



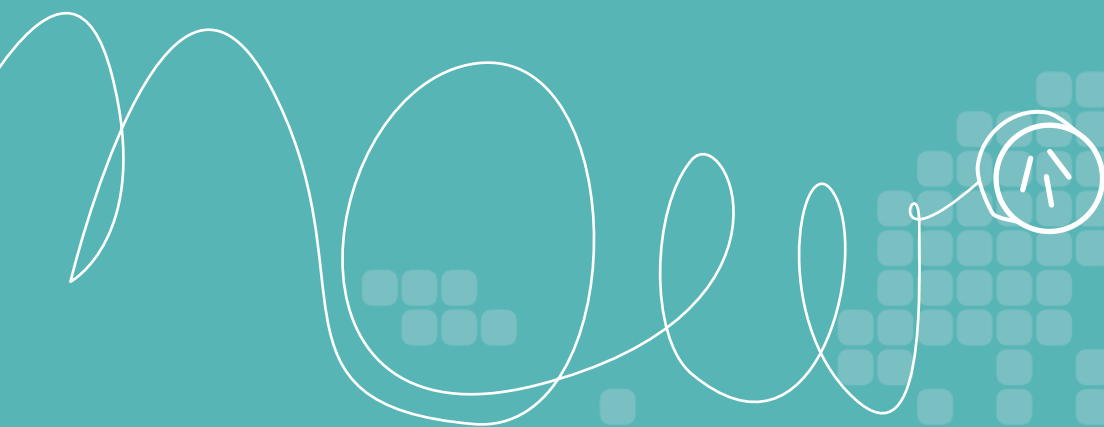
THE BENEFITS OF AN ENERGY REVOLUTION

# COMMUNITY POWER



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This is a publication of the Community Power project, a project in 12 European countries aiming to put people at the heart of increased renewable energy. For more information please check out [www.communitypower.eu](http://www.communitypower.eu) or contact [molly.walsh@foeeurope.org](mailto:molly.walsh@foeeurope.org)



**We urgently need to change our energy system into one powered by clean, community-owned renewable energy. By putting communities and citizens at the heart of a shift to clean energy we can achieve a transition more quickly, fairly and with added benefits. This briefing explores the many benefits of community energy and the steps we need to take to ensure that it reaches its full potential.**

## THE URGENCY OF THE CLIMATE CHALLENGE

The Intergovernmental Panel on Climate Change (IPCC)'s fifth assessment report, written by independent climate scientists, warns that climate change poses a severe and immediate threat to human well-being, including food production and human security. The window for taking effective action is closing fast.<sup>1</sup>

Large areas of our world are already experiencing climate change in the form of rising sea levels, melting glaciers, heat waves and increasingly severe floods and droughts. Europe is witnessing biodiversity loss and low-lying countries are already in need of stronger flood defences. These impacts are contributing to increasing social inequality within and between countries.<sup>2</sup>

Europe and other industrialised countries are responsible for the climate crisis – historically, legally and morally – and have an obligation to act first and fastest to combat it. Waiting for circumstances to change, or for others to take the lead, are not responsible or viable options.

To reduce our carbon emissions we need to reduce energy consumption and switch to renewables as rapidly as possible. Citizens and communities across Europe can become part of the solution by setting-up clean community energy projects.

## RENEWABLE ENERGY-THE ONLY GENUINE SOLUTION

Renewables – wind, solar, sustainable hydro and limited quantities of sustainable bioenergy – are the only inexhaustible, safe and technologically viable energy sources.

Moving off fossil fuels and onto renewables, in combination with strong energy efficiency measures, will cut emissions and reduce our over-dependence on energy imports. Renewable energy also has the potential to create long-term, sustainable, green jobs.

In 2011, renewables accounted for almost 22% of the EU's electricity production.<sup>3</sup>

The EU cannot afford to be technologically neutral. Governments need to ensure the transition to renewables by setting binding targets for energy from renewables, including a strong EU-wide target for 2030.

## CREATING A DEMOCRATIC ENERGY FUTURE

Getting governments to agree adequate action on climate change and renewable energy has proved challenging. Powerful vested interests and perceived public apathy have prevented leadership on climate change at an international level.

A patchwork of national measures exists across Europe to promote cleaner energy but they fall far short of what is needed to meet the scale of the challenge.

As political action stalls, people are empowering themselves to create a clean energy future right now. Community energy projects are growing in number, including solar communities in Spain, co-operative wind farms in Ireland, self-sufficient islands in Denmark, and insulation-buying clubs in the Czech Republic.

This is exciting and encouraging, but more support is urgently needed to enable more communities to become part of a clean energy revolution.

## FOOTNOTES

- 1 IPCC 2013 [www.ipcc.ch/report/ar5/wg1/#.UnJwDfmkqlg](http://www.ipcc.ch/report/ar5/wg1/#.UnJwDfmkqlg)
- 2 Hansen, James, Makiko Sato, and Reto Ruedy. "Perception of climate change." *Proceedings of the National Academy of Sciences* 109.37 (2012): E2415-E2423.
- 3 Eurostat EU energy figures 2013.



# THE BENEFITS OF COMMUNITY ENERGY

**Community energy projects are not just good for the climate. People and communities involved in owning or running their own energy production – as well as society as a whole - experience a whole range of benefits. The benefits of a well-supported community energy movement fall under nine headings:**

1. Public support for clean energy
2. Increased financing for clean energy
3. Raised awareness
4. Emissions reductions
5. Reduced energy demand
6. Financial benefits for communities
7. Reduced fuel poverty
8. Stronger communities
9. Cheaper energy for all



The opening ceremony of Stockport Hydro a community owned hydro project in the UK.

## 1. PUBLIC SUPPORT

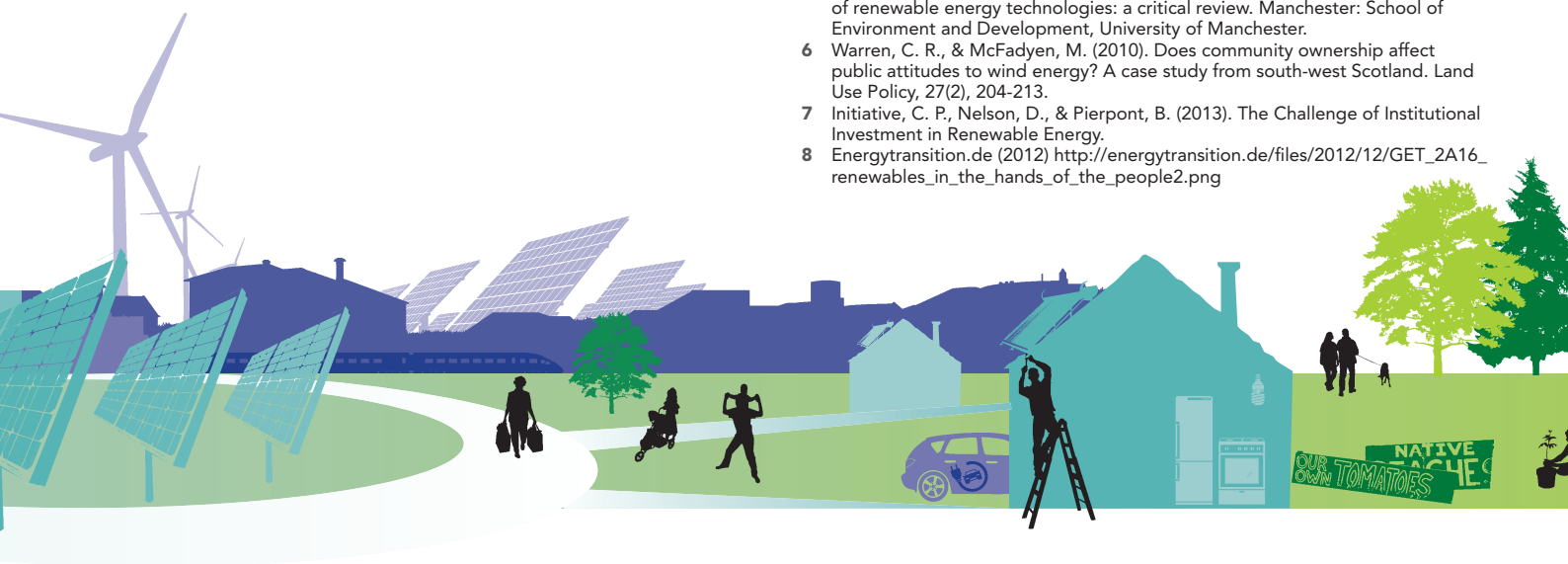
Local opposition to energy projects can be a major barrier to renewables schemes getting the go-ahead.<sup>4</sup> Too often large-scale developments are imposed on communities with minimal opportunities for local residents to take part, give input or have their concerns addressed. If there is local involvement in a proposed project, acceptance and support can increase hugely. Various studies<sup>5,6</sup> have indicated higher levels of community trust in community energy projects. Support for renewable energy amongst people in Denmark increased markedly thanks to a requirement for wind developers to sell shares to local citizens. If people are involved in a project then they are much more likely to see the benefits of it, and accept any negative aspects.

## 2. INCREASED FINANCING FOR CLEAN ENERGY

If we are to change our unsustainable energy to one supplied by clean, safe energy it is going to require a huge level of investment.<sup>7</sup> This transition can be best supported by European governments in the form of feed-in tariffs and dedicated national energy agencies. Giving local communities the chance to buy into schemes is an important way to make more money available to finance the shift to clean energy. Self-financing community energy projects have already started replacing fossil fuels. For example in Germany the majority of the investment in renewable energy has come from communities and citizens. In fact their 'big four' energy companies only own 6% of the installed renewable capacity.<sup>8</sup>

## FOOTNOTES

- 4 Cass, N., & Walker, G. (2009). Emotion and rationality: The characterisation and evaluation of opposition to renewable energy projects. *Emotion, Space and Society*, 2(1), 62-69.
- 5 Devine-Wright, P. (2007). *Reconsidering public attitudes and public acceptance of renewable energy technologies: a critical review*. Manchester: School of Environment and Development, University of Manchester.
- 6 Warren, C. R., & McFadyen, M. (2010). Does community ownership affect public attitudes to wind energy? A case study from south-west Scotland. *Land Use Policy*, 27(2), 204-213.
- 7 Initiative, C. P., Nelson, D., & Pierpont, B. (2013). *The Challenge of Institutional Investment in Renewable Energy*.
- 8 Energytransition.de (2012) [http://energytransition.de/files/2012/12/GET\\_2A16\\_renewables\\_in\\_the\\_hands\\_of\\_the\\_people2.png](http://energytransition.de/files/2012/12/GET_2A16_renewables_in_the_hands_of_the_people2.png)





### 3. RAISED AWARENESS

Public support for renewables is often linked to knowledge about energy.<sup>9</sup> The more people know about energy issues the more likely they are to be in favour of renewable technologies. To make the transformation to a clean, safe energy system we need engaged people who want to be part of the solution. Many community energy projects include information sharing and public outreach as part of their activities, thereby increasing support in the overall population.

### 4. EMISSIONS REDUCTIONS

Community-owned renewable energy projects contribute to significantly reducing carbon emissions by replacing energy produced by fossil fuels. If we are to reduce our dangerous levels of climate pollution we must change our system of energy production to one based on renewable energy. Studies estimate the potential for community renewables to be between 3500MW and 5270MW,<sup>10,11</sup> this is energy that does not have to be produced by the burning of fossil fuels.

### 5. REDUCING ENERGY DEMAND

People who get involved in community energy projects gain greater knowledge of energy issues and as a result are likely to cut their energy use. Most community energy projects include an education element aimed at changing behaviour and energy use. In Brno in the Czech Republic, for example, an insulation- buying club offers training to residents. This has led to reduced energy consumption in their apartment building (see case studies below).

### 6. FINANCIAL BENEFITS FOR COMMUNITIES

Many community energy projects have small funding schemes that distribute grants to local voluntary groups and clubs. Wadebridge Wren community energy scheme in the UK, for example, takes a small fee when it connects buyers and suppliers in their buying clubs and this is used to make charitable donations. Members vote on which local group receives funding. Such financial schemes help build strong communities.

### 7. FUEL POVERTY REDUCTION

Many community-owned energy projects provide an allowance of electricity at low cost to the people involved. For example in Brixton in the UK, many people cannot afford to have contracts with energy companies and instead have to be on more expensive 'pay-as-you-go' tariffs. Brixton Solar community power project gives local people a limited amount of the electricity produced with solar panels on their own roofs for free. Through the project people can also take part in 'draught buster' workshops to help them cut energy waste. This means they have more energy to heat their homes and cook with.<sup>12</sup> When communities own the means to produce their own energy they have more control over the costs and don't have to pay the full prices demanded by energy companies.

### 8. STRONGER COMMUNITIES

Communities that embark on successful renewable energy projects together develop a sense of pride and confidence. They develop valuable skills and strengthen relationships with each other. Communities that have worked together on a clean energy project are more likely to realise other projects which also benefit their community.

### 9. CHEAPER ENERGY FOR ALL

Large-scale investment in renewables, which can be partly achieved through a big rise in community energy projects, will push down electricity prices for everyone. This is because, unlike fossil fuels and nuclear, there is no 'fuel' component to the cost of wind, solar or hydro. In Germany, prices on the short-term electricity market were found to be up to 40% cheaper in 2011 compared to 2007 and this has been attributed to increased production of solar electricity.<sup>13</sup>

#### FOOTNOTES

- 9 Pierce, J. C., Steel, B. S., & Warner, R. L. (2009). Knowledge, Culture, and Public Support for Renewable-Energy Policy. *Comparative Technology Transfer and Society*, 7(3), 270-286.
- 10 Baker Tilly (2011) The potential for the GIB to support community renewables
- 11 Harnmeijer, J., Parsons, M., & Julian, C. (2013). The Community Renewables Economy.
- 12 Butler, T., & Robson, G. (2001). Social capital, gentrification and neighbourhood change in London: a comparison of three south London neighbourhoods. *Urban Studies*, 38(12), 2145-2162.
- 13 See Ecofys (2012) [www.ecofys.com/files/files/ecofys\\_can\\_foe\\_2012\\_saving\\_energy.pdf](http://www.ecofys.com/files/files/ecofys_can_foe_2012_saving_energy.pdf)



# CASE STUDIES

## RENEWABLE ENERGY ISLAND: SAMSØ, DENMARK

<http://energiakademiet.dk/en/>



The Energy Academy  
on Samsø.



Samsø is a small Danish  
island in the North Sea.

### WHAT IS IT?

Samsø is a Danish island located in the North Sea bay of Kattegat. The island has 4,000 inhabitants and covers 114 km<sup>2</sup>. Its main activities include farming, tourism, and now, renewable energy. In 1997 Samsø was named 'Denmark's renewable energy island' and set out to shift all of its energy supply to renewable energy within 10 years.

### BACKGROUND

Samsø had no conventional energy resources of its own and relied on fossil fuels imports by sea, and electricity supply from the mainland grid. The unprecedented scheme to become 100% powered by renewables changed the energy production and consumption patterns for the whole island within a decade.

The Danish Government and the Samsø municipality threw their support behind the programme from the beginning. Three new district heating plants were built: one that uses wood chips and solar heating, and two that use straw. New wind turbines were erected: 10 sited offshore and 11 onshore.

In eight years – and two years ahead of schedule – Samsø achieved 100% renewable energy self-sufficiency. Electricity production has even exceeded expectations: covering electricity consumption for the island and compensating for energy used in the transportation sector. The project also saw a reduction in overall energy consumption of more than 3%.

### PEOPLE'S PARTICIPATION

Locals were involved from the beginning in choosing, and investing in, the technologies used in the project. As a result, energy and climate issues are now common knowledge amongst islanders who are deeply committed to using and promoting renewable energy.



Samo islanders with the  
wing of a new turbine.



Samsø has ten large  
offshore wind turbines  
3-4 kilometres south  
of the island.

## COMMUNITY WIND FARM: TEMPLEDERRY, IRELAND

<http://tea.ie/projects/templerederry-community-wind-farm-case-study/>



A school visit to the wind farm in Templederrey.



Ireland's first community owned wind project produces enough electricity to power 3,500 homes.

### WHAT IS IT?

A community-owned wind project consisting of two wind turbines owned by 32 shareholders, in Tipperary in the South of Ireland.

### BACKGROUND

The wind farm in County Tipperary, is situated in the southwest of Ireland in a mountainous area suffering from high unemployment and a declining population.

Templederry is now home to Ireland's first community wind-farm which supplying the grid with community-owned wind energy.

The wind farm project grew out of the local Community Development Plan. The development plan was drawn up by the local energy agency to encourage community involvement in sustainable energy. The community recognised the importance of renewable energy and looked in to the feasibility of other energy sources, such as biomass and anaerobic digestion, but decided to proceed with wind after a technical feasibility study. The group completed construction of the first turbine at the end of 2012 following ten years of hard work and perseverance.

The project is being run by the people of Templederrey with community shareholding. The 32 shareholders all live in the locality and include farmers, public servants, retired people and members of the clergy.

### BENEFITS

The group is now producing green electricity (approximately 15GWh per annum) and selling it to the grid. This is enough to power 3,500 houses, or the equivalent of the local town of Nenagh which has a population of just under 8,000. Currently the wind farm is operating at a capacity factor of 50%, well above the 2012 national average.

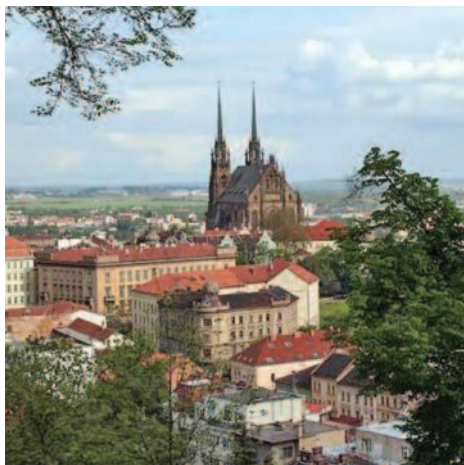
### FINANCING AND INVESTMENT

Each shareholder invested an initial €1,000. All shareholders are equal and have one share each except for the community group that got two free shares. The project has signed a 15-year power-purchase agreement with energy provider, Bord Gais. The project is paid on a two-monthly basis for the power it generates.

The project has been financed with a range of sources including shareholders, leader grant aid, a loan, and project finance from a bank.

# CASE STUDIES

## RETROFITTED APARTMENT BLOCKS: **BRNO,** **CZECH REPUBLIC**



Brno is the second city  
in the Czech Republic.



The residents planning the  
insulation project in Brno.

### WHAT IS IT?

An insulation and energy saving project in the city of Brno, in the Czech Republic.

### BACKGROUND

Nový Lískovec is a classic suburban district of a big city. Most of the housing was built between the 1970s and 1990s. Ninety-five per cent of the neighbourhood's 13,000 residents live in pre-fabricated apartments typical of Central and Eastern Europe.

Jana Drápalová, a local representative, proposed an initiative, to retrofit apartments in the neighbourhood where she lives. Between 2001 and 2006 the first stage of the project was completed and 384 apartments were successfully insulated.

The residents had autonomy over the design of the project and chose to use insulation panels combined with two ventilation techniques.

The total energy consumption of the apartments was monitored prior to, and after, the refurbishment and the results are startling: average annual energy consumption fell by 80%.

The second phase, between 2009 and 2010, saw the scheme successfully insulate a further 672 homes. Once all the communal apartments in Nový Lískovec were fully insulated, the local elementary school and kindergarten were also insulated.

### HOW DOES IT WORK?

The project works on a 'pay as you save' basis. In other words, the insulation is paid for by the money saved on heating bills. Tenants share the repayment of investment as part of their rent.

The initial investment required the housing association to borrow against the future savings which it would receive from the tenants. This challenge threatened to prevent the project from proceeding but was ultimately agreed by those involved.

The cooperation of tenants was vital to the success of the project and to the substantial efficiencies achieved. Participants were also educated in how to change their everyday behaviour to save more energy.



## SOLAR NEIGHBOURHOODS: BADALONA, SPAIN



The community owned solar panels in El Pomar, Badalona.

### WHAT IS IT?

A rooftop solar panel scheme in the city of Badalona, with 5kW solar installations on the roofs of three different buildings.

### BACKGROUND

Badalona is a small city in Catalonia, located about 10km east of Barcelona. Badalona has an industrial history with boat-building and the oil and gas industry a big part of the city's economy. The Catalan housing agency has the aim to improve housing conditions for residents of social housing.

Following a pilot project involving solar panels on roofs in the El Pomar neighbourhood of Badalona, the Catalan housing agency received grants to build solar panels on the roofs of three other neighbourhoods. They opted for a combination of two technologies – solar water heating panels and photovoltaic panels.

### HOW DOES IT WORK?

Residents in the three neighbourhoods in El Pomar agreed to have solar on their roofs for 20 years. In exchange, residents receive hot water and their electricity bills are covered by the Catalan housing agency. This has resulted in the residents being very pleased with the project. Unfortunately new laws in Spain make it unlikely that this project could be easily replicated.



A pretty seaside town Badalona has an industrial past.

# MAKING THE ENERGY REVOLUTION HAPPEN

**There is great potential for community and citizen-owned energy to contribute significantly to the shift to the clean energy system we need and to the fight against climate change. A community energy revolution has begun across Europe but it needs support if it is to survive and flourish. This will only happen, though, if the right legislation is put in place to encourage community participation in our energy future.**



Community owned solar panels in Brixton, London.

## 1. RENEWABLE AND COMMUNITY ENERGY TARGETS

We need a binding and ambitious EU target for renewables for 2030. The importance of having a binding target can be seen in the way that the EU's 'indicative' energy saving target for 2020 resulted in less investment and less attention than the binding renewables target. Overall binding targets for renewable energy will provide a stable environment for investment in the sector that will benefit community energy projects. We also recommend an EU wide target for community ownership of renewable energy, similar to the one in Scotland.

The Scottish government has set a target for 500MW of community and locally-owned renewables by 2020.<sup>14</sup>

## 2. NATIONAL AGENCIES WITH GRANT AND LOAN MAKING ABILITIES

Renewable energy agencies with the sole purpose of increasing the number of community energy projects are needed at national level. This could be either a semi-state agency specially set up to promote community ownership of renewables, or an extra function explicitly added to existing national sustainable energy agencies. Such an agency would be a one-stop-shop for community groups who want to develop their own projects. One model is Community Energy Scotland. This organisation would be even stronger if it was on a statutory basis.

## 3. REDIRECTION OF SUBSIDIES FROM FOSSIL FUELS

Latest estimates suggest that global fossil fuels subsidies in 2011 amounted to \$523 billion.<sup>15</sup> This money should be spent instead on subsidising the transition to renewable energy. The EU should rapidly switch this money away from fossil fuels and into investments in a people-centred renewable energy future.

## 4. SUPPORT SCHEMES

Governments need to protect and promote support schemes for renewable energy projects. Whether these are feed-in-tariffs, green certificates or net metering, renewables need support and protection. Rather than a 'one-size-fits-all' approach, these schemes need to be well designed and adapted to national and economic contexts. Feed-in tariffs that are set at the wrong level can create perverse incentives. Well designed and predictable tariffs are essential to encourage community energy.



# – HOW TO SUPPORT COMMUNITY ENERGY

## 5. GRIDS AND GRID DEVELOPMENT MUST FAVOUR RENEWABLES

Substantial investments in power production capacity, infrastructure, buildings and transportation must be made within the next decade. Investment decisions will shape Europe's energy mix from now to 2050 and beyond. The way in which grids are designed and run currently favours large single sources of energy production, such as nuclear and coal. Utility companies must be made to cater for renewables on their grids.

## CONCLUSION

Potential for community energy projects exists in every country in Europe. Projects are popping up from Spain to the Czech Republic and in many countries in between. Supporting community energy projects is a win-win situation with social, environmental and economic benefits; more renewable energy is produced by people who use it, where they need it, and the more citizens and communities who are involved in the energy transition the faster it can happen. However, community energy projects need support. For the potential of community energy to be achieved it needs a framework of reliable measures that will encourage more communities to start projects and be part of a clean energy future for Europe.



Community energy celebration at westmill wind co-op.



Power to the People: community owned power station, Hertfordshire, UK.

## FOOTNOTES

- 14 Scottish Government (2011)  
[www.scotland.gov.uk/Resource/Doc/917/0118802.pdf](http://www.scotland.gov.uk/Resource/Doc/917/0118802.pdf)  
 15 IEA(2011) [www.iea.org/subsidy/index.html](http://www.iea.org/subsidy/index.html)





**Our current energy system is a huge contributor to climate change. We urgently need to end our reliance on fossil fuels and shift to clean, community-owned renewable energy. Putting people at the centre of the energy system can speed up this transition and bring extra benefits for communities and all society.**

The community energy revolution has begun across Europe but it needs support if it is to survive and flourish. The Community Power project is calling for:

- Renewable and community energy targets
- National community energy agencies with grant and loan making abilities.
- Fair and reliable support schemes for renewables.
- Redirection of fossil fuel subsidies to renewables.
- Grid infrastructure and grid development that favours renewable energy.



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