Policies to unleash UK community energy finance

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Part of the solution?

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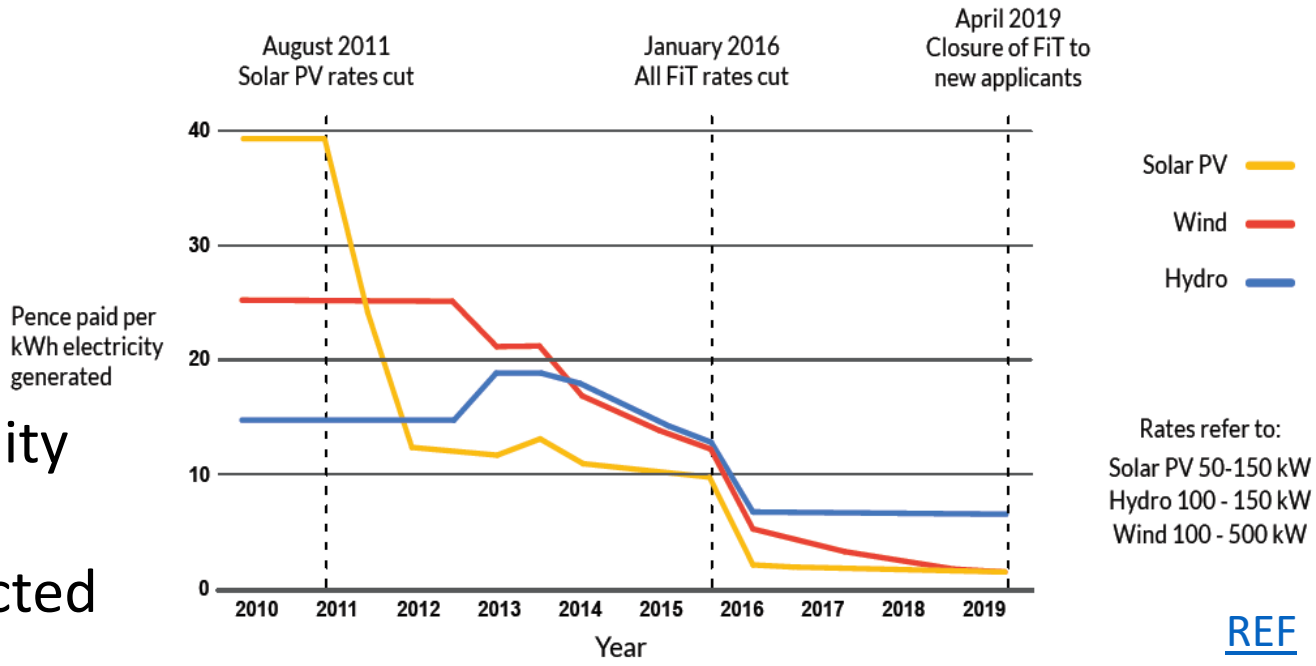
Our definition of community energy

An energy project initiated through grassroots and local stakeholder action, which is:

- *wholly- or partly-owned and democratically governed by a local community,*
- *and whose mission is to deliver a range of environmental, social and economic benefits for their local place.*

The rise and fall of community energy…

- 2000s/2010s saw small-scale community renewable projects boom.
- Built on finance to cover capital, attracted by long-term state revenue payments.
- 2015 - Majority Conservative government formed and heralded major change in community energy policy:
  - Discontinuation of revenue payments
  - An effective ban on onshore wind
  - Removal of social investment tax breaks
- UK community energy organisations installed 8.2 MW of new electricity capacity in 2020 vs 15.4 MW in England and Wales (exc. Scotland) in 2019 (SOTS).



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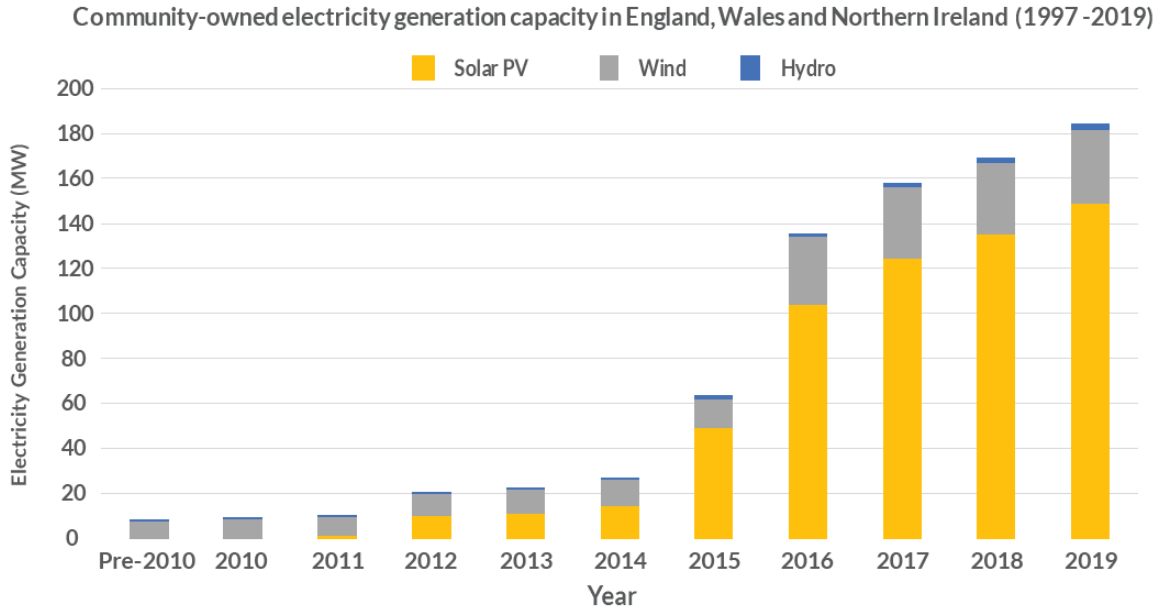

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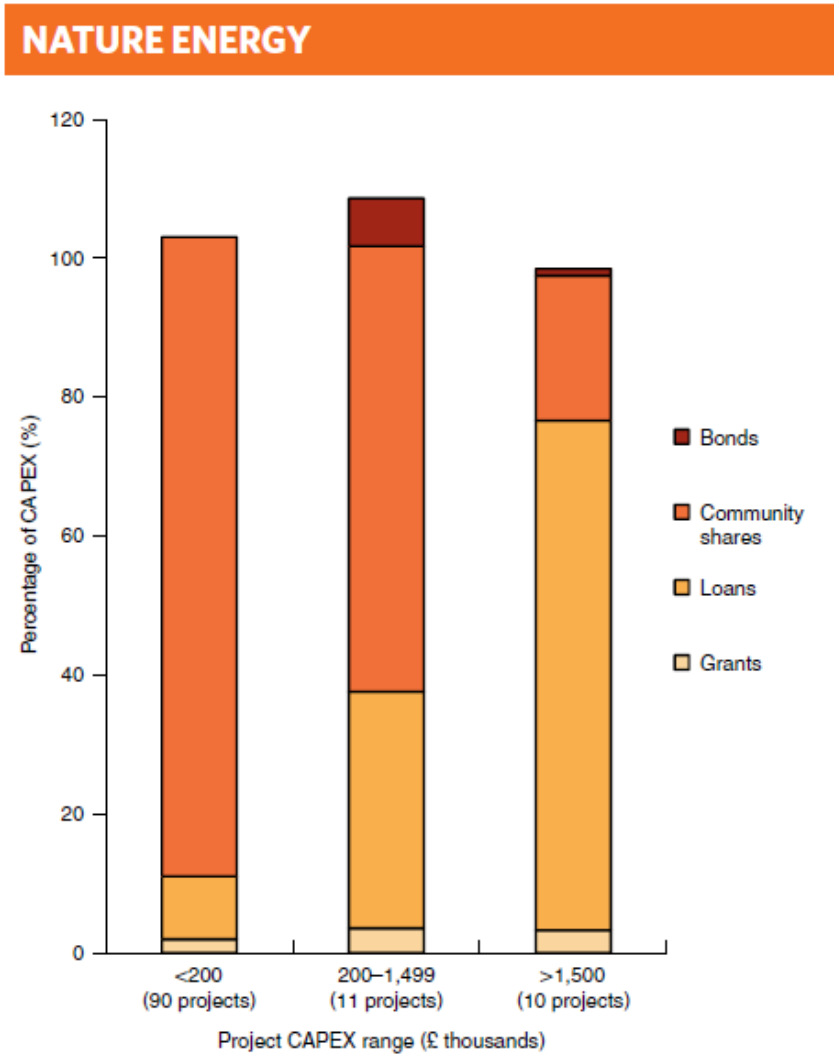
Community energy finance

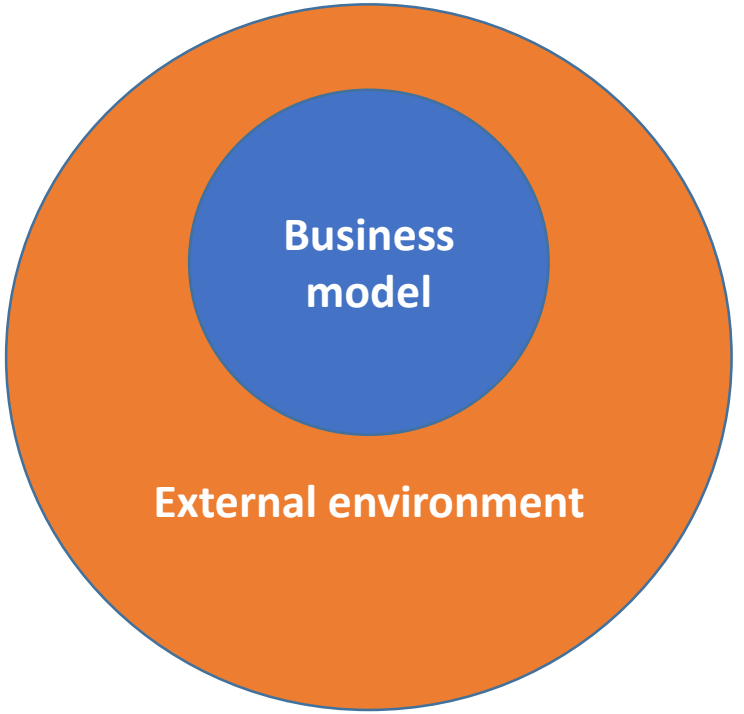
- Finance defined as unearned flows of money, in the form of debt or equity.
- Does not include subsidies, where there is no expectation of repayment.
- Typically takes the form of loans, bonds and shares, which are subject to repayment over time.
- Shares most critical for smaller projects, and loans for bigger projects.
- Some types of finance incur a transfer of control, e.g. one share – one vote. Others do not (e.g. bonds, loans).
- Can come from a variety of sources, increasingly directly from citizens.



Percentage of capital raised by different instruments in relation to the scale of project capital expenditure (Braunholtz et al. 2020)

Community energy in a bind

- With little capital grant funding available, **community energy finance remains extremely important to secure.**
- BUT dramatic post-FiT drop in new projects suggests **finance is increasingly hard to secure.**
- The community energy business model of the 2010s is faltering.
- This requires a combination of:
  A. Developing new community energy business models;
  B. Changing the environment in which these business models operate in (e.g. policy, finance).



The locus of change?

The research

- UKERC Community Energy Finance project.
- We answer two questions:
  - Which factors are most critical to community energy's business model operations and its ability to secure investment?
  - Which policies could bolster the investment proposition of community energy projects and increase the flow of finance into the sector?

POLICY INSTRUMENTS

- **Economic (*Carrot*):** Pecuniary (dis)incentives that support desirable behaviour.
- **Regulatory (*Stick*)**: A rule or guidance made and maintained by an authority.
- **Information (*Sermon*)**: Initiatives that support the dissemination of information that encourage desirable behaviour.

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UK survey of business models and finance

48 companies, 145 projects

Sectoral interviews and case studies

33 interviews, 4 case studies

Case studies
1. Gwent Energy CiC
2. Green Energy Mull
3. Edinburgh Community Solar Coop
4. Brighton Hove Energy Services Co.

Critical factors for success (Finance)

- Wealth and willingness to release citizen finance: community shares, bonds or bilateral loans with citizens.
- Tax breaks for social and environmental investments (e.g. Social Investment Tax Relief).
- Ethical lenders (e.g. Triodos) and crowd funding platforms (e.g. Ethex).
- Investor appetite for “green” investment and understanding of community energy.
- Intermediaries: build, maintain and provide access to a community of citizen and cooperative investors. Also offer track record and confidence in eyes of investors.
- State finance to plug finance gaps, to offer joined-up finance chain. UK Gov poor on this.

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Triodos Bank

The UK’s largest community-owned solar park has confirmed that it's fully funded, thanks in part to a loan from Triodos Bank UK.

Low Carbon Hub is set to construct and operate the Ray Valley Solar park in Oxfordshire, which will have a total installed capacity of 19.2MW, and be made up of 45,000 ground-mount panels.

ENERGY4ALL
GREEN CO-OPERATIVE ENERGY

Critical factors for success (Revenue and costs)

- Subsidies to offset lack of scale and track record associated with community energy:
  - Replacement of FiT with Smart Export Guarantee: 1) covers only export (not generation); 2) offers no minimum export price; and 3) no long-term certainty.
- Innovation grant funding that values communities as test-beds (e.g. Smart Fintry)
- Costs of energy products (tech, feedstock) and services. Largely a function of market forces but also taxation (e.g. VAT).
- Wealth of local citizens dictates if households can share energy savings and enter a PAYS contract.

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SMART FINTRY

GET SWITCHED ON

FDT FINTRY DEVELOPMENT TRUST

SMART Fintry 'matches' all the power use by local consumers with renewable power generated locally, through smart monitoring and balancing of supply and demand.

Critical factors for success (Operations)

- Time, knowledge, skills and willingness of community to deliver energy projects.
- Local stakeholder partners (e.g. council, community charities) can plug resource gaps and offer custom.
- **Political capital:** Council partnerships contingent on top-down regulatory requirements and local politics.
  - ECSC has three representatives of Edinburgh City Council and the Chair of ECSC is an ex-Labour councillor.
- Intermediaries also fill gaps: cradle-to-grave support.
- Access to land and buildings to host energy infrastructure (e.g. generation, EV charging).

Figure 1: Ratha School (Source: ECSC, 2019b)

Green Energy Mull's hydro on Forestry and Land Scotland's land

Critical factors for success (Customers)

Local

- Autonomy/tenure to host generation assets.
- Sufficient local energy demand
- Appetite to purchase services from a community organisation. Depends on financial incentives and wider socio-environmental agenda (see Solar for Schools.)

National

- Access to wider energy market.
- Licencing cost and complexities means partnerships with licenced suppliers is critical (e.g. White Label, PPAs).

Communities experimenting with new business models

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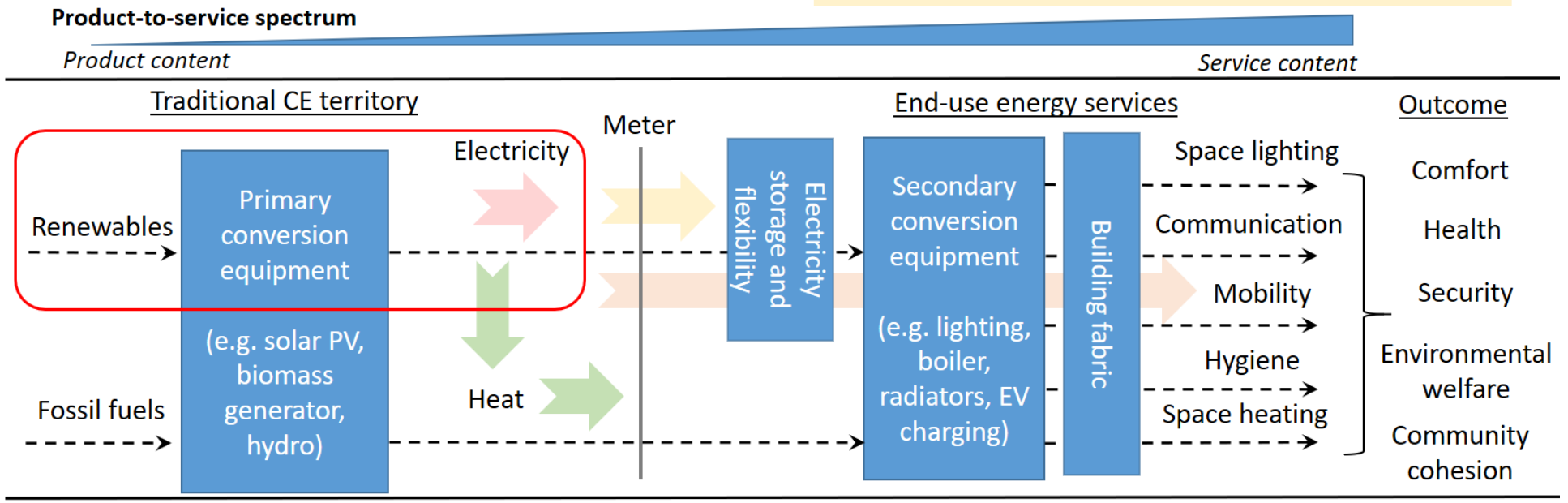
STATUS QUO – Traditional renewable power generation model

- Financing, installing and operating renewable power generation capacity to harness subsidies and bulk sale of power via export tariff or PPA.

TRANSITION A – Storage and Flexibility

- Storage and smart technology facilitates self-consumption from decentralised power generation.
- Opportunity to connect this to aggregation of generation assets and provision of grid flexibility services.



TRANSITION B – Heat

- Diversification into other energy streams besides electricity, like heat from biomass and heat pumps.

TRANSITION C – Demand-side energy services

- Installation, operation and maintenance of primary and secondary conversion technologies, to improve efficiency.
- Savings generated are monitored and normally shared via a Pay-As-You-Save (PAYS) contract.

Ironically, it's community groups already in receipt of subsidies, who are best placed to experiment.

Some signs that the traditional model could return if aligned with self-consumption and PPAs.

Policy recommendations: Carrots

Policy recommendation	Details	Business model impact
Low-cost state community energy finance and joined up finance chain.	• Affordable finance, available for every stage of project lifecycle. • UK-wide (England catches up)	Project finance more affordable and available.
Reduce tax burden on community energy groups (social investment tax relief, VAT)	• Reduce costs on community energy, either investors' returns (to ↓ cost of finance) or equipment/services.	Cost of project goods, services and investment made cheaper.
Revenue payments for community energy generation and efficiency.	• SEG offers little certainty or income. • Re-instate rev payment for communities; higher rate for deprived. • Include a energy saving FiT.	Greater confidence in the price of energy generated and/or saved.
Grants and community benefit payments that support business model experimentation, especially in deprived areas.	• Experimentation grants lacking in England. • Should prioritise new entrants (with no FiT income) and low-income areas.	Funds to enable the transition to new, more investable business models.

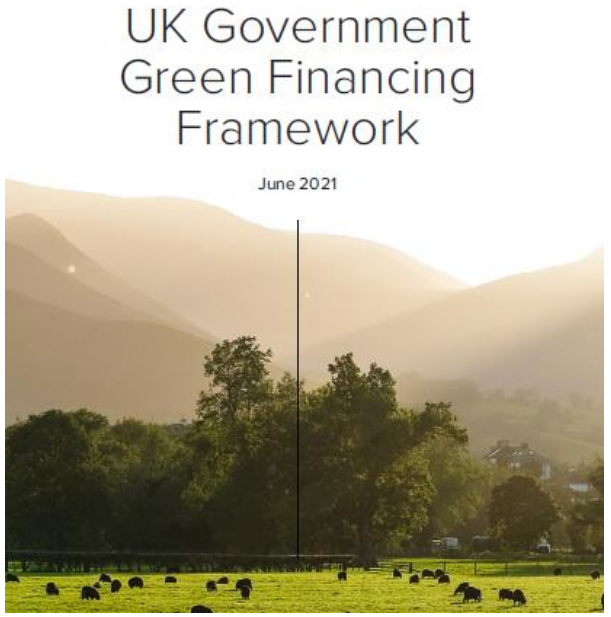
Scottish Enterprise

Energy Investment Fund (EIF)

Scottish Government's Community and Renewable Energy Scheme (CARES)

Policy recommendations: Sticks

Policy recommendation	Details	Business model impact
Minimum net-zero and just transition investment standards	• Little pressure on institutional investors to 'go green'. • Little support to for ethical investors. • Investors must demonstrate how portfolio supports net-zero and JT.	Project finance more affordable and available.
Enforced partnerships with local authorities and NDPBs	• Local partnerships critical to projects. • Little pressure to partner. • Carbon and local energy content targets, plus public reporting needed.	Creates platform for local stakeholders to engage with community energy projects; as partner and/or customer.
Facilitate swift and affordable community access to under-utilised public land	• UK-wide legislation and funds to enable easy community access to land. • Planning regime prioritises community benefit and onshore renewables.	Project feasibility improved, with affordable access to land and/or buildings.
Expand market opportunities for local energy supply and grid services	• Costly and complex for communities to become licenced suppliers. • Local energy market access made easy. • Ditto flexibility services.	Opportunities to engage in new energy activities, which reach (new) customers via new market channels.



Green taxonomy for identifying sustainable activities and mandatory environmental financial disclosures (see HMT)

Langholm Moor, Scotland community buy-out (DAVID LINTERN/JOHN MUIR TRUST)

Policy recommendations: Sermons

Policy recommendation	Details	Business model impact
UK-wide community energy strategy and a stand-alone delivery body	• Coordinates support across UK. • Provides clear path forward. • Delivery body puts policy into practice.	Provides a specific and quantifiable role for community energy, providing it with legitimacy and investors with confidence.
National Community Energy Hub for skills training and knowledge exchange	• Level the 'playing field' across communities through up-skilling. • Platform for exchanging best-practice, across communities and investors.	Broadens community group's resource base, expanding or deepening their activities, to bolster their case for investment.
A framework for defining and evidencing the value of community energy	• Clarify what does and does not constitute community energy. • Metrics to track value creation.	Investors become clearer about what community energy is and the value it offers.

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Department of Energy & Climate Change

27 January 2014

Community Energy Strategy: Full Report

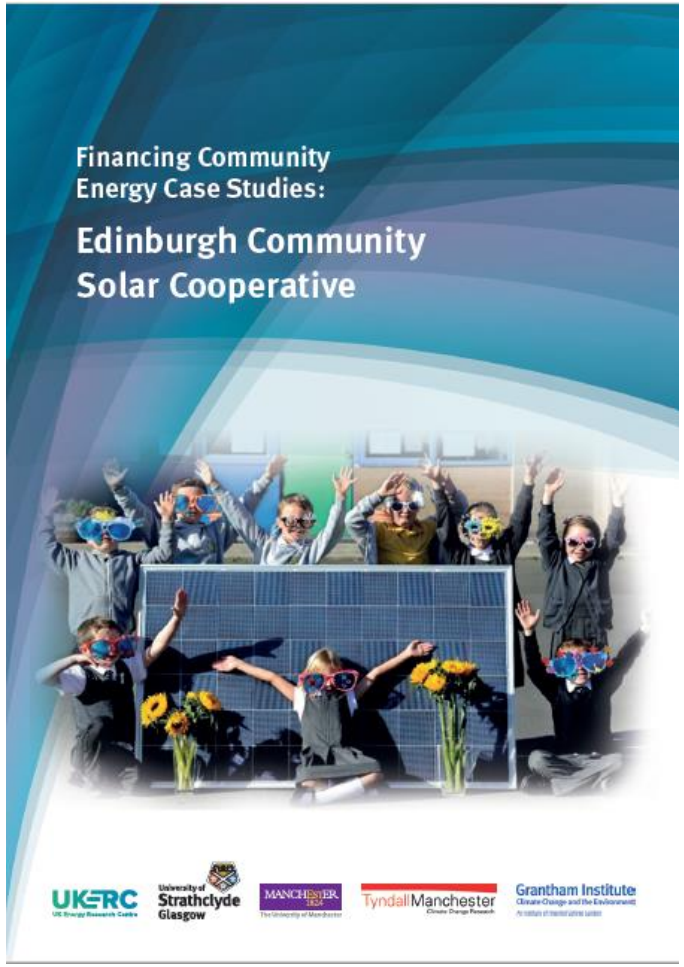
energy saving trust

Conclusions

- The 2010s saw community energy boom. Model was built around renewable power generation, subsidies and citizen finance.
- Policy shocks have rendered traditional business model largely unviable.
- **Finance never more important** but also **never harder to secure**, as removal of subsidies made community energy higher risk to investors.
- Communities driving business model and finance innovation to identify subsidy free community energy project.
- BUT those already in receipt of subsidies best placed to experiment.
- Major policy changes needed to address systemic barriers (e.g. skills, land, market access, local partnerships).
- We present 11 policy recommendations to unleash community energy finance.
- These improve prospects of finance by: A) improving performance or type of business model; or B) changing the wider selection environment.

Further info

- Running a project to translate lessons from UKERC project to co-create a business plan with South Seeds (Glasgow community energy charity).
- Nature Energy paper - Business models and financial characteristics of community energy in the UK
- Policy Briefing - Price support allows communities to raise low-cost citizen finance for renewable energy projects
- UKERC Blog - Financing community energy in a brave new world
- Evolution of Community Energy in the UK
- Visions for the Future of Community Energy in the UK
- Financing community energy case studies:
  - Green Energy Mull
  - Brighton and Hove Energy Services
  - Gwent Energy CIC
  - Edinburgh Community Solar Cooperative



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Background slides

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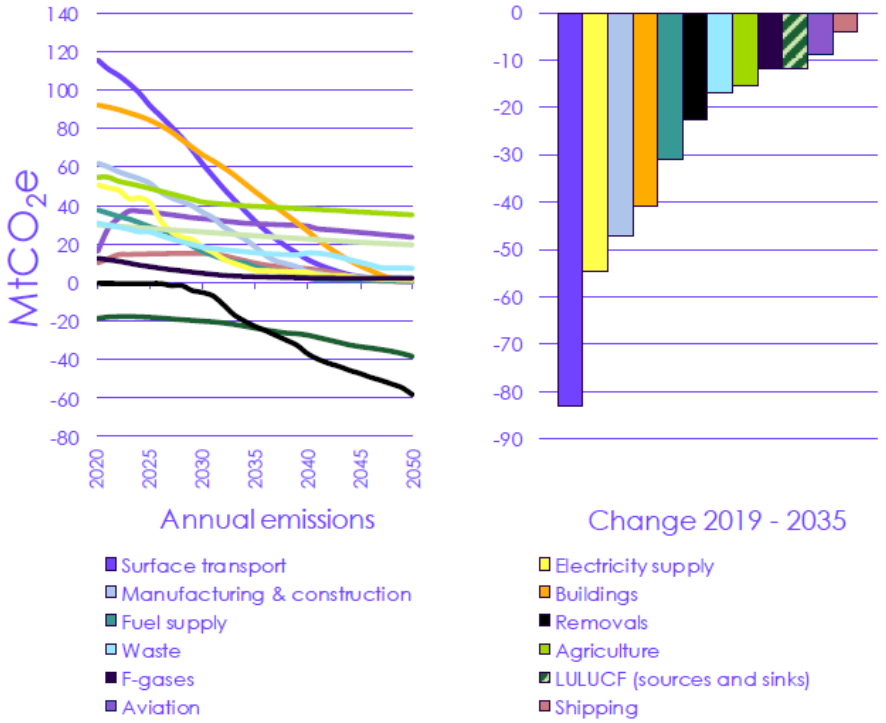
What's the challenge?

- **Net-zero**: UK 6th CB requires a 78% reduction on greenhouse emissions versus 1990 levels by 2035.
- Demand-side sectors doing significant abatement (e.g. Buildings, Transport)
- 59% of abatement wholly/partly behavioural and societal change.

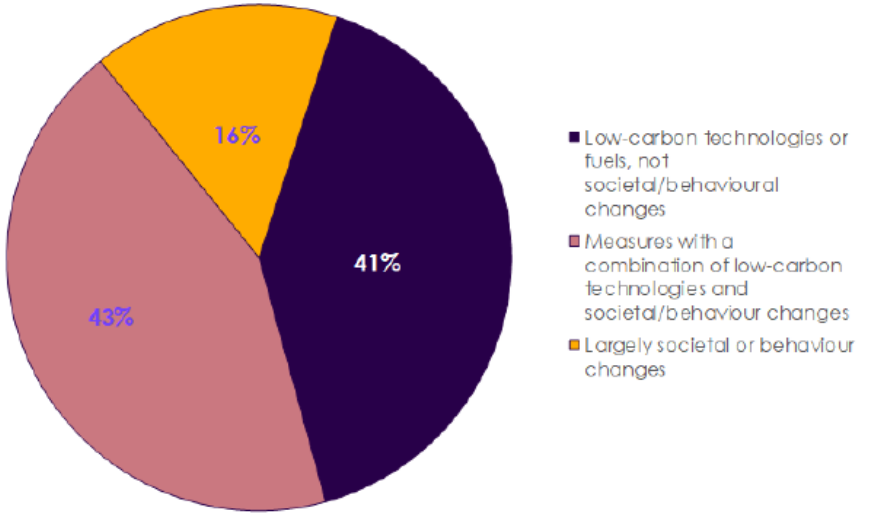
Winning "hearts and minds" matters

- **Just Transition**: equitable distribution of pains and gains of net-zero.

No section of society "left behind"



Sectoral emissions under the Balanced Net Zero Pathway (CCC)



Role of societal and behavioural changes in the Balanced Net Zero Pathway (CCC)

What can community energy contribute to the challenge?

- **Educate and inform:** Provide unique education opportunities that help ‘bring sustainability to life’.
- **Empower:** Raise levels of local control and autonomy, to unlock latent knowledge and skills.
- **Legitimise:** Community delivery increases local support and trust for low-carbon energy projects.
- **Enrich:** Profits recycled back into community, localising financial flows. Also fortifies ‘sense of community’. Attraction goes beyond “the green”.
- **Justice:** *Can* enable a more equitable distribution of energy subsidies and revenues.
- BUT not without its flaws! For example:
  - No ‘level playing field’ across communities.
  - Justice credentials dependent on how organisations are governed.

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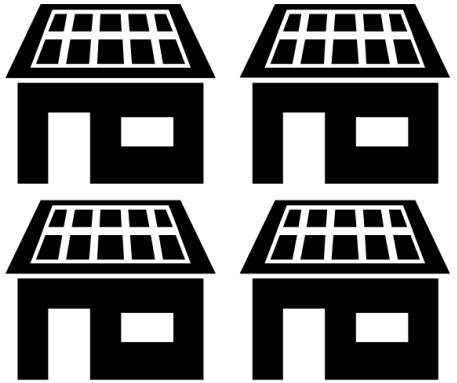
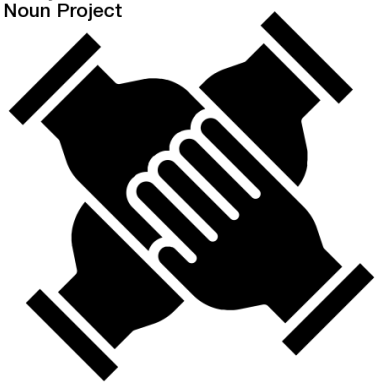


Created by Justin Blake from Noun Project



Created by Andreas Vögele from Noun Project

The analytical framework

POLICY INSTRUMENTS

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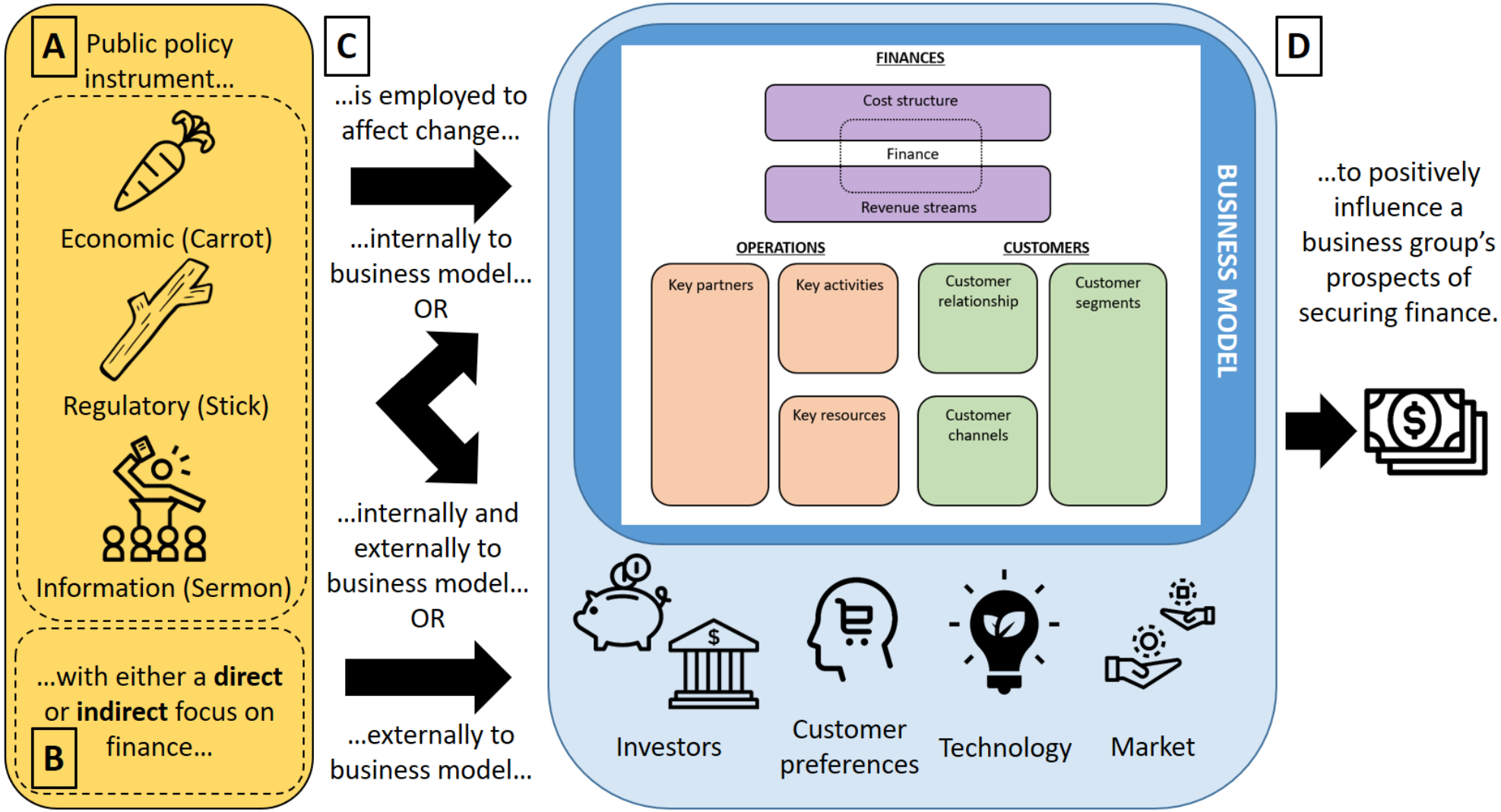


Key stages of community energy project financing

Feasibility

- Grants and donations for feasibility work.
- Smaller projects may issue 'pioneer' shares or use internal reserves.

Project development

- Bridging loans from banks or government sustain the project before funds are raised for installation (e.g. pre-planning costs).
- State loans often 'soft loans' that can be written off if project fails to materialize.
- 'Pioneer' shares also applicable.

Project deployment

- Project commissioning normally funded by citizen, commercial and state finance, through a combination of shares, bonds and loans.
- State loans normally 'gap finance', which must complement other finance.

Re-financing

- Refinancing of more expensive debt with less expensive debt. This often involves using bonds to replace loans.

Examples of government support

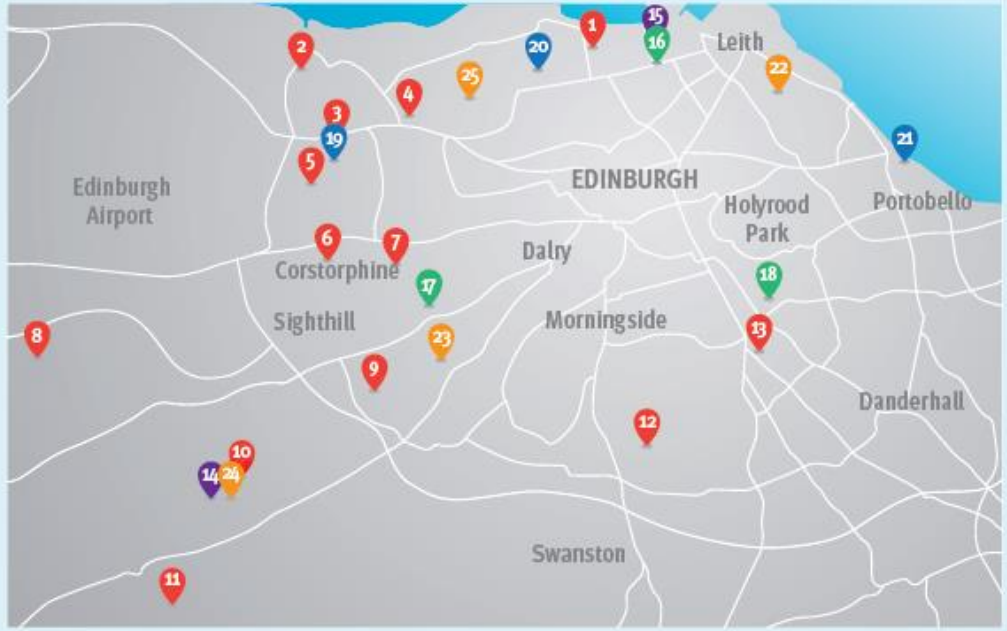
Scotland	Wales	UK
Scottish Government's Community and Renewable Energy Scheme offers grants and bridging loans Scottish Government's Energy Investment Fund commercial loans	Welsh Government Energy Service and Local Energy Fund offers grants, bridging loans and commercial loans.	BEIS Rural Community Energy Fund. *Only grants for rural communities

Affordable and available finance, at all stages of project life-cycle.

Figure 1: Ratha School (Source: ECSC, 2019b)

Figure 2: Currie High School (Source: ECSC, 2019b)

Figure 3: map of ECSC solar panel installations (Source: ECSC, 2015a, 2018b)



1 Wardie Primary
2 Cramond Primary
3 Clemiston Primary
4 Davidson's Mains Primary
5 East Craigs Primary
6 Gylemuir Primary
7 Carrick Knowe Primary
8 Ratho Primary
9 Canal View Primary
10 Currie Primary
11 Dean Park Primary
12 Buckstone Primary
13 Liberton Primary
14 Currie Community High
15 Trinity Academy
16 Craighall Centre
17 Carrickvale Community Centre
18 Cameron House Education Centre
19 Drumbrae Leisure
20 Ainslie Park Leisure
21 Tumbles Gymnastics and Softplay
22 Prospect Bank School
23 Redhall School
24 Woodlands School
25 Oaklands School

Primary School | Secondary School | Community Centre | Leisure | Special assistance school

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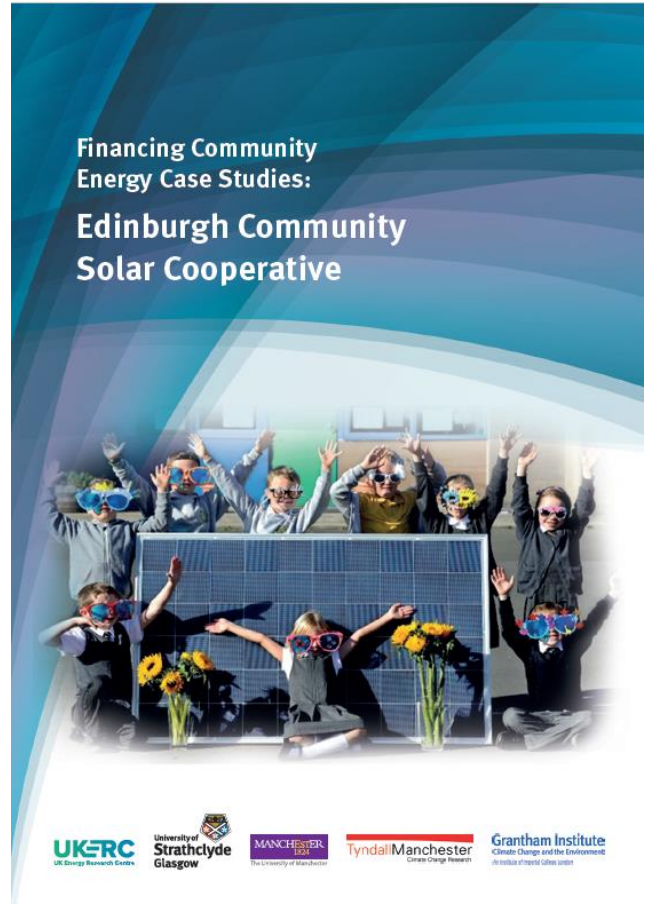

Communities experimenting with new business models

- Community groups already receiving revenue payments in stronger position to experiment with new business models.
- E.g. Gwent funded its EV charging points through "*surplus income from earlier solar systems*".
- Questionable access for new entrants and more deprived communities, less able to raise citizen finance.
- Innovation demonstration funding also key but funding rarely stipulates long-term community benefit.

Case study revenue payment income as a share of turnover for financial year 2017/18

Organisation	Revenue payment subsidy income	Turnover (year end 2018)	Share of revenue
GEM	£191,252 (FiT)	£242,366	79%
ECSC	£129,242 (FiT)	£215,474	60%
Gwent Energy CIC	£40,000 (FiT and RHI)	£100,000	40%
BHESCo	£27,625 (FiT and RHI)	£281,146	10%