COllective action Models for Energy Transition and Social Innovation

# Exploring “Frontier” Case Studies

*Winston Gilcrease*

*University of Turin - University of Milan*

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# Agenda

- About COMETS
- What are Frontier Cases?
  - How we defined innovation
  - How we selected cases
  - Examples of social innovation
- Key takeaways

# COMETS Collective action Models for the Energy Transition and Social innovation

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## Objectives

1. New and robust knowledge on social innovative processes in the energy transition as implemented by **Collective Action Initiatives – CAIs** (e.g. energy co-ops, purchasing groups, solar communities, associations, ecovillages….)
2. Tools for the assessment of CAIs performance and aggregate estimates of their current and potential contribution to the energy transition.
3. Tools and recommendations for improving the start-up, steering, and up-scaling of CAI activities.

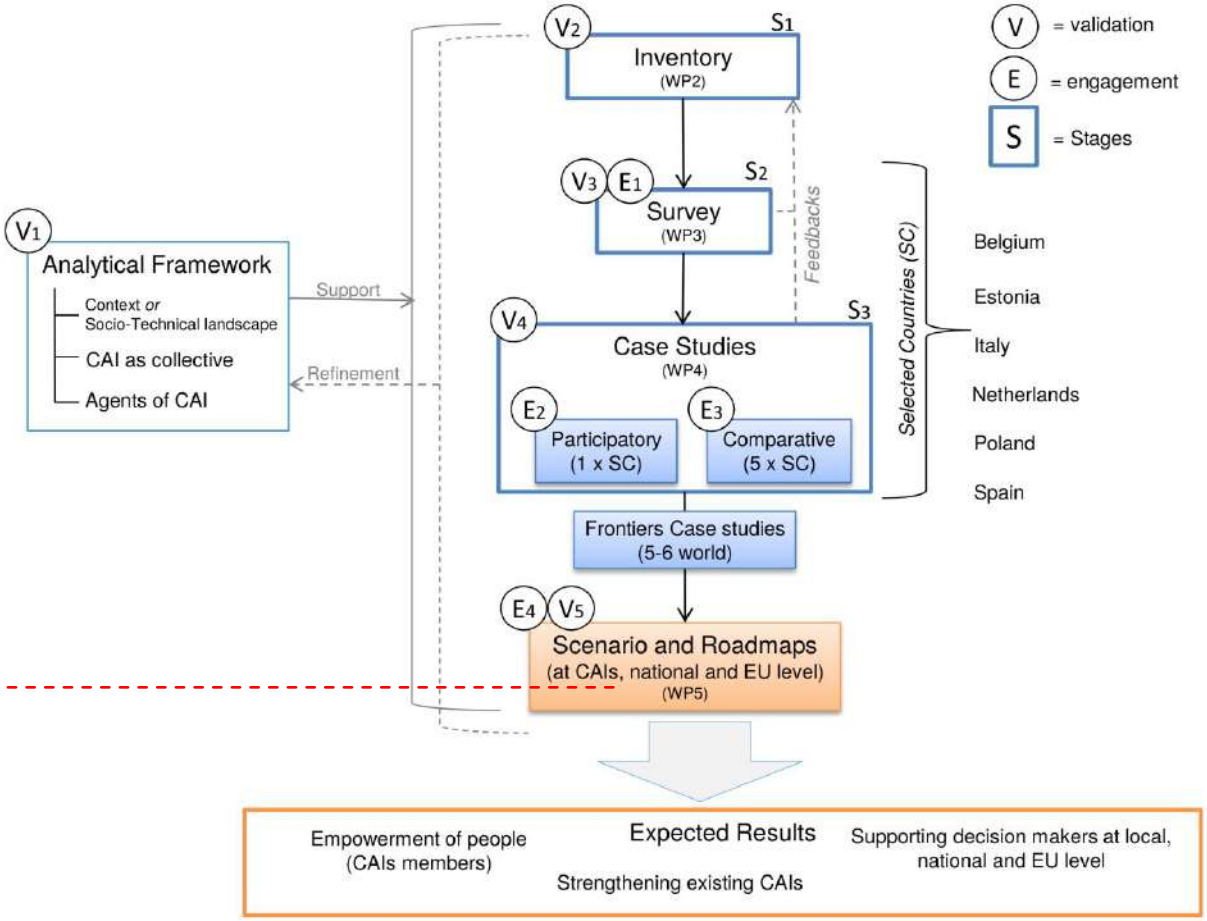
## The consortium

12 partners from 8 EU countries:
*(BE, DK, EE, ES, IT, NL, PL + NO)*

- 6 Academic bodies
- 3 EU level organizations
- 1 Energy agency
- 2 Research center

# COMETS

## The work plan




## The main outputs (so far)

A working definition of CAIs

Inventory of CAIs (ongoing)

Survey of CAIs

National workshops

Context Analysis

Training days

Online presence (website, social media, Supporting Platform)

Publications and Conferences (5 pubs, over 50 confs and wshops)

# Frontier Case Studies

In addition to the case studies currently being developed in the COMETS project WP4 (comparative and participatory case studies), **some highly innovative examples of CAIs are considered** (Frontier case studies).

Attention is paid to selected cases from **all around the world** to be investigated.

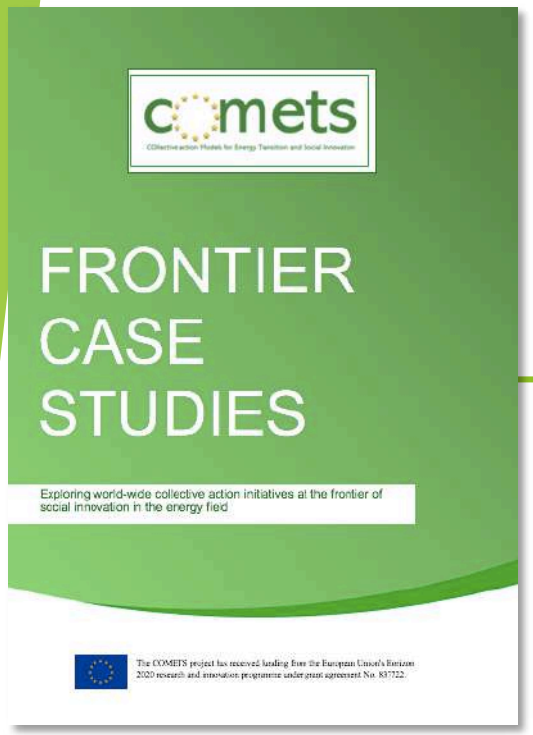
**We are motivated by Hubert et al.'s definition of Social innovation:**
"new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. In other words, they are innovations that are not only good for society but also enhance society's capacity to act." Hubert et al. (2010)

# *D5.1 Report*

## Frontier case studies of social innovation in the energy field

Public Report

Submitted in July 2021




The report intends to be used as a contributor to the 'knowledge commons' for existing and/or potential collective action initiatives (CAIs) in the energy field.

Focusing on exploring "frontier" case studies that represent a particularly innovative contribution to the future of social innovation in the energy transition.

# How we defined ”innovative” cases

In line with the dimensions defined in the COMETS Analytical Framework (T2.1. and T6.1) the most interesting perspectives to be investigated are:

- **Context of development** (e.g. One Less Nuclear Power Plant initiative, go-100% renewable movement, 2000 Watt society vision, One Planet Living Framework);
- **Organizational aspects** (decision making and governance, procedures, roles and functions);
- **Social** (members profile, diversity/social inclusion, gender balance, social networks and community);
- **Spatial** (rural-urban relationship, geographical coverage);
- **Evolution** (scaling capacity, trajectories and strategies, diversification of services);
- **Economic** (innovative business model, funding strategies, blockchain?);
- **Material** (technologies and energy sources) and Performance indicators.

E.g. Social, Spatial AND Economic (Innovative business model)
***the People's Solar Cooperative (Oakland, CA)*** is urban, diverse and predominately serves in low-income communities (different from the more traditional model where leaders of energy co-ops are male, white, higher income and education).
Plus, they have an innovative business model through crowdfunding their projects.

# How we selected Frontier cases – Part I

## Delphi method for Frontier case selection

- The Delphi method is method is **a process used to arrive at a group opinion or decision by surveying a panel of experts, usually by responding to several rounds of questionnaires.**
  - Beneficial when the problem at hand can benefit from collective, subjective judgments or decisions and when group dynamics do not allow for effective communication (e.g., time differences or distance).

## Frontier CAIs identification – 2 Phases

### Phase I: Item Generation

- Survey: Panelists (24 collaborators) were encouraged to share examples of CAIs of interest when referring to the selected seven dimensions of "innovation"
- During Phase I, Panelists used surveys and literature review to generate all potential candidate CAIs associated with dimensions of innovation.
- First, we asked the collaborators in an e-mailed survey to list all CAIs that, in their experience, presented with some degree of innovation and could represent examples of frontier case studies. The purpose of this question was to help identify potential candidate with "positive weight".
- The target number was 40 CAIs to be listed in a database. In the end, 40 examples were inputted for potential interest.

# How we selected Frontier cases – Part II

## Phase II: Item Reduction

- We aimed to have an item reduction guided by the following principles:
  - the examples remaining after phase II were to demonstrate good face, construct, and discriminant validity as examples of “innovation”;
  - items should be cover separate domains of “innovation”.

- To achieve the item reduction, **a second survey** (survey II.A) was circulated aiming to assess each example generated in Phase I based on the **Likert scale (-5 to +5),** ranging from (-5) *extremely not innovative* to (+5) *extremely innovative*.
- As the concept of “innovative” is subjective by definition, each panelist (Task 5.1 partner) was therefore asked only to range each CAI from (-5 to +5) and eventually add additional comments, if necessary.

## Data analysis

- **Mean survey scores** for each item (±SD) were calculated and CAIs were ranked from highest to lowest mean score.
  - CAIs scoring ≥2 overall were included in the list to be **analyzed. (14)**
  - CAIs scoring ≥3 overall were included in the list to be **interviewed. (6)**

# Final list of CAIs to be interviewed - top 6

| CAI name | Location | Delphi results | Delphi Score (mean±SD) | Dimension(s) of innovation # |
|---|---|---|---|---|
| Co-op Power | MA, USA | Interviewed | 3.9±0.8 | 2,3,4,6 |
| Bristol Energy Community Fund | Bristol, UK | Interviewed | 3.3±1,8 | 2,3 |
| People Power Solar Coop | Oakland, CA | Interviewed | 3.0±1.0 | |
| Nørrekær Enges Vindmølleforeni ng | Denmark | Interviewed | 3.0±1.0 | |
| The Coastal Electrification and Women's Development Cooperative (CEWDC) | Bangladesh | Contacted for Interview, not reachable | 3.8±1.4 | 1,2,3,4,6 |
| AiPOWER/ | Japan | Contacted for Interview, not reachable | 3.7±1.1 | 1 |

**The Top 20 Frontier CAIs** were selected for further investigation.

**The top six** ranking Frontier CAIs were considered for an in-depth investigation through interviews.

# Final list of CAIs to be analyzed - Top 14

| CAI name | Location | Delphi results | Delphi Score (mean±SD) | Dimension(s) of innovation # |
|---|---|---|---|---|
| Fairpla |  | Data collected | 3.0±1.3 | 3,6 |
| Windfang eG |  | Data collected | 2.9±1.3 | 2,3 |
| ACOPREV |  | Data collected | 2.8±1.1 | 2,4,7 |
| CoWatt |  | Data collected | 2.7±1.0 | 1,2,3,6 |
| ERE43 |  | Data collected | 2.6±0.7 | 2,6,7 |
| Community Power |  | Data collected | 2.6±1.8 | 1,2,3,4,5,6 |
| Middelgrunden wind farm |  | Data collected | 2.4±1.3 | 4,7 |
| Cowichan biodiesel Co-op |  | Data collected | 2.3±0.6 | 1,7 |

| CAI name | Location | Delphi results | Delphi Score (mean±SD) | Dimension(s) of innovation # |
|---|---|---|---|---|
| EWS Schönau |  | Data collected | 2.2±0.7 | 1,3,4,5,6 |
| Hepburn wind |  | Data collected | 2.2±1.5 | 5 |
| Compile |  | Data collected | 2.2±1.8 | 4,6 |
| The Energy Self-Reliant Village Program |  | Data collected | 2.1±1.9 | 1,3,4,6 |
| Hackney Energy |  | Data collected | 2.0±1.5 | 2,3,6 |
| Conelectricas - Consorcio Nacional de Empresas de Electrificación de Costa Rica R. |  | Data not available | 3.0±1.6 | 1,2,3,4 |

# Brief descriptions

| | |
|---|---|
| **The Energy Self-Reliant Village Program** | Seoul, South Korea |
| **Hepburn Wind** | Victoria, Australia |

# The Energy Self-Reliant Village Program

**Location**: Seoul, South Korea
**Year of establishment**: 2012
**Number of members**: 100 ESVs (as of December 2018)
**Area of activity**: Subsidies for solar and collective energy savings. Information, advocacy and formal administrative support, living labs, 'Energy supermarkets' where micro PV panels and energy efficiency devices are sold.
**MWh/year produced: 2.99 million kilowatt-hours (kWh).** Electricity consumption was cut by 15 percent. (data from the end of 2018)

## Why is it a Frontier CAI?

| Dimension | Alignment |
|---|---|
| Context of Development | **The Seoul Metropolitan Government (SMG)** launched the One Less Nuclear Power Plant initiative in 2012 to reduce electricity consumption and produce more renewable, matching the output of nuclear power plants. The Energy Self-Reliant Village (ESV) is a flagship of this program. |
| Organizational Aspects | The SMG provides the support for collective action initiatives in the energy field. They can **access additional support** from other Municipal projects, such as financial support in the form of subsidies for mini solar PV installments, FIT for small-scale PV, and low-interest loans for building retrofits. **The program and its participants are embedded in a larger network of collective actions.** |
| Social | 523 rounds of energy-saving education classes took place at 66 energy self-reliant neighborhoods in 2017. Representatives from 'graduated' ESVs have **formed new cooperatives**. |
| Spatial/ Geographical | Mostly urban space. |
| Economic/ Business Model | The ESV encourages collective action through financial, administrative, and informational support. |

## Hepburn Wind

**Location**: Daylesford, Victoria (Australia)
**Year of establishment**: 2007
**Number of members**: 2000+
**Area of activity**: Wind and Solar
**MWh/year produced**: 10,000 MWh.


## Why is it a Frontier CAI?

| Dimension | Alignment |
|---|---|
| Evolution | First community-owned wind farm in Australia.<br>In 2018, launched a project to make Hepburn Shure the first zero-net emission town in Australia by 2030. |
| Context of development | Originally a wind park development proposal **received strong community opposition**, much to the disappointment of a small group of Daylesford residents.<br><br>11 years later, an association was formed to garner local support for the wind park. It did this through **a broad range of educational activities, including community forums, personal visits to neighborhoods, informational meetings, etc.**<br><br>The project is Co-developed with the local community and various research, industry and technical stakeholders. |
| Economic/<br>Business model | They believe that their **Community Fund** is the most generous community fund in the industry (on a per turbine basis), by an order of magnitude. **They donate more to the community than they pay in lease fees to the landowner at Leonards Hill.** |

# In-depth interviews

| | |
|---|---|
| **Co-op Power** | NY, MA, CT, NH, VT (East Coast), USA |
| **People Power Solar Cooperative** | California, USA |
| **Bristol Energy Network** | Bristol, UK |

# CO-OP POWER

**Location:** Incorporated in Massachusetts with projects in other northeastern states, USA

**Year of establishment:** Incorporated in 2004, but started discussions in 1996

**Number of members:** 820 families and organizations in Massachusetts, Vermont, Connecticut, New Hampshire, and New York (soon to be 1250 for new NYC members)

**Area of activity**: Only community solar (had some wind projects in the past)

**MWh/year produced:** About 4.5 MW of solar under Co-op Power subscriptions. Helped put in 1000+ solar installations on rooftops, solar installation businesses, solar financial business, and a biodiesel plant (to be launched soon).

## Why is it a Frontier CAI?

| Dimension | Alignment |
|---|---|
| Organizational Aspects | **A federation (or network) of local energy cooperatives that uses one cooperative structure**. This regional network is a **"commons"** - a shared resource where communities come together to make a difference. |
| Social | Prioritizes **creating ownership of affordable solar energy for people in low-income communities**. Additionally, they provide job training/workforce development, community education, and community strategic planning.<br><br>**They make decisions by consent (agreement process) instead of by voting or using veto power**, so that anyone who opposes a proposal has an opportunity to work with the group to address their concerns. |
| Spatial/Geographical | Based in Massachusetts with projects in several states in the Northeast, United States. Located in both rural and urban spaces. |
| Economic/Business Models | Created the **People's Solar Energy Fund in order to get access and predevelopment money** and tax credits to move the projects into the pipeline |

# NEW YORK CITY COMMUNITY ENERGY CO-OP

- Works together with:
  - Solar project teams that oversee the installation and management of solar arrays.
  - Local environmental justice organizations to empower people to build ownership and increase access to solar energy.
- All electricity is delivered through the existing grid (no new grid construction needed).
- With their solar arrays, the NYC CEC **delivers credits to the grid and then gives ConEdison (the major utility of NY) a list of the CEC's members, who are also ConEdison customers, to deliver those credits**.
- The solar arrays provide a path to community ownership: members not only have solar discounts on electric bill **but have the jobs and the economic and political power** that comes from owning the arrays.

They are a multi-class, multi—race coop working together to create solar arrays, green jobs, and enterprises that "will create **a more just and equitable energy future in NYC** - where everyone has access to affordable, clean, safe energy and has an equal voice in how our energy economy works."

# People Power Solar Cooperative

**Location:** Oakland, California, USA

**Year of establishment:** 2018

**Number of members:** 100+

**Area of activity:** community solar


## A 'Movement' Cooperative

"activating member-owners to see energy more than just the opportunity to decarbonize or have bill savings, but a tool to build community power"

## A 'Commons' State of Mind

Is the center of everything they operate in because they "activate members of the community to get together and determine the wealth generated from the energy projects they build in the commons."

They do this despite the fact that **California does not** have a viable shared solar policy.

| Dimension | Alignment |
|---|---|
| Organizational Aspects | multi-stakeholder cooperative with hundreds of community members<br>**the California Worker Cooperative Act in 2015 has helped them overcome regulatory barriers** |
| Social | **Actively helps their members to build skills, leadership, and people power** necessary to overcome the barriers to energy constraints in the communities. |
| Spatial/Geographical | Urban area |
| Economic/ Business Models | Community-owned and financed. Communities can access capital from diverse sources, **including crowdsourced investments from community members.** |

## Bristol Energy Network

**Location**: Bristol, United Kingdom

**Year of establishment**: 2010

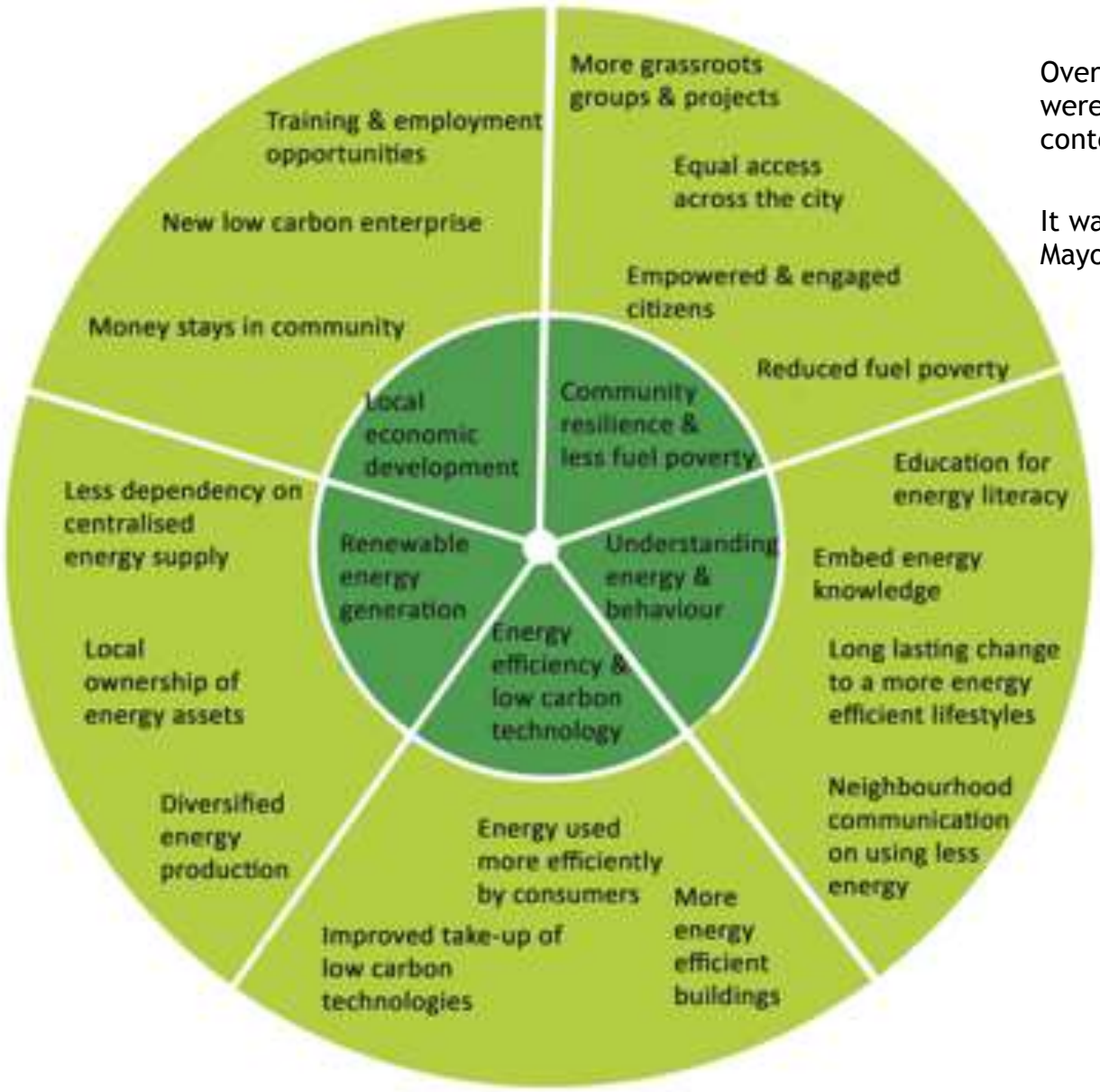
**Number of members:** their projects operate with many citizens in the Bristol municipality.

**Area of activity**: Solar, Wind

## Why is it a Frontier CAI?

| Dimension | Alignment |
|---|---|
| Organizational Aspects | Two types of members:<br>1) Voting members consist of community initiatives in Bristol and the surrounding area with an active interest in energy;<br>2) Non-voting members consist of individuals and organizations interested in the activities of the network. |
| Social | BEN is **focused on getting everybody in the community involved**, from engineers to roofers, etc.<br>BEN is also **focused on health and wellbeing of its members**. They approach health and wellbeing through the lens of community energy, and thereby **involving health practitioners in the energy sector**. This is bringing increasing recognition to the nexus of community energy and public health. |
| Context of Development | BEN was officially set up in 2010 to help community energy initiatives across the city share learning and ideas for a more sustainable energy future.<br><br>**Created a Community Energy Strategy Wheel** for stakeholders to discuss and agree on ground rules for collaboration, provides the ethos of how to support one another, which helps guide the narrative and building of BEN |

# BEN's Community Energy Strategy Wheel

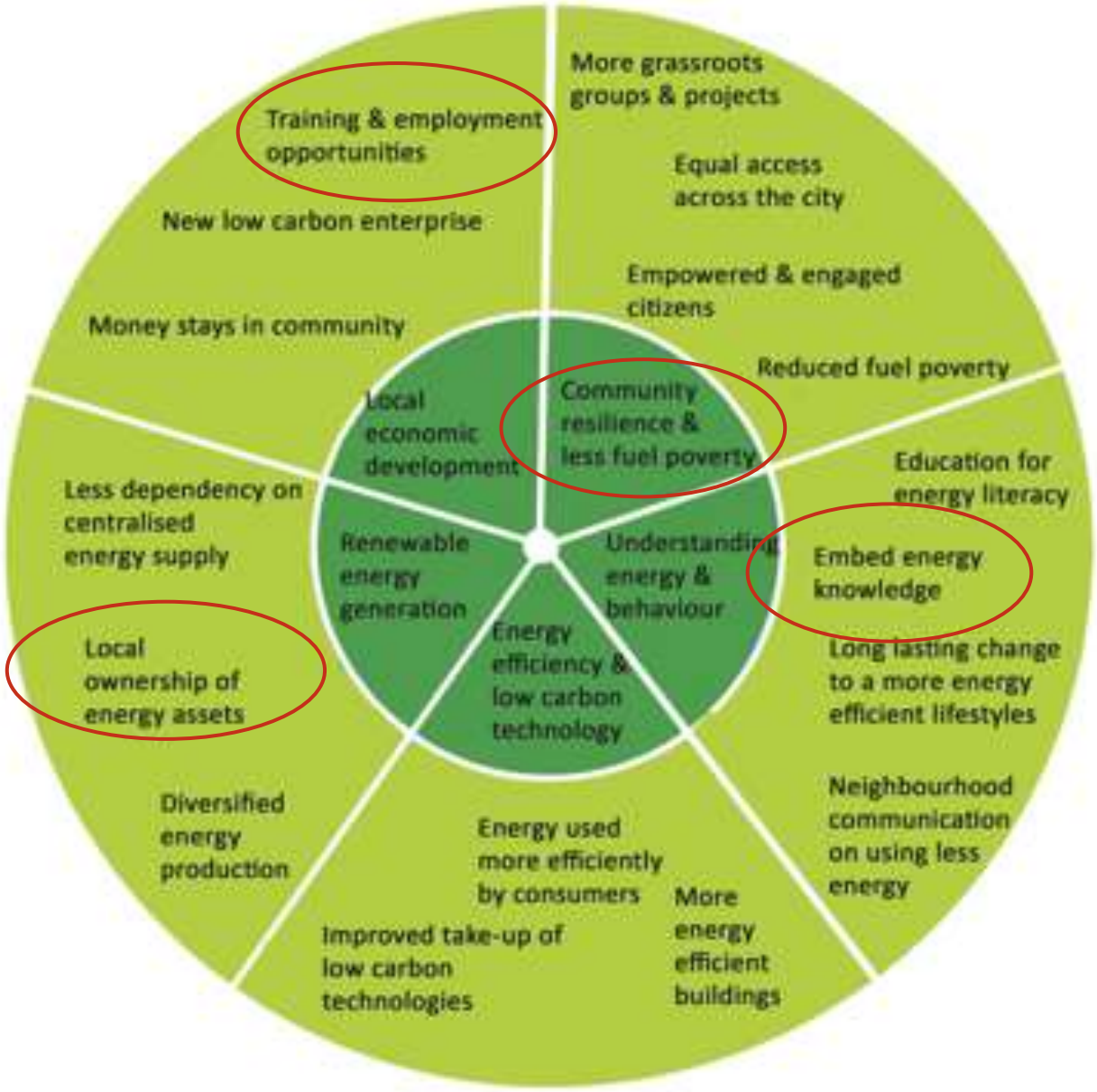



Over 50 people and organizations were involved in shaping its content and direction.

It was officially launched by the Mayor of Bristol in June 2013.

The Community Energy Strategy Wheel shows how different actors and their priorities fit in the wheel.

# BEN's Community Energy Strategy Wheel



# Common threads

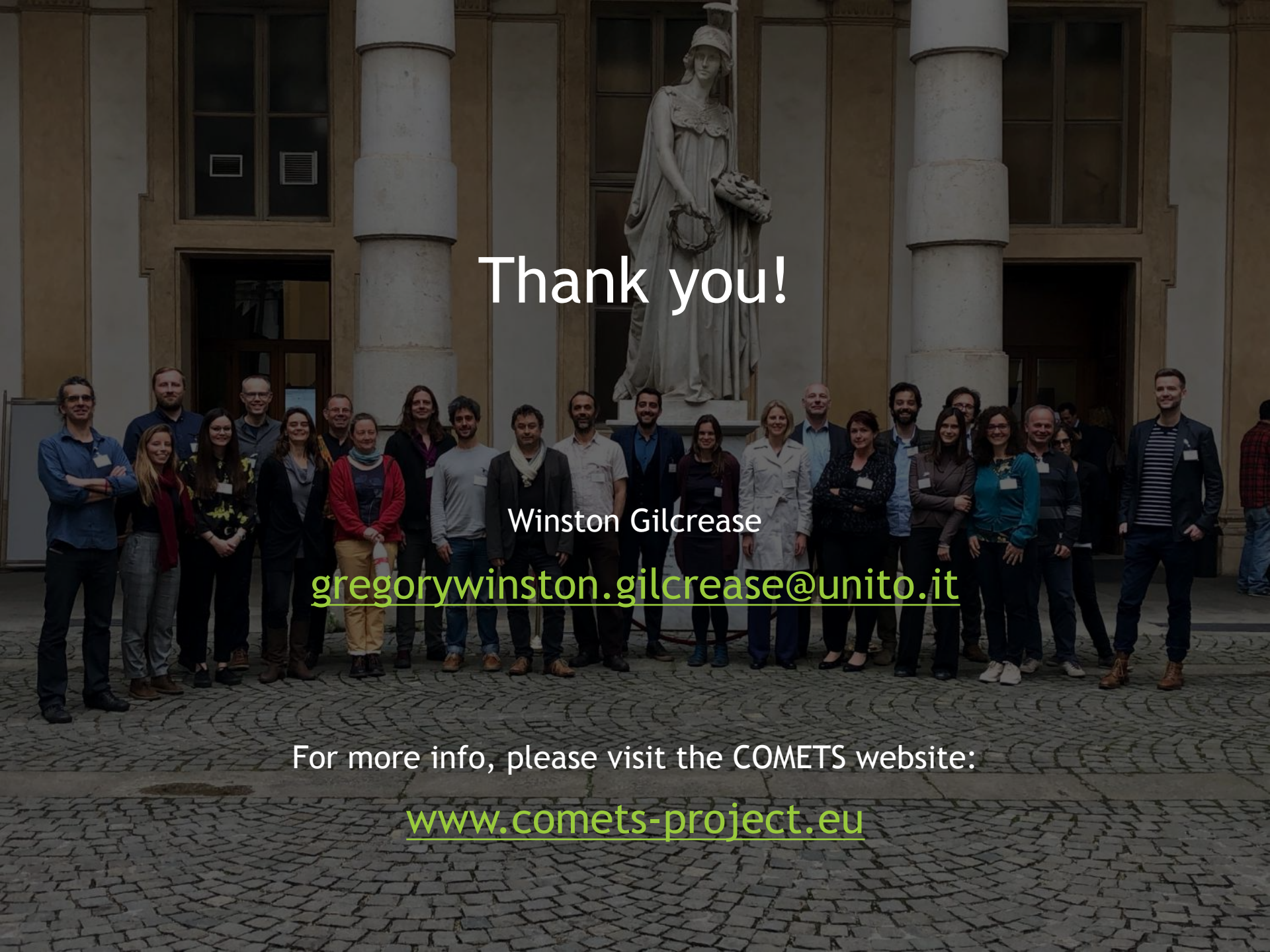
# Common threads

- The barriers to successful development of community energy projects vary across Europe and around the world.
- However, some of the most common issues relate to:
  - grid access;
  - hindering regulatory laws;
  - access to supportive finance schemes;
  - overwhelming permitting processes.
- The Frontier cases are finding **innovative ways to access renewable energy**, which is not always accessible to all. This restriction is not only due to of its economic costs, but also due to lack of finance and political support.
- **Empowering low-income communities** with ownership of energy requires rethinking and restructuring energy investments.
- These communities are building more than just energy projects. Instead, **they are shifting the narrative around energy**, recognizing that some of the deepest issues pertaining to scaling up community energy is the obstructive economic structures in various municipalities, states and countries.

# Key Takeaways

Some of the key takeaways learned from the variety of Frontier cases showcased in this report include:

- **Social/environmental justice approach:** we cannot just focus on policy and technology that cut carbon emissions but must put the communities most impacted by the extractive fossil fuel economy at the forefront of the energy transition.
- **Don't give up:** the process to getting to where a successful CAI can take time. EWS in Germany took 10 years to obtain license to distribute electricity when the market was dominated with 4 big companies and still not open for competition. Also, Community Power in Ireland took almost 12 years to build their first, and only wind farm.
- **Education and training**: almost all the projects provide an added value to the communities they serve by having education and training for members.
- **the David and Goliath issue:** Many small players (community members, citizen groups, etc.) are burdened with going up against the large, "Goliath" energy players (incumbent utilities, energy companies, etc.)
- **The power of networks:** Collaborating in a broader network in one's region or country (or internationally) can provide valuable information and support. This can help alleviate some of the daunting burdens caused by "Goliaths"



# Thank you!

Winston Gilcrease

gregorywinston.gilcrease@unito.it

For more info, please visit the COMETS website:

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