

## **IMechE Community Renewable Energy Workshop**

On 26<sup>th</sup> February 2019, the Institution of Mechanical Engineers (IMechE) hosted a workshop on the topic of community energy. Organised by the Institution's Renewable Power Committee, with assistance by the Engineering Policy Unit and the Energy Environment and Sustainability Group, the event brought together around 40 delegates with an interest in community energy. They included developers, network operators, civil servants and energy policy professionals.

Seven participants were invited to give formal presentations. All delegates took part in breakout sessions in which they were tasked with answering policy questions relating to community energy. The questions put to our breakout groups are below, followed by the answers given by workshop participants:

### **1. What are the advantages of community renewables projects (CRP) and how can these be promoted to the community?**

Advantages:

- Cost of energy can be reduced in certain circumstances, especially remote communities.
- Generating and using locally can reduce transmission and distribution losses.
- Projects be used to educate children in engineering and technology.
- They can reduce fuel poverty.
- Dividends can be reinvested in the community.
- Increased trust in the energy provider can be an outcome.

How they can be promoted:

- Build a collaborative neighbourhood vision.
- Give people a wider understanding of energy and how it affects them.
- Create community champions to spread the message.
- Talk about advantages of battery storage.
- Have engagement events, e.g. family fun days.
- Obligate large energy providers to support community energy.
- Create targets for community energy deployment.

### **2. What are the initial steps and issues to consider when setting up a CRP?**

- Identification of required scale and the right technology.
- Define who the community is and who will take ownership of the project.
- Motivations: Cost? Climate? Research?
- Identify stakeholders, e.g. energy suppliers, developers, investors, consumers, local authority.
- Outline how stakeholders will be engaged along the way.
- Define business model and ownership structure.
- Finance (hurdles and good practice principles).
- Identify skill sets required (project developer, lawyer, communication and fundraising).
- Research whether it has done before and if lessons can be learned.
- Plan how the project will be managed during its various phases.
- Determine amount of investment required versus balance of control.

### **3. What are the barriers to setting up a community energy project, including planning and permitting issues?**

- Regulatory framework and lack of regulatory stability.
- Inadequate structure of the organisation.
- The inability to sell electricity behind the meter, e.g. to allow trading between homes.
- Specific technologies have their own specific challenges (mortgages for PV and Environment Agency for hydro).
- Lack of skills available in the community on a volunteer basis.
- Lack of local authority resource and skills.
- Lack of community engagement including media engagement.
- Project complexity, particularly legal requirements.
- Inability to sell electricity (competition with National Grid).

Opportunities to overcome these barriers include shared legal frameworks and shared best practice between community energy groups. This can be difficult however as the regulations often change from year to year.

### **4: With what topics/questions could IMechE engineers help community energy?**

A major theme was the scale of the IMechE and its ability to reach a wide audience, as well as bring people together. Specific examples were:

- Connecting engineers with entrepreneurial challenges, as well as investor and students.
- Engage with developers to encourage innovation. Often engineers are only involved in design and maintenance and do not close the circle to improve technology through R&D.
- Bring in DNOs and make them more visible. Also work with academia to disseminate research to assist in the move from DNOs to DSOs.
- Bring practitioners and researchers together.
- Raise the profile of community energy with members.
- Highlight the challenges of community energy and ways to overcome them.
- Identify potential partnerships between private sector companies and community renewable energy projects.

### **5: What are the challenges presented in managing community energy projects (technical, operational, administrative, etc.)?**

The management challenges were divided into three categories:

#### **Technical**

- Skills (market, technical, legal, financial)
- Metering
- Legislation (potential changes)

#### **Operational**

- Annual General Meetings
- Governance (coordinating volunteers, managing membership and measuring social impact)
- Metering & billing

- Financial analysis

#### Admin

- 10-to-1 ratio of volunteers to full time employees
- 20-25 year project lifetime
- Skills again
- Volunteer management
- Ensuring social impact
- Quantifying the impact

#### **6. What role should the private sector play in overcoming the challenges and realising the opportunities of community renewable projects?**

- Bringing required skills to the table.
- Assisting in the development to speed up a project deployment.
- Using community energy projects as a test-bed for new technology or apps.
- Corporate Social Responsibility, e.g. private sector staff can use volunteer days to help.
- Private sector involvement can reduce risk of project failure.
- The 'trusted brand' of a big company can help with acceptance.
- Develop enabling technology to allow things like peer-to-peer trading.
- Using community energy projects as an opportunity for R&D.
- Helping to spread the word. For example, Good Energy helped to promote the Westmill Wind Project.
- They could partner with UK Power Networks to reach vulnerable people as the communities themselves will best know where these people are.

#### **7. What are challenges in the current business models (variables) and what is being done to overcome them; what new innovative business models are worth investigating?**

##### Barriers:

- The barrier between the wholesale market and using energy onsite.
- Withdrawal of the FIT.
- Costly legal requirements, even for small projects.
- Relying on volunteering means skills can be insufficient.
- Projects are often unique, therefore it's difficult to learn from past experience.
- The challenge of enabling community energy developers to participate in the changing energy landscape of multi-technology and multi-revenue streams.

##### Innovative business models might include:

- Multi-use of assets to increase revenue streams, e.g. floating windfarm and salmon farm.
- Carbon credits.
- Technology aggregation and co-location, e.g. solar plus batteries.
- Pairing with housing developers to embed community energy within new estates.
- Central co-ordination of multiple projects.
- Linking electric vehicle charging infrastructure to new energy provision.
- Carbon co-ops.

- Price-support mechanisms.
- Behavioural change: 'make them an offer they can't refuse'.
- Incentives to become engaged in the project.
- Moving beyond electricity generation to heat and transport.
- Digitising administration to reduce cost.

#### **8. What financing mechanisms have been used by community groups and why?**

- Secured debt (bond issues or loans).
- Equity (share issue via co-ops, community benefits societies, community interest companies etc.)
- Lease finance.
- Comment: community energy schemes equity is not necessarily more expensive than debt.
- Offtake models: new territory in 'market value stack' models.
- Grant funding.

#### **9. What government policies need to be in place to enable community renewables projects to happen?**

- Consistency and stability in policy.
- Build up the evidence base to improve learning between projects.
- Specific policies that adapt to the needs of community energy.
- Clear point of contact on policy.
- Put community energy on the agenda with a focus on heat and transport in addition to electricity.
- Targets for community energy in England (like they have in e.g. Wales and EU).
- Long term FIT replacement at a value high enough to get projects off the ground.
- New policies not always needed, rather a relaxation of existing regulation.
- 'A presumption in favour' of CE projects.
- Allow sale of electricity directly to individuals.
- Enabling private networks as well as the grid.
- Allow people who rent or whose home is not appropriate for self-generation to buy a share in a local scheme and offset their consumption.