10.

To close the Congress, from 13h10 to 14h the round table "The development of distributed generation" took place. The table was moderated by Esther Muñoz (Member of the Expert Commission for the Energy Transition of the Basque Autonomous Community) and was attended by Alicia Carrasco, Raquel Vázquez, Javier Zardoya and Kristian Petrick.

### 2.4.3 Generated documentation

In the following URL are the presentations of the speakers, video and photos of the events, etc. In this way the action has a greater scope in terms of the number of people impacted.

<http://www.fundacionfin.es/congreso-navarra-autoconsumo-generacion-energia/>

After the congress, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 8.7 on average.

### 2.4.4 Press articles

The following articles have been published in the media:

<https://www.noticiasdenavarra.com/2019/10/10/economia/navarra-expertos-nacionales-destacan-las-oportunidades-y-ventajas-del-sistema-de-generacion-de-energia-distribuida>  
<https://navarracapital.es/los-usuarios-somos-los-nuevos-agentes-del-sector-energetico/>  
<https://mailchi.mp/7e07fe6ee1cf/congreso-energia-distribuida-contenidos?e=079b389342>

<http://www.fundacionfin.es/congreso-energia-reune-130-profesionales/>

## 2.5 Passivhaus Tradesperson

### 2.5.1 Course organiser, date and participants

The course has been organized by CAATNA (Official College of Surveyors, Technical Architects and Building Engineers of Navarra). This course took place on October 3, 4, 10 and 11. The duration of the course has been 32 hours. This course was attended by 17 people.

### 2.5.2 Course objectives and program

*Course definition and objectives:*

Royal Decree 235/2013, of April 5, which approves the basic procedure for the certification of the energy efficiency of buildings, establishes that:

□ All new buildings that are constructed as of December 31, 2020 will be buildings with almost zero energy consumption. The minimum requirements that these buildings must meet will be those determined at the time in the Code Building Technician

□ All new buildings whose construction begins as of December 31, 2018 that will be occupied and are publicly owned, will be buildings of almost zero energy consumption.

□ The approval of the Royal Decree that updates the Energy Saving DB of the Technical Building Code that contemplates conditions closer to the ECCN is imminent.

To achieve these objectives, a methodology must be set from the beginning of the project, which in this specific case responds to a specific standard with the possibility of being Passiv Haus certified.

The course provides the main knowledge of the Passiv Haus standard, specializing in the specific aspects of the execution of the envelope and the facilities for this type of buildings

The course stands out for combining all theoretical lessons with practical workshops, equitably distributing the workload between theory and practice. This ensures that the

Course attendees acquire specific knowledge and full practical experience.

*Course program (short script):*

#### 1. Passive House - Interdisciplinary Principles

□ 1.1. Passive House definition

□ 1.2. Passive House criteria

□ 1.3. Five pillars of the Passivhe House principles

□ 1.4. Ecology and comfort

□ 1.5. PHPP and other planning principles

□ 1.6. Economic Efficiency

□ 1.7. Construction Process and quality control

□ 1.8. User information and user support

□ 1.9. Basic Principles: Thermal Insulation in Passive House

□ 1.10. Basic Principles: Free Construction of Thermal Bridges

□ 1.11. Basic Principles: Passive House Windows

□ 1.12. Basic Principles: Hermeticity

□ 1.13. Basic Principles: Ventilation

□ 1.14. Basic Principles: Heat Supply

2. Specialization according to discipline - Building Envelope

□ 2.1. Thermal insulation in Passive House

□ 2.2. Free construction of thermal bridges

□ 2.3. Windows and other exterior transparent components

□ 2.4. Summer comfort

□ 2.5. Reform of existing buildings

3. Specialization according to discipline - Building Facilities

□ 3.1. Passive House ventilation

□ 3.2. Heating in Passive House

□ Concept of "almost zero energy consumption". Regulatory Framework

□ Design strategies.

□ Conditioning systems. Installations.

□ Renewable energy sources

□ Execution control

□ Examples.

### 2.5.3 Satisfaction surveys

After the course, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 8.6 on average.



## 2.6 The tightness of the building envelope: Workshop BLOWERDOOR

### 2.6.1 Course organiser, date and participants

The course has been organized by CAATNA (Official College of Surveyors, Technical Architects and Building Engineers of Navarra). This course took place on October 10. The duration of the course has been 4 hours. This course was attended by 10 people.

### 2.6.2 Course objectives and program

*Course definition and objectives:*

Order FOM / 588/2017 introduced in the CTE DB HE Energy Saving the definition of the Almost Null Energy Consumption Building: "building that meets the regulatory requirements established for new buildings in the different sections of this Basic Document", and the standards and technologies that seek that objective, which will have their normative support in the impending modification of the DB HE, indicate the tightness of the envelope as a key to the energy saving of a building.

The current housing stock lacks adequate tightness to optimize the energy consumed and ensure comfort; we can improve the tightness of our home applying simple corrective measures, once the points through which the energy escapes are located.

The objectives of the workshop are to learn how to perform a Blower door test according to UNE EN 13829 and write a test report.

We will also know:

- the current state of the level of tightness in Spain and Europe.
- UNE-EN 13829 regulations and other reference standards.
- the foundations of the tightness of buildings.
- existing tools to detect and locate air infiltrations.
- Learn how to handle the Blower door Retrotec equipment and the specific Fantestic software and evaluate results.

*Course program:*

#### 1. INTRODUCTION. (15')

- Importance of air tightness in buildings with almost zero consumption.
- Definitions. Infiltrations, tightness, etc.

## 2- AIR HERMETICITY IN SPAIN AND EUROPE (15 ')

- Current panorama of the air tightness of residential buildings in Spain.
- Spanish regulations.
- European regulations and Passivhaus standard.

## 3- BLOWER DOOR INFILTRATION TEST ACCORDING TO UNE EN 13829 (40 ')

- Hermeticity measurement systems.
- Standard UNE EN 13829.
- Blower Door RETROTEC 1000 Series Equipment
- Trial execution process.

## 4- TOOLS FOR THE LOCATION OF INFILTRATIONS (30 ')

- Thermography, smoke generation equipment, ultrasound ...
- Presentation of examples of areas with infiltrations.

## 5. PRACTICAL SESSION OF TEST (Approx. 2h)

- Execution of a Blower door trial.

## 6. TEST REPORT ACCORDING TO EN 13829 AND SOFTWARE MANAGEMENT (15 ')

- Data analysis with Fantestic software.

## 7. EXAMPLES

### 2.6.3 Satisfaction surveys

After the course, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 8.6 on average.

## 2.7 Workshop on energy self-consumption

### 2.7.1 Course organiser, date and participants

The course has been organized by CAATNA (Official College of Surveyors, Technical Architects and Building Engineers of Navarra). This course took place on November 25. The duration of the course has been 4-6 hours. This course was attended by 24 people.

### 2.7.2 Course objectives and program

*Course definition and objectives:*

Introductory day of the new regulatory framework and its consequences at the technical and administrative level: In the same facilitating and sustainable line that resulted in the approval of the Royal

Decree-Law 15/2018, of October 5, on urgent measures for energy transition and consumer protection in which the right to self-consume electricity without tolls or charges is recognized, Royal Decree 244/2019 regulating the administrative, technical and economic conditions of the self-consumption of electrical energy.

Based on the previous situation, we will analyze the regulatory developments and the issues that technicians must take into account from their promulgation when planning / directing and administratively managing the work.

*Course program (short script):*

Provisional:

Regulatory analysis, influencing the keys of the standard and its application in Navarra:

- Self-consumption modalities: Self-consumption without surpluses, self-consumption with surpluses under compensation and self-consumption with surpluses not under compensation.
- Collective self-consumption and its conditions.
- Administrative simplification. Particularities in Navarra.

### 2.7.3 Satisfaction surveys

After the course, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 7.0 on average.

## 2.8 Training on building regulations oriented towards the Nearly Zero-energy Buildings (NZEB)

### 2.8.1 Course organiser, date and participants

The course has been organized by AIN (Industrial Association of Navarra). This course took place on October 29. The duration of the course has been 6 hours. This course was attended by 6 people.

### 2.8.2 Course objectives and program

*Objectives:*

With the proposed training the student will be able to:

- Possess the necessary knowledge to be clear about the requirements of the regulations.
- Identify and differentiate the different international reference models
- Analyze the energy efficiency of an ECCN building.
- Identify the steps to follow in an ECCN building
- Know the support tools in the evaluation and analysis of an ECCN building.

*Profile of the participants*

Graduates in Technical or Higher Engineering, Technical or Higher Architecture. Technicians and Responsible for Maintenance and / or Energy and Environment of Companies ...

*Program*

1. INTRODUCTION TO THE COURSE.
2. REGULATORY FRAMEWORK. PRESENT AND FUTURE.
  - 2.1. Directive 2010/31 / EU
  - 2.2. European Regulation 244/2012
  - 2.3. Commission Recommendation (EU) 2016/1318
  - 2.4. Directive 2018/844 of the European Parliament and of the Council
  - 2.5 CTE RD project modification RD 314/2016 CTE

2.6. DB-HE 2018.

3. INTERNATIONAL REFERENCE MODELS.

3.1. PASSIVHAUS.

3.2. MINERGIE

3.3. READ

3.4 BREEAM

4. ANALYSIS OF THE ENERGY EFFICIENCY OF AN ECCN

4.1. ECCN CONCEPT

4.2. ADEQUACY CLIMATE AREA, GUIDANCE, STUDY SHADOWS AND SOLAR RADIATION

4.3. ENVELOPE

4.4. VENTILATION

4.5. CALCULATION OF THE DEMAND

4.6. EN IN SITU 'RENEWABLE ENERGY GENERATION SYSTEMS

4.7. NON-RENEWABLE FINAL ENERGY CALCULATION

4.6. ECONOMIC ANALYSIS. COST MEASURES. OPTIMAL COST CALCULATION

5. EXECUTION OF AN ECCN BUILDING

5.1. THERMAL ENVELOPE. THERMAL BRIDGES

5.2. INFILTRATIONS

5.3. INTEGRATION FACILITIES AND SYSTEMS IN THE BUILDING

5.4. MAINTENANCE OF THE BUILDING AND USER TRAINING

6. COMPUTER TOOLS TO ASSESS EVALUATION AND ANALYSIS

### 2.8.3 Satisfaction surveys

After the course, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 7.6 on average.

### 3 Awareness-raising days

A series of awareness days have been organized during the months of November and December 2019. These days were aimed at the citizen in general.

#### 3.1 Responsible consumption and energy communities

##### 3.1.1 Organiser, date and participants

The awareness days have been imparted by E+P Cooperative. These awareness days took place on November 21, 2019 from 6 p.m. at 8 p.m. in Pamplona, and on November 28 2019 from 6:30 p.m. at 8:30 p.m. in Tudela. These awareness days were attended by 15 people.

##### 3.1.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 4.8 out of 5 on average.

#### 3.2 The benefits of energy consumption. Practical cases

##### 3.2.1 Organiser, date and participants

The awareness day has been imparted by Cederna Galur. This awareness day took place on December 4 2019 from 5:00 p.m. at 7:00 p.m. in Aoiz. This awareness day was attended by 2 people.

##### 3.2.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 4.5 out of 5 on average.

#### 3.3 Present and future of electric mobility

##### 3.3.1 Organiser, date and participants

The awareness day has been imparted by David Labeaga. This awareness day took place on November 26 2019 from 5:00 p.m. at 7:00 p.m. in Estella. This awareness day was attended by 16 people.

##### 3.3.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 4.1 out of 5 on average.

## 3.4 Can I reduce the electricity bill in a home?

### 3.4.1 Organiser, date and participants

The awareness day has been imparted by David Labeaga. This awareness day took place on November 28 2019 from 5:00 p.m. at 7:00 p.m. in Estella. This awareness day was attended by 4 people.

### 3.4.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 5 out of 5 on average.

## 3.5 Self-consumption in communities of owners. Technical and administrative aspects

### 3.5.1 Organiser, date and participants

The awareness day has been imparted by Nafarkoop Goiener. This awareness day took place on November 26 2019 from 6:30 p.m. at 8:30 p.m. in Pamplona. This awareness day was attended by 1 person.

### 3.5.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction survey is 5 out of 5 on average.

## 3.6 Save energy at home

### 3.6.1 Organiser, date and participants

The awareness day has been imparted by Manuel Tiago. This awareness day took place on November 25 2019 from 5:00 p.m. at 7:00 p.m. in Pamplona. This awareness day was attended by 1 person.

### 3.6.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction survey is 5 out of 5 on average.



## 3.7 Discover electric rates

### 3.7.1 Organiser, date and participants

The awareness day has been imparted by Manuel Tiago. This awareness day took place on November 26 2019 from 5:00 p.m. at 7:00 p.m. in Pamplona. This awareness day was attended by 1 person.

### 3.7.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 5 out of 5 on average.

## 3.8 Energy poverty, from invisibility to Recognition and Empowerment

### 3.8.1 Organiser, date and participants

The awareness day has been imparted by Manuel Tiago. This awareness day took place on November 27 2019 from 6:30 p.m. at 8:30 p.m. in Pamplona. This awareness day was attended by 2 people.

### 3.8.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction surveys are 4.5 out of 5 on average.

## 3.9 Electric, multimodal and sustainable mobility

### 3.9.1 Organiser, date and participants

The awareness day has been imparted by Manuel Tiago. This awareness day took place on November 22 2019 from 5:00 p.m. at 7:00 p.m. in Pamplona. This awareness day was attended by 1 person.

### 3.9.2 Satisfaction surveys

After the awareness days, a general satisfaction survey has been sent to the attendees so that they can assess the quality of the organization and make suggestions for improvement and content. Satisfaction survey is 5 out of 5 on average.

### 3.10 Awareness-raising days poster

**III JORNADAS  
DIFUSIÓN Y SENSIBILIZACIÓN ENERGÉTICA**

**NOVIEMBRE-DICIEMBRE**

NOVIEMBRE	D	V	S	D
18	19	20	21	22
23	24	25	26	27
28	29	30	1	2
3	4	5	6	7
8				

**21 NOV PAMPLONA 18:00-20:00**  
INAP  
CONSUMO RESPONSABLE Y COMUNIDADES ENERGÉTICAS

**22 NOV PAMPLONA 17:00-19:00**  
INAP  
MOVILIDAD ELÉCTRICA, MULTIMODAL Y SOSTENIBLE

**25 NOV PAMPLONA 17:00-19:00**  
INAP  
AHORRAR ENERGÍA EN EL HOGAR

**26 NOV ESTELLA 17:00-19:00**  
TEDER, SALÓN ACTOS  
PRESENTE Y FUTURO DE LA MOVILIDAD ELÉCTRICA

**26 NOV PAMPLONA 17:00-19:00**  
INAP  
DESCUBRE LAS TARIFAS ELÉCTRICAS

**26 NOV PAMPLONA 18:30-20:30**  
SALA USOS MÚLTIPLES DESCALZOS 56  
AUTOCONSUMO EN COMUNIDADES DE PROPIETARIOS

**27 NOV PAMPLONA 18:30-20:30**  
CONDETABLE  
POBREZA ENERGÉTICA, DE LA INVISIBILIDAD AL RECONOCIMIENTO Y EMPODERAMIENTO

**28 NOV ESTELLA 17:00-19:00**  
TEDER, SALÓN DE ACTOS  
¿PUEDO REDUCIR LA FACTURA DE ELECTRICIDAD EN UNA VIVIENDA?

**28 NOV TUDELA 18:30-20:30**  
CENTRO CÍVICO LOURDES  
CONSUMO RESPONSABLE Y COMUNIDADES ENERGÉTICAS

**4 DIC AOIZ 17:00-19:00**  
SALA AURELIO LEÓN  
LOS BENEFICIOS DE AUTOCONSUMO ENERGÉTICO

**PARTICIPAN:**  
Ayuntamiento De Pamplona,  
Consorcio Eder, Sakana Garapen Agentzia,  
Agencia De Desarrollo Coderma-Garalur,  
Centro De Desarrollo Rural De Tierra Estella  
(teder), Consorcio Desarrollo Zona Media

**ORGANIZA:**  
SERVICIO DE TRANSICIÓN ENERGÉTICA  
Nafarroako Gobernua  
Gobierno de Navarra

AGENDA 2030

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## 4 Results

The expected results indicated in the proposal were the following:

- 4 training actions for users and consumers
- 40 end users and consumers participating in training actions.
- 5 training activities for suppliers and technical advisors.
- 50 suppliers and technical advisors participating in training actions.

As it has been seen in the description of the training actions and awareness days, the figures initially indicated have been widely exceeded.

Training courses on energy are considered as training activities for suppliers and technical advisors. In total, there has been held 8 training activities with 314 attendants.

Awareness-raising days are considered as training activities for end users and consumers. . In total, there has been held 9 training activities with 43 attendants.



NAVARRA, A REGION SUPPORTING THE SUSTAINABLE ENERGY

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## PARTNERS

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