

Energy across the authority

How local authorities are using assets to develop the energy agenda





energy

The Association for Public Service Excellence (APSE) is a not-for-profit membership based organisation dedicated to promoting excellence in the delivery of frontline services to local communities. We work with more than 300 Local Authorities across the UK.

APSE Energy is a division of APSE which involves a group of pioneering Local Authorities who are looking to work in collaboration to forward the following vision:

"To enable and facilitate the local municipalisation of energy services and increase the role of local Authorities in the energy agenda within their communities. Local Authorities working together in this way would have great influence and would be able to deliver economies of scale in green energy to promote economic growth and combat fuel poverty."

The goal of this collaboration is to deliver the local municipalisation of energy services and in doing so:

- Address social objectives and deliver community benefits, such as a reduction in fuel poverty and increases in jobs and skills.
- Save money and make money for Local Authorities to safeguard local services.

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1. Foreword

Having worked in the energy industry for many years, it is a sector I understand well. We are aware of the factors prompting change in the industry – higher energy prices, concern about the security of supply, domination by a small number of multinational companies, fuel poverty, climate change and emissions issues – which have led to it developing into a much more dynamic sector.

I also know local government and how it too has evolved recently to look at longer planning horizons, opportunities to generate income and be more commercial and to use its assets to the full.

Local government and the energy agenda can sit very well together and the proof is right here in the pages of this publication. The examples herein reflect local government's response to the energy trilemma of security of energy infrastructure and supply; energy equity of accessibility and affordability; and environmental sustainability and emission reduction.

Many would argue that although every local authority has a set of legal duties outlining the services it must deliver, all local councils act upon a much wider range of responsibilities in order to support their citizens and local businesses. Issues related to energy fall into this wider category and a good example is how local authorities deal with fuel poverty. They are leaders within their localities but there are different circumstances within each locality and different councils are able to do more or less than others. There should be no surprise that local government is getting involved in a relatively new area of activity. Just like all sectors of the economy, local authorities have been in the business of managing change for as long as they have been in existence so for them it is just more of the same. Whether it is taking on new functions such as monitoring air quality, local government re-organisation or managing new technology on the highway network, change is as perennial in councils as it is elsewhere.

In terms of APSE Energy, our vision of 'the municipalisation of energy' is one of the main aims of our member local authorities so there is a clear appetite for involvement in the energy sector. Investment in energy is also compatible with the ensuring council model promoted by APSE as it forms an element of a council which has a varied asset portfolio on which to base its services whilst providing a further route to deliver benefits for local people and businesses.

The examples in this publication emphasise that there is a significant role for all local authorities in this agenda which can benefit many parties. We at APSE Energy hope to prompt those who have yet to invest resources in energy to do so. The examples reflect the fact that local authorities can be at home in this sector, can develop financial and community benefits and retain a civic perspective whilst acting in a commercial manner.

I am very optimistic about how local councils can play a positive role to meet the energy challenge. I would encourage you to look at the experience of the local authorities in the pages of this publication, learn from the actions they have taken, copy them where you can and drive your own council's energy agenda forward.

Cllr Archie Dryburgh

APSE National Chair 2017-2018

2. Executive Summary

This publication will highlight just a small number of the many and varied projects undertaken across the council estate, and sometimes wider, and the benefits which have resulted. It will do four things:

- It will briefly outline the context for local authority involvement in the energy agenda and the energy market.
- It will promote the role of councils in tackling the sector-wide issues as well as the local problems which have developed as the Big 6 energy companies have dominated the market and fuel poverty has increased.
- It will also outline some of the detail behind the actions that the local authorities and other public service providers have taken to directly support and benefit their local communities and economies.
- Finally it will call on local government to engage with the energy agenda and plan for the longer term.

The examples outlined herein provide real world descriptions of how local authorities have tackled the issues raised by the energy agenda in their localities.

Wrexham County Borough Council became the first in Wales to own and operate a solar farm as part of a number of large scale solar PV projects.

Swindon Borough Council through Public Power Solutions, its wholly owned company, developed a 16 ha site at Chapel Farm into a solar park with the help of innovative funding including the first renewable energy investment eligible to be held tax free in the UK's first Innovative Finance ISA.

Glasgow City Council has used its assets in the form of school roofs to cut energy costs, reduce emissions, generate an income stream and contribute to its sustainable city aims. Working through the flexibility of its arms-length organisation, Glasgow City Building, 8 arrays were delivered in 6 weeks – a significant achievement.

Fife Council has managed to radically overhaul its fleet and work with partners to introduce new technology by taking a fresh approach. Investments in hydrogen generation and support services make it a true leader in the field.

Doncaster Council's Boilers on Prescription is another truly innovative approach with the Council working alongside local GPs to identify patients with serious respiratory conditions and invest in appropriate central heating systems as one method of tackling the condition.

Another at the vanguard is **Nottingham City Council** through its formation of Robin Hood Energy. It has shown true local leadership in its desire to tackle fuel poverty in Nottingham and those working at the energy supply company, have made it a success in a short period of time. Robin Hood Energy was a radical step and effective management have meant that the benefits are likely to emerge quickly.

Denbighshire County Council has shown the power of working with partners to make an effective impact on hard to heat homes in rural areas, make a difference to heating levels in hundreds of homes and engage a range of people and organisations along the way.

Mid & East Antrim Council and Causeway Coast and Glens Councils have come together to tackle perhaps the most problematic issue of all – behaviour change. The 'Energy Detectives' programme is aimed at school children as future users of energy and protectors of the environment and the focus is on influencing behaviour early.

Waste as a source of energy is well known but **Bradford Metropolitan Borough Council** are using solar energy compactors to improve their waste collection and cleansing services and the results are impressive indeed.

West Lothian Council's external wall insulation programme is a study in what council's do best – work for the benefit of local people by accessing funds to improve poor quality homes and build relationships with the community.

The descriptions of the schemes noted above tell part of the story of what these councils have done. Of course there have been barriers and problems but they have not been significant enough to stop these projects moving forward. Hopefully you will see where the approaches and technologies taken in these schemes can be applied in your locality. Furthermore I hope the foresight, leadership and willingness to take action can re-invigorate your appetite for intervention in the energy market and take forward the APSE Energy vision of 'the municipalisation of energy'.

Phil Brennan

Head of APSE Energy

3. Why are local authorities engaged?

As everyone involved in local government knows there is an acceptance that things have to change in the sector. Although many of the expectations around the services which are delivered remain static, the context is a dynamic one. Local citizens expect their waste and recyclates to be collected, the street lights to be on, the leisure centre opened at 7am and the cemetery available as usual. And so they should. These are all public services delivered as part of a local democratic system accessible to all. However the environment within which local services are delivered has changed significantly over the past few years with huge numbers of staff leaving the sector, financial resources greatly reduced and new technology applied widely. The aim of many local administrations has necessarily been to reduce the cost of the workforce whilst delivering a similar level of service. Changes to the grant system for local authorities and a greater reliance on council tax and business rates in future means that for the moment the level of funding for local councils is by no means guaranteed and there will be a lot of concern about where the future funding is coming from.

Local authorities need to respond to the situation. They cannot sit back and take a reactive position waiting for the next potential crisis before they do something. APSE has been promoting the commercialisation agenda for local government for many years now and we are not shy of encouraging councils to go places they have never been before. Councils are cautious by nature. They understand the responsibility of looking after public funds and being the keeper of the local purse and it is a role they take very seriously. Their audit and risk functions are very well developed and they seldom make an investment without adequate checks and consideration. Alongside this, many have adopted a more commercial approach and are benefiting financially from and are willing to share the lessons learned with others. Other councils have been slower to adopt the approach but understand the potential benefits to be gained. A theme running through local government commercialisation is however that it is an approach for social purposes, to secure better social outcomes not solely profit motives.

The energy agenda is one where local authorities can benefit from a commercial approach. Investing in developing technologies, working in partnership with the private sector, using assets outside of their locality and adopting new business models are all examples of this new approach.

That is the local authority perspective. The energy users' perspective is a little different. They see utilities making large profits, a vast array of options and tariffs, the cost of the service going up and expected to rise further. Meanwhile energy is something we are all entirely dependent upon in our home, work and social lives and in virtually everything we do as a society.

However, the role of the local authority has been an unclear one. With privatisation of the utilities in the 1980s and 1990s the role for the public sector was much reduced and as the level of competition increased the Big 6 energy companies expanded to dominate the market.

Local authority councillors and officers appreciate the role they have as custodians of services for local people which enhance their life and contribute to the local community and economy. With that comes a responsibility to intervene when vital services are not performing as they should and people are suffering as a result. The energy market is one which by common agreement has not been functioning well and users have not fared well. However intervening in the market is not something which local authorities do on a regular basis – indeed it is new ground for many of them. Equally as a market commodity, the regular energy user had no expectations of their local council coming to the rescue by moving into the energy market.

Yet in order to work on behalf of local people and businesses that is just what some have done. We will see later in this publication some examples of such intervention but the general picture is of local authorities using powers to provide services, generate income and support their localities in a new market. This is not something they were asked or forced to do by central government but a role they initiated themselves in spite of government. Indeed some would argue that government was the root of the problem allowing 6 companies to dominate the market as prices rose, a complex set of domestic tariffs to emerge whilst doing little to tackle the security or emission issues. Hence the trilemma.

The position we find ourselves in now is still not ideal. For example although the Big 6 share of the domestic electricity supply has reduced from 99% as recently as 2012, by the end of 2016 it was still as high as 85%. But things are moving in the right direction. The UK's Big 6 energy companies are losing customers to their smaller rivals at such a rate that it is estimated that they will control less than 50% of the residential market in 2019, according to energy price comparison site UKPower.co.uk.

The vision of APSE Energy is the 'municipalisation of energy services' and it has started, but it will take a long time to be in place right across the UK. Those local authorities like Nottingham, Glasgow, Peterborough, Cardiff, East Riding, Portsmouth, Wrexham, Aberdeen and more are all pushing the municipalisation of energy forward and acting in ways they would never have considered just a few years ago – and many others are following.

There are fewer elements of our lives which are more fundamental to us than energy. Food, shelter and warmth were considered the main material needs of humans from the earliest days and as we have evolved and society has become more developed energy of many types has grown in importance to the point where it is now a basic element of our lives. Although there have been recent warnings of 'brown outs' or 'black outs' it would still be an enormous shock if our energy or heat supply were to become unavailable – yet the most recent information claims that an increase in demand of 4% is enough to cause shortages. Equally the nature of the national grid means huge investment is needed to maintain it – a cost that will undoubtedly be reflected in growing energy bills over forthcoming years. Advances in technology, changes in government policy to impact the market, individual investment decisions and innovation breakthroughs are expected to solve the inherent problems within the existing system. The existing infrastructure was built to serve a different country with a different set of industries so there is no surprise that it requires investment. Local authorities have a role to play in terms of supporting change in that infrastructure through their approach to energy generation distribution and use. Of course their individual actions will make little impact in noticed terms due to the scale of the grid but they will have a significant local impact. They can incorporate energy as a service they provide in terms of advice and support to citizens, invest in energy schemes, encourage citizens to switch supplier, supply energy themselves and work to grow the energy sector locally so creating jobs.

There may be opportunities for local authorities to work together which will have an impact wider than simply in their own locality. For example, working together to provide regional electric vehicle charging infrastructure, coming together to combine generating loads to bid on the capacity market or establishing regional energy services companies are examples where councils can have a bigger influence through collaboration.

It is understood that each local authority operates within a different context – the history, the nature of the local economy, the geography, the expectations of the population and the priorities of the council are just some of the important factors which separate our local authorities and guide their approach. Equally each has different skills and levels of capacity to manage the services they deliver and the problems they face. Those services and problems are common in principle to all councils but differ in priority from area to area.

There is a recognition that local authorities have a role to play in the energy agenda, though as with other functions, the approach differs. However all have the assets to influence that agenda in their locality and many can benefit from investment in energy. Access to assets does not appear to be a problem for most local authorities.

One of the main factors limiting activity is capacity and internal expertise. Many councils have lost officers and managers who were previously employed to manage carbon reduction, energy, agenda 21, climate change and sustainability. A lot of staff have not been replaced and responsibilities have been merged and allocated to remaining officers who subsequently have more and more to do. As such they are unlikely to be able to dedicate the time to individual topics that the previous staff had both because they have less time to allocate to them and because they may know less about those issues.

As well as a reduction in capacity, this has resulted in the general message about climate change and energy not being highlighted to senior management and councillors as it may have been in the past. This has been one of the factors which has led to the issue slipping down the list of priorities in many local authorities.

However this is not the case everywhere and there are a range of councils with different levels of engagement in this function. Some are keen to invest in the energy agenda and have put in place teams who are skilled at managing energy projects, promoting the agenda across the authority and getting managers involved as well as bidding for and winning grants to support innovative projects.

At the other end of the scale, some smaller councils have no internal capacity and so are far less able to utilise the assets they have nor address the energy related problems in their localities.

The ability of local authorities to become engaged in the market is clear and the need for them to do so to address issues such as their own energy costs, fuel poverty and economic development is also apparent.

4. What is the local authority role?

As stated above there is a role for local authorities in the energy agenda. As leaders within their community local authorities have a generic role to improve the nature of the locality - be that job opportunities, health, culture, education or the environment as well as the way public service providers operate and deliver services.

Relevant activity starts with the local authority as a significant energy user itself. They are keen to reduce their own costs and reduce emissions. So changing the energy supplier, fitting energy efficiency measures, investing in generation such as solar panels on the town hall or voltage optimisation and combined heat and power in leisure centres and setting up an energy services company are all examples of the council supporting itself and reducing the cost of energy. Leisure centres with swimming pools are examples of heavy energy users where reductions in price paid can make a significant saving. Varied usage levels in schools need to be managed effectively with there being scope for savings through efficient management of heating systems. Many town halls, civic and community facilities are older buildings and energy efficiency measures can reduce energy loss and save money.

In terms of the local community and economy the activities of the Big 6 energy companies over recent years have led to numerous problems. In its report titled 'Modernising the energy market' (June 2016) the CMA noted that problems fell into 3 main categories:

- A lack of engagement in the markets on the part of many customers, which suppliers are able to exploit by charging high prices;
- There is a combination of regulations and technical constraints that restrict competition, to the detriment of customers;
- The system for regulating the energy sector, which hinders the timely development of policies and regulations that would be in the interests of customers.

The investigation found that 70% of domestic customers of the 6 largest energy firms are still on an expensive 'default' standard variable tariff and that these customers could potentially save over £300 by switching to a cheaper deal. The CMA has found that customers have been paying £1.4 billion a year more than they would in a fully competitive market. This is what has led to a broken market.

Issues of restricted competition affect business as well as domestic customers and so have an impact on local economies. Each local authority will be home to some organisations with large energy demands and only a small reduction in the unit cost of energy will have a dramatic effect in the total bill. The same is true of SMEs looking to minimise all of their costs which will help them to grow.

There are over 40 energy suppliers in the UK with the non-Big 6 companies taking up approximately 15% of the market. As Robin Hood Energy and Bristol Energy have shown, local authorities can have a role in supplying energy. APSE Energy has been working with other local authorities who intend to do this. The challenges they face and the benefits they can receive are very similar to those of a private sector organisation – in other words it can be lucrative, but in a way that is beneficial to the public, if it is approached in the right way.

Generation is another way that councils can intervene in the energy market. By generating their own energy and feeding it into the national grid, local authorities add to the general supply of energy but do not address the problems of an old fashioned grid network which is in need of significant investment. The government is promoting a decentralised grid where there are a lot of smaller generators using micro networks distributed apart from the national grid and so taking stress off it. Those local authorities who have entered into private wire agreements or are directly using the energy generated on the town hall roof are addressing this problem too.

Local authorities have established energy services companies for other reasons than supply such as energy efficiency, education or the promotion of switching. White label arrangements have been established by a number of local authorities in order to encourage local citizens to switch supplier and benefit from lower tariffs. The fitting of solar panels to council house roofs, the purchase of low emission vehicles and the establishment of feedstocks for biomass boilers are further examples of how local authorities can get involved in the market.

Intervention in a market such as the energy market is not a traditional role for a local authority and they are not used to taking a purely commercial approach. However there is certainly a place for them in this market. They must not try to act

as, for example, any other commercial energy supply company might act because they are not a private sector company. Their reputation, accountability and role as a public service provider means they are normally a trusted brand and it is this that they must focus on when they are looking to enter a new market.

The broken energy market issue is one reason for local authority engagement. The air quality issue is another. The motor vehicle industry is in the middle of the biggest change in its history. The need to reduce carbon emissions and improve air quality have moved up the international political agenda as never before and they are forcing the industry to develop new technologies. As users of large fleets of vehicle and custodians of the local environment local authorities must take action. They must be seen to be leaders in the community by investing in low emission vehicles, enabling charging infrastructure, encouraging low emission buses and taxis, establishing low emission zones, producing educational material and monitoring and publicising air quality data amongst other actions.

The condition of the housing stock is a further topic of interest. Tackling damp and condensation in the existing stock with adequate heating used inefficiently, fitting boilers which run on fossil fuels and avoiding the most effective building techniques and materials are examples of what not to do. The existence of policies referring to the highest building standards or Merton Rule policies for new housing and other developments within the local development plan is a topic not all councils have addressed.

There are obvious links between energy, the issues noted above and the wider health, wellbeing and education objectives of local authorities. It is up to each local authority with its own priorities in mind to identify their role in this agenda.



Would you put a solar array on one of your reservoirs?
Did you know that another local authority has?

5. Examples of how local authorities have engaged in the energy agenda and in the energy market

5.1 De-carbonising the Fleet - Levenmouth Community Project, Fife Council

The project was developed to support the Council's ambitions of growing a vibrant economy and promoting a sustainable society. Specifically, the project was designed to enable the Council to further decarbonise its vehicle fleet and take an initial step in becoming self-sufficient in low carbon fuel production, as well as creating opportunities for new jobs and future skills from these emerging technologies.

The over-arching aim of the Levenmouth Community Energy Project was to position Fife, and in particular the Levenmouth area, as a world leader in developing innovative applications of hydrogen derived from renewable sources.

The project also aimed to overcome the following challenges:

- Decarbonising the Council's fleet (1496 vehicles including 185 HGVs)
- Linking local energy demand with local renewable energy generation
- Overcoming barriers relating to grid capacity issues
- Applying energy storage and active network management
- Securing economic benefit - job creation and skills development

Working closely with Bright Green Hydrogen, the operator of the Hydrogen Office, Fife Council was awarded a phase 1 grant from the Local Energy Challenge Fund in October, 2014, to develop a full phase 2 business case for the Levenmouth Community Energy Project. A phase 2 application for the Levenmouth project was subsequently submitted to the Local Energy Challenge Fund in February, 2015, and the project secured phase 2 match funding of £4.3million from the Fund in March, 2015.

There were a total of 114 applications submitted to the Local Energy Challenge Fund and the Levenmouth project was one of six projects to be successfully awarded funding.

During the course of developing the phase 2 application for the project, the team managed to secure Toshiba as a private sector project partner. Toshiba will be developing a sophisticated hydrogen energy management control system as part of the project. Therefore, the Levenmouth has three principal project partners: Bright Green Hydrogen, Fife Council and Toshiba.

In addition to the three principle project partners, the Levenmouth Project has also attracted a wide range of consortium partners who will assist in the delivery of various aspects of the project. These comprise: the Leven Valley Development Trust (community projects); Fife College (skills development); BOC (Bankhead refuelling infrastructure); Ulemco (vehicle conversions); Renault (vehicle supply); Green Business Fife (business dissemination and vehicle lease recruitment) and the Scottish Hydrogen and Fuel Cell Association (technology advice and supply chain development).

The project's initiatives

Specifically, the project involves:

Creating a zero-carbon smart grid

The grid will be created at Methil Docks Business Park, utilising a sophisticated hydrogen energy management system designed and implemented by Toshiba. The project will expand on a current private wire network to include five other buildings onsite, including the children's nursery and East Fife Football Club.

The Hydrogen Office's 750kW wind turbine will be complemented by installation of 200kW of solar PV to increase generation. The smart grid will run parallel to the current national grid lines and each building will have both microgrid and national grid connection points.

Hydrogen will be stored at the Methil site and reconverted to electricity at times when onsite wind and solar generation is low. This will help offset the intermittency of renewable generation and as a result, improve the business park's ability to be energy self-sufficient. This will demonstrate how more renewable energy can be connected to the grid nationally by alleviating the network export constraints that are becoming all too common in areas such as Scotland in times of peak renewable generation.

The current microgrid includes a 30kW electrolyser. Installing a larger 250kW electrolyser on the larger microgrid will allow the Council to take more of the park off-grid - between 75-95% off-grid - which will hopefully rise over time.

Creating a fleet of 17 hydrogen vehicles

This fleet will comprise: converted Ford diesel dual fuel Transits which will run partially on hydrogen; electric Renault Kangoo's with a hydrogen range extender; and the conversion of two refuse collection vehicles to run partially on hydrogen - possibly a world first.

Creating new hydrogen production and refuelling facilities

Hydrogen production and refuelling facilities will be created at the Hydrogen Office and refuelling facilities at the Council's vehicle depot in Glenrothes, containing hydrogen production, storage and dispensing. Dispensing will be for 350bar vehicles and production capacity likely to be 100-120kW.

Installation of solar PV

200kW of roof mounted and ground mounted solar PV is to be installed at the Council's Renewables Innovation Centre and at the nearby East Fife Football Club. This will create more energy that will be stored as hydrogen at the Methil site.

Development of a programme of education, skills and supply chain activities

This would include a schools' education programme and working with Fife College to address skills programmes for new hydrogen vehicle technology. In addition, the project will work with Scottish Enterprise and the Scottish Hydrogen and Fuel Cell Association (SHFCA) to identify specific commercial opportunities from this emerging market, and design programmes to assist businesses to enter or expand in the sector.

A rural investigation

The investigation will look into hydrogen and farm resources. In particular, a feasibility study will examine how low-cost hydrogen may be sourced from farms that have significant stranded renewable electricity.

Forming a partnership with Levenmouth Valley Development Trust (LVDT) to drive forward the project's community benefits. A partnership will be formed with LVDT to drive forward the community benefits from the project. The aim is to reduce fuel poverty in the Levenmouth community. Surplus income from the project will be passed to LVDT, which will support the local community to start a range of low carbon projects.

Benefits for Fife Council

Overall, the project will reduce green house gas emissions in 4 ways:

- The new PV generation displaces 170,000kWh of grid electricity resulting in a GHG saving of 26tonnes CO₂e per annum
- The fuel cell micro-grid displaces 40,000kWh of grid electricity per annum resulting in a GHG savings of 7.4tonnes CO₂e per annum
- The 10 Hydrogen Kangoo's displaces 240,000km of petrol emissions per annum resulting in a GHG saving of 44tonnes CO₂e per annum
- The 5 converted Transits displaces 100,000km of diesel emissions per annum resulting in GHG savings of 38tonnes CO₂e per annum

In the financial year 2014/15, the fleet team achieved a £1,465 saving on vehicle fuel costs.

This project presents a significant opportunity for the Council to further decarbonise its fleet, to trial emerging hydrogen fleet technologies and gather data on fleet performance in comparison with both conventional and electric fleet. The project will also assist the Council in becoming self-sufficient in the production of green hydrogen as a transport fuel therefore reducing its reliance on fossil fuels.

The GHG saving from the 2 converted refuse collection vehicles cannot be calculated at this stage as this is a new conversion process and the carbon savings will be measured through the detailed data gathering from the project as soon as the vehicles are in full operation in the late Spring 2017. However, it is proposed that 40% of the energy required by the vehicles will be delivered by the hydrogen. This should scale directly to 40% reduction in CO₂ emissions. The first months have been a period of optimisation for the vehicles to solve initial issues with their operation which

are bound to arise as these are the first conversions that have ever been undertaken. Currently more than 90% of outstanding issues have been resolved so the council is confident that this period of optimisation is coming to an end. The Levenmouth model of energy generation and storage will be highly replicable throughout the Central Belt of Scotland, where there are a large number of similar-sized, post-industrial towns keen to seek new opportunities for economic prosperity.

Funding

The council funded the solar PV aspect of the project in addition to the grant funding with a total funding package for both sites of circa £5 million. The council also provided significant staff resource to manage the various work packages, this of course included the installation of our own refuelling station at Bankhead and the vehicle fleet conversions as well as all civils work at both sites.

Main income sources from the project will be the electricity sales from the microgrid, sale of hydrogen fuel and the vehicle leasing as well as some income from training and development activities.

Future plans

The Council is now seeking external funding to introduce a series of technical and efficiency enhancements to its hydrogen refuelling station which was installed as part of the initial project. These include expansion of its existing capacity to produce hydrogen from a renewable source, whilst retaining the facility for the station to be supplied externally with hydrogen. In addition, an effective control and data gathering solution is sought to enable the station and its external supply to operate at optimal efficiency and measure performance.

It is also assisting its project partner, Bright Green Hydrogen, to explore the potential of developing a special purpose vehicle which would carry out a range of services including hydrogen sales and transportation, hydrogen vehicle leasing, refuelling station maintenance as well as training and skills development in hydrogen energy technologies.

The Council and its project partners have hosted a considerable number of visits to the project. These include a number of UK Councils, the Welsh Government, a range of overseas Government Agencies, two of the Technology and Innovation Catapults, Utility and Gas Network companies, universities and community groups. As a result, there has already been significant dissemination and learning from the project.



Would you consider renting the roof of a building you did not own, putting solar panels on it and selling the energy to the tenant benefiting all parties?

Did you know another local authority is considering it?

5.2 Innovation in Energy Supply - Nottingham City Council and Robin Hood Energy

Robin Hood Energy is the first, not for profit energy company, established and owned by a local authority, Nottingham City Council. Fuel poverty is a significant problem in the East Midlands and at the time that it was set up, prepayment meter tariffs were significantly higher than those available to other customer groups. A large proportion of those in fuel poverty are prepayment customers so the link between those households suffering high costs of fuel and those forced to use prepayment meters is clear.

Nottingham City Council decided to address this issue head on and to help give people a cheaper, more helpful alternative to the Big 6 energy suppliers. Establishing an energy supply company was a brave and radical move by the Council. This approach would involve the Council interfering in the energy market – a role it had some experience with through Enviroenergy, a wholly-owned trading arm of the Council which had been continuous operators of the city's district energy scheme since inception in 1972. It employs approximately 35 full time employees working 24/7, 365 days per year to supply heating and hot water to 4,900 domestic dwellings whilst generating a surplus for the Council.

Beginnings

Robin Hood Energy was established in September 2015 as a competitor to the Big 6 energy suppliers in order to provide cheaper tariffs and top quality customer services. The aim of the organisation is provide low cost energy to all households and address fuel poverty. It provides special tariffs to residents within the boundaries of the Nottingham City Council area and provides a socially orientated pricing structure to the entirety of the UK. It is not for profit and keep overheads as low as possible, doesn't pay bonuses to staff and none of its directors are paid. This makes the company rare within the UK energy market both in terms of its approach and ownership model.

It operates a responsible hedging strategy to source energy from the wholesale market, with aspirations to feed in renewable power from the city's incinerator, solar panels and waste food plants, as well as any other viable renewable source.

Clearly fuel poverty is a matter close to its heart. Robin Hood Energy understands that the only way to really get low prices to energy users is to be in charge of the supply of that energy – otherwise the tariffs it can charge are dictated by another supplier. As a result of being a supplier it is able to address its main aim of reducing fuel poverty by keeping energy prices low and competitive for those who need it most.

Not for profit

As a not-for-profit company it can keep prices low and competitive. It doesn't have private shareholders watching its every move, or big bonuses for company directors. Instead, it has one simple aim – to bring cheaper gas and electricity to its customers.

Resources

Setting up an energy company is a substantial exercise and it required significant backing from the Council who, as owners of the company, provided initial funding and working capital in the form of a loan. It was not expected to break even in the first three years of operation bearing in mind the substantial costs of set up.

The targets that Robin Hood Energy had established were primarily around customer numbers and it is well on the way to achieving them. It currently has 110,000 customers across the whole of the UK with more coming every day.

Partnerships

Many other local authorities approached Robin Hood Energy asking how they had done it and what steps had been taken. The main element which saw the company through the early stages and continues today to ensure they are succeeding is political backing from the Council. The Council understand the nature of the energy business, that it is

a long term project, that it requires funding support and that the company are achieving their aim of addressing fuel poverty. The financial support Robin Hood Energy have received from the Council has been substantial as setting up a new company with over 100 staff is expensive and buying energy on the commodity markets requires large resources. Therefore, Robin Hood Energy can't underestimate the value of that political will.

A number of other local authorities have expected to follow Robin Hood Energy's example and set up a similar company. However, they are keen to reduce the financial risk and resource requirements and so many have decided to enter a white label arrangement with Robin Hood Energy instead. Liverpool (with the 'Leccy' brand), Leeds (White Rose Energy), Doncaster (Great North Energy), Derby (Ram Energy) and Islington (Angelic Energy) Councils, plus a consortium of councils in Sussex (Your Energy Sussex), have established their own local energy brands with local tariffs whilst Robin Hood Energy undertake all of the back office work on their behalf. It was announced on March 10 2017 that they would be the new supply partner for not for profit energy provider and registered Social Enterprise, Ebico. This began a transition of Ebico customers who opted in to be transferred to the new Ebico Zero Tariffs provided by Robin Hood Energy from the previous supply partner, SSE.

Branding

Getting the right brand is vital for any organisation and a lot of effort has been put into branding and marketing campaigns. Robin Hood Energy have a range of campaign material such as bus and tram adverts, posters around the city, activity days and pop up information centres. A further asset, used to great advantage, is the Council itself. It has been able to use other Council events and services to market Robin Hood Energy, engage with potential customers when they come to the Council, advertise on council letters and publications as well as spreading the word through Council officers and councillors.

Products

Robin Hood Energy has launched a range of tariffs in a much shorter time span than other energy companies and now has a range of offerings. In September 2015 they launched a domestic tariff. In November 2015 they launched a pre-payment tariff. In March 2016 they launched a non-domestic gas tariff and followed that up in May 2016 with their first smart meter installation. September 2016 saw their first white label partnership and in October 2016 they launched a non-domestic power offer.

Difficulties

Obviously Robin Hood Energy has grown rapidly as an organisation and that brings its own challenges. They have grown in terms of staff numbers from a handful to over 150. They have some highly skilled and knowledgeable people and all are fitting into a relatively new company. The company has moved into new premises, and has had to get used to new software systems and products as it has have grown its customer base and the partners it is working with.

Gaining access to working capital was a challenge at first and the Council's support has been vital. Understanding their place in the market, the regulatory context, trading risks and credit requirements has been hard work.

Then there have been the operational matters – providing a customer service centre, telephony and the training that goes with it; CRM and billing platforms; data flow management software; the metering responsibilities; debt collection arrangement; putting legal, HR and financial management support in place have all provided challenges.

However, at Robin Hood Energy they are proud to do energy differently. It is very important to them that they are not only competitive, but that they ensure customers have the best possible experience and that they are leading the way in trying to reduce fuel poverty for those who need help the most

5.3 Legacy Solar Farm - Wrexham County Borough Council

Following the success of its large scale solar PV projects, the Council embarked on the development of its first solar farm. It was the first solar farm to be owned and operated by a Welsh local authority.

Planning work began on the project in October 2013. Following a procurement process, work commenced on site in January 2015. The solar farm was completed in June 2015.

There were distinct aims and objectives to the project. One objective was to reduce the carbon footprint of the authority; offsetting emissions from fossil fuel by 1,300 tonnes of CO₂ a year. The project also aimed to generate a viable income stream for the council over 25 years and pay back the initial costs in approximately 10 years. From then onwards, the income would feed directly to the authority to save essential services, jobs and maintain customer care and quality standards.

Through the sale of Council assets, Grade 2 agricultural land, next to Berthengron Farm, Rhosllanerchrugog, was retained for the development of the Council's ambitious renewable energy project.

Once planning approval had been gained and with the community benefits schemes established, the Council underwent the procurement process and invited 6 companies to the full tender process. British Gas was successfully awarded the contract.

From the initial conception to develop a solar farm, the Council's carbon team worked tirelessly with a number of organisations to see the project come to fruition. This involved ongoing discussions with Scottish Power to form the connection agreement and arrange a point of connection for the solar farm. The Council worked with design consultants to ensure that the best initial design was devised to support the detailed planning application. The planning process was also meticulous in its preparation as the team liaised with renowned planning consultants and the local authority planning team to ensure that the solar farm application was to cause minimal disruption to the landscape, ecological diversity and local community.

Delivering the project

The project is the equivalent to the size of some 15 football pitches in size and contains in the region of 8,800, 300-watt panels. Due to the 43.1 acres of land available for development, the Council initially sought the generation capacity of 5MW as this would provide a greater income stream for the council and a greater generation capacity. However through liaison with Scottish Power it became evident that the grid would only allow a maximum capacity of 2.4MW. Through financial risk management and negotiating feed-in tariff (FIT) export agreements, the Council were still able to deliver the project, but with reduced capacity for generation.

The land is located adjacent to a legacy substation which is a major grid site for Scottish Power. This has both benefits and challenges to the project. The benefits are the close vicinity to the main connection point and the electricity that is generated on site will feed directly back to the local grid. However the challenges posed are due to the number of utilities across the site, as due to the close proximity to major substation, large electricity pylons cross the site, which needed to be factored when designing the site to ensure that no panels are placed within the way leave of the pylons. All the utilities across the site needed to be closely monitored in relation to the design and installation of the solar farm, and potential problems have been overcome by ongoing discussions with the utility companies and effective management and negotiating skills.

Another major challenge to the project was the time of year in which construction commenced on site. Work began on the construction phase of the scheme in January 2015, which meant that the major build on site was hampered in parts by bad weather and difficult conditions on site. This meant that an additional roadway was developed at the site to allow work to progress and to allow the Council to claim the higher FIT rate and meet their financial objectives.

Building on the success of the project

The development of a large scale renewable energy project has generated a wealth of benefits across the organisation. The main benefit has been generating a long term secure income to the council for 25 years; helping the Council save essential services. The electricity generated from the solar farm will also feed directly into the local grid and will support green electricity.

Up until October 2017 the solar site had generated an income for the council of £600,000. The project will support the Council's carbon management plan. It will support the Carbon Team's strict performance measures for reducing carbon year on year by 3%.

The project will have generation capacity of a 2.4 MW, this is equivalent to powering 700 homes per year across the County Borough.

There are also agricultural benefits to the project. Due to the design of the solar farm, with its wide gaps between the solar modules, it will leave 70% of the land available for the landowner to continue grazing their sheep. There is no waste or by-products, no moving parts, no noise, no pollution and only minimal maintenance is required. There is a local institute building next to our site which we contribute £5000 per year from the FIT for the upkeep of the building.

To build on the success of this project, the Council seeks to develop more land based solar farms across the County Borough on both agricultural and brownfield land. When the initial tender was released, the Council took the decision to create a solar farm framework, which enabled the 4 most successful companies from the initial tender to be appointed onto the framework and therefore allow the procurement procedure to be a quicker process. Through developing more solar farms across the County Borough, this will generate increased income to the Council and create an even greater revenue stream for the authority; allowing essential services to be protected for many years to come.

Evaluation

The Council's Internal Audit team have evaluated the whole project. The Energy team monitor the site, both onsite and remotely to check performance levels.

On-going costs

The only financial resources allocated to the site and our other solar installations is operation and maintenance programs. The installers of the site, Centrica are contracted to the end of the year with the O&M, we will be looking to tender this our after this period to source best value and look at other options.

Follow on work

The drop in the FIT rate means that the Council has not undertaken any further similar installations since this one. However we are now in the early stages of investigating the use of battery storage on the site.



Would your local authority work closely enough with health professionals that they could advise the council to install energy equipment as part of a prescription?

Did you know that another local authority has?

5.4 Boilers on Prescription - Doncaster Council's Central Heating Fund

When Doncaster Council decided to take this project forward 11.8% of homes in Yorkshire were classed as fuel poor, which is higher than the national average (10.6% - under the new Low Income High Costs indicator).

Committed to supporting vulnerable residents, Doncaster Council was keen to not only alleviate fuel poverty, but improve the health of residents. To achieve this, the Council developed the Central Heating Fund and Boilers on Prescription scheme. Partnering local authorities - Rotherham and Sheffield City Councils - also joined the scheme's framework.

The 18 month scheme was launched in October 2015. The scheme's primary objective was to reduce fuel poverty in South Yorkshire by helping eligible residents access financial support to improve the energy efficiency of their home heating systems. The scheme was centred on vulnerable residents off the mains gas network with no form of central heating. These residents were relying on expensive fuel sources, such as old storage heaters to keep warm. The majority of these residents had poor health conditions, made worse by living in cold homes. An initial target of 172 first time gas central heating systems (to be installed before the end of March 2017) was established. Further aims included improving health conditions to reduce reliance on the NHS whilst analysing the value of coupling energy efficiency schemes with the health service.

YES Energy Solutions

Following a detailed procurement exercise, YES Energy Solutions (YES) was selected to manage the scheme. The main activity was focussed on identifying off gas properties where residents were paying disproportionate amounts on domestic fuel. The Council's Neighbourhood Energy Officers worked with local partners to identify eligible residents. This involved targeted mailshots, community events and stakeholder networking. The National Grid also supported the scheme by sharing mapping data.

The Council's energy team vetted all householders; monitoring benefit entitlements, income levels and health conditions. Contact details of those residents that fitted one or more of the funding criteria were sent to YES to carry out technical surveys, produce quotations and fulfil installations once approved. Following every installation, warranty information, completion certificates and a customer satisfaction survey was sent to the residents.

The Council also worked closely with the NHS' Clinical Commissioning Group (CCG). Through the CCG, a Boiler on Prescription (BoP) programme was established and criteria were set out for boiler upgrade referrals. This enabled local GPs across Doncaster to identify patients with serious respiratory conditions.

The scheme threw up a number of challenges. The main challenge was working with vulnerable residents, many of whom had serious health conditions. Some householders had mental illnesses, hoarding possessions and letting their homes go into disrepair. Both Doncaster Council and YES worked sensitively to meet different customer needs. Extra appointments were coordinated involving other family members, carers and liaison officers. The team ensured all residents were protected, whilst educating them about the benefits of central heating.

Every home also required a bespoke central heating system. Many of the properties had complicated layouts and there was no 'one size fits all' solution. In response, the Council created an itemised pricing schedule for YES contractors to adhere to. This sped up the survey process, enabling all parties to work with transparency whilst giving the Council full visibility of the work required.

The scheme went beyond its intended outcomes providing major benefits for local people and the Council.

The scheme has helped a multitude of householders change from expensive and inefficient fuel sources to low cost, lower carbon alternatives that will continue to enhance their quality of life. 200 vulnerable households have had their heating facilities upgraded. The installations have enabled residents to collectively save an estimated £990,317 on fuel bills.

The scheme has become one of the BEIS Central Heating Fund's main success stories. The scheme achieved its target under budget and returned around £57,000 to BEIS after the March 2017 deadline; giving the Council a strong position

when bidding for future Government funded opportunities.

The scheme has also helped boost the regional economy by developing local partnerships to deliver the activity. YES contractors have benefited from the activity, having secured further private work in South Yorkshire. The scheme has helped them retain staff within an uncertain time for the heating industry.

Blended funding approach

The project adopted a blended funding approach. Four funding channels were utilised to support a wider demographic of fuel poor residents.

The Council secured £751,880 through the Department for Business, Energy and Industrial Strategy's (BEIS) Central Heating Fund. The scheme was one of 20 winning BEIS Central Heating Fund bids; a unique Government programme designed to help local authorities channel support within off gas communities.

YES brought in £82,683 match funding through the Energy Company Obligation (ECO) and £82,683 of capital was secured through the CCG. Funding through the Fuel Poverty Network Extension Scheme was also used to cover gas connection costs.

What next for Doncaster Council?

Due to the success of the scheme, the Council has extended its BoP programme until 2018 and will continue to work with the CCG to identify vulnerable residents who can benefit from heating improvements.

The Council is now in the process of exploring other potential energy efficiency projects using the lessons learnt from the programme to refine processes and support more residents in fuel poverty. The scheme has also cemented the relationship between the Council and YES. Both organisations wish to continue their fuel poverty alleviation work and are now in the process of exploring wider energy efficiency schemes using ECO funding.

Future financing

Despite its success, the Doncaster Central Heating scheme was reliant on the funding streams implemented. Notably the DECC Central Heating Fund which supported the majority of first time gas systems. This fund is no longer available, however the Council is still exploring other match funding opportunities which could potentially reignite the project.

The BoP element of the programme has been extended and the Council is continuing to work with YES to service customers via this referral route. There is now a robust and efficient referral process in place which can easily be modified to apply to new energy efficiency schemes if required.

YES is also using its ECO funding facilities to support installations and working with the Council to support other measure types. For example, at the start of the summer both organisations ran a small campaign offering ECO funding for LPG boiler upgrades in Park Homes.

Evaluation of the project

At the start of the scheme KPIs were established covering the desired impact of the works and the project's wider delivery. Regular stakeholder meeting and progress reports ensured that the project met its objectives and supported the right communities. Furthermore comments from participants on returned customer satisfaction forms were used to gain insight into the project's wider social impacts.

Social, financial, community and economic benefits

The scheme's benefits have been far reaching and feedback from participants has been heart-warming. Many explained how central heating has changed their lives for the better.

Joe and Yvonne Thwaites from Doncaster had their old coal fired replaced with an A-rated gas central heating system. Joe explained:

"The gas central heating is far superior to what we had before. The house is a lot warmer now. It's helping our health too. I'm not having to do things like carry coal in and there is no dust to clean away. At 74 it was getting to be a trudge. It's certainly cheaper with gas. We spent about £600 on coal between October and Jan. I now pay a £60 direct debit for gas, but by the end of the year I think they'll find I've used a lot less. It's made our life better. She's been in and out of hospital recently since having a heart bypass and I've had a COPD problem. So to get shut of the coal was one of the best things going."

Susan Cowhen from Sheffield previously relied on a solid fuel back boiler to heat her home. She has felt the difference since taking part in the scheme:

“It’s been heaven having central heating. It’s made such a big difference. Before I was using electric like it was going out of fashion. I had plug in heaters turn on all the time and I was using £30-40 a week just on electric. I was sat in my house with coats on. In bed, I’d have five or six blankets on including the duvet. It was freezing.

I was also really poorly before the heating was put in. I’m asthmatic and couldn’t get rid of colds. But now I feel a lot better and my electric has certainly reduced down. When I get up in the morning, I can just jump in the shower and there’s hot water. I can go in every room and they all feel warm and comfortable. I think it’s a great scheme and will help a lot of people.”

The scheme has also had wider social and economic benefits and has helped the organisations involved grow and develop. During the course of the project YES Energy Solutions added resources and upskilled members of their team. In fact it helped one professional develop their skills to become the company’s chief Project Coordinator and manage a team of three project executives.

The local supply chain has also benefited, enabling two Yorkshire based heating firms to develop their operations and build a South Yorkshire customer base.

5.5 Energy Detectives on the Case - Mid & East Antrim and Causeway Coast & Glens Borough Councils

With approximately 42% of households in Northern Ireland deemed to be in fuel poverty, there was clearly a role to play for local authorities. The Causeway Coast and Glens & Mid and East Antrim Joint Working Cluster was formed following an invitation by the Minister of Health, Social Services and Public Safety in 2010 to develop new joint working health improvement teams. A key component of the Cluster’s work programme was tackling ways to address fuel poverty issues locally.

The basis for the development of the Energy Detectives programme was local research during 2010/11 which identified several areas of concern and prompted the creation of the programme.

The initiative set out to develop a set of resources for use with P6/7 primary school pupils providing the basis for practical learning around electrical energy use in the home using a smart meter. The project’s key underlying objective was to find a way to communicate effectively with families in a way that was engaging, accessible and practical and which encouraged behavioural change. In short it aimed to:

- Raise awareness of energy use in young consumers and their families;
- Assist households measure energy use costs and challenge their behaviour to take positive action to reduce energy consumption and wastage;
- Evaluate partnership working.

Implementing the project

After starting out with a month-long version which was considered a little too complex for pupils and resource hungry for teachers, a 1 week version was established. Pupils completed the programme with support from parents, easy to follow instructions and more flexibility regarding monitor distribution. Further evaluation led to the improved version which is now in use being established.

The components of the programme form a storyline based on the idea of each child being a member of an Energy Detectives team identifying energy inefficient household electrical appliances. Under the programme, the Energy Detectives are set 3 tasks by Energy Detectives HQ:

1. Identifying ‘energy gobblers’ – counting the number of electrical items in the home;
2. Producing a line-up of suspect items (those using the most energy) – family members are interviewed to discover which items they use the most and which use the most electricity to draw-up a list of 3 suspects for further investigation;

3. Questioning the suspects – each appliance is tested using the monitor to determine which is stealing the most energy.

Individual task sheets are completed and used in class discussions and each Energy Detective provides a Detective Report on their mission findings. Schools are encouraged to run a class competition for the best Detective Report and all children are given a Certificate of Participation.

Councils' Energy Efficiency Advisers (EEAs) contact schools during the first school term each year to gauge interest and then assist schools wishing to participate, including introductory talks with parents if required. Teachers are supplied with a toolkit which provides all the information required to complete the programme. Pupils are issued their own workbooks to complete and are provided with torch pens to help search for the 'energy thieves'. All resources are also available electronically to allow schools to personalise relevant documents.

Securing funds and overcoming challenges

As with all innovative programmes involving children there were a few changes made in the early stages including the need to develop resources in language and format suitable for school settings, getting schools on board and ensuring parental support. Parental support is integral to the programme as they are required to set up monitors and return them to school, sign off tasks and contribute to their child's Detective Report. Teachers were consulted on the format and language of resources, links with the curriculum were used to encourage school participation and effective ways to engage parents, such as introductory talks and letters were devised.

Funding for the programme was provided by the Public Health Agency. Expenditure to date has been just over £12,000 (largely due to equipment costs) and includes resources for a further 2,000 pupils to participate. Time spent by EEAs is minimal due to the fine tuning of the programme so ongoing expenditure is small. Costs equate to approximately £10 per pupil which provides excellent value for money.

Energy-saving behaviour change

Energy Detectives completed a follow up task 4-6 weeks after completion of their Detective Reports to assess changes in attitude and behaviour. Energy saving behaviour change reported back to HQ included:

- Drying washing outside rather than using tumble dryers;
- Filling the kettle more carefully and not re-boiling it;
- Switching off appliances at the plug;
- Switching off chargers;
- Opening curtains instead of turning lights on.

These suggest that the initiative has made a difference to behaviour by both pupils and their families around fairly simple and straightforward actions.

Widening the programme

To date 45 school groups and over 1,000 pupils have participated. The number of schools participating annually is currently restricted by the number of monitors available (across two local Council areas) and the preference by schools to facilitate the programme during the school term leading up to Easter. To overcome this, additional monitors have been purchased and improved turnaround times facilitated through better procedures for return of monitors by parents.

The Cluster is currently in discussions with a number of other local Councils to widen the programme's audience. Discussions are also being pursued with the Education Authority to place an electronic version of Energy Detectives on their C2K system, an online resource which provides a core set of technologies to help teachers and pupils with teaching and learning.

Roll out to other Council areas and ready availability of programme resources through C2K could ultimately lead to the programme being available to any school within Northern Ireland wishing to participate however it is recognised that this will be reliant on Councils' ability to purchase required resources and facilitate officer resource to build partnerships with schools.

Additional funding of approximately £4k has been allocated for an 'Energy' day for all participating 2017/18 schools and the school with the best Energy Detectives report will also win an energy themed educational visit for participating classes. As mentioned an Energy day and educational visit are planned for 2018 which will include practical activities

around energy generation and use. It is also hoped to develop links with energy companies to consider how energy awareness can be extended beyond electrical energy and these links may generate some financial support.

Collaboration

Collaboration is an added extra which has emerged from this initiative. It has resulted in partnership working between the two councils and with local schools (which in Northern Ireland are not a responsibility of local authorities). Links with Neighbourhood Renewal Officers within the councils have also been made. The Council Energy Efficiency Advisers are funded by the Public Health Agency to address fuel poverty issues so strengthening the bond with the central department.

Wider benefits

The programme is targeted at schools within areas with high deprivation to provide a practical way of demonstrating how simple steps can be taken to reduce electrical energy bills. The programme has some further social and community benefits through encouraging parents and guardians to be more practically involved in school activities and their children's homework. Parents and guardians are also asked to complete feedback sheets within the pupils' workbooks.

5.6 Solar PV on Glasgow Schools - Glasgow City Council

By 2020, the Council aims to reduce Glasgow's CO2 emissions by 30% from 2006 levels. This commitment is contained in the Council's Energy & Carbon Masterplan, and is also furthers the Council's Sustainable Glasgow ambitions. Additionally, the masterplan identifies 33 discrete actions that, if delivered, would help the Council achieve its target. Contained within the 33 actions are those pertaining to the development of renewable energy generation assets.

The Council's solar schools project was created to help it achieve its sustainability target. The project sought to establish reductions in energy costs and carbon emissions as well as provide energy security.

To develop the solar PV projects, a feasibility study was undertaken by the Council's Energy Team. During this time, the government announced a consultation on the feed-in-tariff, proposing severe reductions and the eventual removal of the tariff for PV. This led to the Council's City Energy Team, accelerating the delivery of the eight arrays. Following approval from the Council's Executive Committee, the project team had little over 6 weeks to deliver the installation; a significant challenge. The project feasibility study clearly identified costs, resources and time required to deliver the project under normal circumstances (for a project of this nature a 4 – 6 month delivery time is average).

Detailed engagement took place with the Council's Education Services to ensure a full understanding of the project delivery timescales and the impact on those schools identified to receive the arrays.

Overcoming challenges

The major barriers to project delivery were the very tight timescales which needed to be met in order to achieve the feed-in-tariff (FiT). Several stakeholder meetings were held and a detailed work programme was developed to minimise risk of failure to deliver on time. In addition, a target date was set that, while increasing the pressure on delivery, left scope for dealing with any issues, such as weather-related delays.

Due to the tight timelines, increased resource and flexibility was required from the delivery partners in the Council's arm's length external organisation (ALEO) called City Building, to ensure that, with respect to weather-related delays, resources could be redeployed to other sites to allow pre-planned internal works to take place ahead of schedule. Through the early action of the Council to open a line of communication with the local electricity distribution network operator (DNO), Scottish Power Energy Networks, connection agreements were secured to ensure that all the solar PV arrays could be connected to the local DNO's grid, within the tight timescales.

Establishing Glasgow as a sustainable city

This project brings multiple benefits for the Council and the citizens of Glasgow by lowering carbon emissions, creating greater security of supply, and income generation for the Council. The benefits of this will be felt for more than 30 years, and helps to establish Glasgow as a resilient city with sustainable, local and secure energy for the future.

Each of the eight schools included in this project now have large solar PV arrays installed on their roofs. A meter also exists in a prominent place in each of the schools showing exactly how much renewable electricity has been generated by each array.

Each installation will generate energy annual savings worth between £2,600 and £3,400 for each school, as well as generating revenues of between £4,800 and £5,100 through the Feed-in-Tariff (FiT) scheme for 20 years. This equates to a benefit of just under £60k per annum and a total of almost £1.2M after the 20 years of the FiT. The value of the energy savings will grow as energy prices increase and will continue to be delivered for over 35 years. Each of the installations provide about enough energy to power a school nursery.

This project has illustrated the effectiveness of cross-service project delivery through design and implementation. The utilisation of expertise in each of the services combined to create a project team that used known project management techniques, yet was fluid enough to be able to react to significant natural weather events, ones that could not reasonably have been predicted, with speed and precision. That ensured that this project, which in any normal circumstance would take between 4 – 6 months to deliver, was delivered successfully in 3 months.

The project has also demonstrated the value of a close relationship with the city's local DNO, Scottish Power Energy Networks. The Council's Energy team now hold regular meetings with SPEN to update them on all energy projects in the pipeline to ensure that they can take early action and provide information and costs in relation to future installations. The future delivery of renewable energy projects in Glasgow will benefit from the strength of the relationship between the Council and SPEN.

Phase 2

In addition to the original submission from 2016 which provided details on phase 1 of the School solar PV. installations, Glasgow City Council successfully completed a Phase 2 installation programme in June this year (2017) which has incorporated a further seven schools giving a combined total of fifteen solar installations.

Each school included in the phase 2 programme has a 50kWp array fitted onto the roof and the amount of energy generated can be easily viewed via the generation meter within the school or remotely using a web portal, it is expected each school array will provide between 35,000 kWh and 41,000 kWh per year. Glasgow City Council is expecting to receive approximately £11,960 in FiT payments per annum for the seven schools combined. In addition, the Council expects to save approximately £27,300 in the offset electricity costs.

The project has demonstrated the effectiveness of cross-service working as the Education department, alongside GCC's arms-length organisation City Building, were part of a wider project implementation team, working alongside main contractor Campbell and Kennedy.

As noted above a close working relationship with the local Distribution Network Operator, Scottish Power Energy Networks, was crucial to successful delivery of the project, particularly in terms of grid connection. One of the schools included in the installation programme had to be changed at a very late stage due to a fault developing within a local substation in the area. This was managed expeditiously through the aforementioned relationship, ensuring project delivery was not delayed.

Financial resource for phase 2 of the project was provided through the Council's Central Energy Efficiency Funding (CEEF), a centrally managed, ring-fenced fund, which provides capital for energy projects, which is then repaid on a yearly basis. The average payback for the phase 2 installations is ten years, which has increased by two years from the phase 1 installations due to the severe cuts in the Feed in Tariff rates.

Evaluation

Evaluation of the project is done through the web portal, which is checked on a weekly basis, to check that the energy generation is meeting expectations. If when assessing the generation figures using the remote access there appears to be a problem, we will contact the contractor and an engineer will attend the site to investigate and resolve the issue. The data from the web portal is also checked against our in-house M&T system to verify generation against consumption.

Due to the success of Phase 1 and Phase 2 solar installation programmes, other Council departments are showing a strong interest in deploying solar onto their existing building stock. We are currently progressing through a procurement process for a full feasibility study, which will provide an in depth cost and payback study to be used in compiling a business case demonstrating suitability for a 3rd phase. A further five schools and seven Social Work buildings are currently included in this phase.

5.7 Solar Compacting Street Waste Project - City of Bradford Metropolitan District Council

In 2014, there were in excess of 4,000 litter bins situated around the District within the public domain. Significant resources are required to empty these bins and replace with new bags at each visit. In the highest footfall areas, bins can be emptied 2 to 3 times per day and are done on a 'milk round' type collection schedule. Budgetary pressures presently require significant savings to be made in the Council's frontline services, street cleansing being no exception.

As well as the need to reduce and rationalise the resources required to empty bins, the current bins in situ can also cause environmental problems when increased demand results in bins overflowing.

Solar powered waste bins

In response to these pressures, the Council developed a project whereby solar powered, cloud-connected street Waste Compactor Stations would be steadily introduced to create a smart, sustainable and efficient system for street litter collection. These waste compaction stations are intelligent and can identify when they need to be emptied, reducing the need for emptying where they have been installed by up to 95%.

By compacting the rubbish it holds, Waste Compactor Stations increase capacity to between 600 litres and 800 litres of rubbish, which is 6 to 8 times more than the capacity of the standard bins currently within the District. They have a solar panel on the top which powers a 12V battery that is constantly on trickle-charge; only 8 hours of daylight, not sunlight, powers 1-month's usage. Having this smart infrastructure significantly reduces the number of staff hours required servicing bins. The Waste Compactor Stations have an integrated sim card and come with an online telemetry management system that notifies the Council when a bin needs emptying. This means current collection routes will be rationalised and only the bins that are approaching capacity will be emptied on any given day. In turn, this will free up valuable staff resources to enable the Council to create a cleaner environment for its residents and tourists.

The project does not replace all traditional litter bins within the district, but is targeted to areas of high usage such as Bradford city centre, town and village centres.

8-week pilot study

An 8-week pilot study conducted in late 2015 in Shipley Town Centre saw 34 standard 100L bins replaced by 9 Waste Compactor Stations. During this period there were 68 collections whereas under the standard collection schedule, there would have been 2320 collections; a 97% reduction saving a total of 113 staff hours.

The project will allow the Council to review how it utilises its existing resources, freeing up resources for other waste related projects, as well as facilitating savings required to meet budgetary pressures.

Roll-out

Following successful completion of the Shipley Trial, the Council have over the past two years purchased a further 63 Bigbelly bins placed strategically across the district where introduction can reduce resources required to collect standard bins by either replacing multiple bins, or by providing bins where regular fullness of individual bins have influenced collecting patterns.

The locations of bins are reviewed on a regular basis and if savings are not being achieved, bins are moved to alternative suitable locations.

The Council proposes to continue investing in Bigbelly bins as and when resources are available.

Emerging problems

Despite the durability of these bins, 1 has been crushed accidentally by an HGV, 1 stolen (assumed destroyed), 1 vandalised (irreparable) and 1 vandalised possibly salvageable. The Council are reviewing areas of repeated attacks on the bins and they are now being insured. They are also finding that the attached ashtrays are being vandalised.

Advertising on the bins is an option but up to now they have had some difficulty getting interested parties to advertise on them.

Estimated Efficiencies

Across the district, there have been on average 500 Bigbelly collections each month, collecting in the region of 200,000 litres of waste. Bins are only collected when full so efficiency of collection has increased to 80%

While collections were not monitored district wide before introduction, an analysis of bins in the city centre suggest collections have dropped from 1,825 empties per bin per annum, to just 183 empties. This would equate to an approximate saving of 82 staff hours per bin per annum.

Benefits and Legacy

As a result of the efficiency savings partly realised through this initiative, the Council has reviewed Contracts offered to all new operatives. New full time equivalent (FTE) starters hours have been reduced from 37 to 30 hours.

The Council's street cleansing budget is being cut by 25% over the next 12 months, these savings will go some way towards minimising any redundancies and protecting essential street cleansing services.

Subject to the on-going monitoring of success of the scheme, further consideration will be given in due course to the use of these technologies for recycling purposes.

The Council is also introducing a new initiative within its town and city centres, to reduce street clutter by removing all unauthorised advertising boards from footways. In certain areas, this has led to concerns that if shops and amenities cannot advertise on the highway, there may be a loss in trade. However, the Smart bins allow the opportunity for advertising to be sold on each of the sides. This will not only offer footway advertising to shops and amenities, it will also provide an additional income stream for the Council. This is however subject to the Council successfully procuring a suitably qualified partner to manage the advertising opportunities Bigbelly bins provide, a process which is still ongoing.

Although there have been a couple of minor problems, over the 3 years they have been a successful investment.

5.8 External Wall Insulation Project - West Lothian Council

The project was developed for the tenants and residents of Kirk Brae, which is a town in West Lothian that is identified as having higher than average levels of fuel poverty.

The houses in Kirk Brae are of No-Fines construction and therefore suffer from poorer levels of thermal efficiency and comfort. To improve the thermal performance of these houses, the Council developed an external wall insulation (EWI) programme, ensuring the houses are cheaper to heat and more comfortable to live in for tenants and residents.

The project was developed to target all the privately owned houses and the councils own properties in Kirk Brae by utilising the Scottish Government's Home Energy Efficiency Programmes for Scotland: Area Based Scheme (HEEPS:ABS), supported by the Council's Capital Investment Budget. The HEEPS:ABS scheme provided grant funding toward the costs of EWI for the privately owned houses and the councils own budget paid for the measures to their stock. The project also secured £34,500 in Energy Company Obligation (ECO) funding that went toward the costs of the measures.

As well as the physical measures installed to the properties, the Council also identified the need to provide advice and support to households in order to maximise the benefits of the energy efficiency measures. To do this, the Council encouraged households to have a home visit with an Energy Advisor from the Council's own Advice Shop who provided advice and support on:-

- How to correctly operate the heating system and controls once the EWI was installed;
- General energy efficiency and behaviour advice to further reduce energy bills;
- Energy tariff checks and support in identifying and switching to cheaper suppliers;
- Income maximisation and benefit checks.

These home visits also allowed the Council to identify any tenants or residents who would be classed as vulnerable and provide additional referral and signposting to further support mechanisms that were applicable to them.

Encouraging owners to participate

The main barrier that was identified was the requirement for owners to pay an £840 contribution fee toward the measures. This was required as the average cost of the EWI was not fully covered by the HEEPS:ABS and ECO funding. The challenge the Council faced was conveying to residents the multiple benefits that they would receive from participating in the programme that showed value for money from their own contribution.

In order to overcome the challenge of encouraging owners to participate in the project, the Council held an open evening at the local primary school for all tenants and residents to provide more information on the project. The Council

was also able to refer owners to Home Energy Scotland who administered an interest free loan fund that could be used for the owners' contribution.

From a total of 31 privately owned houses, 29 owners signed up to participate in the programme; the two properties that did not were due to pending house sales which did not manage to be completed during the duration of the project. The 21 council owned properties were all completed allowing for 96% of the houses in Kirk Brae to have had EWI installed.

Immediate and anticipated benefits

The installation of EWI onto the properties was envisaged to save households 20-30% on their fuel bills by reducing the amount of energy required to adequately heat their property. In order to measure the actual impact on the residents of Kirk Brae, individual household energy consumption data is being monitored over a 12 month period to determine what savings are being realised.

The performance outcomes as a result of the EWI measures will continue to be monitored to allow for at least one heating season over the winter months where the savings should be measurable. By performing home visits to tenants and residents, the below referrals and additional support was provided:

- 13 owners and 11 tenants switched energy provider, with the support of our Advice Shop, to a cheaper tariff either with their current supplier or a new different supplier;
- 8 referrals were made to the Warm Home Discount scheme;
- 15 referrals were made to our Advice Shop for income maximisation support;
- All residents and tenants that had home visits received information on how to better use their heating and electrical devices to promote positive behavioural change.

The benefits to the council by completing the project have been:-

- Reduced installation cost to council properties by realising economies of scale by including owner properties when procuring a suitable contractor to perform the installations;
- Reducing future maintenance costs to the properties as the EWI systems come with a 10 year installer guarantee and 25 year insurance backed guarantee;
- Anticipated reduction in rent arrears for some tenants due to more income available as less is now spent on fuel bills.

As well as the benefits detailed above there are other anticipated benefits that are more difficult to measure and capture. These are:

- Reduced levels for vulnerable residents, such as the elderly, to exposure to extreme cold weather during the winter months which will reduce the reliance on the health service;
- Improved living conditions for householders that can improve the health and wellbeing of residents;
- An improvement in local and community morale due to an improvement in the appearance of the street;
- An anticipated increase in the value of the properties as a result of the measures.

Evaluation

The project is continuing to be evaluated as with monitoring of the results taking place over a minimum 12 month period. Initial results suggest properties are seeing a 20-25% reduction in fuel consumption which is within expected outcomes.

Further projects to tackle fuel poverty

Going forward, the Council aims to secure funding through the HEEPS:ABS programme to support the investment in their own housing stock; maximizing the number of privately owned and council owned properties that improved energy efficiency measures can be offered to.

Specifically the council is continuing to extend the EWI programme across the region looking to combine HEEPS:ABS funding with WLC capital funding. The council now has a significant Note of Interest list from home owners looking to be involved in future schemes.

The council is looking to install EWI to its c700 remaining No Fines properties and has a draft budget of £5m assigned for this work over a 3 year period – we will look to provide HEEPS:ABS funding to households we have identified as being the most vulnerable and susceptible to fuel poverty in order to prioritise available funding towards them.

The council continues to work with the local Advice Shop to perform home visits and is expanding this service to all properties offered EWI, both council tenants and private home owners.

In developing its next Local Housing Strategy for 2018-22, the Council identified the need to develop a Carbon Management Plan specifically for their Housing Service. Whilst this will support the overall Carbon Management Plan and Climate Change Strategy; it will also help to align their strategic approach to addressing fuel poverty, climate change and energy efficiency ensuring these issues are considered when developing and designing investment programmes for our housing stock.

The results from monitoring the EWI project in Kirk Brae along with the lessons learned will help to increase the Council's understanding of targeting and tackling fuel poverty.

5.9 Chapel Farm Solar Park - Swindon Borough Council - Public Power Solutions

The UK has a binding target to generate 15% of energy (30% of electricity) from renewables by 2020. This is reflected in the National Planning Policy Framework, which states that all communities have a responsibility to help increase the use and supply of green energy. Swindon Borough Council has gone further than this, with a goal to install sufficient renewable energy capacity by 2020 to meet the equivalent electricity requirements of every home in the Borough – equal to 200 Megawatts (MWp). To help achieve this, the Council implemented a Low Carbon Local Development Order in June 2015 to facilitate the development of a solar farm within Chapel Farm landfill.

The project was developed from inception to completion by Public Power Solutions (PPS), which is wholly-owned by the Council. The fund raise, launched in November 2016, was so successful it closed a month early. Construction began in January 2017. Working to a very tight timetable due of the government-imposed deadline of March 31st, the solar park was completed and energised on March 29th 2017.

Beyond the generation of renewable electricity and resulting carbon savings, important though those objectives are, the Council also wanted to ensure that local people and the wider community had an opportunity to benefit financially from the solar project. At a time when local authority budgets are being squeezed, the Council also recognised an important source of income from investing in the project.

PPS developed Chapel Farm solar park from inception, securing planning permission, agreeing a grid connection and engaging with the local community. They also structured the finance for the project – a unique blend of public sector and community investment funding.

Chapel Farm was a former landfill site owned by the Council and was chosen by PPS as it was an ideal site for a solar park. Solar energy was one of the few productive uses for a site of that nature; it was close to a grid connection for exporting electricity and was easy to screen from public view. It was also easy to keep secure as public access was limited.

The solar park consists of 18,600 panels on a 16 ha site. Though it was already well screened by existing hedges, these have been supplemented with new planting in areas where there are gaps. Following completion, the ground around and beneath the solar panels was re-seeded with a mix of wildflowers and grasses to create a biodiversity hotspot.

Transforming the landfill site to a solar farm

Chapel Farm solar park has enabled an unproductive former council landfill site to be transformed with three different uses providing major benefits for local people and the council.

The project takes Swindon's total renewable capacity to 167 MWp – over 80% of the target it has set to achieve by 2020. The solar farm will generate enough renewable electricity for the equivalent of 1,200 typical homes, and save approximately 2,000 tonnes of CO₂ per year.

It also produces an income for the Council, for local investors, and for funding community projects. As well as the direct return on its £3 million investment in the solar farm, Swindon Council will earn an additional £41,000 in business rates and rent from Chapel Farm. The project also provides a new source of income to fund local community projects: £7,500

per year. The first of these will be a new sound barrier along the A419 dual carriageway to mitigate noise levels for local residents.

The project is also responsible for the creation of a wildlife and biodiversity hotspot which will contribute to local ecology and food production.

Funding

The £5.4 million construction cost of the solar farm was met by £3 million investment from the Council, with £2.4 million raised through the solar bond. Importantly this was the first renewable energy investment eligible to be held tax-free in the UK's first Innovative Finance ISA (IFISA). A total of 804 people invested directly in the project; over half of whom invested through the IFISA and are already enjoying tax-free returns.

PPS chose to work with Abundance Investment to structure and market the bond because of their excellent track record and visionary approach to ethical, peer-to-peer investments: since they launched in 2012 they have raised over £60 million for some 28 projects like this from over 4,000 individual investors. Abundance is regulated by the Financial Conduct Authority, and uses a debenture instrument with a minimum investment of just £5 so it is open to almost anyone.

The bond offered investors an average annual return of 6% over 20 years. Launched in November 2016, the bond proved extremely successful and sold out shortly before Christmas – closing a month earlier than expected.

Further projects

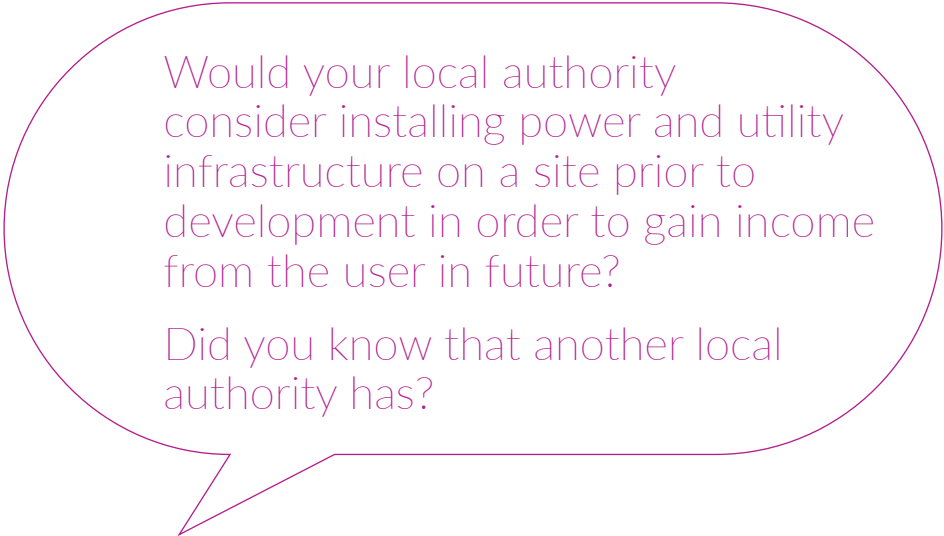
This project led to PPS developing another solar site at Barnfield (another SBC former landfill site). This will have a 'private wire' to the adjacent recycling site, saving energy costs, and is the first subsidy-free solar project we will be delivering.

The need for projects to be financially viable without government support has also led to PPS bringing energy storage into the proposition. In November 2017 PPS submitted a planning application to build one of the UK's largest battery-based electricity storage facilities at the former Mannington Depot, a brownfield site on the edge of Swindon.

The company is also looking at Electric Vehicle charging, working on an EV charging infrastructure plan for Swindon which will include a range of Council stakeholders - from facilities and energy management to economic development - to create a plan which delivers maximum local benefit from the EV transition.

All councils need to find new and innovative ways to fund the vital work that they do for their communities. Swindon now has a template other local authorities can follow. As a private company wholly-owned by a local authority, PPS combines the best of both sectors. It offers a simple package comprising development, funding and management expertise, so a local authority can maximise its renewable energy assets while PPS takes on all the development risk with no risk to council budgets.

As a result of the successful outcome at Chapel Farm, PPS is working on a number of other similar projects with other local authorities, with a multi MW pipeline of battery and storage grid connected/private wire projects.



Would your local authority consider installing power and utility infrastructure on a site prior to development in order to gain income from the user in future?

Did you know that another local authority has?

5.10 Energy Conservation Project - Denbighshire County Council

Denbighshire is a predominantly rural county with a high number of energy inefficient houses. This, combined with low average incomes and high unemployment, also means that the county has some of the highest levels of fuel poverty in Wales. Fuel poverty has led to unaffordable heating bills, and has an impact on levels of educational attainment and health problems for residents.

The county also has a high proportion of privately rented housing. The Housing (Wales) Act, Minimum Energy Efficiency standards, required privately rented homes to have a minimum of E on the Energy Performance Certificate, by 2025 – D and by 2030 – C. The Council currently has a lot of houses below this standard.

The Council decided they had to do something to improve the energy efficiency of the worst homes in the county. As a corporate priority, the Council set itself a target of enabling 500 properties to benefit from energy efficient improvements by 2017.

As well as reducing fuel poverty, the Council wanted to decrease CO2 emissions. The Council also aimed to provide training opportunities and 'up-skilling' for local people and maximise the income of low income and vulnerable households. Consequently, the Council developed its Energy Conservation Project.

How the project works

The project essentially works like this:

1. Identify areas of energy inefficient houses that require improvement
2. Identify individuals in fuel poverty
3. Develop proposed areas for interventions/projects
4. Design/determine the type of intervention/projects
5. Identify potential funding sources
6. Identify collaboration partners
7. Propose projects to secure funding
8. Deliver project and associated benefits for local economy, environment and society.

The Energy Conservation Project started with small Housing Renewal Grants for energy efficiency improvements. It later progressed to securing large capital sums to deliver area based projects, ending as a complete programme.

The programme reached out to potential collaborators and developed a collaboration framework. Partners include: Communities First; Willmott Dixon Energy Services; Job Centre Plus; Citizens Advice Bureau; National Energy Action; Coleg Llandrillo; Age Connect; North Wales Energy Advice Centre; Bangor University; Techniquet; Conwy County Borough Council; Nest; Tempo insulation; Wetherby Building Systems.

Through this collaboration framework, the Council developed:

- A training programme which has delivered training to school children, college and university students, frontline workers, other local authorities, members of the public, unemployed individuals and local SME's. This includes 30 City and Guilds level 2 awards and 32 places on Wetherby Building systems' training courses at levels from installer to manager
- "Energy Road shows". These were fun, community events offering free food, educational/energy efficiency related activities and assistance with fuel debt, benefits, training and prize draws for 'energy efficiency' themed prizes
- A bespoke initiative to provide training opportunities for local unemployed individuals. Namely "IN2 Construction", which has been shared with every local authority in Wales, by Welsh Government, as an example of best practice.
- Advanced data and GIS analysis to identify fuel poverty and energy inefficient housing at a property level enabling targeting the areas of greatest need.
- Household visits to residents in project areas, providing personalised advice on: income maximisation, energy efficiency, tariff checking/switching, fuel debt, financial assistance and benefit eligibility.

In-depth look at IN2 Construction

Following a multi stakeholder meeting, the IN2 Construction initiative was developed to give unemployed people enhanced employment prospect. Considered the 'star' of the programme, there are two stages to the programme:

Stage one is classroom based. Candidates spend a week covering the essential skills and qualifications to work on a construction site.

Stage two is a two week structured site-placement. Candidates spend time learning different occupational skills on-site. They experience; measuring/estimating, sustainability and health and safety, scaffolding, EWI installation, boiler installation and tenant liaison skills. They have their CV's produced reflecting their recent experience and new qualifications. They receive a reference and certificate upon completion.

The value of the project

The Energy Conservation Programme has gone from small projects to being embedded in the Corporate Housing Strategy. The programme is now used as an example of best practice. Individual projects are c£1million and just a few months in duration, yet have secured more local benefits than many larger projects.

Children from local schools have learnt the value of conserving energy and reducing CO2 emissions. The Council has led by example by reducing 12,300 tonnes through direct interventions. By engaging with colleges and universities, the Council regularly presents at their conferences and also hosts field trips. In return, their research students assist with the Council's empirical basis for decision making

Front-line workers now understand the impacts of energy inefficient housing on finances, health and social inclusion. They are better placed to assist people directly. Local supply chains have benefited from the inwards investment and contract opportunities.

Local unemployed people have benefitted through the IN2 Construction project. In Upper Denbigh two of the first candidates were employed as labourers by the supply chain. One of which was subsequently promoted to site supervisor by the major contractor on site. Both are in their 50's and previously struggled with unemployment.

For the future, the programme is prioritising areas with greater specificity and identifying future funding sources to deliver it. Other sections within the Council are engaging and future projects will see the integration of new roofs, street furniture (lighting, driveways, fencing hedges and gates), environmental and biodiversity projects.

A wider programme of needs assessment and funding

The energy conservation project have become part of a programme that assesses need and identifies funding streams. Recent projects have focussed on minor measures and the fully funded installation of loft and cavity wall insulation into over 100 houses. A direct referral link has been made between the council, our LA flex criteria and a contractor with allocated ECO funding to deliver on the priority.

Further projects have reconnected houses of multiple occupation in the most deprived areas of Denbighshire back to the gas network. The electric storage heaters have been removed and modern, efficient central heating systems have been installed. Work is ongoing and we anticipate around 200 dwellings will have been improved in this way by December 2018.

The energy conservation programme has delivered measures across tenures. Match funding has been provided by the council (for council housing) RSL's, and the private sector to enable us to lever in larger sums of external funding. Welsh Government, ECO and private sector funds have been levered into Denbighshire to deliver the programme.

Partnerships have been developed between multiple stakeholders in the private, third sector, charity and public services. On the current project we have developed a bespoke training course for staff from third sector organisations to learn how to provide energy behaviour change advice to the households receiving measures. They will be trained how to assess the household and energy use and then further trained to produce a report and return to implement the findings from the report – leading to reduced fuel bills for the household. Further partnerships have been established with ECO providers. We have assessed (utilising GIS) all the houses (at property level) which require energy efficiency improvement measures and which measures. This effective bill of quantities informs us where the individual properties are and which measures are required. This can then be used to secure the relevant/required funding. Following this we are able to engage with the householder and offer them fully funded measures.

Evaluation

The projects are evaluated utilising the Welsh Government "Community Benefit Tool Kit" (CBMT – also known as the 'Value Wales Tool kit'). This evaluates: carbon emissions, training opportunities, benefits to the local supply chain, local GVA gain and it also calculated the 'multiplier effect' of the investment. The success of the programme has had an impact upon the new corporate plan. There is now a significant emphasis, amongst our corporate priorities, on energy efficiency and renewable energy.

Building an asset database

More advanced analysis has been conducted on our data. All work from previous projects have been updated and competent persons and building control records updated too. We now have an interactive 'desktop' interface that enables us to quickly modify our output to match any potential funding streams. To provide a simple example: the desktop interface has a number of 'tick boxes'. These are selected for various energy efficiency measures that may be required. If funding becomes available, for example, to improve off gas F and G rated houses with no central heating system, all we do is 'tick the boxes'; "F and G", "off gas", "no central heating" and the software will produce all of the addresses properties in Denbighshire that meet this criteria in a master property list. This list will show all the relevant energy related characteristics of the house along with improvements made (along with their dates) and the desktop interface will also provide us with the relevant statistics (numbers, electoral wards, LSOA's, measures required, etc) and will also provide an interactive GIS based map that visually locates the properties. This enables us to directly produce mailing lists to offer the households the funding we have secured to improve their properties and allows easy reporting. This allows us to adapt our data analysis quickly to reflect the changing demands of energy funding providers. We have also matched records of all F and G private rented properties in the area so we can assist landlords to ensure their properties do not fall short of the new minimum energy efficiency standards under the Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015. We are working with ECO providers and our LA flex criteria to ensure as many of these substandard properties are improved, and also to enforce compliance – ensuring no tenants live in substandard rented properties.

The programme is ever evolving in a complex world of ephemeral and unpredictable funding sources.



6. Are you aware of the possibilities for your local authority to engage with the energy agenda?

Should it build that engagement into their future plans for their council?

Just as a local authority will have a Council Plan, a Housing Investment Plan or a Leisure and Culture Strategy, it should have an energy strategy. Although energy is not a service in the way that housing, leisure or environmental services are, as we have seen it is an important element in the fabric of the locality and something which the council can influence. An energy strategy sets out the approach which the council will take to energy, the actions it intends to take and the position it is working towards in the future.

Some of the energy work a council can undertake can be completed relatively quickly such as a campaign to encourage local citizens to switch suppliers. Other work can take considerably longer such as the establishment of a district heating network. As such the council will need to have a plan in place in order to prioritise and schedule different elements of work.

By building the work into a strategy the council will remove any reliance on an individual officer or councillor to drive the agenda forward. Often work on sustainability or energy can be prompted by an individual. When that individual leaves, the stimulus to take the agenda forward may reduce. Having a strategy which links to other strategies such as investment, environment, air quality and economic development plans help to build energy into the fabric of the council's work and encourage officers and councillors to consider the topic on a continuous basis.

The nature of infrastructure investments such as district heating schemes, low emission vehicle chargepoints and distributed grids or investments into energy services companies must be long term. In order to encourage confidence in such projects the council has to make a long term commitment which should be spelt out in a strategy. The strategy should cover the forthcoming 20 years and probably longer. It will guide the council's investment plans over that period, give confidence to the private sector looking to invest in the locality and provide a holistic context for significant linked investments. Plans for new public transport investments (such as railway stations), commercial regeneration schemes (such as new leisure and retail developments) and house building to top quality standards such as Passivhaus all need to be planned for in the long term. Including policies in the Council's local development plan will send out a strong message about the long term approach of the council.

7. Conclusion

So what can we take from the case studies in this publication? It is clear that the officers and councillors that make local government function are not afraid to tackle the problems raised by climate change and emerging from the energy agenda head on. Even from the small selection of examples shown it can be seen that they have adopted a variety of methods and used a range of technologies to address problems which face people and businesses every day. They have acknowledged their responsibilities to their locality and stepped in to a space which central government was not willing to fill.

There are projects up and down the UK which are testament to action being taken on the ground to realise the aim of the 'municipalisation of energy services'. The energy agenda has developed into a mainstream theme within the local government sector and the public appreciates that their local councils are now players in the energy market.

These are all positives as the country tries to move to a position of cheaper fuel, more competition in supply, a more flexible energy infrastructure, security of supply through a range of greener technologies and more transparency amongst the major players in the market.

Putting projects into action and changing the culture of individuals and organisations does not happen overnight. However existing projects mean that with a solid plan and a strong will, change can happen. Having a strategy to take your local authority forward is vital. Most councils will have a strategy in place but not all do. This does not have to be a hugely detailed document but it does need to highlight themes, links, a forward path and have the agreement of the councillors.

Every energy strategy needs to link to other corporate documents. It should have links to the asset strategy, the financial plan, the local development plan for infrastructure and housing standards, the procurement plan for vehicles, health and wellbeing plans, investment strategies and more.

The 'municipalisation of energy services' is a long term job both in individual authorities and across the UK. Taking successful small steps will help to build political and public support over time and promote confidence for the next stage.

It is easy to find an excuse for inaction. In terms of energy, there is such a wide variety of actions which can be taken to engage with the energy agenda that there is almost certainly something for every council whatever the circumstances.

All local authorities have assets of some sort.

All local authorities have issues of fuel poverty and the need to generate income

Not all local authorities have the resources to tackle these problems but support is available.

Many councils are already working on energy related projects. Those that are should continue to do so. They know it won't all go smoothly. They should promote their story and they should reap the benefits. They should also keep looking for other opportunities as there is no doubt more they could do.

Those who have not yet dipped their toe in the water should by now realise that the opportunities are wide and varied and that the time to act is here.

10 things you should be doing now

APSE Energy recommends that local authorities across the UK take the following action:

1. Endeavour to keep up to date with the local authority led energy projects in the UK – there are many learning points about specific technologies and projects and on generic approaches
2. Promote the actions your council is undertaking in this agenda – APSE Energy can help with this by providing a platform
3. Ensure energy has a part in all of your plans – investment strategy, asset plan, carbon reduction plans, local development plan and more
4. Recognise that whatever the size of your local authority you can invest in projects, support your local community and economy and intervene in your local energy market
5. Make sure you plan for the future. Energy problems are likely to get worse before they get better. Understand that investing in energy is a long term game so plan for what your council will be doing with regard to energy in 10, 20 and 30 years' time
6. Check your assets. Are you using them fully or is there space to grow biomass, to place a hydro scheme in a river, build a solar farm or invest in an electric fleet?
7. Take on a more commercial approach. There are many ways of raising income and energy is just one of those but your council needs a commercial approach to make the most of its opportunities
8. Remember energy efficiency. It isn't just about high profile investment schemes. Better insulation, turning electrical equipment off and the heating down, better use of fuel, getting a cheaper deal when buying energy and educating local people and business to do the same mean you should be looking to get the message out across your council and into the local community
9. Identify and promote your 'energy czar' - a councillor who can champion the role of the council
10. Join APSE Energy to contribute to a local authority movement, stand at the vanguard of this campaign and aim to meet the APSE Energy vision of 'the municipalisation of energy services'



Would your local authority buy an existing energy company and run it as a commercial enterprise?

Did you know that another local authority has?

APSE Energy – What can we do for you?

APSE Energy is a collaboration of over 70 local authorities looking to ‘the municipalisation of energy’ with a greater role in energy management within their local area. This might be from something as simple as advertising cheaper energy tariffs which local people can sign up to to installing large scale solar farms or establishing an energy supply company.

APSE Energy has 4 strands within an overall objective of helping its members remain up to date with developments in the energy sector.

We undertake an advocacy role to highlight those energy related issues impacting local authorities to government, the wider local authority and public sectors, professional bodies and to industry organisations. We promote the vision of greater municipalisation of energy and the projects that councils are involved in to meet that vision. We have links to government departments to promote the aims of the energy collaboration and raise matters with key influencers. We also represent our members in terms of key policy and legislative developments.

APSE Energy enhances our members’ knowledge by providing a range of briefings and technical notes which keep officers and councillors up to date with developments in the sector. A regular newsletter highlights current sectoral publications, services and projects and provides information relevant to the local authority energy agenda. We produce comprehensive research publications on a regular basis addressing topics such as the electricity market, ECO, guides to solar PV and biomass projects, ESCOs and other topics. APSE Energy also has links to universities keeping abreast of academic research and projects.


We run a series of seminars, meetings and practical workshops focussed on specific events with expert speakers, industry specialists and case studies. Partners host events to ensure members keep up to date with technology, new services and business models from the commercial sector. The Big Energy Summit is an annual 2 day conference with government department representatives, industry leaders and experienced local government officers as speakers. All conference costs, meals and accommodation are covered for 2 representatives per APSE Energy member authority. These events provide opportunities for learning, networking and understanding across the local authority sector.

APSE Energy offers a consultancy service with energy sector experts as Associates. They understand the context for local government work, the councillor-officer relationship, the wider role of energy and how that fits with the delivery of council services. They have experience of working with a range of different technologies, across a variety of local authority contexts on strategic issues and practical schemes.

Part of being in membership of APSE Energy is being within a movement that is looking at alternatives to the big 6 energy suppliers, addressing energy security and cost issues as well as promoting the Council as a local leader in the energy agenda and recognising it has a role to play in place shaping in general.

Those who know APSE will understand our unique position and recognise us as a trusted supporter and a credible brand which is part of, but slightly independent from, local government.

To find out more about how APSE Energy can help you, contact Phil Brennan, Head of APSE Energy at pbrennan@apse.org.uk or call 0161 772 1810.



Would your council buy an existing solar farm?

Did you know that another local authority has?

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LOCAL SOLUTIONS**

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