

# Flexibility and Retrofit: New roles for the community energy sector



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Carbon Co-op

CarbonCo-op

CO-OPERATIVES UK



# About Carbon Co-op

- ▶ Created by a group of householders in 2008 in Greater Manchester.
- ▶ Aim was to achieve 2050 emissions reductions today through deep retrofit of houses.
- ▶ Over 150 members and 8 staff working together to reduce their collective CO<sub>2</sub>/GHG emissions.
- ▶ Research and campaigning towards a democratic energy transition



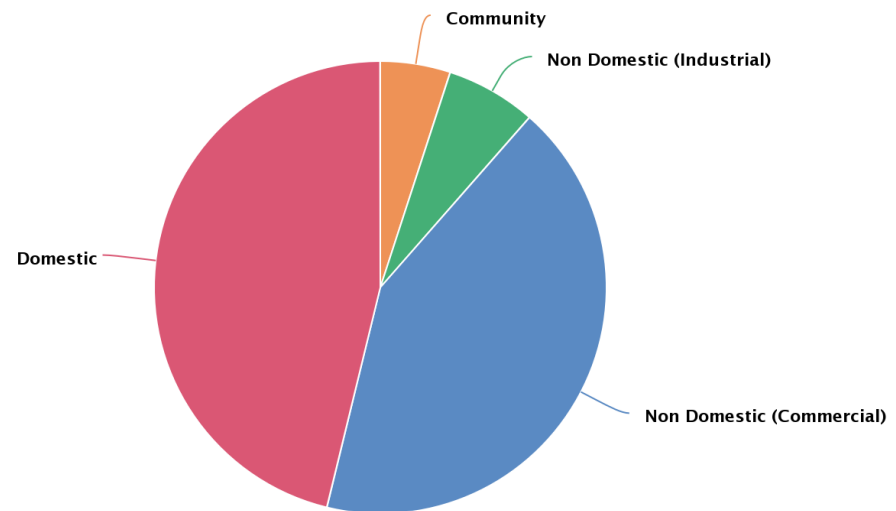
# Community energy now

## Current strengths

- ▶ Part of the community
- ▶ Trust
- ▶ Access to volunteer time
- ▶ Community benefit fund - total £1.1m (CEE)

## BUT

- ▶ Not relevant to most users of energy
- ▶ Tends to be middle class
- ▶ Small role in the energy system
- ▶ Annual energy spend of a small town (20,000 homes) £25m



FiT installed capacity by type – community is orange

# Historically, business models have been based around:

- ▶ Renewable energy generation based on FiT
- ▶ Grant-based retrofit work (e.g. Carbon Co-op)
- ▶ Grant-based apprenticeship and training e.g. Brixton Energy
- ▶ Volunteer effort in education and energy efficiency

Limited sources of income that are not from subsidy or grant or voluntary contribution



# Community energy: the next generation

Potential sources of income in more mainstream energy system: These have long been the ambition of community energy groups, but the business models for achieving this are limited.

- ▶ Supplying energy to consumers directly
  - ▶ Regulatory barriers to supply - supply license onerous due to balancing responsibilities wrapped up with retail.
  - ▶ Flexibility markets and aggregation could provide a way forward
- ▶ Energy performance contracts to fund demand reduction
  - ▶ Limited due to lack of market for demand reduction and retrofit
  - ▶ Requires policy solutions e.g.
    - ▶ Minimum EPC level for private rental
    - ▶ Owner-occupier supply chain development
    - ▶ Tax breaks and mortgage recognition of energy efficiency
    - ▶ Change in energy tariff structure
- ▶ Loans to householders
  - ▶ Requires consumer credit license - but possible





# Carbon Co-op preparing for the future

- ▶ Flexibility/ECAS study
  - ▶ Potential role for the community energy sector in demand response
  - ▶ National ‘secondary co-op’ providing technical services for local groups
- ▶ Retrofit work
  - ▶ Bringing together key ingredients of:
    - ▶ Community
    - ▶ Supply chain development
    - ▶ Finance
- ▶ Education and information provision
  - ▶ Training programme for householders doing retrofit
- ▶ Together, this could lead to a holistic energy service offer

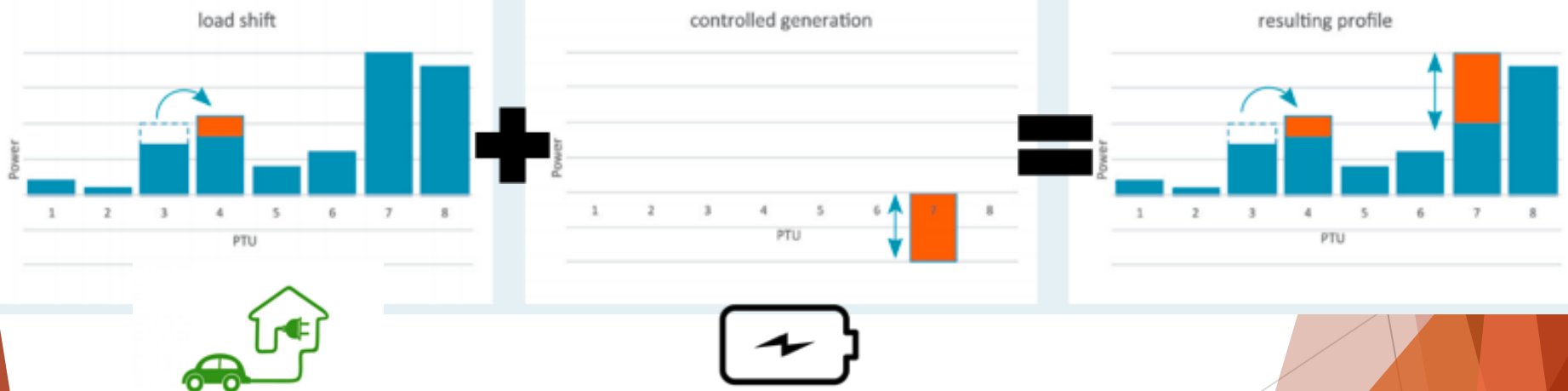


# Energy Community Aggregator Service (ECAS)

- ▶ Potential role for communities in aggregating demand response and flexibility
- ▶ BEIS funded feasibility study with REGEN what would be involved in setting up a **federated domestic aggregator** with a community energy focus, owned and controlled by community energy groups.

# What is flexibility?

- ▶ Flexibility is the ability to increase or decrease ‘demand’ dynamically in response to signals.
- ▶ Flexibility is potentially cheaper (in some cases) than upgrading grid infrastructure or building more capacity.



- ▶ Different actors in the energy system can benefit from procuring flexibility - DNOs, National Grid, suppliers.



# What is an Aggregator?

- ▶ Energy system **intermediary** which manages/operates a **portfolio of assets** which can provide ‘flexibility’.
- ▶ Established in **Commercial/industrial** sector
- ▶ Secondary markets like the balancing mechanism, capacity market and firm frequency response also pay participants for flexibility.
- ▶ **Domestic aggregation** is new activity
  - ▶ Much tighter (or non-existent) margins
  - ▶ Little regulation
- ▶ Ccoop, Regen and Community Energy Scotland exploring community-based supply options

# Retrofit for domestic demand reduction

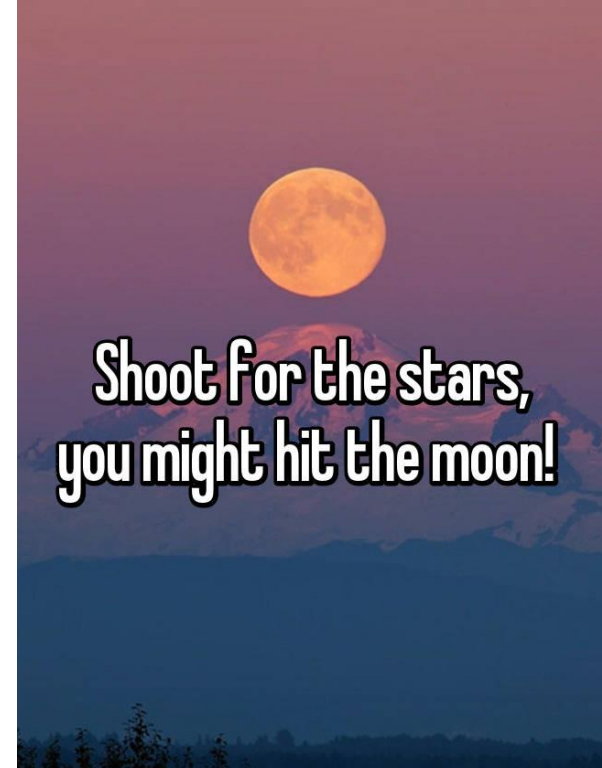
- ▶ Whole house retrofit
  - ▶ Fabric first - insulation and air tightness
  - ▶ Ventilation may be needed
  - ▶ Renewable electricity generation and change of heating system
  - ▶ Batteries or other energy storage
  - ▶ Electric Vehicle charging
  - ▶ Smart control systems
- ▶ Carbon Co-op Green Deal Go Early project had typical cost of £40k per household, achieving an 80% reduction on GHG emissions
- ▶ Previous UK government schemes for retrofit have been unsuccessful, but this is being recognised and changed.

# Ways forward - Carbon Co-op upcoming projects

- ▶ New Carbon Co-op projects combining key ingredients:
  - ▶ community/households;
  - ▶ finance;
  - ▶ supply chain development
  - ▶ Also use of social marketing and personas to achieve high engagement
- ▶ Installer personas
  - ▶ Handy-person
  - ▶ Local Firm
  - ▶ Retrofit Specialist
  - ▶ Specialist Installer
- ▶ Retrofit personas
  - ▶ A: Civic Minded Retiree
  - ▶ B: Prosumer
  - ▶ C: Climate Pragmatist
  - ▶ D: Climate Idealist
  - ▶ E: Idealist Restorer
  - ▶ F: Home Improver
  - ▶ G: Home Flooder
  - ▶ H: Retrofit DIY-er
  - ▶ I: Self-builder
  - ▶ J: House Buyer
  - ▶ K: Stalled: Pressures of Life
  - ▶ L: Stalled: Trust

# Lets be ambitious!

- ▶ Others in CE sector also exploring this space
  - ▶ BWCE - partnership with B&NES and Our Energy for supply offer
  - ▶ Energy Local - local trading
  - ▶ Repowering London - blockchain peer to peer trading
  
- ▶ Potential for national scale social franchise approach, or secondary co-operative model?
  - ▶ Many experiments running at the same time is a good idea
  - ▶ But need to support each other, not compete - already competing with incumbents



# Community supply is possible... in other parts of Europe

- ▶ Ecopower in Belgium, Som Energia in Spain - around 50,000 customers
  - ▶ In these countries, the retail is split from being a 'balance responsible party' so supply license for retail is less onerous
  - ▶ National scale co-operatives, not local
  - ▶ White label more accessible to community groups in UK - BWCE has launched white label with OurPower

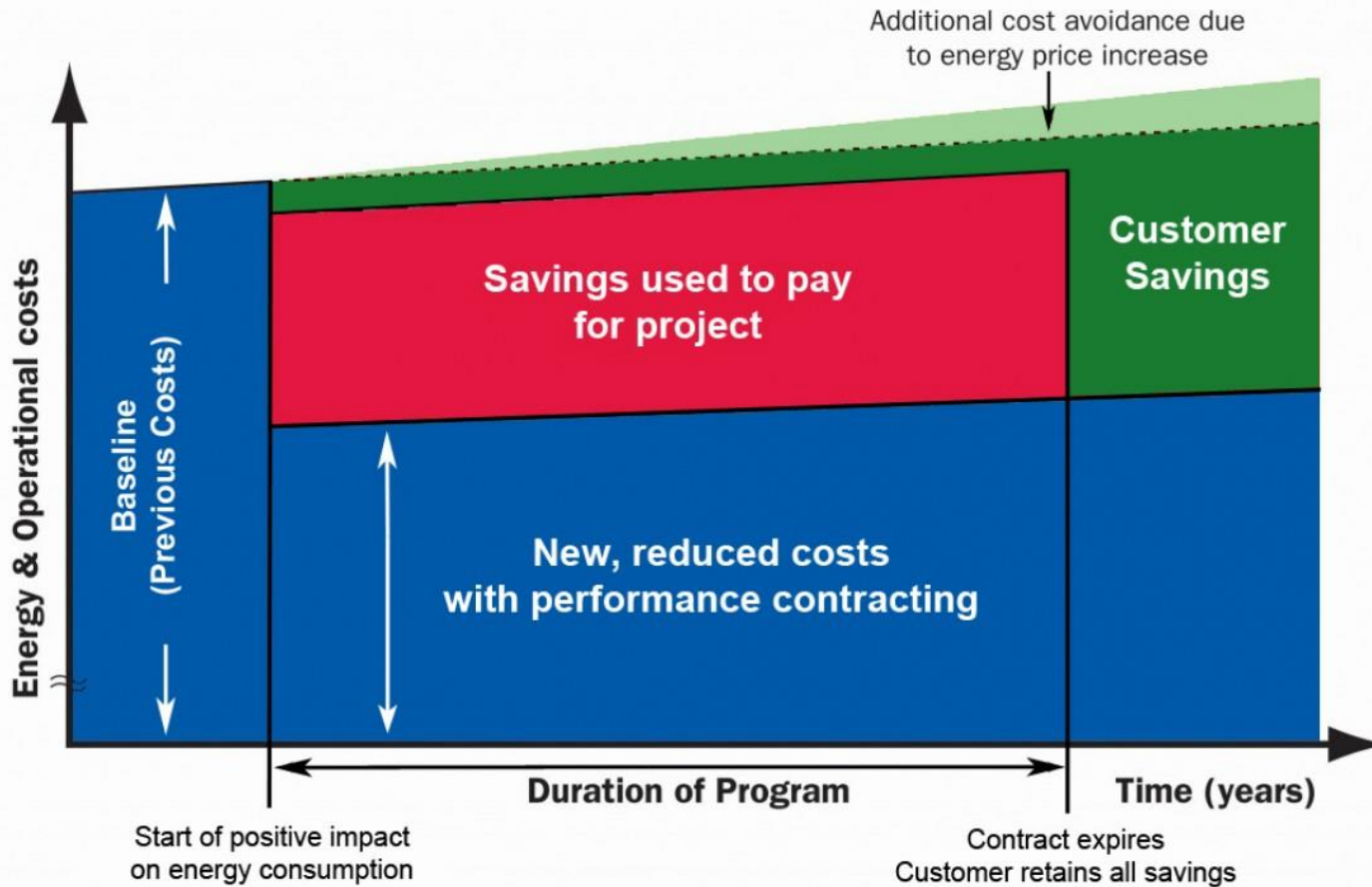


👤 Nombre de socis/es: 52,688

⚡ Nombre de contractes: 85,162

⚡ Producció: 11,80 GWh/any

# Energy Performance Contracts





# Community energy performance contracts could include

- ▶ Provide holistic energy services to members - in partnership with supplier (if not with supply license)
  - ▶ Flexibility
  - ▶ Retrofit
  - ▶ Buying of energy - good tariffs
  - ▶ Managing heating and indoor environment
    - ▶ Energy performance contract - with indoor environment monitored/automated, and flexibility/demand response included
  - ▶ Managing electric vehicle charging

# Community energy moving to a service model?

- ▶ Challenges of service provision
  - ▶ Lack of customer service experience
  - ▶ Risk
    - ▶ scale required to achieve viability
    - ▶ Risk of default by customers
- ▶ Benefits
  - ▶ Be relevant to many more people - everyone needs to buy energy
  - ▶ Take a greater role in the energy system - to be able to really challenge and replace incumbents
  - ▶ Democratise energy, with diverse forms of public ownership!



# Discussion questions

- ▶ How ambitious do we want to be, as a sector?
- ▶ What do we need to do, as a sector, to prepare for energy service provision?
- ▶ What policy and regulatory changes would we prioritise, from this perspective?
- ▶ What do we need from support organisations like Regen?
- ▶ How do we work with other partners e.g. licensed supply companies?

# Thanks for listening!

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