BECOOP

UNLOCKING THE COMMUNITY BIOENERGY POTENTIAL

2020/2023



Task 3.2.

Deployment of capacity building to key actors

PILOT AREA WORKSHOP

Fecha / Data

September/October

Participantes

WHITE RESEARCH

circe RESEARCH CENTRE FOR ENERGY RESOURCES AND CONSUMPTION

IEECP INSTITUTE FOR EUROPEAN ENERGY AND CLIMATE POLICY

CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

ΕΣΕΚ -ΣΥΝ.ΠΕ-

goiener POWER TO THE PEOPLE Energia berriztagarrien sorkuntza eta kontsumo kooperatiba

fiper FEDERAZIONE ITALIANA PRODUTTORI DI ENERGIA DA FONTI RINNOVABILI

GMINA OBORNIKI ŚLĄSKIE *Tu mi się podoba !*

CBS COPENHAGEN BUSINESS SCHOOL HANDELSHØJSKOLEN

WROCŁAW UNIVERSITY OF ENVIRONMENTAL AND LIFE SCIENCES

SEV

Q-PLAN INTERNATIONAL

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AGENDA – SPANISH PILOT AREA WORKSHOP

1. **INTRODUCTION TO THE ORGANIZERS and ENERGY FRAMEWORK *(GOI) 10-12 diapos***
2. INTRODUCTION TO RESCOOP'S, BENEFITS and SERVICES TO BE PROVIDED (Community heating concept first approach) *(GOI)10-12 diapos*
3. COMMUNITY BIOENERGY → Concept and legal framework. Type of communities and legal entities. *(GOI)10-12 diapos*
4. TECHNICAL BIOENERGY AND SUSTAINABILITY ASPECTS → Pilot region successful (dossier T4.1) cases and technical aspects related to Forest biomass,straw, biogas and others but always related to heat production. *(CIRCE)*
5. STAKEHOLDER ENGAGEMENT→ Community creation process/created guideline. *(GOI)*
6. POLICY RELEVANT MATERIALS→ Pilot region/ country policy framework(GOI/CIRCE)
7. BUSINESS AND INNOVATION ASPECTS→ Present more tailored made business model for the cases to be promoted locally "Local integrated group of citizens". Financing support.

1. MARKET RESEARCH → Types of market research importance, examples of the researches done by the project in the pilot areas

INTRODUCTION-BECoop GOIENER pilot case

Who we are? Spanish second larger RESCoop

goiener taldea

.goiener.eus

VOLUNTEERING

ELKARTEA

Responsable HERRITARRA PARTE-HARTZAILEA Sostenible DESZENTRALIZAZIOA VOLUNTARIADO Kontzientziazioa LOCAL

GENERATION AND COLECTIVE INVESTMENT

sorkuntza nafarkoop

- Fotovoltaikoa
- Eolikoa
- Biomasa
- Hidroelektrikoa

GdO ELECTRICITY RETAIL

POWER TO THE PEOPLE goiener
Energía berriztagarrien kontsumo kooperatiba
Cooperativa de consumo de energía renovable

% 100 berriztagarria
100% RENOVABLES
GERTU GAUDE, GERTUKOAK GARA

BEcoop

GOIENER in numbers

Workers	54
Volunteers	200
Offices	5.-
Consumer members	>15.000
Supply points	20,625
Nafarkoop menbers	+1000
Inversión en proyectos	1,2 M€
	40.026 MWh

POWER TO THE PEOPLE goiener ELKARTEA

POWER TO THE PEOPLE goiener

nafarkoop

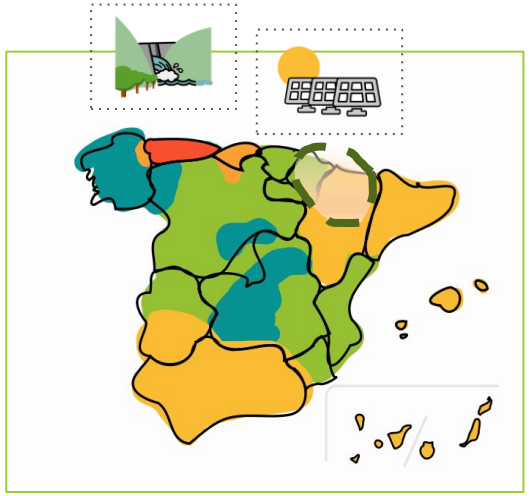
INTRODUCTION-BECoop GOIENER pilot case

What are we looking for? Expansion of activities

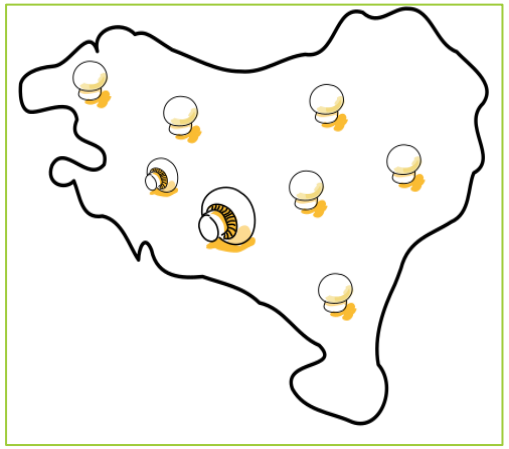
RES electricity retailing/generation

RES heating retailing/generation

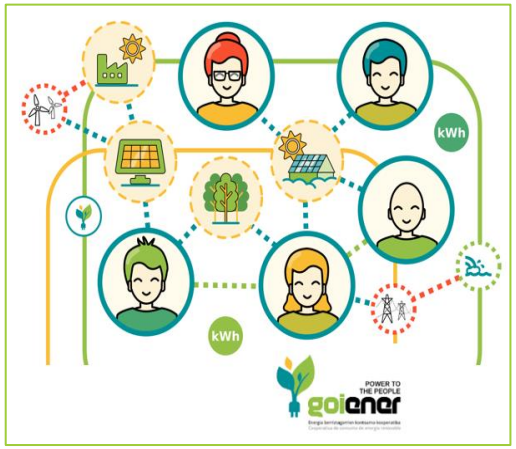
Renewable energy communities



- Retail of electricity with GdO.
- PV, minihydro self/colective consumption instalations.
- Advice to citizens, local authorities...



- Retail of biofuels, heat/cold, biogas with GoO?
- BE projects execution.
- Advice to citizens, local authorities...



- Multy energetic cooperative.

BEcoop

Demo cases:

Local BE community cases where GOIENER will develop, practice and gain knowledge on BE heating services.

ABERASTURI

MURGIA

Balmaseda

Orexa

> 10 RESCoop

Iturmendi

INTRODUCTION-CIRCE technological center

CIRCE es energía

- MAS DE 25 AÑOS DE I+D+i AL SERVICIO DE LAS EMPRESAS, LA SOCIEDAD Y EL MEDIOAMBIENTE

MISIÓN

Mejorar la competitividad de las empresas mediante la generación y transferencia de tecnología a través de actividades de I+D+i y formación, orientadas a mercado y en el ámbito de la sostenibilidad y la eficiencia de los recursos, las redes energéticas y las energías renovables.

VISIÓN

- **Referencia** internacional en energía.
- **Multiplicador** de inversión en I+D+i.
- Foco de **talento**.
- Generador de ideas y **soluciones** innovadoras y competitivas.

VALORES

- **Calidad** y agilidad
- **Compromiso** y responsabilidad
- Pasión por el reto y la **innovación**
- **Transparencia**
- Entusiasmo por el trabajo **colaborativo**
- **Vocación** por la sostenibilidad económica, social y ambiental

Somos un centro tecnológico fundado en 1993, y buscamos aportar soluciones innovadoras para un **DESARROLLO SOSTENIBLE**

Para ello contamos con un equipo multidisciplinar, altamente cualificado, compuesto por más de 272 **profesionales.**

Trabajamos para mejorar la competitividad de las empresas mediante la **generación de transferencia de tecnología** a través de actividades de I+D+i y formación orientadas a mercado dentro del ámbito de la sostenibilidad y eficacia de los recursos, las redes energéticas y las energías renovables.

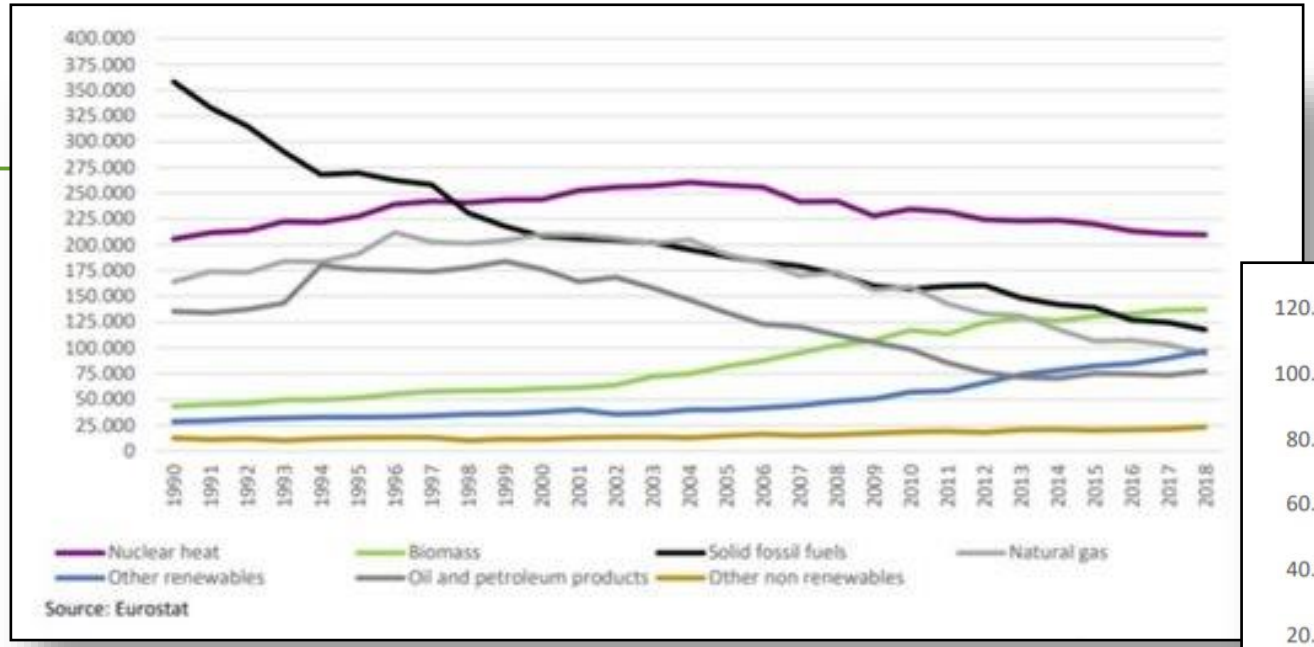
Great Place To Work. Certified

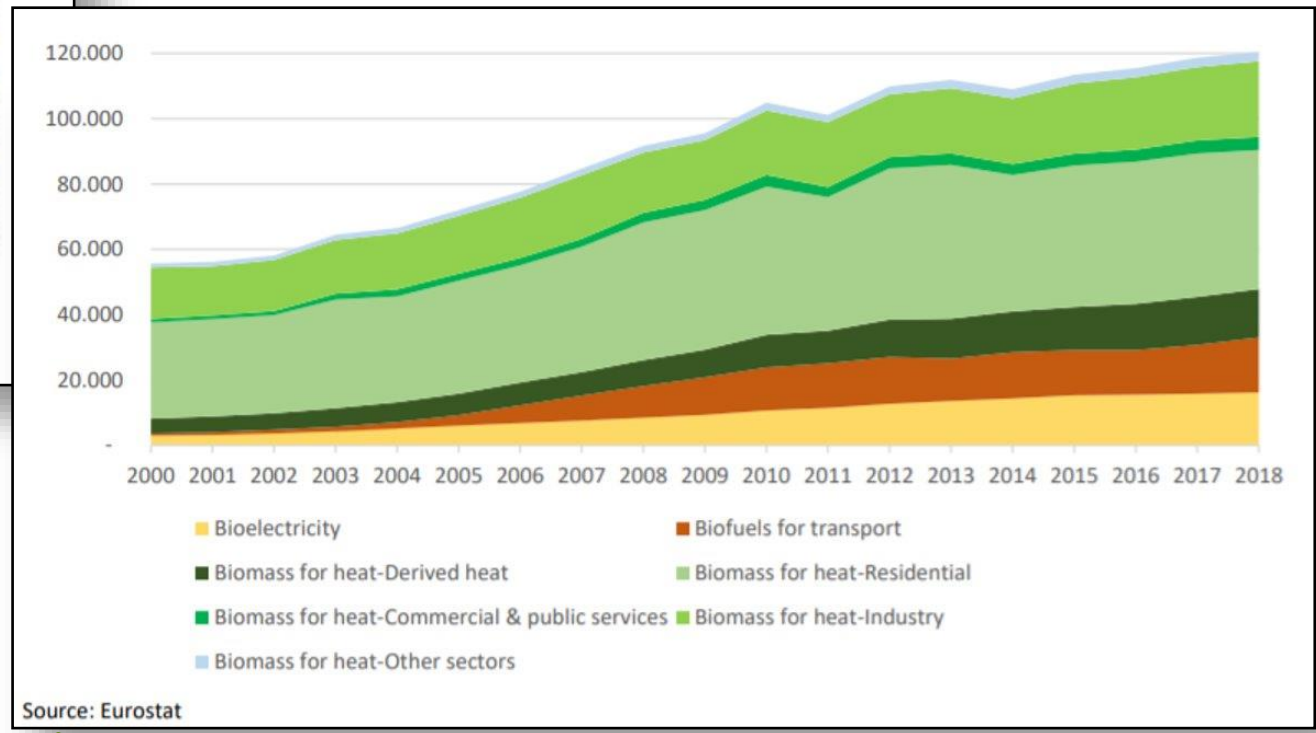
RETORNO joven

OBJETIVOS DE DESARROLLO SOSTENIBLE

Pacto Mundial Red Española

ENERGY FRAMEWORK-BIOENERGY USE IN EUROPE



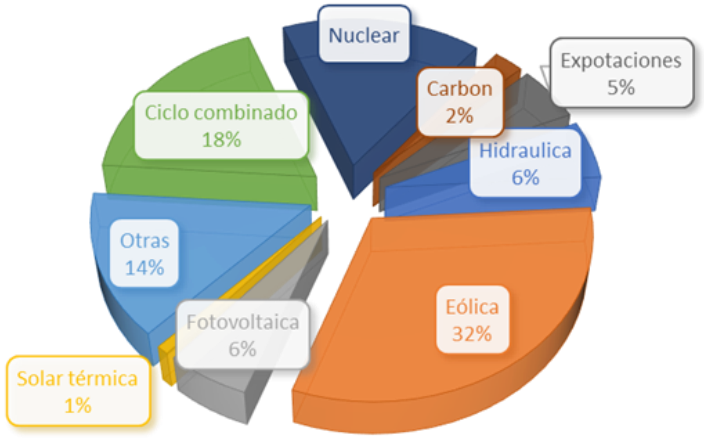


A rather **slow penetration of renewables in the EU heating and cooling sector**, which accounts for 51% of EU's total energy consumption and is expected to account for the largest share of demand by 2050.

A significantly untapped RE market uptake potential for bioenergy **-> 96% OF ALL RENEWABLE HEAT PRODUCED COMES FROM BIOMASS !!!**

ENERGY FRAMEWORK-SPAIN

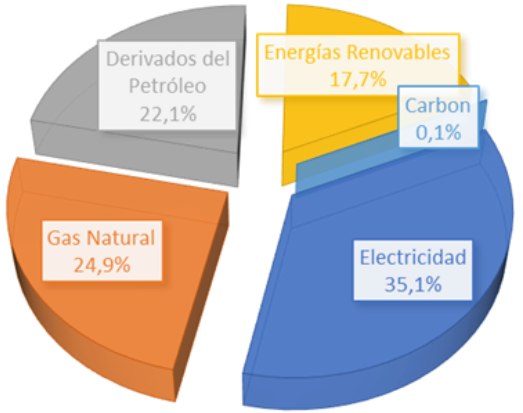
Electricity generation mix 2021



>50% from no local sources

<45% non-renewable

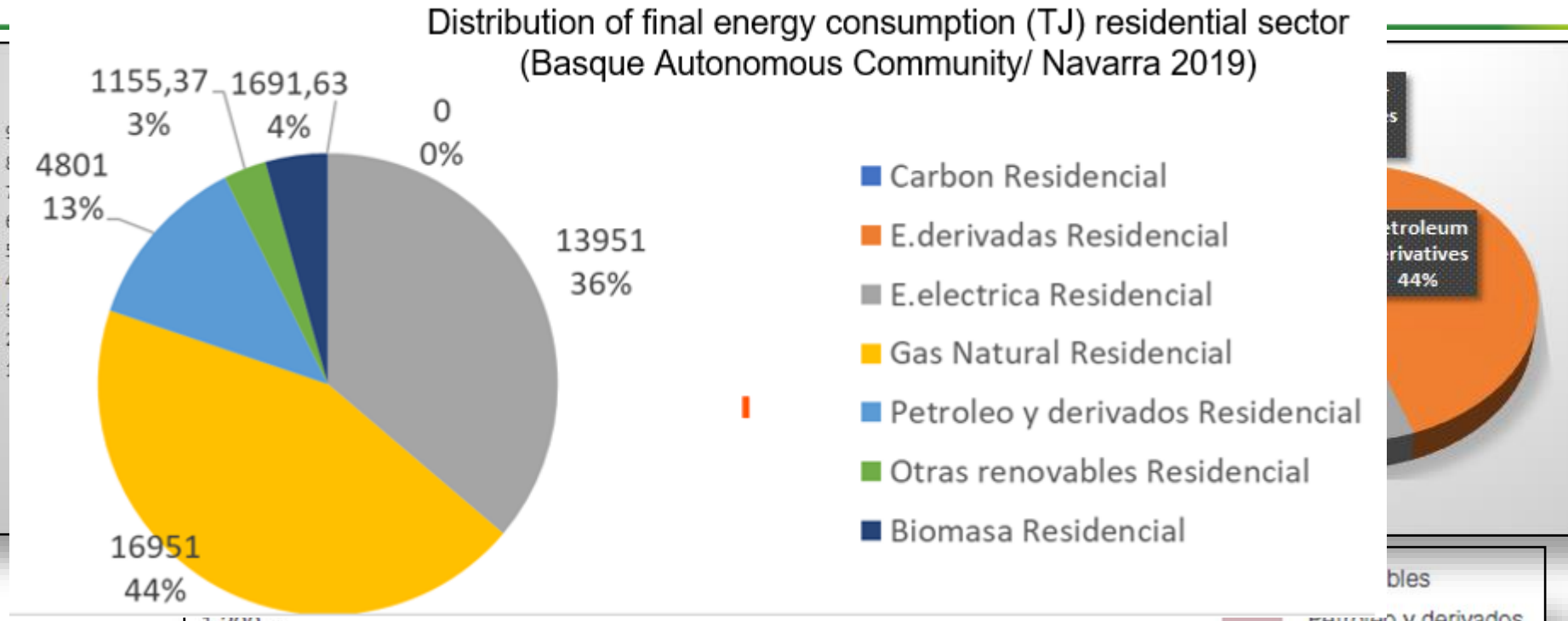
Households energy sources



>50% from no local sources

<20% non-renewable

ENERGY FRAMEWORK



INTRODUCTION – RENEWABLE ENERGY COMMUNITY (RESCOOP)

What is?

It is a new legal way of managing aspects of the energy transition.

1. WHO (Participating / Effective control)

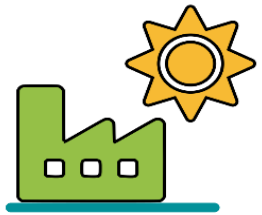
An ENERGY COMMUNITY is a legal entity. **Individuals** and **entities** in the immediate environment, **public and private,** with the purpose of collaborating in an activity related to the energy sector, in order to provide services to its members or to the local community or other socio-economic and environmental benefits.

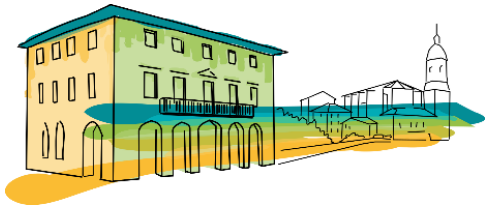
2. HOW?

3. WHY?

INTRODUCTION – RENEWABLE ENERGY COMMUNITY (RESCOOP)

What is?





LOCAL PROPERTY

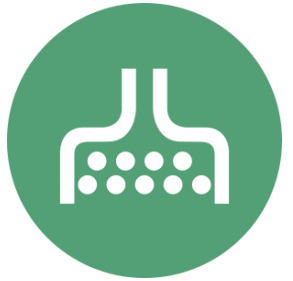
OBJECTIVES BENEFITS

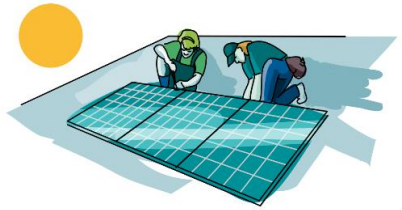
ENVIRONMENTAL, SOCIAL, ECONOMIC

Financial gain shall have no place or priority.

BEcoop

OFFER





MOST ACCUARATE LEGAL FORM FOR THE SPANISH FRAMEWORK:

Associations and Cooperatives Plural and democratic participation.

PARTICIPANTS: Individuals, local authorities, municipalities and SMEs.

INTRODUCTION – RENEWABLE ENERGY COMMUNITY (RESCOOP)

Following the RED II Directive, Renewable Energy Community, means a legal entity:

(a) which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is **effectively controlled by shareholders** or members that are **located in the proximity** of the renewable energy projects that are owned and developed by that legal entity;

(b) the shareholders or members of which are **natural persons, SMEs or local authorities, including municipalities**;

(c) the primary purpose of which is to **provide environmental, economic or social community benefits** for its shareholders or members or for the local areas where it operates, rather than financial profits.

Source: Directive 2018/2001 of the European Parliament and of the Council of December 11, 2018 on the promotion of the use of energy from renewable sources (REDII)

INTRODUCTION – RENEWABLE ENERGY COMMUNITY (RESCOOP)

Renewable energy communities are entitled to:

a) produce, consume, store and sell renewable energy, including through renewable power purchase agreements;

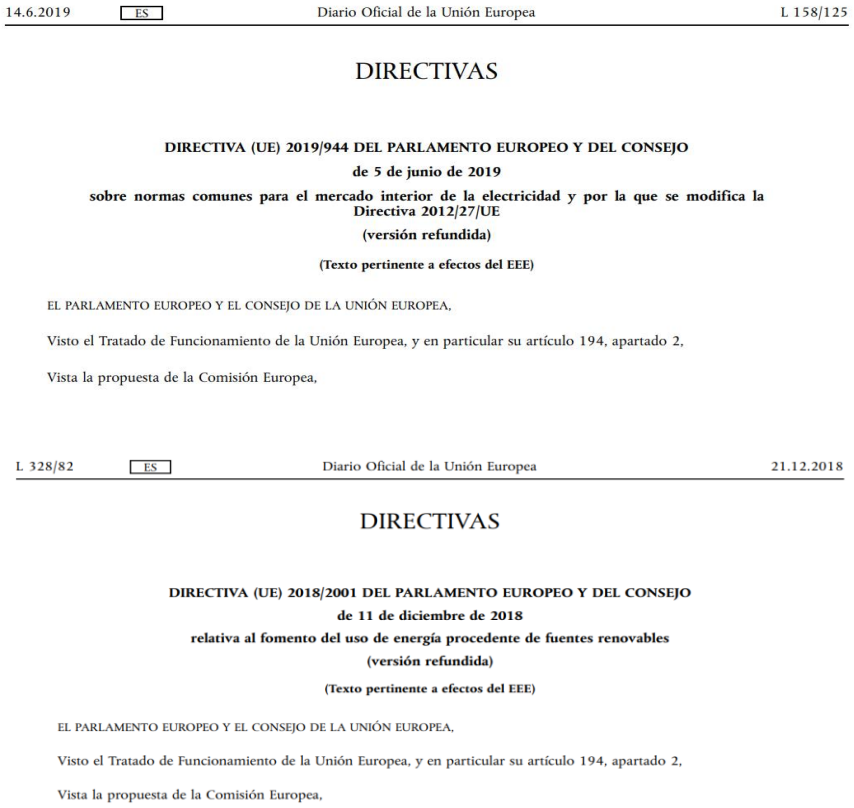
b) share, within the renewable energy community, renewable energy that is produced by the production units owned by that renewable energy community and to maintain the rights and obligations of the renewable energy community members as customers;

c) access all suitable energy markets both directly or through aggregation in a non-discriminatory manner.

Source: Directive 2018/2001 of the European Parliament and of the Council of December 11, 2018 on the promotion of the use of energy from renewable sources (REDII)

INTRODUCTION – RENEWABLE ENERGY COMMUNITY (RESCOOP) - POLICY

Differences between CEC and REC:



14.6.2019 ES Diario Oficial de la Unión Europea L 158/125

DIRECTIVAS

DIRECTIVA (UE) 2019/944 DEL PARLAMENTO EUROPEO Y DEL CONSEJO
de 5 de junio de 2019
sobre normas comunes para el mercado interior de la electricidad y por la que se modifica la Directiva 2012/27/UE
(versión refundida)
(Texto pertinente a efectos del EEE)

EL PARLAMENTO EUROPEO Y EL CONSEJO DE LA UNIÓN EUROPEA,

Visto el Tratado de Funcionamiento de la Unión Europea, y en particular su artículo 194, apartado 2,

Vista la propuesta de la Comisión Europea,

L 328/82 ES Diario Oficial de la Unión Europea 21.12.2018

DIRECTIVAS

DIRECTIVA (UE) 2018/2001 DEL PARLAMENTO EUROPEO Y DEL CONSEJO
de 11 de diciembre de 2018
relativa al fomento del uso de energía procedente de fuentes renovables
(versión refundida)
(Texto pertinente a efectos del EEE)

EL PARLAMENTO EUROPEO Y EL CONSEJO DE LA UNIÓN EUROPEA,

Visto el Tratado de Funcionamiento de la Unión Europea, y en particular su artículo 194, apartado 2,

Vista la propuesta de la Comisión Europea,

Citizen energy communities (CEC)
06.2019

Renewable Energy Communities (REC)
12.2018

ODS

TASK PENDING: Transposition of directives

BEcoop

In the current law the term used is local energy community to encompass both terms

INTRODUCTION – RENEWABLE ENERGY COMMUNITY (RESCOOP)-POLICY

Differences between CEC and REC:

Citizen energy communities (CEC)		Renewable Energy Communities (REC)
• Technologically neutral (only electricity)	⟷	• All forms of renewable energy.
• No geographical limits.	⟷	• Proximity of RE projects.
• Anyone can participate.	⟷	• Individuals, local authorities,municipalities and SMEs.
• Degree of independence not defined.	⟷	• Independent of its individual members and traditional market players.
• Effective control includes medium-sized companies.	⟷	• Actual control of individuals, local entities and SMEs.

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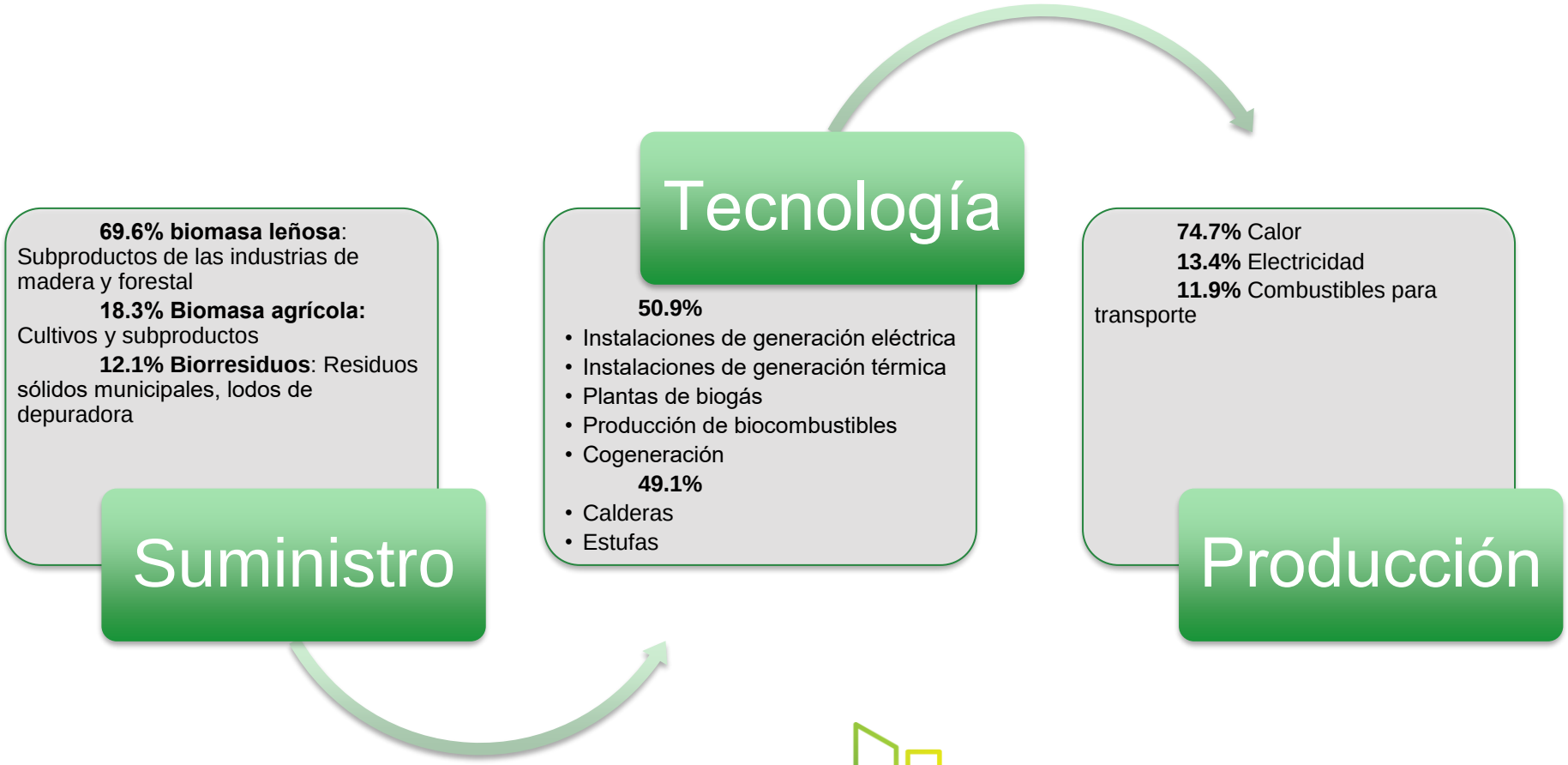
1. MARKET RESEARCH → Types of market research importance, examples of the researches done by the project in the pilot areas

TECHNICAL BIOENERGY AND SUSTAINABILITY ASPECTS

Energía obtenida a partir de materia orgánica con potencial para ser transformada



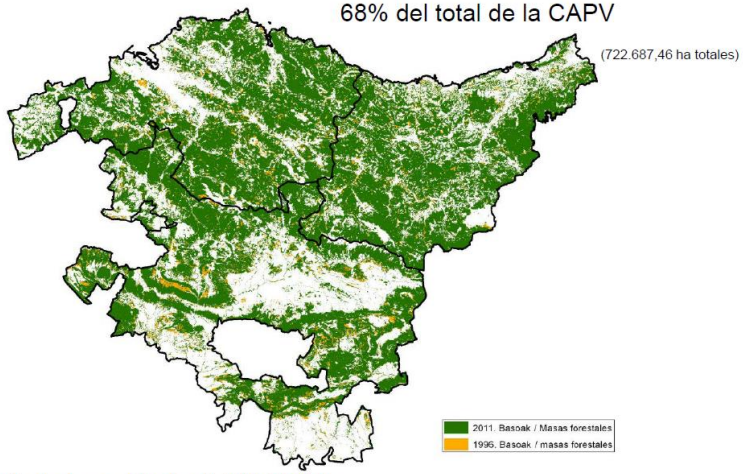
TECHNICAL BIOENERGY AND SUSTAINABILITY ASPECTS

Disponibilidad de biomasa

España tiene un gran potencial recursos biomásicos

País	Recursos biomásicos (Petajulios)	Población (millones)	Consumo (Toneladas equivalentes de petróleo)	Consumo por millón de habitantes	Recursos biomásicos por millón de habitantes
Francia	861,0	67,0	14.327,2	213,8	12,9
Alemania	774,0	82,0	25.697,4	313,4	9,4
España	619,0	46,0	6.754,2	146,8	13,5
Polonia	578,0	38,0	7.824,7	205,9	15,2
Suecia	516,0	10,0	11.298,4	1129,8	51,6
Finlandia	504,0	5,0	8.843,9	1768,8	100,8
Reino Unido	300,0	66,0	10.031,6	152,0	4,5
Austria	270,0	9,0	5.748,5	638,7	30,0
Italia	143,0	61,0	13.445,1	220,4	2,3
Portugal	117,0	10,0	2.887,3	288,7	11,7
Rumania	85,0	20,0	3.736,1	186,8	4,3
Estonia	79,0	1,0	841,7	841,7	79,0
Países Bajos	77,0	17,0	2.799,8	164,7	4,5
Dinamarca	69,0	6,0	3.456,1	576,0	11,5
Letonia	68,0	2,0	1.364,8	682,4	34,0
Irlanda	54,0	5,0	423,2	84,6	10,8
Bélgica	31,0	11,0	2.837,8	258,0	2,8
Total	5.145,0	456,0	122.317,8	268,2	11,3

- Sup. Forestal en Euskadi 494.500 ha
68% del total de la CAPV



- Sup. Forestal arbolada en Euskadi 396.700 ha
55% del total de la CAPV (Media Unión Europea 40%)

TECHNICAL BIOENERGY AND SUSTAINABILITY ASPECTS

Disponibilidad de biomasa

Especie	Tipo	Potencial (t ms/a)*	Disponible (t ms/a)*
Coníferas	Restos	3.031.382	1.438.717
Frondosas	Restos	3.601.615	1.594.704
Mezcladas	Restos	893.080	549.137
Matorral	Tratmto	2.080.482	937.845
Pastos leñosos	Ambiental	941.701	252.248
TOTAL	---	**10.548.261**	**4.772.650**

Cultivo	Tipo	Potencial (t ms/a)*	Disponible (t ms/a)*
Cereales en secano	Paja	16.944.193	5.420.661
Cereales en regadío	Paja	4.682.592	3.746.230
Arroz	Paja	394.983	316.204
Plantaciones de olivo	Podas	1.819.981	1.455.168
Plantaciones de frutales	Podas	1.411.563	1.129.094
Viñedos	Podas	843.949	675.000
Mezclas de cultivos	Podas	123.225	99.416
Total agricultura	---	**26.220.486**	**12.841.774**
Adicional reconversión (arranques)	Árbol y raíz	>1.000.000 **	>800.000**

[*] t ms: toneladas de materia seca; [**] estimación AgroBioHeat

TECHNICAL BIOENERGY AND SUSTAINABILITY ASPECTS

Biomasa agrícola herbácea

Biomasa agrícola leñosa

Biomasa forestal

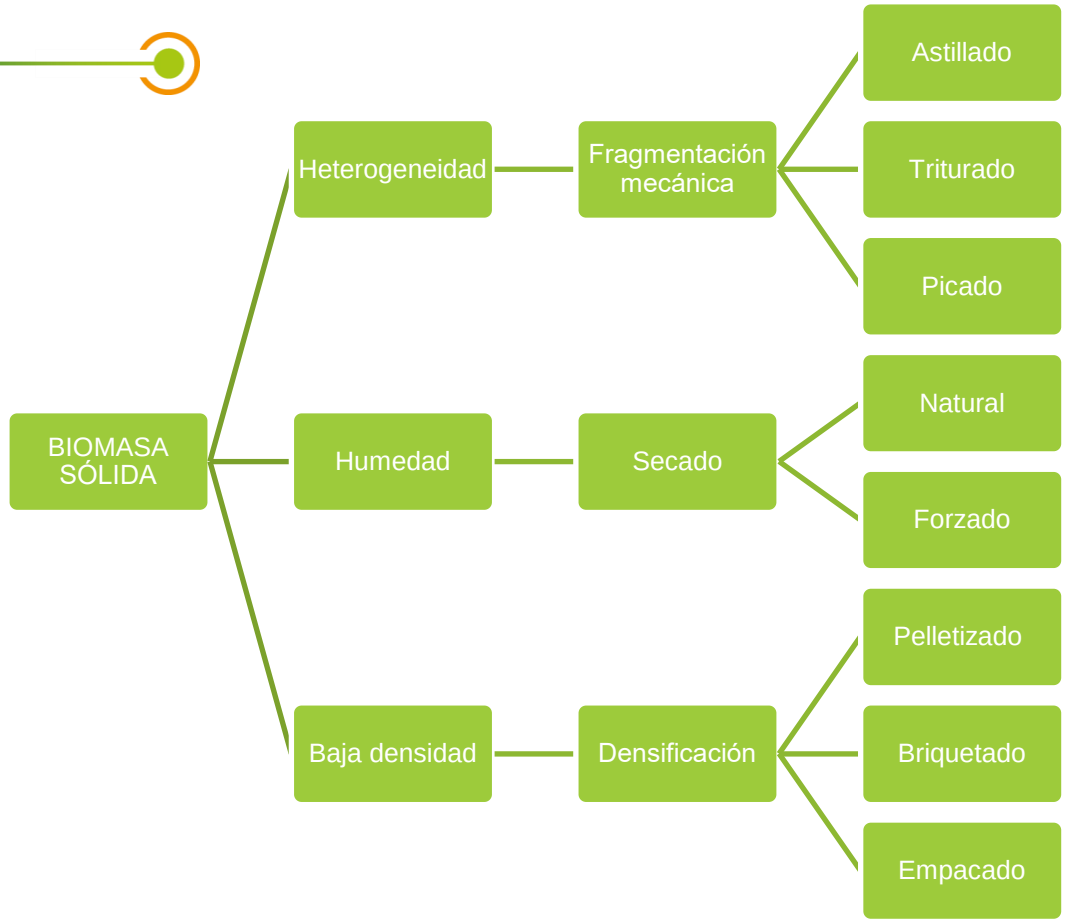
Biomasa ganadera

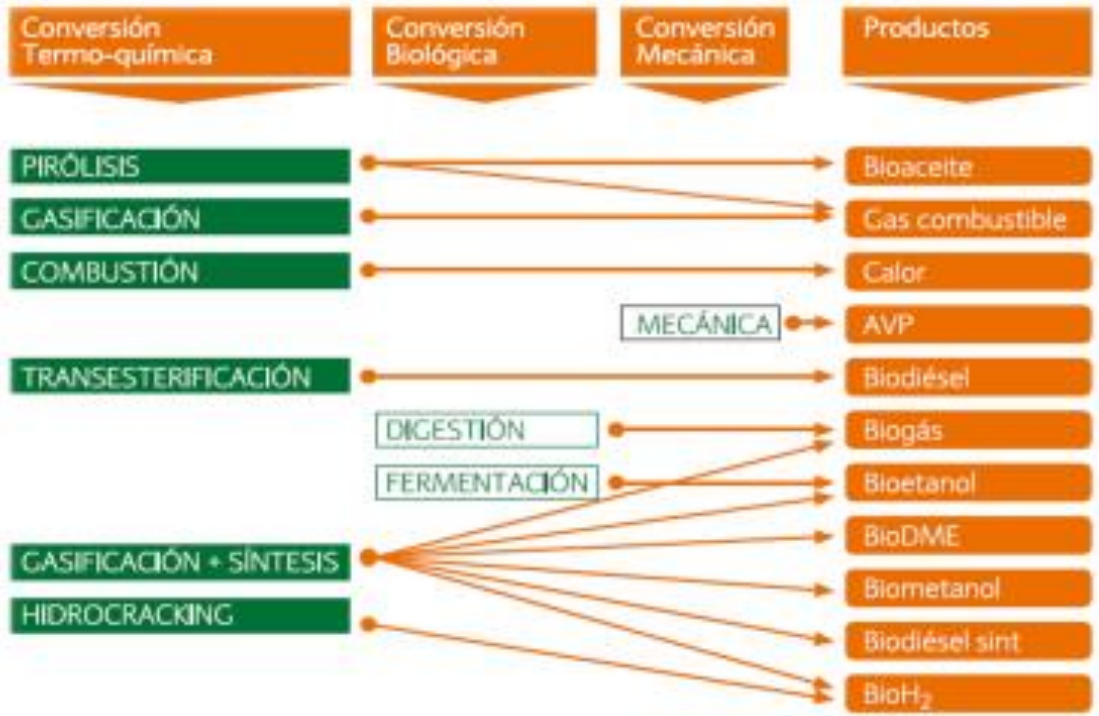
Biomasa agro-industrial

Biomasa industrial

BIOENERGIA

TRANSFORMACIÓN





Fuente: BIOPLAT

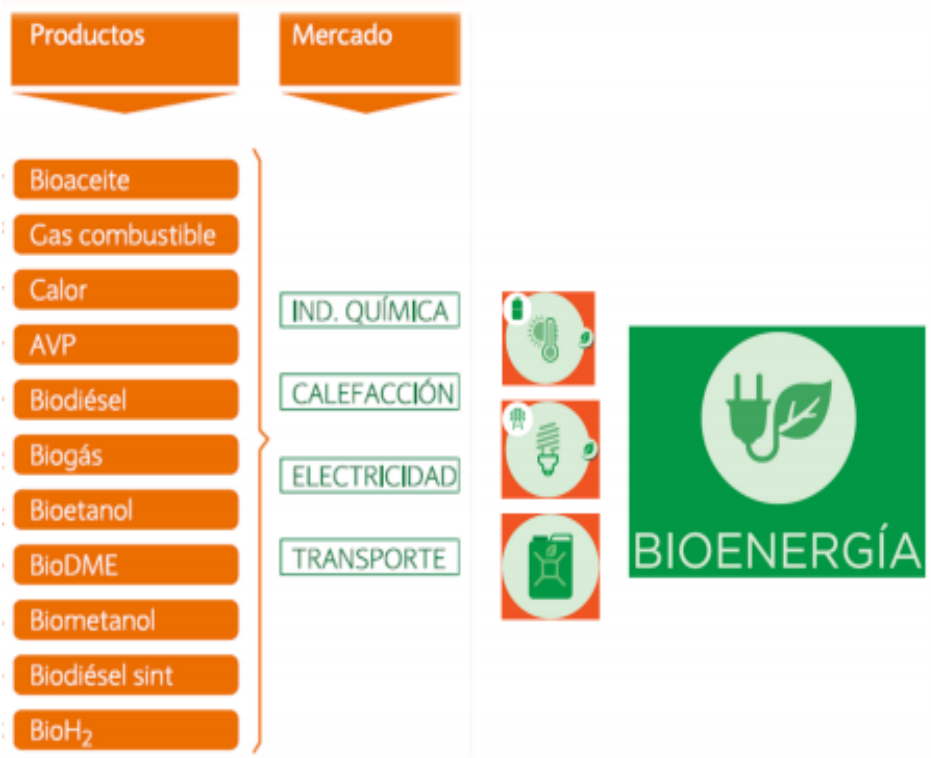
BIOENERGIA

USOS FINALES

- Cuando la transformación de biomasa da lugar a la generación de electricidad, calor o biocombustibles, se conoce como BIOENERGÍA

La Bioenergía:

- Ayuda en la generación y mantenimiento de empleos
- Contribuye a cumplir con los objetivos de cambio climático
- Reduce las emisiones en la generación de energía



BECoop

TECHNICAL BIOENERGY AND SUSTAINABILITY ASPECTS

I. New jobs for the local community.
II. Activation of local agriculture.
III. Education of residents in the us… …nergy sources.
IV. Biomass is always and… …as a RES.
V. It reduces the … …ssil fuels (currently, coal and natural gas have a cor… …share of more than 85% in the global heat production).
VI. Is less expensive than fossil fuels.
VII. Biomass production adds a revenue source for manufacturers.
VIII. It is carbon neutral and more environmental-friendly than coal.

3. TECHNICAL BIOENERGY AND SUSTAINABILITY ASPECTS→ technical aspects related to Forest biomass, straw, biogas and others but always related to heat production.example from Polish case.

POLICY RELEVANT MATERIALS

4. Pilot region/ country policy framework

STAKEHOLDER ENGAGEMENT: What are Stakeholders and Stakeholders Engagement?

Definitions

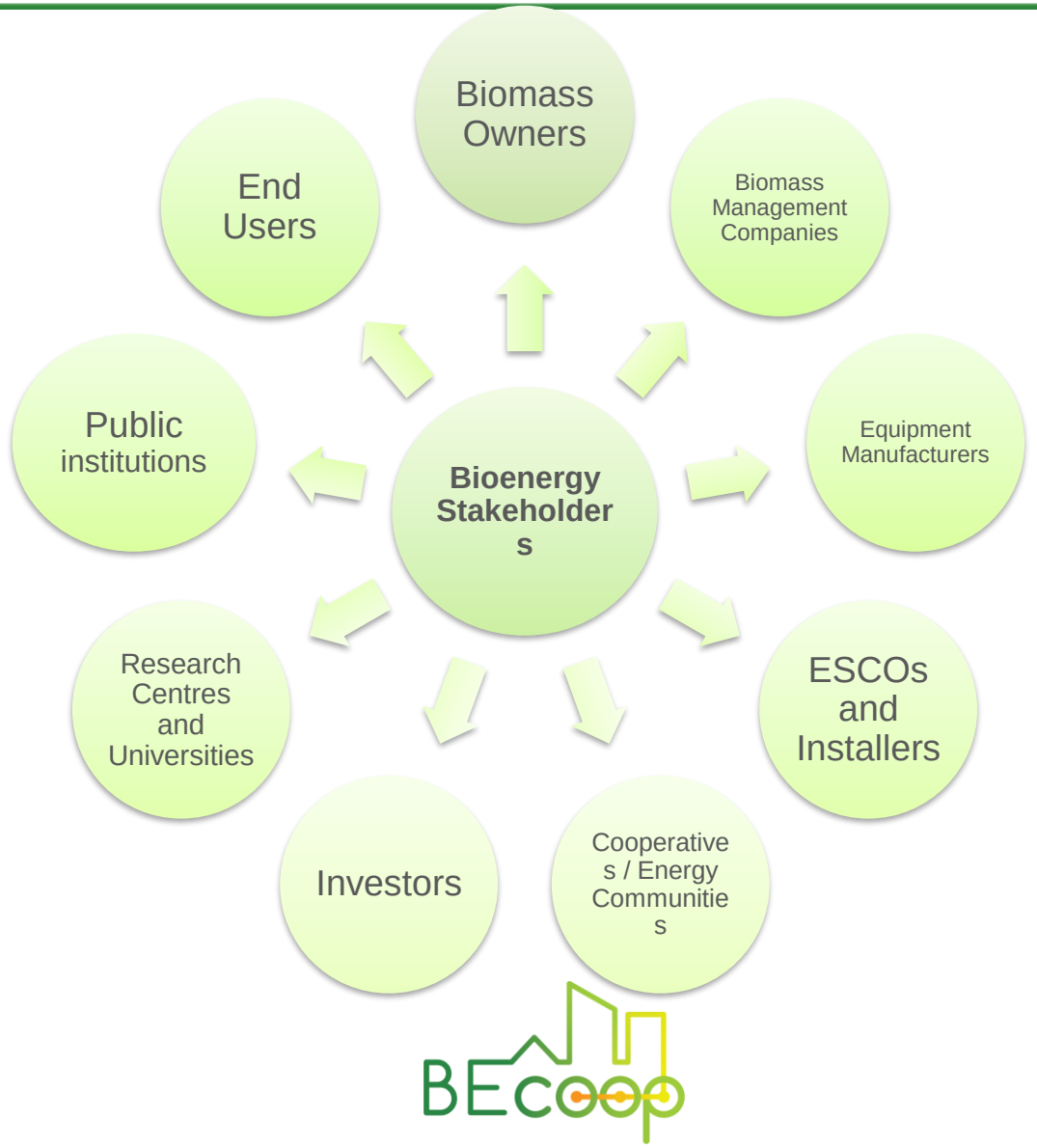
“Any group or individual who can affect or be affected by the achievement of an organization’s objective” (Freeman, 1984)

- **Stakeholder:** Anyone that has some sort of interest or concern about a bioenergy project from suppliers, investors, customers, authorities, regulators to the general public

- **Stakeholder Engagement:** is the systematic and the conscious process of positively engage and involve stakeholders throughout the project life cycle in order to align its goals with stakeholders’ expectations

Stakeholders types	
Unaware	Unaware of a project's existence
Reluctant	Aware of a project, but hesitant to change
Neutral	Aware of a project, but not fully understand or like it
Supportive	Like and support a project and potentially create an impact
Leading	Actively participate in a project's success

Lead types of stakeholders in the Pilot Area



Main Engagement actions that could mobilize local populations around the concept – Biomass Owners, Biomass Management Companies

Biomass Owner

Example: Local Farmer, Planter

- Income from the sales of biomass
- Low expense on the transport of biomass
- Ensuring continuity of supplies
- Management of post-harvest residues
- Local use of the raw material

Biomass Management Companies

Example: Company that produces pellets / briquettes

- Additional income
- Additional advertising of services
- No need to import raw materials
- Ensuring permanent cooperation
- Synergy of financial profits and work for the local community

Main Engagement actions that could mobilize local populations around the concept – Equipment Manufacturers, ESCOs & Installers

Equipment Manufacturers

Example: Producers of pellet boilers (Town and commune of Pleszew)

- New customers (additional income)
- New cooperation market
- Ensuring continuity of supplies
- Possibility of future servicing of boilers
- New advertising opportunities

ESCOs and Installers

Example: Local companies offering energy-related services

- New customers (additional income)
- New order options, audits, reviews
- New cooperation market
- Orders related to the reconstruction of infrastructure
- New advertising opportunities

Main Engagement actions that could mobilize local populations around the concept – Cooperatives, Public Institutions

Cooperatives/Energy Communities

Example: Energy Clusters in Poland, Energy Co-operatives

- Independence from energy supplies
- Deciding on your own energy capabilities
- Partnering and the use of local raw materials
- Support for local businesses
- Financial savings

Public Institutions

Example: National Agricultural Support Center, Lower Silesian Chamber of Agriculture, Oborniki Śląskie Forestry Inspectorate

- New jobs creation
- Use of raw materials / surplus raw materials
- Greater activation of local forestry / agriculture
- Ensuring energy security for residents
- General development of the region

Main Engagement actions that could mobilize local populations around the concept – Research Centre/Universities, Investors

Research Centre/Universities

Example: Wroclaw University of Life Sciences and Environmental, Institute of Rural Development and Agriculture of the Polish Academy of Sciences

- Offering technical support
- New areas of research
- Possibility to apply for grants and projects
- Performing physicochemical tests on request

Investors

Example: Housing Communities, Private Companies, Private Investors, Farms

- Income opportunity
- Synergy of financial profits and work for the local community
- Ensuring long-term cooperation
- New cooperation market

Main Engagement actions that could mobilize local populations around the concept – End Users (Consumers of Biomass)

End Users (Consumers of Biomass)

Example: Households, schools, multi-family buildings, housing cooperatives

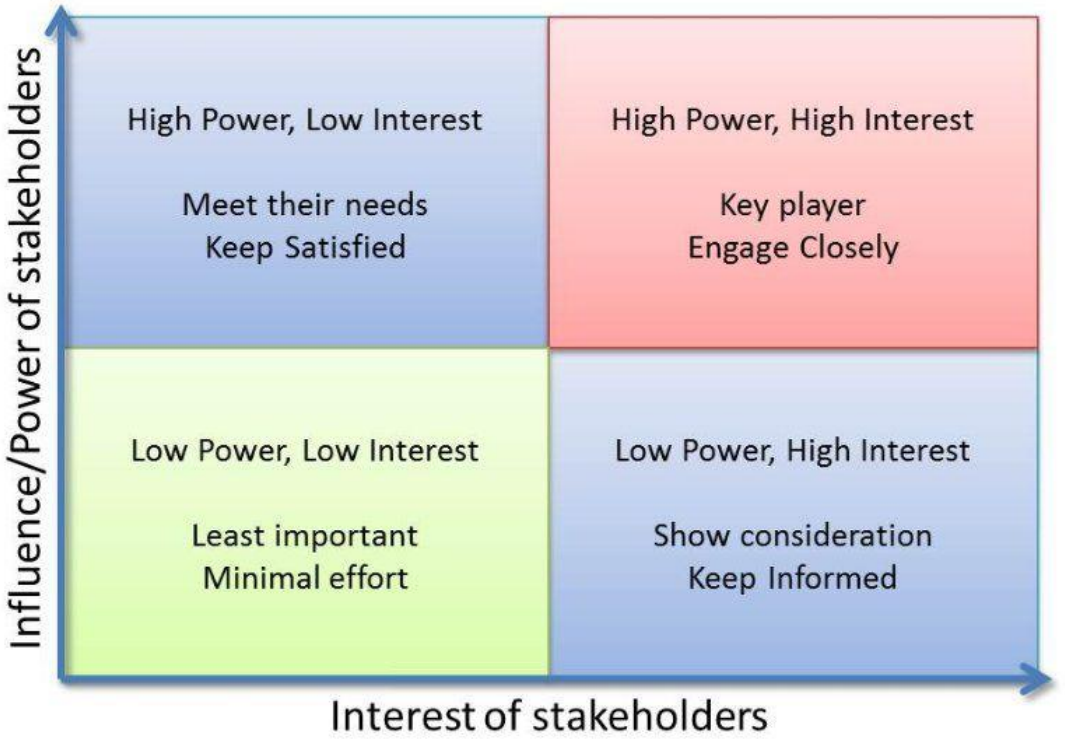
- Cheap source of heat (savings)
- Provision of biomass supplies
- Ecological source of heating
- Synergy of financial savings and work for the local community
- Limiting the possibility of energy poverty

1. Stakeholder identification

- analysis and mapping of potential stakeholders based on type, interest and power

1. Stakeholder prioritization

- The grid helps to prioritize them based on their interest and power
- High effort & focus on key stake-holders



Source: Monday.com

MODULE 4 – STAKEHOLDER ENGAGEMENT ACTION DEVELOPMENT (continue)

3. Communications plan

- Type: what channels or means to be used
- Frequency: how often
- Content: what to communicate

4. Stakeholders' feedback incorporation

- Respect and take into account feedback from the stakeholders regarding the project

5. Monitor and report

- Regular and transparent sharing of information and updates back to the stakeholders

Source: Monday.com

General Stakeholder engagement & mobilization actions in bioenergy community projects

- **Regular personal meetings and small-scale events (offline & online)** with key stakeholders to keep them up-to-date
- **Warm-up events & information campaigns** to raise awareness around bioenergy communities
- **Community events (physical and online)** to identify the most suitable entities to represent and promote community bioenergy heating projects.
- **Info days, training workshops and open discussions** to, among else, define modes to remove or eliminate any legislation barriers that prevent the deployment of RECs etc
- **Emails/Newsletters to other relevant stakeholders** to keep them posted
- **SoMe outreach** to share updates on the project with other stakeholders (of lower interest)

Objectives

- ✓ Prepare Energy Communities for **accessing finance**
- ✓ Learn to analyze the basic **Business Models for RESCoops**
- ✓ Understand the Basic elements of **business planning**
- ✓ Prepare Energy Communities for **accessing finance**

1. Accessing Finance for Bioenergy Community Projects

- Two interrelated aspects:
  - Financing
  - Ownership
- Need for tailored advice and expert financial expertise on per project basis

2. Main financial solutions for bioenergy projects

- ***Self-financing:*** it concerns the shares acquired by members and/or the loans from members
- ***Crowdfunding***: an alternative form of funding attracting
- ***Bank Loans*** from traditional and/or cooperative and ethical banks
- ***Public funding*** in the form of subsidies and grants in capital and/or in investment from public funds (national and international
- **Capital and/or investment** support from private funds
- **Venture capital** from RESCoops developers

Self-financing

- Project capital is raised from the members of the RESCoop (existing or new)
- The capital is raised in the form of equity, bonds or debt
- An annual share interest on that equity, relative to available profit is paid
- Projects may also combine equity and debt in the same way as a privately funded scheme.
- Members are given a single vote, no matter how much they invest in equity (no impact on democratic control)

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- A form of crowdsourcing usually through open calls to the wider society to finance projects using internet platforms
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- The asset/collateral given as a guarantee (land, guaranteed feed-in tariff)

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Joint ventures

- A joint venture refers to the creation of a partnership or conglomerate, in which different entities combine their assets (Capital, expertices etc)
- A new entity is created to share risk or expertise on a temporary basis or project basis
- The venture is regulated by a legal contract between the parties
- The return on investment will depend on the terms of the agreement between the parties reflecting their contribution

2. Business Models and the Business Model Canvas

- The purpose of a business model is to clarify how a business creates, delivers, and captures value (Osterwalder & Pigneur, 2010).
- Innovation can broadly be defined to include new forms of economic, social and environmental value creation
- RESCoops business models act as drivers for innovation in the energy transition
- The business model canvas is a common framework for creating and evaluating a business model.

Business Model Canvas Elements

The business model canvas consists of 9 blocks.

- Each block should describe how an organization or business model should handle the different opportunities and
- threats that can occur in the given block

The 9 elements provide a coherent view of the business' key drivers

1. Customer Segments: Who are the customers? What do they think? See? Feel? Do?
2. Value Propositions: What's compelling about the proposition? Why do customers buy, use?
3. Channels: How are these propositions promoted, sold and delivered? Why? Is it working?
4. Customer Relationships: How do you interact with the customer through their 'journey'?
5. Revenue Streams: How does the business earn revenue from the value propositions?
6. Key Activities: What uniquely strategic things does the business do to deliver its proposition?
7. Key Resources: What unique strategic assets must the business have to compete?
8. Key Partnerships: What can the company not do so it can focus on its Key Activities?
9. Cost Structure: What are the business' major cost drivers? How are they linked to revenue?

BMC for RESCoops

- Key partners involve the most leading members of the community profile, either person or entities (NGOs, associations, local or regional government etc)
- Key activities mainly concerning the ways that the Energy Community utilises renewable energy to the local markets and its stakeholders (electricity generation, heating etc)
- Key resources are dealing with the renewable energy sources and their core technologies that are usually implemented within the community projects (e.g. electricity generation connected to the grid, electricity generation for self-consumption)
- Value propositions have to do with the possible utilisation pathways of the produced renewable energy or the community activities.
- Customer segments include the potential stakeholders as beneficiaries from the community actions and projects.
- Cost structure includes the possible available financial and funding resources at which the community operates. It also comprises the most relevant Capital and Operational Expenditures within the community activities.
- Revenue streams refers to all the possible pathways that can bring value to the community within its activities and projects.
- Environmental benefits as an outcome of the community actions respecting the local/national ecosystems.
- Socio-economic benefits to the local and national societies and other communities.

COMMUNITY BIOENERGY

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- Feed into/connect to existing heat networks in pilot areas that transit to BE.
- Establish a communal heat network.
- Direct heating systems: e.g., collective purchases of individual biomass boilers in community members' homes.
- Switching building-level heating to low-carbon sources on a communal basis.
- Use of bioenergy through biogas-fired cogeneration plants to balance local energy grids that receive large amounts of variable renewable energy (solar, wind).
- Other.....

COMMUNITY BIOENERGY

Creation process

Awakening interest and attracting citizenship

> Awareness campaign

> Identification of stakeholders

Preparation

> Empowerment of stakeholders.

> Sharing knowledge about REC.

REC creation

> Creation and empowerment of the promoter group. Creation and implementation of working groups > Creation and implementation of working groups
> Agree on legal form + energy project
> Elaboration of a communication strategy

REC Start-up

> Introducing REC
> Incorporation of new members to the CER

> Start-up of the energy project(s) > Start-up of the energy project(s)

Municipality

Citizens

Companies

Supporting groups

BEcoop

Promoting group

Working groups

REC

COMMUNITY BIOENERGY

The role of public institutions

- Avoid institutional and personal **DISTRUST.**
- Elaboración de guías de buenas prácticas. Protección, conservación del **INTERÉS GENERAL**.
- **ACTIVATION OF RESOURCES** at municipal level: cession of roofs and spaces of municipal ownership, involvement of technical staff, resources for meetings and constitution of the community, reserving spaces to projects promoted or collaborating with the CER.
- Enabling a permanent energy service such as the **ENERGY OFFICE**.
- Revision of the **FISCAL POLICY** oriented to the improvement of energy efficiency, renewable energies and sustainable mobility.
- To use the usual **DISSEMINATION CHANNELS** of the City Council for the dissemination of this model in the municipality.
- While the REC achieves effective autonomy, it can act as a **FACILITATOR**.

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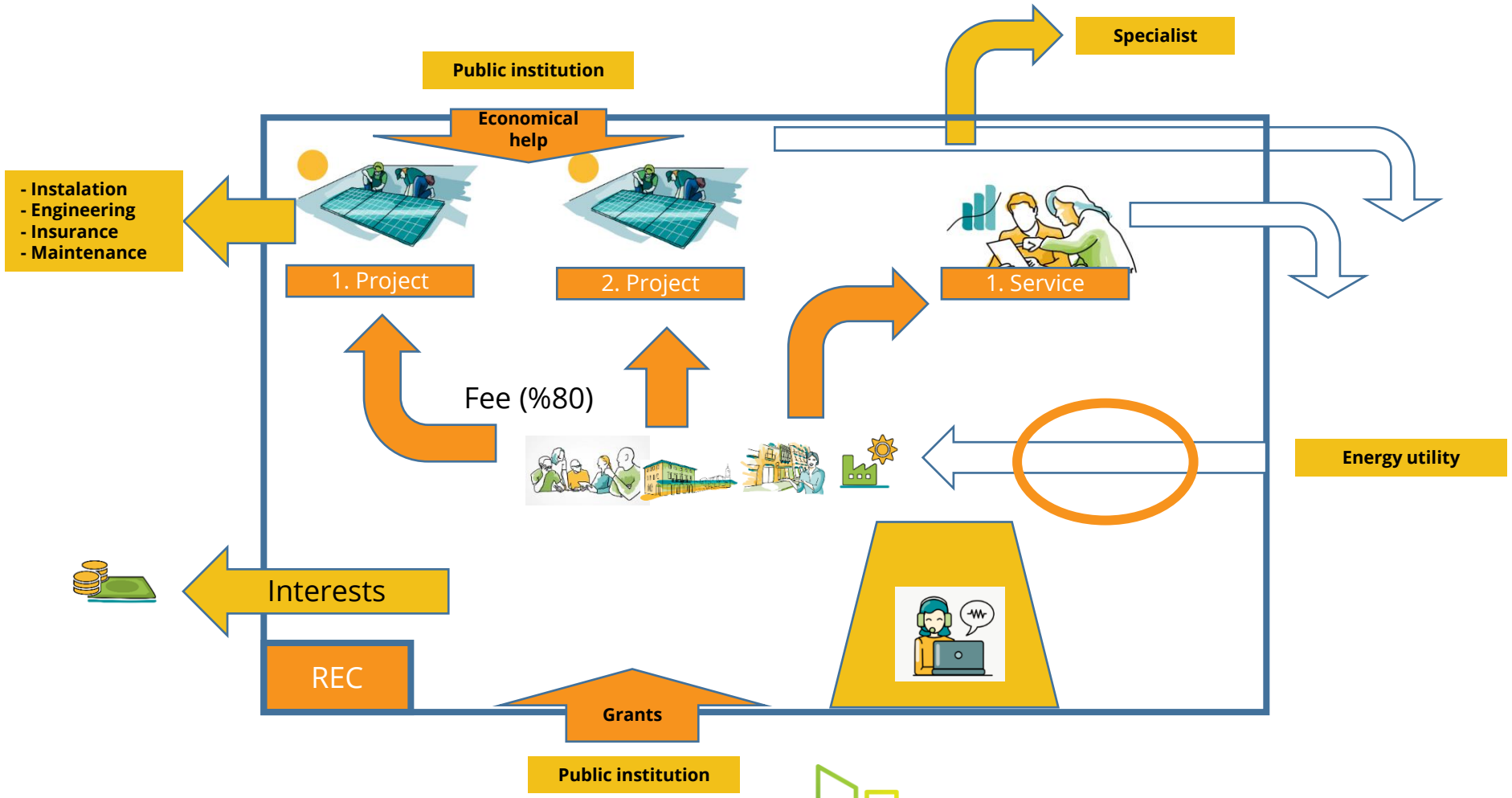
Community structure



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What can offer?

Type of service		Solar		Wind	Hydro	Biomass/Biogas			Other	
		PV	Thermal		Mini	Forest	Agricultural	Residues		
Self consumption	Individual									
	Colective									
Energy generation	Electrical									
	Thermal									
Advice	Refurbishment									
	Efficiency									
	Training									
Electric charger										
Car Sharing										

COMMUNITY BIOENERGY

BIOMASS-FORESTRY HEAT APPLICATIONS

	Autoconsumo individual				**Autoconsumo colectivo**	
Tecnología	Calderas individuales automáticas	Calderas de leña eficientes	Calderas de leña de gasificación	Calderas automáticas de astilla	Redes de calor alimentada por calderas de biomasa	Centros de acopio de biomasa
Combustible	Pellets 	Madera/Troncos 	Madera/Troncos + Biogás 	Astilla de corte 	Astilla de corte o pellets  	Astilla, madera 
Capacidad instalada tipo	5-15 kW	20-40 kW	20-40 kW	50-200 kW	100kW-3MW	N/A
Usuarios, consumidores	Unifamiliares, apartamentos, Adosados	Unifamiliares, Adosados	Unifamiliares, Adosados	Edificios terciarios públicos, comerciales e industrias.	Domestico, Edificios terciarios públicos, comerciales e industrias.	Domestico, Edificios terciarios públicos, comerciales e industrias.
Abastecimiento combustibles	Entrega a granel o sacos	Entrega a granel o pilas	Entrega a granel o pilas	Entrega a granel	Entrega a granel	Entrega a granel
Almacenamiento	Silo automático o en la propia caldera.	Almacén, Manual, Existen hogares de combustión grandes para disminuir frecuencia de carga	Almacén, El tronco se cuece y dura hasta 10 horas sin necesidad de cargar.	Silos automático, sinfín u pneumatica entre otros.	Almacenes/Silos automático, sinfín u neumática entre otros. Según disponibilidad de espacio pellet o astilla. <u>Soluciones modulares:</u> 	Pabellones/almacenes

COMMUNITY BIOENERGY

BIOMASS-AGRICULTURAL HEAT APPLICATIONS

	Autoconsumo individual		Autoconsumo colectivo	
Tecnología	Calderas individuales automáticas	Calderas individuales automáticas	Redes de calor alimentada por calderas de biomasa	Redes de calor alimentada por calderas de biomasa
Combustible	Pellets de residuos agrícolas (paja, sarmiento, orujo, huesos aceituna…) 	Residuos sin tratamiento (paja, sarmiento, orujo, huesos aceituna…)   	Residuos sin tratamiento (paja, sarmiento, orujo, huesos aceituna…)   	Pellets de residuos agrícolas (paja, sarmiento, orujo, huesos aceituna…) 
Capacidad instalada tipo	5-15 kW	> 20 kW	> 20 kW	>100 kW
Usuarios, consumidores	Unifamiliares, apartamentos, Adosados	Unifamiliares, Adosados, industrias	Domestico, Edificios terciarios públicos, comerciales e industrias.	Domestico, Edificios terciarios públicos, comerciales e industrias.
Abastecimiento combustibles	Entrega a granel o sacos	Entrega a granel o bolas	Entrega a granel o bolas	Entrega a granel
Almacenamiento	Silo automático o en la propia caldera	Almacenes/Silos automático, sinfín u neumática entre otros. Según disponibilidad de espacio pellet o astilla.	Almacenes/Silos automático, sinfín u neumática entre otros. Según disponibilidad de espacio pellet o astilla.	Silo automático

*Logística similar a la biomasa forestal, la tecnología debe seleccionase de acuerdo a la biomasa a valorizar

COMMUNITY BIOENERGY

BIOMASS-WASTE HEAT APPLICATIONS

	Autoconsumo individual			Autoconsumo colectivo	
Tecnología	Calderas individuales/colectivas alimentadas por biometano de red renovable.	Calderas de cogeneración (calor+electricidad)	Calderas de cogeneración (calor+electricidad)	Redes de calor alimentadas por Calderas de cogeneración (calor+electricidad)	Redes de calor alimentadas por Calderas de cogeneración (calor+electricidad)
Combustible	Biometano con garantía de origen renovable (upgrading del Biogás)	Pellets astillas provenientes de residuos de madera 	Biogás de residuos (industria alimentaria, RSU, ganadera) 	Pellets astillas provenientes de residuos de madera 	Biogás de residuos (industria alimentaria, RSU, ganadera) 
Capacidad instalada tipo	10-20 kW	10-50 kW	>100 kW	>100 kW	>100 kW
Usuarios, consumidores	Unifamiliares, apartamentos, Adosados	Domestico, Edificios terciarios públicos, comerciales e industrias.	Edificios terciarios públicos, comerciales, granjas e industrias.	Domestico, Edificios terciarios públicos, comerciales e industrias.	Domestico, Edificios terciarios públicos, comerciales e industrias(agroindustria, ejemplo grandes supermercados)
Abastecimiento combustibles	Mediante la red actual de gas natural	Entrega a granel	Circuitos internos entre caldera y digestor		Circuitos internos entre caldera y digestor
Almacenamiento	Almacenamientos de la red.		Colector de Biogás. Soluciones modulares.		Colector de Biogás. Soluciones modulares. 

COMMUNITY BIOENERGY- EXISTING CASES: Solid Biomass

SestaoBerri

Caso: Sestao Berri
Entorno: Urbano
Tipo de actuación: Rehabilitación energética 4 edificios (232 viviendas) + abastecimiento calefacción y ACS mediante red de calor (750 kW caldera biomasa + 650 back up GN)
Biocombustible: Pellets de biomasa forestal local.

COMMUNITY BIOENERGY-EXISTING CASES: Solid Biomass

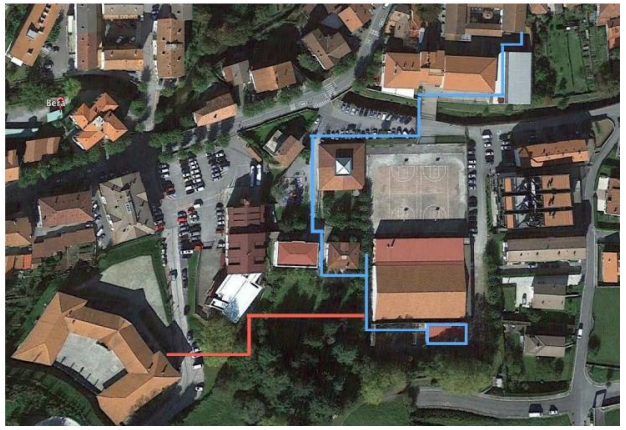
Sugarai

Caso: Sugarai cooperativa
Entorno: Rural
Tipo de actuación: Producción de biocombustibles solidos para abastecer demandas locales térmicas desde 2015. En circuito corto no se vende a más de 50 km.
Biocombustible: Astilla y troncos de madera para calefacción.

COMMUNITY BIOENERGY-EXISTING CASES: Solid Biomass

Vilafranca - Bera

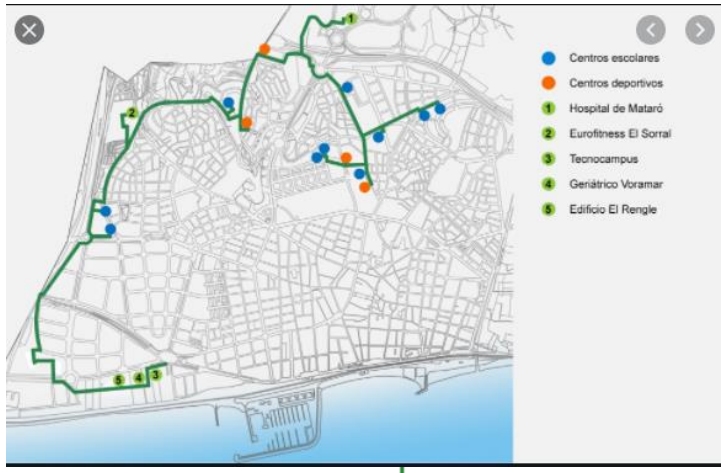
Caso: Vilafranca del Penedés - Vineyards4Heat.
Entorno: Rural/ Urbano
Tipo de actuación: Red de calor en 5 edificios públicos aprovechando subproductos agrícolas con una caldera de 500 kW.
Biocombustible: Subproductos agrícolas basados en las podas de vides.



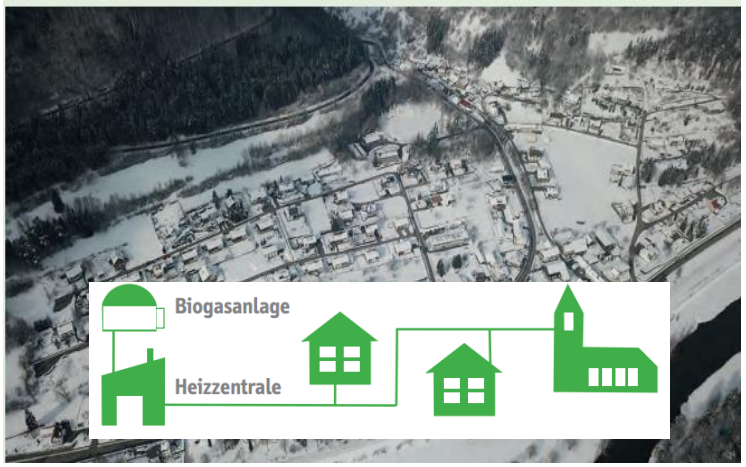
Caso: Red de calor Bera
Entorno: Rural interior
Tipo de actuación: Red de calor (500kW+250kW) alimentando 5 edificios públicos remplazando calderas de gasoil.
Biocombustible: Astilla local.

COMMUNITY BIOENERGY-EXISTING CASES: Biomass-waste (or wet)

Mataró-Germany



Caso: Mataró
Entorno: Urbano
Tipo de actuación: Red de calor alimentada por una cogeneración.
Biocombustible: Biogás lodos de depuradora.



Caso: Comunidades energéticas de biogás en Alemania.
Entorno: Rural
Tipo de actuación: Producción comunitaria de biogás para cogeneración (electricidad + gas) que alimentan redes de calor.
Biocombustible: Purines, lodos de depuradora

COMMUNITY BIOENERGY-EXISTING CASES : Biomass in REC

Caso: SOM
Entorno: Rural
Tipo de actuación: Gestión planta de producción de biogás en base a purines de explotaciones agrarias, para combustión. Generación de electricidad para comercialización y calor para consumo de los digestores.
Biocombustible: Biogás.

Caso: Grecia ESEK
Entorno: Urbano /Rual
Tipo de actuación: Gestión planta de producción de biocombustibles sólidos (pellets/astillas) y comercialización.
Biocombustible: Pellets

Caso: Norte Italia SEV
Entorno: Rural
Tipo de actuación: Gestión cooperativa de mas de 60 redes de calor (en rangos de 300kW-31MW) abasteciendo alrededor de 16 000 edificios.
Biocombustible: Pellets/astilla
Otros: Por cada 1€ invertido por el cliente 0,7 € se queda en la región frente a los 0,22€ de los sistemas de calefacción originales.

2. Main financial solutions for bioenergy projects

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Self-financing

DIFFERENT SOURCES OF FINANCING:

- ✓ **EVE (Ente Vasco de la Energía):** Incentive program linked to self-consumption and storage, with renewable energy sources, as well as to the implementation of renewable thermal systems in the residential sector (End date: 12/31/2023).
  https://www.eve.eus/Programa-de-ayudas/2020/Programa-de-incentivos-ligados-al-autoconsumo-y-al.aspx

- ✓ **Ayudas del Ayuntamiento de Vitoria-Gasteiz:** Existen tanto bonificaciones para el IBI como para el ICIO en base al Certificado de Calificación Energética (CEE) obtenido tras un proceso de rehabilitación energética de una vivienda (no existen bonificaciones específicas adscritas solamente a la instalación de paneles fotovoltaicos).

- ✓ **MITECO (Ministerio para la Transición Ecológica y el Reto Demográfico):** 100 millones de euros para subvencionar todas las fases de creación de una comunidad energética (CE Aprende, CE Planifica y CE Implementa).

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INCLUDE IDENTIFIED LOCAL PUBLIC FUNDINDS…..

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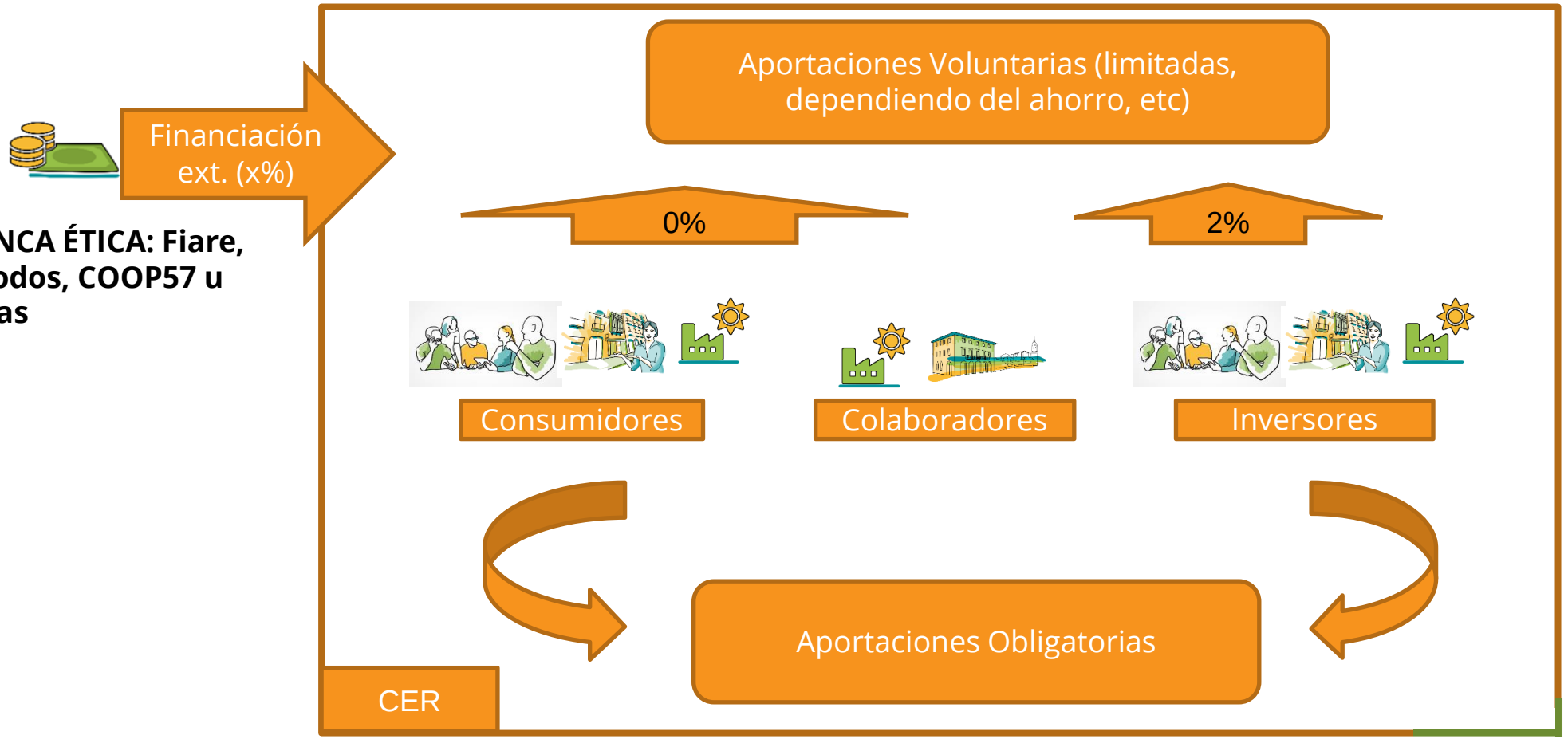
Business Model Canvas Elements

2.1 Hoja de ruta, como poner en marcha la CER

ESQUEMA FINANCIERO

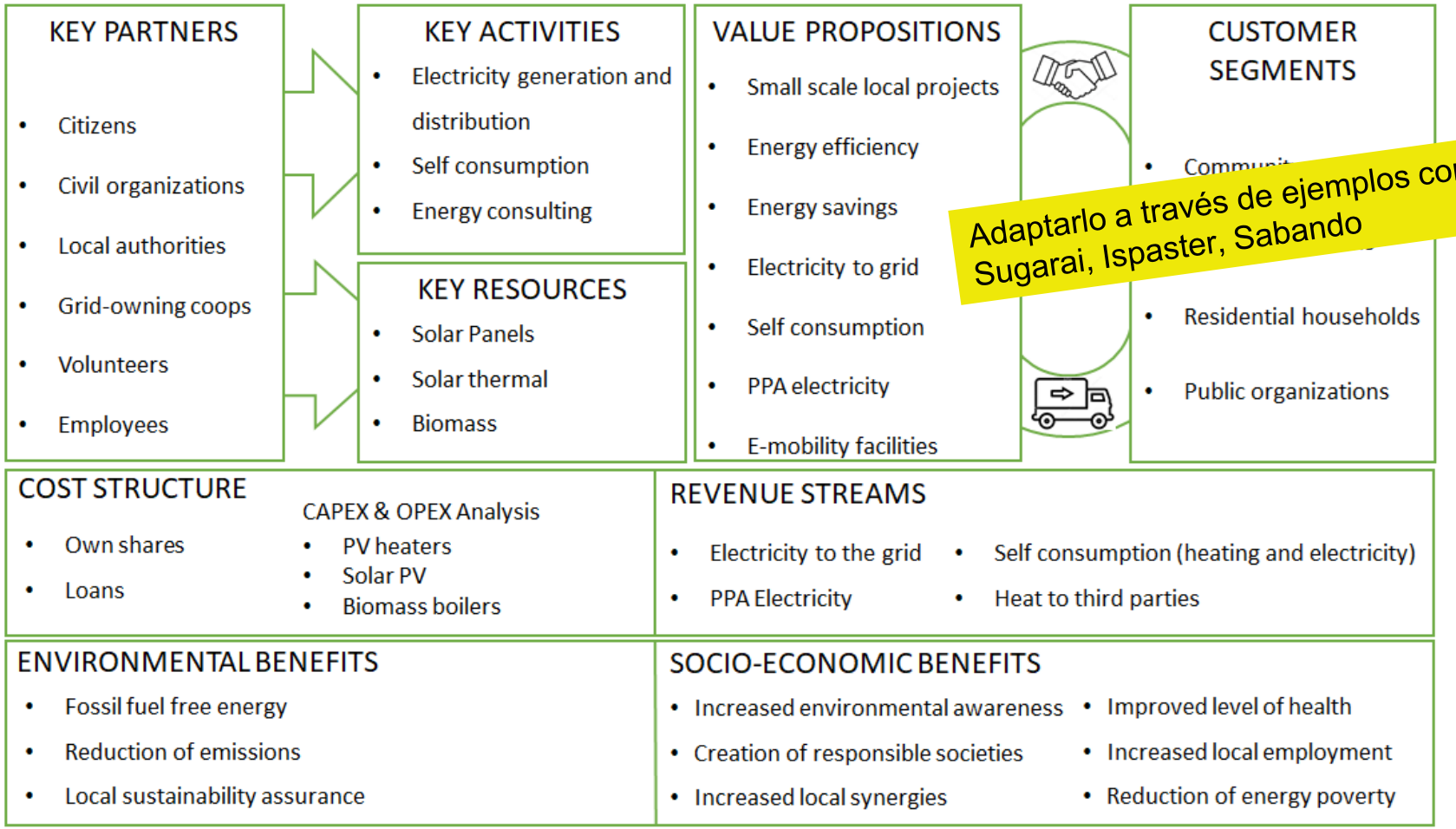


BANCA ÉTICA: Fiare, Triodos, COOP57 u otras

Local integrated group of citizens

El modelo que mas se asemeja al tipo de comunidad que queremos promover.

Adaptarlo a través de ejemplos concretos: Sugarai, Ispaster, Sabando



MILESKER!
MUCHAS GRACIAS!

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