apse energy

2019 Energy across the authority

More examples of how local authorities are taking advantage of energy opportunities

Has your council made an energy pledge or set a date to be carbon neutral?

If so, is this a council or a locality target?

apse 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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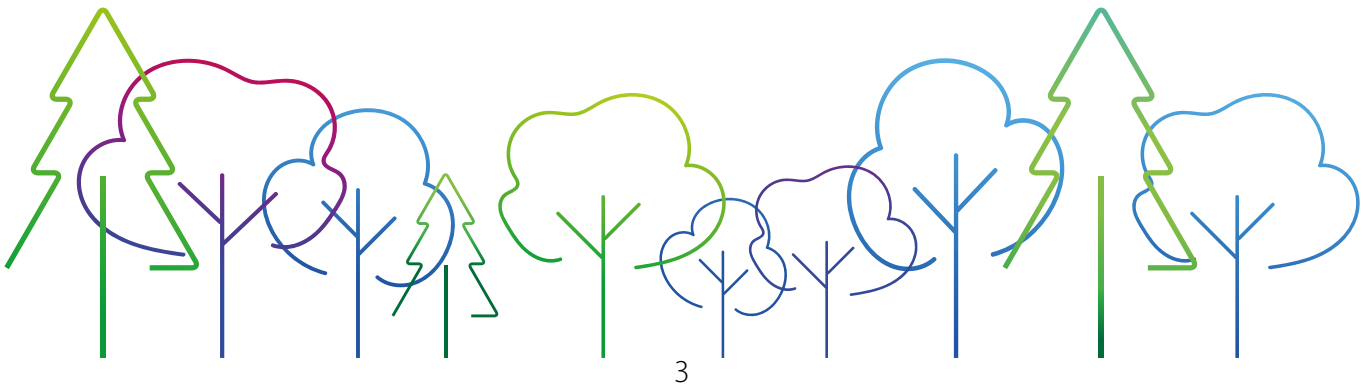


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1. Foreword

APSE grew as a networking organisation and although we have developed a much more comprehensive set of services over the years, networking remains at the heart of all that we do. The idea that individual councils can benefit from engaging with others and learning from the actions they are taking to drive the effectiveness and efficiency of services, remains highly relevant and it is just as important in the area of energy.

For many local authorities, dealing with the energy agenda is new territory. As large organisations they have been used to acting as customers of energy suppliers and that may have been the extent of their interest in the energy sector. All those in local government with responsibilities in energy will understand that position is changing. There are numerous examples of council projects with an energy component and this publication looks to highlight a selection of them.

The case studies in the following pages reflect the levels of innovation happening within individual local authorities and the type of activity being undertaken. These are new ideas without a relatively new area of activity. Furthermore, it is a sector that is rapidly developing. New technology and products are coming on to the markets and services to support them are close behind. Examples include energy storage, electric and other low emission vehicles, lighting technology and air quality monitoring equipment. Government guidance, academic research, public and media campaigns are all pushing the wider sustainability message whilst local pressure groups are bringing that message into town halls, with climate emergency declarations being one common outcome.

But the examples here show that sitting on the fence and waiting for the sector to settle down is not an option. The main issues of high energy prices, fuel poverty, poor air quality and opportunities for income generation remain and must be addressed and if there are advantages to be gained they should be gained as soon as possible. Private suppliers are constantly looking to take advantage of the situation and they will continue to search for technological solutions.

Capacity is a problem in some local authorities, manifested in a loss of experienced staff or an unwillingness to take risks or invest in assets which may be considered 'not core to the council'. However local authorities are leaders within their areas and must act as such and be seen to act as such. The APSE Energy vision of 'the municipalisation of energy and a greater role for local authorities in their area' is being pushed forward by councils and we are supporting them as they do so. Part of that support includes helping with capacity whether that is to help with internal utility bill validation through to a clerk of work on the build out for a solar farm.

This publication contributes to our aim to circulate cases of good practice and innovation around our local authority members. The case studies detailed in the original 'Energy across the authority' are still highly relevant and those found here in '2019 Energy across the authority' add to the library of examples available for APSE members.

I have seen the benefits of innovation and investment in the energy sector from my own council, Warrington – the principles are transferable and I hope to see more of it across local government prompted by the networking, and documents such as this, from APSE.

Cllr John Kerr Brown

APSE National Chair 2018-19

2. Executive Summary

This is the second edition of 'Energy across the authority.' The aim of the publication is to highlight a number of energy related projects that are being carried out by local authorities, showing a collection of varied ways in which local councils are engaging with the energy agenda.

The projects featured in this publication are real-world examples of how local authorities are responding to energy related issues in their locality, as well as using their assets to create further opportunities by proactively engaging with energy developments.

There are lessons for all local authorities within the pages of this publication, from small scale projects to substantial programmes for change.

Enfield Council

Energetik is a council energy company focusing on heat networks and supplying over 15,000 customers across North London, providing better value energy that's reliable and environmentally friendly.

Durham County Council

Eco2 Smart Schools is a long-term comprehensive service for schools, helping them to reduce their energy use, save money and reduce carbon through behaviour change, curriculum learning, practical advice, support and billing moderation.

Nottingham City Council

The council has turned its car parks into multi-functional spaces that provide free green electricity for leisure centres, reducing their carbon footprint and operational costs, whilst increasing the amount renewable of energy generated locally.

Leeds City Council

The council's ambition is to improve the air quality within Leeds to support a thriving and sustainable city. Approval and funding have been given to implement a clean air zone in the city from 2020 and support affected businesses.

Glasgow City Council

The council is committed to transforming the city's transport system to more sustainable and active modes of transport. Installing around 165 public electric vehicle chargers and developing an electric vehicle strategy are key components of this aim.

Milton Keynes Council

The council is making public highways lighting more efficient and sustainable by installing LED street lighting. Through this initiative the council is achieving maintenance savings, energy savings and carbon reductions.

Bristol City Council

Bristol Energy is just one of two fully licensed council-owned energy service companies in the UK. An overall aim of Bristol Energy is to support the city in its social objectives and sustainability goals, with a mission to support energy-vulnerable households.

Cornwall Council

A geothermal energy project has begun in Cornwall, which has been designed to harness Cornwall's geothermal potential by using heat from hot rocks as a source of zero carbon energy. The scheme hopes to create the UK's first deep geothermal power station and ignite interest in the technology's wider potential.

Through highlighting these projects, we hope that you can apply some of the key principles and learning points to your own locality. We hope that the ambition and success of these projects will encourage you to increase your engagement with the energy agenda and take forward APSE Energy's vision of the 'municipalisation of energy.'

3. Why are local authorities engaged?

What does the APSE Energy vision 'the municipalisation of energy' mean?

As leaders within their localities, local authorities have a duty to ensure they help to provide services that support their local communities and economies in their day to day lives and businesses. Energy and its related issues are a fundamental element of life and local authorities have a role to play in the energy agenda. There are opportunities for local authorities to provide energy services, utilise their assets, reduce the corporate energy bill, generate income and address fuel poverty and air quality. The municipalisation of energy means councils making the most of engaging in the energy agenda in their area.

Energising your locality: Through the municipalisation of energy local authorities can generate more opportunities across their localities. Energy is relevant to all areas of local authorities and the services they provide. Therefore, by engaging with the energy agenda councils can reduce the cost, increase the reliability and efficiency and minimise the environmental impact of their services.

Energy flows through all areas of a locality; it is an essential service and questions about how it is produced, supplied and its cost are highly relevant to local authorities. Investing in energy developments provides councils with the opportunity to have greater autonomy over a utility that is vital for their locality to function effectively, as well as addressing environmental issues. Through innovative energy policies and projects councils can not only generate income and improve vital services but also play a key role in managing climate change and poor air quality.

It is vital that local authorities do not think of energy in isolation to the rest of the services that they deliver. It shouldn't be seen as a side issue for departments such as transport, health and social care, housing, leisure, building and maintenance, but it needs to be considered as an intrinsic component of all council services and as an important way to improve their delivery and cost.

Investing in energy projects is an important method for councils to generate income, which can then be used across their locality. APSE Energy encourages and assists councils to embark on initiatives such as setting up their own local energy tariffs to consumers. This is an example of how local authorities can engage with the energy agenda and obtain a variety of benefits. Not-for-profit local authority energy companies and white label arrangements have the benefit of the reputation of the council to build upon and have emerged as products that can be trusted, therefore attracting customers. Instead of the money that customers within a locality pay for their energy going to big energy companies who make huge profits, the money goes back to the local council and can then be used for investment in services.

Investment in renewable energy projects can enable councils to provide affordable, clean energy, which is attractive to consumers, while generating income, addressing fuel poverty and playing a vital role in combating climate change. Selling renewable energy at an affordable rate to local businesses also boosts the local economy and helps towards creating a thriving locality.

Therefore, APSE Energy's aim is to encourage the successful municipalisation of energy, which delivers a variety of benefits and opportunities to localities. APSE Energy helps local authorities to engage with the energy agenda by providing knowledge, learning, consultancy and advocacy.


Energising your locality
ESCO
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Opportunities follow the flow of energy
Energising local government
Municipalisation of energy
Local authority leadership

4. What is the local authority role?

Local authorities play a vital role in shaping their localities and do so by improving job opportunities, healthcare, culture, education, the environment and the way in which a wide range of services are delivered. There is also a clear role for local authorities to engage with the energy agenda.

The local authority's role starts with the council being a significant energy user itself. There is an opportunity to reduce their own costs and reduce the emissions they produce. Measures such as changing energy supplier, fitting energy efficiency measures, investing in generation, comparing energy prices, contracts and procurement, and setting up an energy services company are all examples of the council supporting itself and reducing its own energy costs and emissions.

All councils have assets that they can utilise to generate their own energy. Examples include, investing in solar panels on the town hall and voltage optimisation and combined heat and power in leisure centres. Leisure centres with swimming pools are heavy energy users, therefore generating energy for use at these sites can make significant savings.

Many town halls, civic centres and community facilities are older buildings, therefore energy efficiency measures are vital to reduce energy loss and save money.

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 if it is approached in the right way.

Local authorities have established energy services companies for reasons other than supply, such as energy efficiency, education and 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, which can be important for addressing fuel poverty issues.

Generation is another way that councils can intervene in the energy market. The government is promoting a decentralised grid where there will be lots of smaller generators using micro networks, distributed 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 helping to address the problem of an overloaded grid.

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. Councils must not try to act as any other commercial 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 air quality issue is another driver for local authorities to engage with the energy agenda. 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, which is forcing the industry to develop new technologies.

The introduction of the UK's Road to Zero Strategy and the target to phase out petrol and diesel cars by 2040, shows the UK government's commitment to the electric vehicle agenda.

As users and owners of large fleets of vehicles 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 council's housing stock is a further topic of interest. 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 that not all councils have addressed.

Promoting energy efficiency within the private rented sector and amongst owner-occupiers is also a role that some local authorities have accepted.

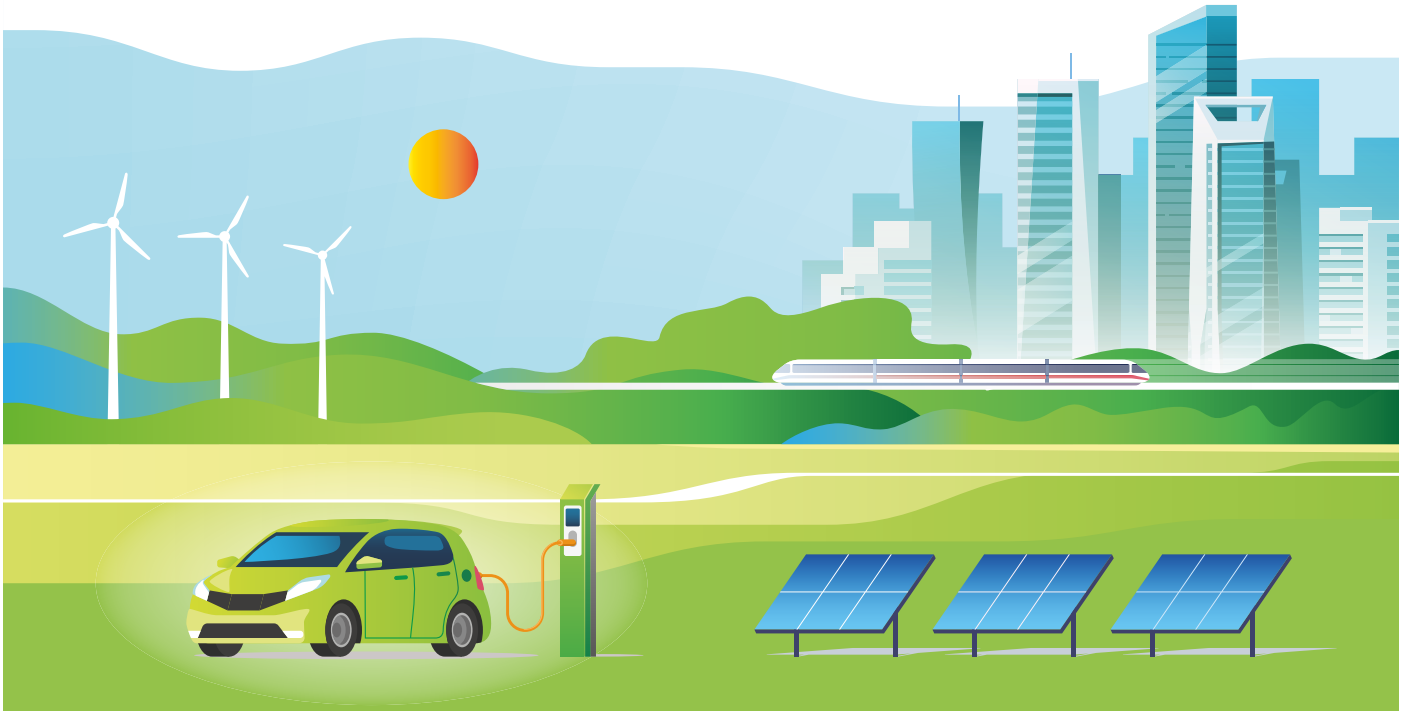
The same is true of the de-carbonisation of heat. This is a significant national issue and heat networks, heat pumps and other approaches are being promoted by BEIS, with funding also being made available. Once again, some local authorities are more progressive in addressing heat issues than others but it is a topic that all will have to deal with.

As the smart cities agenda becomes more prevalent and technology-driven transformations alter the infrastructure of our cities, local authorities need to ensure that they are keeping up to date with new asset classes, such as electric vehicle charging points. Energy is a central component to smart cities, which will be increasingly driven by data and digital infrastructure.

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 and assets in mind, to identify their role in this agenda.

Would you consider installing a district heat network in your locality?

Are you considering implementing a clean air zone?



5. Examples

5.1 Energetik - Enfield Council's heat network company

Energetik is a local energy company that has been set up, and is wholly owned, by Enfield Council. The company has been established to provide better value energy that's reliable and environmentally friendly, through a series of heat networks. It's one of the first local authority-owned energy companies created to deliver low carbon heat networks and will supply at least 15,000 customers across North London.

Energetik's vision is to revolutionise the local energy industry and be the supplier to trust.

Background

Energetik is one of the first publicly owned and publicly funded energy companies that is owned by a local authority. Initial start-up funding came from the London Energy Efficiency Fund and the European Investment Bank.

The company's goal is to use higher technical specifications to deliver low-carbon heat competitively, with a significantly better service to consumers. Energetik wants to be known for being fair, transparent and prepared to do things differently. The company wants to extend its heat networks across the borough and beyond.

National government policy, the London Plan and local planning policy all promote heat networks as an essential part of our future clean energy infrastructure. They are one of the most cost-effective ways of reducing carbon emissions from heating and their efficiency and carbon-saving potential increases as they grow and connect to each other.

Heat networks are set to grow very quickly. They are expected to provide 18% of UK heat by 2050 in order to meet the nation's carbon targets cost effectively. As a result, heat networks are multiplying, but just 'having' them isn't good enough. There are a number of customer service issues in the industry that have been highlighted in recent research and reports such as the Department for Business, Energy and Industrial Strategy (BEIS) heat network customer survey. Energetik has been developed to address these issues from the start, ensuring consistent quality and service for its customers.

Providing this consistency was just one of the significant benefits of a council-owned energy company that was highlighted during initial feasibility work back in 2011. Enfield Council recognised the scale of the opportunity and decided to take action: establishing Energetik as a council-owned energy company to own, operate and maintain heat networks in Enfield. Extensive due diligence on the company's business plan identified that this was a commercially sensible project for the Council, having zero impact on its revenue budget. Unlike a private-sector Energy Services Company (ESCo), Energetik is focused on delivering quality rather than profits; any that are made can be invested back into the borough for local benefit.

A number of advantages in delivering this infrastructure 'in house' rather than relying on private-sector ESCos were identified and are now fundamental to the way Energetik operates:

- Putting customers first: heat network customers have no choice in their heat supplier. Energetik addresses this with its emphasis on providing market-leading customer service, going beyond Heat Trust requirements and building trust through transparency and engagement;
- Utilising waste heat: Enfield is home to the North London Waste Authority (NLWA), which is building a new energy recovery facility to manage waste from seven London boroughs. Energetik will harness the heat created by this new facility as the main low-carbon heat source for the Meridian Water heat network;
- Ensuring quality and reliability: the UK's heat network market is not currently regulated in the same way as other utilities like gas and electricity. Energetik uses a market-leading specification and global best practice to provide a superior installation that allows for future expansion and changing technology;
- Supporting regeneration: Enfield has an extensive property portfolio and an ambitious plan to build new homes. Being part of the Council means Energetik can utilise these levers to drive expansion of its heat networks throughout the borough;
- Using planning policy to create demand certainty: all new large-scale developments in Enfield are required to meet

Energetik's high standards and connect to a heat network if commercially feasible;

- Improving the environment: homes connected to Energetik's heat networks have their carbon footprint for heating reduced by up to 80%, the equivalent of taking over 2,000 cars off the road every year. Over its 40-year business plan, Energetik will save 250,000t of carbon and 70,000kg of NOx, making Enfield's homes and communities healthier for residents.

How the project works

Instead of supplying gas and electricity, like traditional energy companies, Energetik supplies heat and hot water directly to homes and businesses in Enfield from local sources. The heat is supplied through a series of four strategic low-carbon heat networks. These networks consist of energy centres connected to insulated pipes that transport heat, using a variety of heat sources including waste heat from the North London Heat & Power Project.

Each of the networks is designed so that they can be expanded, allowing more homes and businesses to benefit. The energy centres can be adapted to use the latest technologies to generate heat.

Three of Energetik's heat networks are being delivered as part of Enfield Council's estates renewal programme. The infrastructure is built by developers to Energetik's standards and is then adopted. Two of these heat networks went into operation in late 2017, with positive and supportive feedback from its first customers.

Energetik's largest heat network supports Enfield Council's flagship regeneration scheme, Meridian Water. This network will be fully delivered by Energetik and will supply over 10,000 homes using heat from the NLWA's new energy recovery facility.

Outcomes and benefits

Jayne Clare, Energetik's Managing Director said, "We're trying to be a different kind of heat network provider, not only in the way our business is structured but also in the way we treat our customers. Being owned by the Council means that we can concentrate on long-term benefits rather than short-term profit gain, so we are investing in higher specification equipment than what's usual for the UK market. In turn this ensures our customers get a reliable service and the Council ultimately owns this flexible and adaptable energy infrastructure. We're already getting a fantastic response from our first customers and industry players. We're also working closely with government and industry stakeholders like the Heat Trust and the Competition and Markets Authority to promote higher standards across the industry and improve the sector's reputation more widely."

Cllr Nesil Caliskan, the Leader of Enfield Council, said: "Energetik is an example of Enfield Council's commitment to providing good homes, sustaining strong and healthy communities and building our local economy. The low-carbon energy infrastructure supports the delivery of much-needed new homes in the borough and improves public health and wellbeing through air quality improvements. Fuel poverty is a real issue for many people. Energy is an essential utility, yet many people are faced with the difficult choice between heating their homes or feeding their families. Companies like Energetik can be a real opportunity to create commercial entities that seeks to keep costs affordable to reduce fuel poverty."

Energetik's work is ever-shifting and expanding and they are looking at new ways in which more residents in Enfield (and beyond) can have access to their heat work. Their first line of investigation is in retrofit opportunities for existing council homes; looking to connect them to Energetik's heat networks. Secondly, they are looking at the viability of partnering with neighbouring boroughs to supply low carbon heat beyond the border of Enfield. Waltham Forest, Haringey and Barnet are the closest London neighbours from east to west.

Energetik has managed to forge incredibly important relationships that have helped to energise its inception, coordination and eventual expansion. In the first instance, Energetik has been working with sub-contractors to improve the reputation of district/communal energy by focusing on a superior level of technical specification and customer services. Inevitably, there has also been a close collaboration with the Council's planning, housing and regeneration teams to identify opportunities to expand the heat networks and enable more local residents to benefit.

Elsewhere, Energetik has been working with BEIS to promote heat networks to local authorities around the country, leading up to the launch of Government's Heat Network Investment Programme. In addition, Energetik has featured in BEIS's heat network investment guide as a good practice case study for financing and governance.

From the beginning, Energetik has been undertaking consistent evaluation to ensure the company lives up to the

values and expectations of their customers and vested parties. To start with, Energetik's team embarked on extensive due diligence on the initial business plan that was approved by Council. KPMG forecast that the company would deliver £225m in social, environmental and additional economic benefits over the 40-year business plan.

The company has undertaken their first annual customer satisfaction survey, with positive feedback received overall, alongside identified areas of improvement. The survey found that 67 per cent of the customers surveyed rated their level of satisfaction as eight out of ten or higher and 83 per cent rated the service as six out of ten or higher.

Overcoming challenges

There have been two stand-out challenges for Energetik. The first, unsurprisingly, is getting 'buy-in' to take on such an ambitious project. To overcome this, Energetik employs dedicated stakeholder engagement experts to inform and educate the wide range of parties involved about what's happening and why it is different from other existing heat networks.

Secondly, implementing Energetik's strict technical specification is a steep learning curve for developers. The business is passionate about improving standards across the industry and so works closely with its partners in construction, sales and lettings in a way that builds their capacity and helps them to have an advantage in the marketplace.

Future goals

Energetik has some demanding but attainable goals for the future. Following their recent successes, they will continue to expand each heat network to new and existing properties, eventually delivering city-scale low carbon energy infrastructure that's future-proof.

Energetik will continue to evaluate their performance and strive to improve their excellent level of customer service, which is central to their focus.

Beyond Enfield and its neighbouring borders, Energetik intends to help improve the reputation of the wider industry for the better, supporting the expansion of heat networks in the UK from a current 2% share of heat supply to the government's target of 18% by 2030.

Energetik is working towards achieving their vision to transform the local energy market and be the supplier to trust.

5.2 ECO2 Smart Schools - a long term model of school energy efficiency support and guidance – Durham County Council

ECO2 Smart Schools is an award-winning long-term comprehensive service for schools helping them to reduce their energy use, save money and carbon through behavioural change, curriculum learning, practical advice, support and billing moderation.

Working with over 240 schools annually and funded through an annual Service Level Agreement via the Low Carbon Economy Team, the programme continues to evolve and identify funding opportunities through Salix and private sector finance (e.g. Solar for Schools).

Background

The School Carbon Reduction Programme was initiated in 2009 through Durham County Council's (DCC) Carbon Management Plan with support from the Carbon Trust and had an ambitious target of reducing carbon emissions from the authority's activities by 40% by 2015. The plan identified the opportunities and sectors within the authority that were the biggest emitters. Schools were identified as being a key sector, at that time they accounted for 54% of the emissions from the authority's buildings, making them a priority area.

In early 2010, the Energy Management Team, working in conjunction with colleagues from the Education Service, approached the countywide Schools Forum (a representative body for schools to act collaboratively) to fund a pilot project. This was approved and a pilot was launched at the end of the summer term 2010 to support up to 60 schools

over two terms. Durham had over 280 schools at that time.

The aim was to work with keen schools to trial ideas and audit the outcomes to enable a baseline to be determined. At this time data from the schools was limited, the Energy Management Team received energy and water billing invoice data and meter readings from school caretakers. This enabled billing queries and monitoring/ auditing to be carried out but detailed intelligence was limited. As capital investment opportunities weren't available at that stage the approach of the programme was focused on engaging key user groups in schools to alter their behaviour.

The authority worked with a partner charitable organisation OASES (Outdoor and Sustainability Education Specialists) to undertake the in-school element of the project, using as a starting point self-generated resources by OASES and materials produced by the Carbon Trust as part of a national initiative called Collaborative Low Carbon Schools Service, which worked with a number of authorities across the country at the time. The pilot focussed on electricity use as this was more easily acted upon by all school users (e.g. simple switch offs, use of ICT, etc). These quick wins led to savings in the pilot schools so the decision was made to broaden the project by revamping the existing school energy service level agreement to include the in-school support. It did increase the costs slightly for schools but the results from the pilot identified that these costs could be easily recovered through energy savings.

The project changed its name from County Durham School Carbon Reduction Programme to ECO2 Smart Schools in September 2018. For the relaunch, schools across the county were invited to submit name and logo ideas and two designs were chosen from more than 200 entries and two winning entries were amalgamated together.

How the programme works

The programme uses energy monitoring software from Systemslink to enable effective analysis of the school's energy use and costs data. This data is available to schools through their own dedicated login, with additional support from the Low Carbon Economy Team plus an individual annual energy report produced by the OASES staff.

The data is corroborated through half hourly automated meter readings, weekly meter readings from school site managers and quarterly invoice data. This access to quality data enables the programme to support schools effectively and allows them to analyse the impact of energy saving measures such as IT shutdowns; out of hours gas use, etc.

The programme is governed through the Revenue Board, a sub group of the DCC Carbon Management Board. This is a cross service strategic board that governs the deployment of capital and revenue-based energy efficiency initiatives across the local authority to meet the corporate carbon reduction targets.

Outcomes and Benefits

There have been significant successes since 2010 and engagement with schools has remained high. The fact that 90% of schools in the County continue to buy into the service level agreement is testament to the fact that the programme is providing a service that schools value over the long term.

Data for all the schools that have remained on the service level agreement from 2010 to 2017 shows that gas usage in 2017 was 21,910,811 kWh lower than in 2010 and total annual gas costs were £800,000 lower.

The vast majority of these savings have been made through behavioural change and better estate management, working with school caretakers, premise managers and business managers. A targeted approach on schools whose 'out of hours' gas use was high has been used. In addition, there has been a focus on colleagues in charge of boiler servicing and maintenance to ensure that the boilers are set correctly and that school staff ensure holiday and weekend settings are correctly used.

Electricity usage in 2017 was 385,322 kWh lower than in 2010, however in spite of this, annual costs have risen by £646,584. If compared to a business as usual case where use remained the same as in 2010, then comparative total annual savings are £44,569.

Yet again the bulk of these savings have been made through behavior change and good building management. Unlike gas use, the focus has been more on engaging pupils and staff with electricity use, highlighting what they can do in the classrooms and corridors to eliminate unnecessary electricity use in lighting, computers, laptops and whiteboards, etc.

The combined cumulative gas and electricity savings against the business as usual baseline over the 7-year period are £3,824,180 and 386,133,846 kWh.

Overcoming Challenges

The support offered to schools has adapted and changed over time to meet the needs of the schools. When schools first engaged, they were all given the same starting support and information, which involved a whole school audit and a bespoke action plan along with guidance materials. The in-school teaching and learning support was adapted to meet the requirements of the school, either age related (from 3-18), to meet specific learning needs or to fit with particular curriculum topics.

The partnership between the Low Carbon Economy Team (within Regeneration and Local Services) and Education (within Children and Young People's Services) has survived a number of restructures and continues to provide an excellent strategic overview for the programme using staff expertise effectively. In addition, the tendered contract with the charity partner (OASES) has worked very well, being flexibly delivered and more cost-effective, maximising the budget available.

Future Goals

A new dedicated website www.eco2smartschools.org.uk provides schools with direct access to more resources and materials to support their energy efficiency work.

The project is continuing to collaborate with Solar for Schools and has more schools working through the process to secure PV on their school buildings.

The project has benefited from being engaged with an Interreg Europe funded project called REBUS (www.interregeurope.eu/rebus). This has enabled Durham County Council to share their experiences with seven European partners and for them to share their work with schools. Aspects of this learning are being incorporated into the programme refresh.

The project is progressing a coordinated framework of LED retrofits that schools will be able to access either through their own investment, Salix funding or local authority funds. This will build on the current system of supporting schools with LED retrofits through a piecemeal individual approach.

5.3 Nottingham City Council Solar Car Parks

Nottingham City Council has turned it's car parks into multi-functional spaces that provide free green electricity for leisure centres – reducing their carbon footprint and operational costs whilst contributing towards Nottingham's ambition to increase the amount of renewable energy generated and used locally.

Nottingham is leading the way in piloting cutting edge low carbon technologies and showing that councils can be greener and cut costs at the same time.

One of the council's top priorities is to reduce its energy consumption, energy bills and the associated carbon emissions. Nottingham City Council's Energy Services has come up with an ingenious solution to simultaneously tackle climate change, rising energy costs and safeguard its finances in a time of unprecedented cuts for the public sector.

The council is ensuring that its car parks can work doubly hard by turning this often underutilised space into a place that can generate renewable energy. Two City Council leisure centres, Ken Martin and Harvey Hadden Sports Village, have had solar car parks installed.

Installing solar car parks at its leisure centers is a part of a broader solar delivery programme developed by Nottingham City Council which seeks to install solar panel infrastructure to Council owned buildings and land. In 2018 over 1,000,000 kWhrs of solar energy were produced across Nottingham City Council operational solar sites.

The main aims and objectives are too:

- Create a renewable energy supply for some of the Council's biggest electricity consumers;
- Increase the amount of renewable energy generated locally;
- Reduce carbon emissions;
- Reduce running costs;
- Bring in income to protect front line services;

- Create a better customer experience.

Background

The project was initiated due to the following factors:

Energy Strategy

Nottingham City Council was the first council outside of London to produce an Energy Strategy and is a known innovator in the public sector when it comes to renewable energy generation. The energy strategy commits the council to lowering carbon emissions, increasing energy security for the city and reducing the cost of energy in the local area. The potential to generate revenue, economic activity and jobs from investment in, and delivery of, renewable energy generation is a key driver for the council.

Key targets for 2020

- 26% reduction in the city's carbon emissions (from a base year of 2005) –this target was met in 2016, four years early!
- 20% of the city's energy generated from low or zero carbon sources by 2020 – on target to meet
- 44% reduction in carbon emissions from the Council's operations – on target to meet.

Housing and building stock

Sustainable energy creation is at the forefront of the Council's vision when investing in its buildings and housing stock. This solar panel scheme is part of a broader solar delivery programme managed by Nottingham City Council which seeks to install solar panel infrastructure to domestic houses and commercial sites.

Early solar adopter

The City Council has been an early adopter of solar power having one of the biggest domestic roof tops schemes on over 4,600 of its council houses. The large number of schemes has enabled the Council to make well established connections with local and national renewable energy companies. Encouraged by the success that solar car parks have had in Europe the Council was keen to bring this innovation to Nottingham.

Local business leader

As well as hitting its reduction targets the Council wants to showcase locally the viability of solar power schemes to support the local sector.

High electricity demand

As a group of buildings leisure centres are the third highest type of consuming buildings within the property portfolio, with all of the leisure centres in the top 20 consuming buildings. Leisure centres account for 10% of the Council's total electricity consumption.

Identified that reducing emissions and reducing costs can happen simultaneously

In times of reduced public sector budgets a positive environmental impact may not be enough to warrant investment. By tackling environmental and budgetary issues at the same time the energy team has been able to significantly increase the renewable energy capacity of the city.

How the programme works

- The Council's Energy Team surveyed land and buildings owned by the Council to identify opportunities where space can be further utilised so it not only meets its primary purpose but can also generate renewable energy.
- Whilst carparks house customers' cars and ensure that facilities are convenient to use, they now also harness the sun's power. The car parks silently generate free electricity and have no negative impact on the customer experience. In fact, the structure brings added benefit to the customer by giving shade to them and their vehicles. A T-frame structure was chosen to minimise obstacles to vehicles whilst still delivering value for money.
- At Harvery Hadden, the carport consists of 448 solar panels covering 40 parking bays. The solar system will produce over 50,000 kwh a year, and the CO2 emissions saved will be 29 tonnes per year. The financial payback is expected to be 11 years.

- A second solar installation has also been delivered at Harvey Hadden, this is a 200 kWp system. In total, solar power at the centre will now save around £20,000 a year on energy bills. Over summer 2018 Harvey Hadden was at times entirely energy self-sufficient operating off grid
- At Ken Martin Leisure Centre the carport is split between 9 separate structures and consists of 355 panels covering 41 parking bays. The solar system will produce 80,000 kwh a year, and the CO2 emissions saved will be 36 tonnes per year. The financial payback is expected to be 11 years.
- Solar Edge inverters and monitoring software were procured to enable real monitoring of system performance to maximize system efficiency and return on investment.

Outcomes and benefits

Benefits to the Council:

- Carbon reduction commitment – the Council is on track to meet its 44 % reduction in emissions by 2020;
- Nottingham is the most energy self-sufficient city in the UK;
- Reducing overall operational costs – combined the leisure centres will save over £20,000 a year in electricity bills;
- Further enables the Council to act as a role model for local businesses and organisations.

These renewable energy projects have been well received internally, two councillors comment:

"The solar carport is an ingenious solution for maximising our assets, generating income and lowering the city's carbon emissions. It's really exciting that we have been able to extend the usefulness of this space and invest in a green energy supply for Nottingham."

Cllr Sally Longford, Portfolio Holder for Energy and Environment

"The sun provides an inexhaustible source of energy and it is very exciting that the leisure centre will be able to harness some of this power to operate our services."

Cllr Trimble, Portfolio Holder for Leisure and Culture

Benefits to leisure centres:

- Reducing operational costs of each leisure centre;
- Catalyst for a greener way of thinking from staff;
- Good will from customers, last years' Client Earth survey found that UK citizens show strong support for a renewable-heavy, decentralised power system.

Since the solar park canopy's have been installed and in operation the reduced running costs for the facility are starting to become apparent and this will indeed lead to a significant reduction in the carbon footprint. We have received many comments and observations from customers around the Council's investment into 'green' energy. The team at Ken Martin Leisure Centre are very proud to now have the largest solar carport in the country."

Centre manager quote

Benefits to customers:

- Enhanced the car-parking experience for customers. An added benefit of the installations is that shade is provided to shelter from both rain and sun;
- Council delivering on its promise to cut operational costs to protect front line services;
- Reduced energy bills for a local facility freeing up budget for an improved local service offering;
- Council delivering on its promise to reduce carbon emissions for better air quality both locally and nationally.

Customer quotes:

"I am a regular Nott's Tots user with a small child, the canopies provide a great shelter for when having to transport my child out of the car on those rainy days"

"Great to see that the Council is investing in green energy and helping to reduce energy costs"

"Love the fact that these shelters are multi-functional, providing energy from the sun but sheltering cars from the adverse weather we have"

Overcoming challenges

- Urban areas are relatively built up. The Council had to work with planners to ensure the development met with local plan objectives and achieved the right aesthetic appearance. Early pre-planning guidance was crucial in ensuring the project ran to time and cost;
- The Council had to ensure the business cases made commercial sense for this to proceed as a capital scheme. The test was measured against energy saving on site and returns from subsidy (FiT);
- Connecting to the grid. Western Power Distribution were engaged early with the proposals, with the projects linking to their own innovation strategy;
- Ken Martin Leisure Centre has a high footfall and a busy car park, therefore the installation delivery program had to work around the needs of the customers. The energy team worked with the leisure centre staff to develop a program that minimised disruption. The layout of the site was complex and care was taken to plan access for buses and high-sided vehicles between the carports;
- Harvey Hadden posed two specific challenges. As a site under a £16m redevelopment there was a lot of construction activity happening at once and the installation team had to work around other contractors, in particular the Highways DLO who were delivering road surfacing and new paths in the same location;
- The project also had a tight deadline to meet as all works need to be completed for a major national event – the Cerebral Palsy World Games.

Future goals

The schemes have allowed for real life analysis of this innovative technology. With the government change to policy and the reduction in FiTs this experience has put the Council in a strong position whilst developing business cases for future innovative solar projects to take advantage of new technologies with a reduced rate or no subsidy at all.

When gearing up to the future, an important consideration is how solar car parks can work with other green energy initiatives. The energy team is looking to set up electric vehicle charging infrastructure at Ken Martin and Harvey Hadden, having an off-grid electricity supply there already make them ideal pilot sites.

Nottingham City Council has launched a renewable energy procurement framework which will help boost the growing number of solar projects in the city – and elsewhere around the country. Having a framework in place to procure suppliers will reduce the delivery costs and turnaround time for projects. As Nottingham City Council has a full pipeline of solar projects planned for the next 3 years, it was essential that they simplified the procurement process. The framework has been opened up for other local authorities to use in a bid to support the UK's renewable energy sector by making it easier for other councils to work with suppliers.

http://www.mynottinghamnews.co.uk/nottingham-city-council-wins-local-authority-of-the-year-award/

The Council will soon will launching a PPA offer to local businesses.

Energy Services are taking part in an EU funded project called Clean Mobil Energy. Clean Mobil Energy is a three-year, European funded project which involves partners across North West Europe working together to develop a Smart Energy Management System, integrating renewable energy and electric vehicles.

Nottingham City Council has secured funding to deliver a City Pilot demonstrator as part of the project and will install innovative 'vehicle to grid' (V2G) commercial electric vehicle charging at Eastcroft Depot.

5.4 Clean Air Leeds – Clean Air Zone (CAZ)

Leeds City Council's ambition is to improve the air quality of Leeds to support a thriving and sustainable city for those that live, work or visit, improving the health outcomes for the city.

Leeds City Council have been given final approval and more than £29 million in funding from the government to implement a Clean Air Charging Zone in the city and support businesses affected. The Clean Air Charging Zone will reduce air pollution in Leeds by encouraging businesses to transition to cleaner, less polluting vehicles that are not

subject to charges for driving within the zone boundary. It is set to go live from the 6th January 2020.

The plans come after the government instructed Leeds City Council to tackle air pollution in Leeds as soon as possible after finding that parts of the city would likely fail legal air quality levels by 2020.

Background

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often the less affluent areas.

Air quality in the majority of the city, its suburbs and surrounding rural areas achieve the objectives contained in the UK AQ Regulations. However, there are six declared Air Quality Management Areas (AQMAs) along some of the major roads in Leeds. An assessment regime of the EU Directive on Air Quality has led to an obligation on the Council to develop a 'Clean Air Zone' (CAZ).

A report was accepted by the Executive Board of the Council at the end of 2017 which contained draft proposals for a CAZ and a consultation exercise over a period of 8 weeks took place. This led to work on developing a CAZ for Leeds including public engagement events, an economic analysis and detailed modelling into the impact on traffic and vehicle emissions of various types and areas of the CAZ.

How the initiative works

In order to address air quality issues Leeds City Council are already:

- Leading the way in transitioning their own fleet of vehicles to ultra-low or zero emissions vehicles. Currently, the Council have more low emissions vehicles than any other local authority in England with plans to further increase numbers over the next few years. The Council's bold ambition is to fully transition its fleet to zero or ultra-low emission vehicles by 2025;
- Investing in upgrading public transport and cycling infrastructure as part of their Connecting Leeds Strategy to make it easier to leave the car at home. All three major bus companies (First Leeds, Arriva and Transdev) have backed the strategy and have committed to ensuring their vehicles meet the latest emissions standard by 2020. Each has already begun to phase in their new, less polluting vehicles. Two park and ride sites are already operating successfully in the city, one at Elland Road, which has been extended, and another at Temple Green. The two sites have saved a total of over 350,000 car journeys into the city to date;
- Encouraging drivers to switch to ultra-low emissions vehicles (ULEVs) by offering free parking for residents with ULEVs at all Council car parks. The Council are also supporting the development and roll out of a number of charge points across the city for electric vehicles;
- Mitigating air pollution from stop-start driving by improving traffic flow through highways improvements across the city. Stop-start driving increases the amount of air pollution cars emit by up to 60% compared with driving at a steady pace;
- Developing plans to pedestrianise more of the city centre. In partnership with West Yorkshire Combined Authority (WYCA), the Council are developing ambitious plans to make Leeds city centre a more welcoming and less polluted space that is more easily accessible by public transport;
- There is a statutory requirement to declare Air Quality Management Areas in residential areas of the city that show elevated levels of air pollution. Leeds has currently identified six areas in the city that fall into this category and require a targeted approach to improving air quality;
- Working with partners and companies across the UK to bring innovative and new solutions to the city, such as;

  - Developing compressed natural gas (CNG) infrastructure for the city which will enable the Council's own fleet (including refuse vehicles) to switch to CNG as well as helping commercial fleet operators do the same;

  - Project ACCRA will assess the operational ability of hybrid vehicles to automatically switch to zero emission mode when they are in an area of poor air quality;

  - Leeds secured £150,000 in partnership with Dearman Ltd to investigate the potential to reduce the impact of

refrigerated transport on air quality in Leeds. This project can demonstrate how NOx emitted from these units can be eradicated from the chilled goods supply chain. It is estimated that in Leeds, transport refrigeration units (TRUs) emit 71 tonnes of nitrogen oxides and 9.5 tonnes of particulate matter each year. This project could lead to significant improvements, not just to Leeds air quality, but to other cities around the country;

- Working with the four other West Yorkshire local authorities and the Public Transport division of the WYCA, a West Yorkshire Low Emission Strategy (WYLES) has been introduced. In addition, joint applications through WYCA for OLEV funding have been successful under the ULEV Taxi scheme to provide an EV charging point network and a Low Emission Bus Retrofit Scheme to reduce emissions.

The Clean Air Charging Zone in Leeds City Centre is set to go live from the 6th January 2020. Only owners of the worst polluting heavy goods vehicles (HGVs), coaches, buses, taxis and private hire vehicles will be subject to charges. Private cars, vans or motorcycles will not be charged.

To help businesses based within the zone to transition to cleaner vehicles and avoid daily charges, the government has confirmed that £23 million of the £29 million total funding will be available to support affected businesses.

Cllr James Lewis, executive member with responsibility for sustainability and the environment said: "Having now received the green light from the government, our priority is to ensure the successful delivery of the CAZ as required by Ministerial Direction over the next fifty weeks."

Outcomes and benefits

Clean Air Leeds is the platform for Leeds' air quality behaviour change campaign. The campaign is aimed at three key audiences: residents, schools and businesses. Its objective is to raise awareness of the things these groups can do to improve the quality of air we breathe. The campaign has built a following on social media, and was launched alongside the Clean Air Day campaign in June 2017. Since its launch there has been engagement with schools through competitions, encouraging children to walk, cycle or 'park & stride' to school and toolkits have been developed with activity packs that can be used by teachers.

The Council has been providing businesses with one-to-one briefings to discuss how they can reduce air pollution or emissions through their fleet, supply chain, staff travel and heating. Residents have been communicated with, initially through the Clean Air Day campaign, which has acted as a precursor to this three-year behaviour change campaign. More recently the campaign was used to share news as part of the CAZ consultation which received over 8,500 responses from people who live and work in Leeds.

Overcoming challenges

Over 12,000 responses were received to two CAZ public consultations via a questionnaire, as well as a number of letters from trade organisations, companies, key partners and environmental support groups.

The consultations were communicated in a variety of ways to ensure they were widely known about. A postcard was sent to every business and resident within the district, posters were put up across the region, the variable sign boards were used to promote the consultation and social media was heavily used to ensure that the message was seen as widely as possible. Businesses and key partners were also emailed directly as were all of Leeds' licensed taxi and private hire drivers and operators.

Following the consultations, the Council re-ran all of its transport and air quality models to ensure that they reflected the latest position in terms of planning applications, traffic growth, park and ride capacity, rail rolling stock improvements due in 2019, City Connect impact, as well as including the latest background figures supplied by JAQU (the Government's Joint Air Quality Unit). It also amended the model to ensure that the impact of taxi and private hire could be fully modelled as at the last stage the taxi and private hire impact was excluded from the models due to time limitations.

One of the key asks from businesses during the consultation process was to reconsider the boundary, especially around the key industrial areas of the city. As a result, the Council remodelled the Clean Air Charging Zone. After the model was reappraised it was concluded that the reduction in size could be adopted without adverse impact on the requisite outcomes. Air quality improvements are still being delivered in a wider area than just the clean air charging zone.

In light of consultation responses, the standard for taxi and private hire has been expanded to include not only electric and petrol hybrid but also liquefied petroleum gas (LPG).

When comparing the various classes of CAZ, it was concluded that no CAZ could be delivered earlier than January 2020

due to the standard process that has to be undertaken, including consultation, funding approvals, procurement, design and implementation, as well as the limits on market capacity for vehicle upgrades.

5.5 Glasgow City Council – Electric Vehicle Strategy

Glasgow City Council are committed to transforming the city's transport system to more sustainable and active modes of travel. Electric vehicles are a key means of delivering this aim as they emit no greenhouse gases or other pollutants from the tailpipe which can damage air quality.

By January 2019 there were 109 public charge points installed in 39 locations throughout the city, which is expected to increase to around 165 by early in financial year 2019-20.

The Council are working to establish a strategy on electric vehicles in order to refresh the city's approach to this important area and ensure that it is suited to rising future demand.

Background

The Council Strategic Plan states a clear commitment to shifting the city's transport system away from hydrocarbons and towards more sustainable and active modes of travel.

The Council's commitments in this area are supported by national ambitions to decarbonise the transport system. This is in a local and national context where the carbon emissions from transport are not matching reductions in other sectors – and as a consequence are rising as a proportion of the overall total.

In September 2017 the Programme for Government announced that the Scottish Government intends to phase out all petrol and diesel vehicles by 2032. In October, it was further stated that Glasgow would introduce Scotland's first low emission zone. Taken together, these actions will be part of a major shift for the city and the nation towards cleaner air and a lower carbon transport system.

The underlying vision for a significant reduction in greenhouse gas emissions from the transport sector will be accompanied by multiple linked benefits. They include marked improvements in local air quality, reductions in noise pollution and consequent benefits for public health.

Glasgow is the main commuter destination in West-central Scotland, as well as home to the largest city population in the country. It hosts a number of major road transport links, including urban motorways, making Glasgow a primary destination and an important location for drivers to top-up their vehicles' electric charge. It also has a significant residential demand for charge points. This means that any public charging network will require to meet the needs of three distinct user groups:

- Commercial operators - such as taxi fleets and couriers;
- Destination chargers for visitors to the city (residents and non-residents);
- Residential charging, which is particularly challenging in areas with a high proportion of tenemental properties and without dedicated parking.

How the strategy works

Work is being undertaken to establish a strategy on electric vehicles in order to make sure the Council's approach is current and appropriate. Consultation has been conducted with both Council officers and with elected members.

The new strategy addresses issues such as access to charge points for the various user types, terms of use and enforcement, incentives for network users and a statement of commitment from the Council.

Two recent electric vehicle events run by the Council were extremely well received and offered opportunities to engage with both businesses and residents. One was called 'Greenfleet' and was targeted at commercial operators and fleet managers. A second event took place for members of the public, with nearly 150 drivers testing electric vehicles that are currently available on the market. Similar events are being planned for August 2019.

These events form part of a communication programme that is being developed with the aim of improving engagement

with members of the public and fleet operators within the city. There will also be opportunities to link this public discussion with the development of Scotland's first Low Emission Zone in Glasgow city centre.

Outcomes and benefits

During November 2017 to October 2018, nearly 33,000 charging sessions were initiated by over 2,530 distinct users in Glasgow. This equates to around 25 users per charge point. It represents a 15% increase in users compared to the previous 12-month period (up from 2,200). This trend is set to continue and, if local trends follow national projections, this figure will rise to approximately 25,000 users over the next five years.

These sessions consumed over 281,000 kWh of electricity over this 12-month period, which will have powered nearly 1,000,000 miles of emission-free travel. There is therefore a clear potential for further decarbonisation of transport, together with positive implications for cleaner air, through increasing both the use of electric vehicles in Glasgow and the replacement rate of traditional vehicle types.

Future goals

Switched on Scotland 2: An Action Plan for Growth, states three key actions as the primary means through which the Scottish Government will support local authorities in expanding and improving the network. They are to:

- Support local authorities in deploying measures that encourage adoption of electric vehicles;
- Support the development of innovative electric vehicle charging hubs across Scotland;
- Support the increased deployment of public charging infrastructure by developing the Charge Place Scotland network.

The Council was recently awarded £625,000 from Transport Scotland to further develop the charging network. This will allow around 66 new public charge points to be installed, subject to grid connection costs.

The Council has submitted a bid to the Transport Scotland's Switched-on Towns and Cities Challenge Fund. If successful, this project will be delivered in four key phases:

1. Up to 70 additional public charge points will be installed at various locations throughout the city, which will be identified through existing criteria;

   - A trial will be run in an on-street residential setting with a view to addressing barriers to charging for users without a dedicated parking space. In parallel, an electric vehicle parking permit scheme will be investigated to address the issue of enforcement and availability;

   - The number of electric vehicles offered by the city's car club will increase from 3 to at least 12. This will serve the twin functions of increasing the availability of car club vehicles for Glasgow's residents and visitors, as well as raising awareness and visibility of electric vehicles.

2. The replacement of 100 diesel cars and vans (10% of the Council's fleet) with electric vehicles along with suitable charging facilities;

3. The trial of one bespoke and one retrofitted electric refuse collection vehicles and installation of 3-phase charge points. The outcomes of this study will inform future 'heavy' vehicle procurement strategy;

4. Development of an electric vehicle charging hub to facilitate charges of both private and black taxis.

5.6 An innovation LED initiative – Milton Keynes Council

Milton Keynes Council continues to drive for efficiencies through a number of ambitious projects, to make public lighting on the highway more efficient and sustainable.

Through conversion of the Council's lighting assets to alternative products that deliver optimum efficiency, using reflective materials and innovative technologies and fine-tuning apparatus to achieve maximum benefit, the Council is achieving maintenance savings, energy savings and carbon reductions. These improvements also extend the lifetime of

the apparatus to its maximum to achieve real value for money and increase sustainability.

Background

The rapid development of Milton Keynes from the mid 70's saw the installation of significant numbers of lighting units that had an expected lifespan of around 25 years. Now with many of those lanterns coming toward the end of their useful life and maintenance costs increasing as lanterns fail, the conversion to LED lighting has never been timelier and more appropriate.

With the ever-increasing need to reduce expenditure, the significant increases in energy cost and energy inflation running at 8 to 11%, it became clear that the Council couldn't sustain its increasing energy and maintenance costs for street lighting. In a true spend-to-save initiative, the Council investigated the savings to be made from conversion of public lighting to LED technology. Projections indicated a potential saving of 10% on maintenance and more than £34,000 per annum on energy (based on 2016/17 energy prices).

The outlined business case identified that the potential for energy and maintenance savings was significant; prompting the Council to investigate the market and initiate dialogue with suppliers to understand the options, risks and opportunities.

The outcome was to balance the risk of supply, specification and future maintenance of LED lanterns from three suppliers across the northern, central and southern bands of the city with a fourth zone for the supply of the specialist city centre lighting.

How the initiative works

With the advances in LED lighting technology Milton Keynes Council is achieving the most significant energy and maintenance efficiencies to date.

The Council's strategy for delivering greater efficiencies is broad and extensive, working with its main service provider Ringway and suppliers to deliver a number of schemes, including:

- Conversion of underpass lighting from fluorescent to LED;
- Road safety improvements with better lighting and reduced energy consumption;
- Replacement of illuminated signs to high reflective signs with ground-lit LED's;
- Conversion of the high-pressure sodium lighting on the high-speed grid roads and residential areas to LED;
- Configuration of the LED to run at 350 milliamps on main roads and 500 milliamps on the many roundabouts to provide differentiation to motorists, in a bid to gain the maximum lifespan of the units;
- Re-design of lighting in the city centre car parks to reduce the number of lights, with more efficient LED lanterns used to achieve the required lighting levels;
- Maximising the use of existing equipment, including high specification city centre lanterns and bespoke heritage lighting, through modifications to control gear, to facilitate the LED conversion;
- Installing equipment within the conversions to facilitate remote access and remote control of lighting units in forthcoming projects.

Outcomes and benefits

An implementation strategy was developed to deliver the conversion programme to the 6,911 lights on high speed grid roads first, capitalising on efficiencies from reduced maintenance on roads where traffic speed limits are 60/70 mph and traffic management can be complex, expensive and inconvenient to road users.

Energy savings to these lanterns, which had already been reduced by dimming to 20%, was lower than the full potential but still provided substantial reductions. However, maintenance demand reduced significantly, with the number of lighting faults on high speed grid roads reducing by more than a thousand in 2015, saving more than £74,000 on the 2015 maintenance budget. The numbers of maintenance issues stabilised during 2016 and 2017 at just over 100 per annum as the remaining lanterns were converted.

Additional savings have been achieved though the replacement of internally illuminated signage with high reflective signs and ground-lit LED lighting, which reduces costs associated with unrecoverable vehicle collision and vandalism.

The city centre has, by design, become the central hub of Milton Keynes, with much of the street furniture being of higher quality and bespoke design and incorporating some 3,600 lighting units. With the existing design of lanterns now becoming obsolete technology, the problem gave rise to an opportunity to re-design a new lantern specifically for Milton Keynes city centre.

The new unique lantern provides the following benefits;

- Can be retro-fitted to existing columns;
- Retains the profile of the existing globe lantern;
- Future proofed design can be upgraded;
- Modular & programmable for every location;
- Directional lighting ensures all areas are well lit, with 'true colour rendering' to aid CCTV;
- Reduce the number of lights for the same light levels in some areas;
- Reduce maintenance, energy cost, light pollution and carbon footprint.

Conversions to the grid road roundabout lighting has delivered significant energy savings with 250w high pressure sodium lamps (total consumption 279w) being converted to 88w LED's, which when dimmed by 20% per annum now consume 71watts of energy, a saving of approximately 75% on the original Sodium lighting.

In addition to this, the operational 'switch regime' has been trimmed from 70/35 to 35/18 (lights come on later and go off earlier) reducing the annual burning hours by 20%.

With significant reduction in energy consumption year-on-year, the reduced carbon emissions should not be overlooked.

The Council has also done much to promote the lighting improvements to local citizens, with information being provided on its website, Facebook and Twitter feeds, as well as through a widely distributed leaflet informing citizens of the improvements.

Overcoming challenges

The original design of the lighting on the main city centre transport corridor was designed to be unique with bespoke lanterns mounted on conical swept columns.

With the existing lighting defining the city centre nightscape and with the lanterns in good condition, replacing them with a new design would not only be expensive and wasteful but would also change the visual appearance of the city centre streets.

The solution was to approach a local lighting supplier to design a bespoke gear tray that could be retro-fitted into the existing lanterns, maintaining the existing design and saving 31% of the replacement cost of a new lantern. With 1,437 city centre lights of this design, these savings alone amounted to over £124,000 over the alternative cost of total lantern replacement.

A similar issue existed in the rural and historic areas of the city where heritage lanterns have been installed. A typical example is the 1810 iron bridge in Newport Pagnell where the lighting of the highway is in keeping with the design of the bridge.

Replacement of these lanterns with LED fittings from commercial suppliers would again prove to be financially challenging. However, working with their partner service provider, the Council again procured local manufacture of LED gear trays for the existing lanterns at a significantly reduced cost. The total unit cost of converting these Macton heritage lanterns was £120 compared to the cost of a new heritage lantern ranging between £550 and £850.

By adopting this innovative approach to the conversion of expensive lanterns, the Council has saved more than 78% on the cost of total lantern replacement, whilst delivering the following benefits;

- Continuity of the existing heritage design of the area;
- Improved quality of lighting;
- Extended maintenance lifespan of the lighting units;

- Reduced energy and maintenance costs;
- Avoided unnecessary replacement of perfectly good lanterns;
- Reduced waste by 're-use' rather than 'recycling'.

Future goals

With the success of the LED conversions on the high-speed grid roads and in the town of Newport Pagnell, the project is now extending to the local residential estates, with plans to convert the areas of oldest stock in Bletchley, Wolverton and Stony Stratford (realising the maximum benefits from energy and maintenance reductions), before expanding across the whole borough.

Conversions will also be undertaken in central Milton Keynes car parks, installing the new Holophane MK specification lantern.

As the conversions progress, data is being analysed to inform strategies for future maintenance. By understanding the increase in lighting performance, the extended reliability of the lighting and the subsequent reduction in maintenance demand, current maintenance procedures are being challenged (on a risk-based criteria) to ensure the efficiencies are maximised across the service, including;

- Revised frequency of night-time inspections;
- Maintenance targets and response times (based upon acceptable reduced lighting levels caused by outages);
- Investigation into the opportunities of remote switching and dimming of lighting to increase efficiency further.

5.7 Bristol Energy

Bristol Energy is proud to be a trailblazer as one of just two fully-licenced Council-owned energy companies in the UK. The overall aim of Bristol Energy is to support the city in its social objectives and sustainability goals, with a mission to help and support energy-vulnerable households within the city.

Bristol Energy's approach focuses on the value of localism. They believe that people care about their community, about their wellbeing, and about keeping things local. Energy suppliers can play a part in that. It's not about competition, it's just putting people first.

How the company works

Three years since its creation, Bristol Energy is forging ahead with its plan to support Bristol City Council in creating a different kind of energy provider: one which has the community at its heart and focuses on driving profits for a purpose.

From local job creation to staff volunteer days, carbon reduction activities and well-being initiatives such as training mental health first aiders, Bristol Energy are proud to say the estimated value put back into the Bristol community is £7m this financial year (circa £12m since its launch). Over the past year they've grown their customer base and pushed forward with their social mission, to grow their renewable fuel mix.

Their residential business has grown to over 165,000 customer supply points, their B2B business has grown to over 4,500 business supply points and they contract with 54 independent, renewable generators – many of them community owned.

The Fuel Good Fund was established in 2018 to help reduce fuel poverty in Bristol. In 2018/19, 1 in 10 people were living in fuel poverty in Bristol. The fund has been gathering pace, supporting vulnerable residents around the city. They work in partnership with the Centre for Sustainable Energy and local charities to deliver meaningful impact to the lives of Bristol's citizens, who are struggling with fuel poverty.

The company is committed to supporting Bristol hit ambitious social and environmental goals set out in the One City Plan. Their strategy over the coming financial year is to focus on growing their customer base both locally and nationally and offering additional innovative energy services.

Projects and Partnership Working

Working with Innovate UK, the arm's length government innovation funding body, Bristol Energy have created the Bristol Energy Smart System Transformation (BESST) project. This consortium brings together Bristol City Council, three local community groups (Bristol Energy Network, SevernNet, Bristol Community Transport), Regen and Upside Energy, to explore the best options for designing a local energy system in North West Bristol.

This innovative project explores how they design new services for their customers, preparing them for the rapidly changing energy world. A world in which customers begin to take control of their energy use and supply, moving to electric vehicles, battery storage and the increasing need to decarbonise heat.

They are collaborating with community owned renewable generators Gower Power and the technology company Origami to develop a local energy system, installing a new solar and storage facility at their existing 1MW solar farm. This will enable smart grid management and demand matching for local electricity supply, using smart meters.

Bristol Energy are excited to be a part of the local business community, working with Bristol Water and the Better Food Company. They have established partnerships with local business networks focusing on the environment, society and our local economy, including the Bristol Green Capital Network, Future Economy Network and our local Chamber of Commerce, run by Business West.

The company has also partnered with Energy Systems Catapult to trial the UK's first 'heat as a service' system in February 2019. This trial starts the company's journey to learn more about how customers want heat and warmth to be delivered, moving away from a traditional gas supply model of purchasing kWhs towards the easier to understand concept of warm hours. The 'Heat as a Service' trial was an important step in Bristol Energy's journey towards creating energy products and services, which are fairly priced for everyone, support sustainable energy supply and advance the decarbonisation of homes and businesses.

Outcomes and benefits

In January 2019, Bristol Energy were awarded Bristol City Council's electricity and supply contracts via a competitive tender process.

Bristol Energy have improved their customer service rankings in 2018/19, moving up to 6th place in the influential Citizen's Advice Supplier Rankings, moving from 11th to 8th in the annual Which? Energy Survey and they maintained their 4* ranking for customer service on both Trustpilot and USwitch.

Bristol Energy's fuel mix has become greener, with the introduction of more local renewable generators adding wind, solar and hydro to their portfolio. They work directly with 54 renewable generators enabling more renewable power onto the grid. 31% of this renewable generation is sourced directly from the Bristol area. In partnership with GENeco, a local energy innovator, waste from one million Bristol people is turned into biomethane, a sustainable, virtually carbon neutral and environmentally friendly substitute for fossil fuel natural gas. Bristol Energy supply their domestic customers with 15% green gas and supply their business customers with up to 100% green gas.

So far, Bristol Energy have raised over £25,000 which is being used to support their partners at the Centre for Sustainable Energy deliver the WHAM (Warmer Homes Advice & Money) project. This pioneering project brought together multi-disciplinary support for vulnerable citizens who may need help with energy efficiency measures, debt advice and payment plans.

Bristol Energy are contributing to Bristol's plan to ensure that no one suffers a cold home by 2030 and will continue to support this goal.

The Warm Home Discount was voluntarily offered to around 3,280 customers in 2018/19, meaning that those people who needed extra help with their energy bills, and qualified, received a one off, annual rebate.

During the last year, they've established and strengthened their partnerships with local charities that help vulnerable people in their community, including FareShare SW, Feeding Bristol, LinkAge and Caring in Bristol. Bristol Energy staff have volunteered at events, donated food and other in demand items such as toiletries, they have supported charities with joint marketing and social media activities and raised money by holding charity auctions, cake sales and running affiliate programmes.

Future goals

Bristol Energy's future objectives are to create 'profit for purpose', to be a commercially efficient business that provides an income stream for Bristol City Council.

Bristol Energy will support vulnerable citizens with major social challenges, such as fuel poverty, by creating new products and services which leverage new technologies and innovations. The company aims to increase total shareholder returns, in both financial and social value.

Bristol Energy has an aim to be at the forefront of the new decentralised energy world, using their home city of Bristol to test and pilot new and innovative products and services. Their 2019/20 business plan includes the new 'energy as a service' propositions, technology platforms and pilot innovations which they hope to be able to bring to market over the coming months and years.

They will partner with Bristol City Council's ambitious City Leap programme to transform Bristol's energy system and take a significant step towards decarbonising the city. As part of the City Leap programme, Bristol Energy will play a key role by providing the interface between City Leap assets and customers and by integrating assets, infrastructure and technology to create compelling customer products and services. These activities will further enhance Bristol Energy's unique selling points and value and will help to unlock their future potential as a local energy system and a supplier of services.

5.8 Deep Geothermal in Cornwall

An energy project, designed to harness Cornwall's geothermal potential, has started drilling the UK's deepest ever borehole in Cornwall in a bid to use heat from hot rocks as a zero-carbon source of electricity. The scheme hopes to create the UK's first deep geothermal power station and ignite a renewed interest in the technology's wider potential.

The £18m United Downs Deep Geothermal Power (UDDGP) project at United Downs near Redruth, led by Geothermal Engineering Limited (GEL), has secured £10.6m from the European Research Development Fund (ERDF), match funded by £2.4m from Cornwall Council and £5m through a successful crowdfunding campaign.

Background

The potential for exploiting geothermal energy in the United Kingdom on a commercial basis was initially examined by the Department of Energy in the wake of the 1973 oil crisis. Trials of the technology were originally undertaken at Rosemanowes Quarry, near Penryn, Cornwall in 1977 however, interest in developing them further was lost as petroleum prices fell.

Cornwall's extensive granite, along with the success of the Rosemanowes project, means it is seen as the most promising part of the UK to create combined heat and power using geothermal sources. As a result deep geothermal was recognised as an opportunity within Cornwall Council's strategy and business plan, with the potential to create a new energy sector for the UK.

GEL announced the plans for the United Downs geothermal power station in October 2009. On 13 August 2010, the United Downs plant was granted planning permission by Cornwall Council in a unanimous vote, with the drilling of the first well expected to begin in early 2011. The plant was expected to be operational by 2013-2014, however, due to the innovative nature of this nascent industry, developers were unable to secure funding to drill the exploratory wells necessary to prove the resource in the UK.

Through the Cornwall Devolution Deal, the Government agreed to continue to work with Cornwall Council to assess the potential support mechanisms for deep geothermal, should the resource be proven via locally driven investment. As part of its commitment, the Council agreed to appoint a dedicated Geothermal Policy Officer to co-ordinate geothermal and heat network projects in Cornwall. This also included working with the Managing Authority to develop a deep geothermal European Regional Development Fund call.

Through the ERDF call process, GEL have now successfully secured funding to enable the £18m UDDGP project to progress, this includes a £2.4m Cornwall Council match. Through the Cornwall Devolution Deal, the Council will now have an essential role in helping to evidence the viability of the technology to ensure investment into subsequent projects. This will include the facilitation of a higher value unit price for the electricity and enabling a market for the 'waste' heat.

How the project works

The UDDGP project is the first project of its kind in the UK. It will explore the geothermal resources at depth, and hopes to use the energy to drive a demonstration power plant supplying electricity to the local grid. Drilling started in November 2018 and is expected to take 8/9 months.

When complete, the plant will pump cool water down a 2500m injection well. The water will then return to the surface at 175°C through a 4500m production well. The steam turbine at the surface will generate up to 3MWe net power, with up to 15MWth renewable heat being created.

Outcomes and benefits

The deep geothermal resource in Cornwall has the potential to provide significant economic, environmental and social benefits for the area. The project will provide substantial jobs, increase Gross Value Added (GVA) for the area, provide carbon reductions and could potentially help to eradicate fuel poverty.

Geothermal electricity offers many advantages over other renewable energy sources; it provides baseload generation (24/7, 365 days of the year), as well as being able to react quickly to changes in demand, contributing longer term to a smarter energy system. If fully exploited, Cornwall's geothermal resource could provide up to 100MW of energy for Cornwall, enough to power half of Cornish homes.

In addition to generating power, the secondary heat produced by the process can also be used. This could form part of a longer-term plan to tackle fuel poverty, support and attract businesses with high heat demand and safeguard existing jobs.

Geothermal also has a very small footprint on the landscape when compared to the same generating output of other technologies and emits no greenhouse gases.

This project seeks to prove to investors, researchers and the global geothermal community that deep geothermal power can be produced in Cornwall, acting as a catalyst for other projects in Cornwall and overseas. Whilst there are similar working examples in Europe and others are planned in the US and Australia, this is the first of its kind in the UK.

Overcoming challenges

Cornwall Council has, where possible, sought to reduce the barriers facing the industry, such as licensing and protecting the resource, access rights to drill, concerns around earth tremors and ongoing subsidy support. The Council has worked to address these barriers through close working partnerships with the Department of Business and Energy and Industrial Strategy (BEIS) and through the development of geothermal Supplementary Planning Guidance.

Uncertainties about the geological and geothermal conditions (the 'ground risk'), alongside high upfront capital costs, have put off private sector investment.

This project was identified as a priority investment area in the Cornwall and Isles of Scilly growth programme, which has led to success in securing funding through the ERDF.

Future goals

An overall aim of the project is to deliver a successful deep geothermal heat and power project that will prove to investors, researchers, and the global geothermal community, that deep geothermal power can be produced in Cornwall, acting as a catalyst for other projects here and across the UK.

Would you consider exploring options for geothermal energy in your locality?

6. Main learning points

Different people interpret projects in different ways and local circumstances are unique. We have highlighted some of the main learning points from each case study to reflect the breadth of learning that can be obtained from this publication.

Enfield Council

1. Put the customer first: the equipment installed and the detail of the contracts has to work for them. Remember, they don't have a choice of heat supplier!
2. Make sure the business is commercially viable: ensure your financial model is based on sound assumptions and operational reality. Don't forget that even as a private limited company, it's still public money.
3. Strong governance:
    - Ensure you have a team with industry experience who can constructively challenge the operation.
    - Due diligence is expensive and time consuming, but is vital to ensuring a business plan is robust, which again helps to build trust.

Durham County Council

1. Work in collaboration with different services within the authority and procure a specialist in-school provider to ensure a quality service and product.
2. Accessing reliable data is key. You can't manage what you don't measure.
3. Engage with a range of participants – external organisations (Salix, Solar for Schools), school staff, children, maintenance operatives.

Nottingham City Council

1. Use the Council's own assets and an innovate approach, alongside considerable ambition, to cut energy bills.
2. For Nottingham City Council, large scale investment has led to success breeding success, a growing team and major investment plans.

Leeds City Council

1. Maximise engagement and consultation to get others signed up.
2. Explain the links between air quality and other issues, technologies and benefits to justify the project.
3. Set a great example by investing in a green fleet.

Glasgow City Council

1. Drive behaviour change around EVs in the city through Council actions. These can also meet important social objectives.
2. Make clear links to the national policy perspective with reference to transport as well as energy and sustainability.

Milton Keynes Council

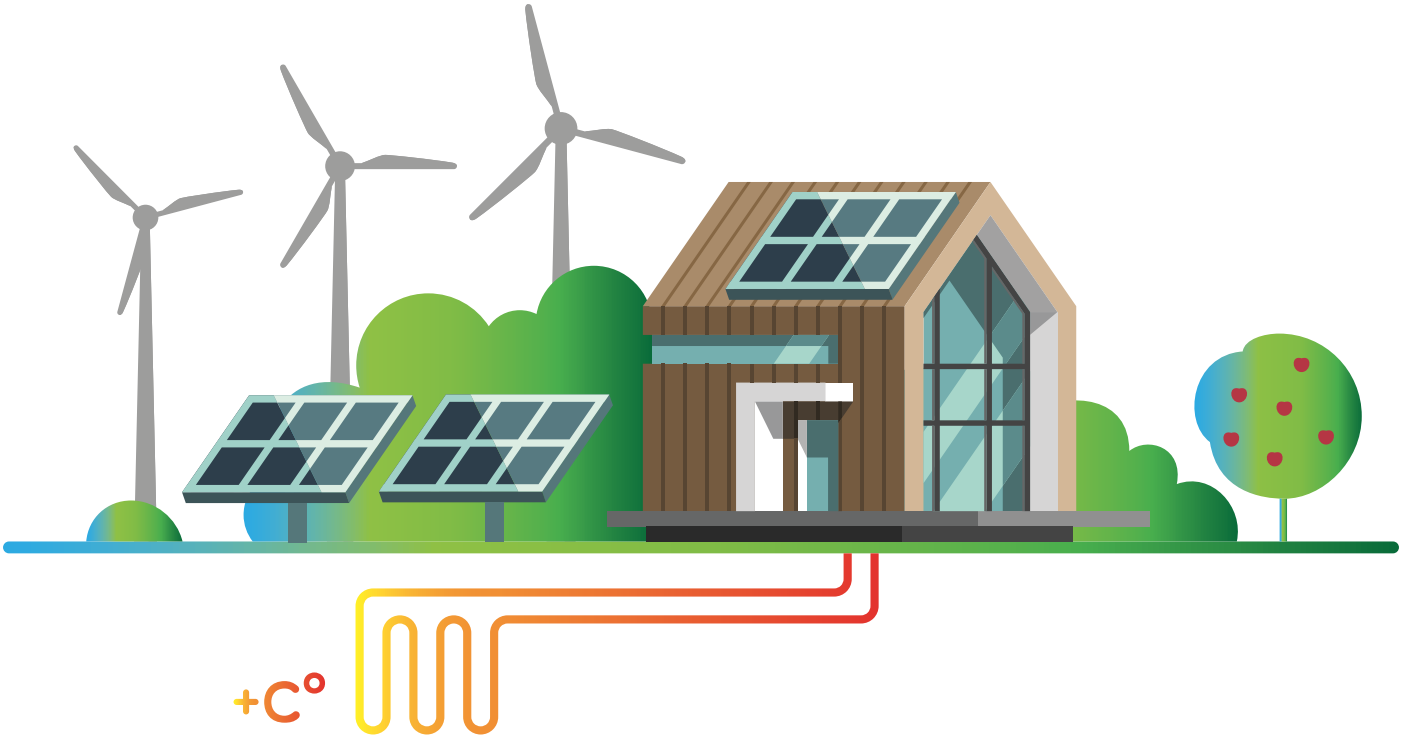
1. Work with local companies to benefit the local economy.
2. Use data to inform future plans.
3. Understand the benefits of replacing lighting units on a continual basis rather than waiting and replacing them all at once, i.e. all after 25 years.

Bristol City Council and Bristol Energy

1. Use a targeted approach to support local social objectives, meet sustainability goals and help the energy vulnerable.
2. Embrace smart technology, which also helps to make a contribution to a smarter energy system.

Cornwall Council

1. Invest in new technology. Through this, Cornwall Council has attracted significant funding.
2. Identify the benefits - 24/7 generation all year round with no emissions is an important benefit.
3. The Council has pushed the project forward because it realises that local factors mean it must become more self-reliant with regards to energy.
4. When developing a match funding agreement ensure that the Council has the opportunity to benefit from its initial investment once the scheme is successful. In this case the grant conditions developed provide an opportunity for Cornwall Council to consider further investment, steer project outcomes and consider the level of future Council involvement.



7. Are you aware of the possibilities?

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 or have the topic of energy built into an investment plan, carbon plan or something similar. 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 that flows throughout a locality and something that the Council can influence. An energy strategy sets out the approach that the Council takes to energy, the actions it intends to take and the position it is working towards for 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 or reduce their energy consumption. 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 and to promote the importance of the topic both within the local authority and externally with the public, local businesses and partners.

By building the work into a strategy the Council will remove any reliance on an individual officer or councillor to drive the agenda forward on their own. Often work on sustainability or energy is prompted by an individual. When that individual leaves, the stimulus to take the agenda forward may be lost. Having a plan that links to other strategies such as investment, environment, air quality and economic development plans, helps to build energy developments into all areas of the Council's work and encourages officers and councillors to consider the topic on a continuous basis.

The nature of infrastructure investments such as district heating schemes, low emission vehicle charge points and distributed grids, as well as 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 or 30 years and possibly longer.

An energy strategy should provide a guide to future developments and future plans for the Council, which will change over time as technology and the demands of the local community and economy change. 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, commercial regeneration schemes 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.

Current national targets are for 300,000 new homes to be built each year, which provides a great opportunity to improve energy efficiency standards in new homes, incorporate on-site generation, invest in battery and storage technology and increase the provision of green transport. Local authorities have powers over all of these factors and can make significant contributions to a cleaner, smarter energy system in their localities.

Many Councils have recently announced Climate Emergency declarations and have set a date by which they expect the local authority to be carbon neutral. These are often very ambitious targets and can provide a significant boost to the sustainability and energy related areas of the Council. Equally, meeting these targets will mean establishing projects similar to those detailed in this publication.

10 things you should be doing

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, projects and business and funding models.

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, clean air strategy 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, 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 businesses to do the same, are all vital energy efficiency measures. 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. Make the most of your membership of APSE Energy – take advantage of our briefings, research, newsletters, events and consultancy. 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.

9. APSE Energy - what can we do for you?

APSE Energy is a collaboration of over 80 local authorities who are working towards the vision of the municipalisation of energy. Councils having a greater role in energy management within their locality might be something as simple as advertising cheaper energy tariffs that residents can sign up to. It can also involve more in-depth measures such as installing large scale solar farms or establishing a local behaviour change or education programme.

APSE Energy has 4 strands, which together form an overall objective of helping its members remain up to date with developments in the energy sector and supporting their energy related projects.

Advocacy

We undertake an advocacy role to highlight energy related issues impacting local authorities to a wide variety of sectors, such as government, the wider local authority and public sector, professional bodies and 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 such as BEIS, 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.

Knowledge

APSE Energy etnhances 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 monthly 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 regulations, solar PV projects, biomass projects, ESCOs, EV charging infrastructure and a variety of other topics. APSE Energy also has links to universities, keeping abreast of academic research and projects.

Learning

We run a series of seminars, meetings and practical workshops focussed on specific themes with expert speakers and industry specialists. 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. Our events provide opportunities for learning, networking and sharing understanding across the sector.

Consultancy

APSE Energy offers a consultancy service with energy sector experts as associates. Our associates specialise in local government work, and understand how the councillor-officer relationship works, 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 means being within a movement that is looking towards alternatives to the big 6 energy suppliers, addressing energy security, fuel poverty, emissions 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 Charlotte Banks, Energy Research and Project Officer at cbanks@apse.org.uk, or call 0161 772 1810.

Has your council declared a climate emergency?

If so, how will you achieve the targets set?

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