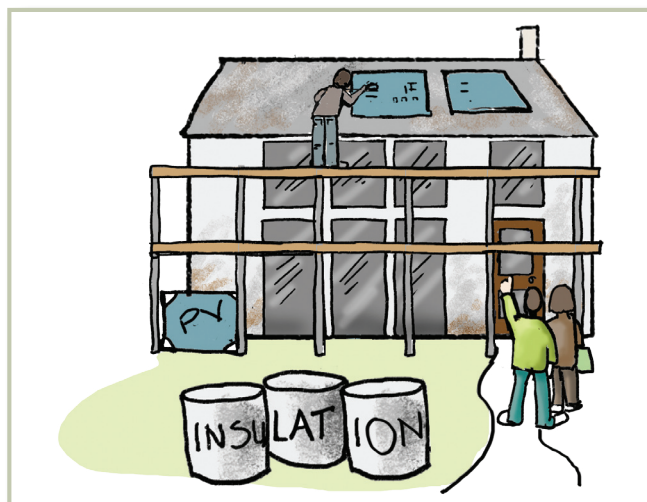


Energy vision

How will we make sure that the lights don't go out and that everyone in the Dunbar area can keep warm in 2025? Where will the electricity to run our appliances and communication systems come from? How will local businesses and farms meet their energy needs and how will we travel where we need to while using 50% less fossil fuel?

By 2025 our demand for energy will need to have greatly reduced. We will need to make much more efficient use of the energy that is available and we will need to be making much more use of renewable sources of heat and electricity. To ensure resilience, we will need a diversity of supply and a range of local energy sources that are under local control.

All new homes and workspace will be built to Passivhaus standards while a major programme of refurbishment will be underway to drastically cut energy consumption in our existing building stock. Renewable sources of heat will be in common use. In rural areas, biomass heating (using firewood, wood pellet or woodchip) will be common. Existing, often neglected, woodlands will be managed to ensure a local timber supply while maximising firewood production. New woodland will be established on marginal land and as shelterbelts on farms. There will increasingly be a return to traditional coppicing. A local supply chain will be in place to manufacture and supply pellets and woodchip locally and to make use of local waste wood and sawdust. Farms will supply their own energy needs and most will be net exporters of energy. Several villages will have installed district heating schemes.



Green gas from anaerobic digestors fed with food waste will supply the local gas grid. Electricity will mostly come from wind turbines. Many will be in community ownership and will also generate income for community investment, particularly in energy efficiency measures. Suitable south facing roofs will be used for photovoltaics and solar hot water. Small scale hydro power will be in use where possible, especially along the Tyne near East Linton. Dunbar and District will be a net exporter of electricity but, when necessary, will be able to draw energy from the grid which will be increasingly fed from tidal and wave power, as well as offshore windpower. Large offshore windfarms will have been constructed off the coast and their maintenance will be important for the local economy.

Where electricity is used for heating it will mostly be used to power heat pumps, transferring heat from the air, ground or water. Smart grids and appliances will help match electrical supply and demand while smart meters will ensure that householders can easily monitor and control their consumption. When surplus electricity is available, it will be used to charge electric vehicles and to heat water in thermal stores.

Some Energy Challenges (and notes towards solutions)

1. Current energy demand is very high with inefficient building stock and increasing fuel bills. Most householders are keen to upgrade their homes so as to use less energy and to make them cheaper to heat and more comfortable to live in. Many would also like to install renewable technologies such as photovoltaics or solar hot water. However, they face several barriers, including the upfront cost, lack of clear and impartial information and advice and lack of accredited local trades people. Very many properties in the Dunbar area could be classed as 'hard to treat', often with solid stone walls and very poor air-tightness even in modern properties. Many are in conservation areas or are listed. Upgrading most properties to substantially reduce their energy consumption will typically

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require an investment of upwards of £10,000 while installing photovoltaics costs at least £7,000. While there is a lot of information available about home energy efficiency, much of it is confusing and contradictory and is too generalised to be very useful. Government grants are very restricted and energy initiatives come and go and provide little incentive to act now. It can be very difficult for householders to find local trades people to carry out the range of measures required, from basic draught stripping and loft insulation through to window refurbishment and wall insulation. There is a lack of (MCS) registered micro-renewables installers in this part of Scotland.

The BeGreen energy advice service is already providing free home energy advice, including a home energy audit service. While this enables householders to access clear and independent advice, there is no assurance of long term funding for the home energy audit service and without access to finance and suitable trades people, implementation of the recommended energy efficiency measures will be limited. We need to find a way of providing an integrated service to householders which provides access to expert advice along with easy finance and coordination and accreditation of trades people and contractors. This could take the form of a revolving

community loan fund, with repayments made from savings in energy bills and a social enterprise providing coordination of advice and installation of energy saving measures. Where appropriate, photovoltaics (PVs) may be installed to give the benefit of free daytime electricity to fuel-poor households while generating income from feed-in-tariffs to be reinvested in local energy reduction measures. There may be a need for additional skills training for local trades people and assistance to enable local contractors to become accredited installers of micro-renewables. There is a need to extend an energy advice service to local businesses.

2. The vast majority of households currently rely on fossil fuel to provide heating. In urban areas, most households are connected to the gas grid although a substantial number rely on electric heating. In rural areas, a few households use firewood for most of their heating needs but the majority rely on oil, LPG, electricity or coal. At current levels of demand it requires at least one hectare of land to provide firewood for one house. Many local woodlands are neglected or poorly managed and most farmers have little interest in woodland management. There is a limited local supply of firewood and woodchip while wood pellets are either imported or transported from Invergordon.



In order to decarbonise our heating, it will be necessary first to substantially reduce heat demand. Even then, it will only be possible for a minority to use local sources of firewood for all their heating needs. Others will need to rely on renewable electricity or green gas from anaerobic digestors. Renewable electricity will be best used to run heat pumps to provide background heat, perhaps with small wood or pellet stoves supplying supplementary heating. People will need to get used to being more energy aware, to dressing more warmly in winter and to zoning their homes to only heat those rooms which really need to be heated. There will be scope for developing local enterprises as part

of a local fuelwood supply chain, from woodland management through to harvesting, seasoning and supply of logs as well as recycling of waste wood and sawdust into woodchip and wood pellet. This will be encouraged by the implementation of the Renewable Heat Incentive but there may be a need to support and provide training for landowners and others. There is a need to assess the potential for generating green gas from anaerobic digestors fed with local food waste. In some areas it will be viable to install district heating schemes, particularly in rural settlements where communities could form their own Energy Supply Company and woodchip could be supplied from local farms.

3. A large proportion of buildings in the Dunbar and East Linton ward are either listed or are in conservation areas. This severely restricts what is currently permitted in terms of eco-refurbishment and installation of micro-renewables. Current local planning policies do not give any preferential support to community ownership of wind turbines or other larger scale renewable generation capacity.

There is a need to review how planning policies and designations could be reframed or relaxed to enable upgrading of energy efficiency standards of buildings in conservation areas. Could acceptance of an alternative aesthetic enable external insulation of properties in these areas? There is a need for research and exemplars of how internal wall insulation can be installed such that long term damage to the building fabric is avoided.

Visually acceptable ways of integrating solar panels into roofs on the front elevation of properties in conservation areas need to be agreed. Community ownership and control of local renewable generating capacity needs to be encouraged through the development of appropriate planning guidance to make this a 'material consideration' for planning purposes.

4. Current energy supply is almost totally dependent on large energy companies with no local ownership or control. There is a disconnection between local demand and local supply. The resilience of the current energy systems is outwith local control.

There needs to be an assessment of the overall potential for local energy supply from renewable sources and the extent to which this can meet or exceed local demand. Community owned renewable generating capacity needs to be established with profits invested in local low carbon infrastructure.

A diversity of energy supply, from biomass, wind, sun and water at a range of scales (from large, megawatt installations to household scale) needs to be encouraged so as to build local resilience in case of disruption to the national grid infrastructure.

Energy action plan

