

Falkirk Local Development Plan 3
Topic Papers March 2024

Energy, Climate Change & Resources



Falkirk Council

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1. Introduction

- 1.1 This topic paper contains evidence on energy, climate change and resources in the Falkirk Council area to support the preparation of LDP3 and in particular to provide input to the LDP3 Evidence Report. In order to successfully plan our area we need to focus on how LDP3 and the Spatial Strategy can enable us to meet our energy and resource needs for the future, and to address climate change in terms of mitigation and adaptation.
- 1.2 The scope of the paper covers the policy context to energy, climate change and resources, The paper provides evidence and data on energy capacity and use, energy investment and key developments which make up the Council's energy and resources portfolio. The topic paper sets out evidence on climate change adaptation and mitigation, and elements which might influence LDP3 policies and Spatial Strategy. Lastly, the topic paper also deals with resources in the Council area including minerals and waste.



2. Policy Context

- 2.1 **National Planning Framework 4 (NPF4)** deals with climate change across various cross-cutting policies. **Policy 1** gives significant weight to the global climate emergency to ensure that it is recognised as a priority in all plans and decisions and **Policy 2** will ensure that emissions from new development are minimised as far as possible.
- 2.2 **Policy 11** supports all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure and emerging low-carbon and zero emissions technologies including hydrogen and carbon capture utilisation and storage (CCUS). The policy expects LDPs to identify a range of opportunities for energy development.
- 2.3 **Policy 12** encourages development which is consistent with the waste hierarchy, and seeks to reduce and reuse materials used in construction. Local development plans should identify appropriate locations for new waste management infrastructure meeting identified needs as well as moving waste as high up the waste hierarchy as possible. **Policy 12** also sets out the criteria for Energy from Waste (EfW) proposals. NPF4 also includes National Development 4 Circular Economy Materials Management Facilities. This applies to proposals which exceed 25,000 tonnes annually and are for managing secondary materials or for recycling facilities.
- 2.4 **Policy 33** supports the sustainable management of mineral resources and seeks to minimise impacts on the environment and communities.
- 2.5 **Scotland's Energy Strategy** will set a new agenda for the energy sector in anticipation of continuing innovation and investment.
- 2.6 In 2019, the Scottish Government declared a climate emergency. **The Climate Change Act (2019)** aims to ensure that that Scotland's contribution to climate change will end within a generation, being fully net-zero by 2045 with emissions reducing by 75% by 2030 (compared to a 1990 baseline). An update to the Scottish Government [Climate Change Plan 2018-2032](#) followed on from this, which sets the pathway for the targets set within the Climate Change Act.

- 2.7 The Scottish Government published its [Heat in Buildings Strategy](#) in November 2021. This strategy aims to transform Scotland's buildings and the systems that supply their heat, as part of the route map to net zero and addressing fuel poverty. The strategy sets a number of ambitious targets on, among others, energy efficiency, emissions and low carbon heating system installations. These include:
- All homes should meet at least equivalent to an EPC band C standard by 2033 and all homes with households in fuel poverty to reach an energy efficiency rating equivalent to EPC C by 2030 and equivalent to EPC B by 2040 (where technically feasible, cost-effective and affordable);
 - A 68% reduction in emissions from heat in buildings by 2030 (relative to 2020 levels);
 - The vast majority of the 170,000 off-gas homes in Scotland, as well as at least 1 million homes currently using mains gas (around 50% of the total), must convert to zero emissions heating by 2030.
- 2.8 In 2019, Falkirk Council declared a Climate Emergency - recognising the need to take urgent action to help avoid the worst impacts of climate change. Falkirk Council accompanied this with :
- A target to achieve Net Zero emissions on energy used in Council buildings (excluding housing), street lighting, and vehicles used in Council service delivery by 2030 (known as 'scope 1 and 2 emissions'), and
 - A target for Grangemouth to be the Falkirk Council Area's first net zero town.
- 2.9 The Council produced its Climate Change Strategy to support the decarbonisation across various areas including energy, transport and waste.
- 2.10 The Council also published its draft [Local Heat and Energy Efficiency Strategy \(LHEES\)](#). The first part includes the improvement of the energy efficiency of buildings in the local authority's area, and second includes the reduction of greenhouse gas emissions resulting from the heating of such buildings. The LHEES will be followed in due course by a delivery plan, setting out specific projects for delivery.

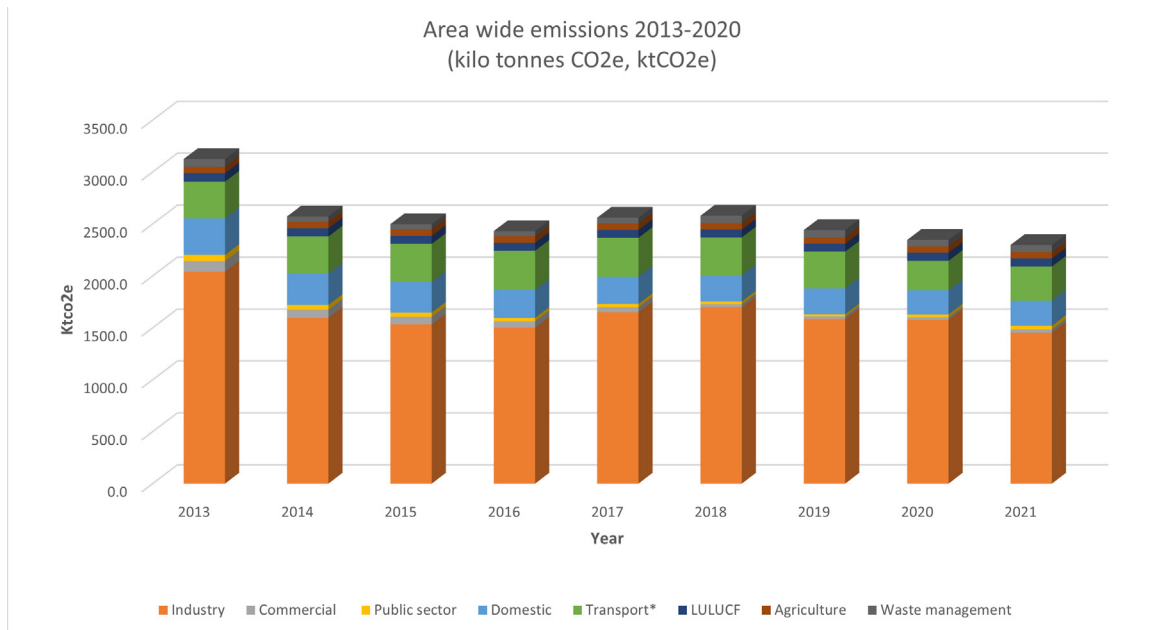
3. Climate Change, Resilience and Adaptation

Climate Change

- 3.1 Climate change and extreme weather events have already impacted many aspects of our natural environment and our society, including buildings and property, health, agriculture, forestry, transport, water resources and energy demand. In terms of the various elements which are encompassed within the wider climate change agenda, these can be summarised as:
- **Climate change adaptation** is the adjustments made in response to actual or anticipated impacts of climate change;
 - **Climate resilience** is the capacity for people and places to protect, respond to and recover from climate events such as flooding; and
 - **Climate change mitigation** is action taken to reduce the impact of human activity on the climate, such as the reduction in greenhouse gas emissions.
- 3.2 The ways in which the planning system responds to the above can include:
- Enabling renewable and low-carbon energy developments;
 - Ensuring that the scale, location and type of new development is resilient to climate impacts;
 - Ensuring new development is designed to reduce carbon and greenhouse gas emissions through LZCGT (low and zero carbon generating technologies); and
 - Enabling green infrastructure and walkable neighbourhoods.
- 3.3 Scotland's statutory targets for greenhouse gas emissions reduction are for net zero emissions by 2045 and 75% reduction by 2030. In 2019, Falkirk Council also published its organisational emissions target of being net zero by 2030. This pledge requires the Council to significantly reduce emissions linked to operational buildings energy use, streetlighting and fuel consumption for Council owned fleet vehicles.

3.4 According to Scottish Greenhouse Gas Statistics 2021, the Falkirk Council area has achieved a reduction in emissions of 49.9% in the 2021/22 reporting year, compared with the 1990 baseline year. This would put our emissions at an estimated 79,432 tonnes CO₂e in 1990, and this equates to a reduction of 39,637 tonnes CO₂e. Figure 1 below shows the broad trajectory of greenhouse gas emissions across various sectors since 2005.

Figure 1 : Falkirk Council area wide emissions estimates 2013 - 2020 (ktCO₂e)



Source: Falkirk Council Climate Change Strategy

3.5 The INEOS site at Grangemouth is of national economic significance but is also a major contributor of greenhouse gas emissions. INEOS have set a target to achieve Net Zero emissions in 2045 at their Grangemouth site and are working towards achieving this, for example through investment in more efficient plant and diversification into sustainable hydrogen production and carbon capture and storage. Since they took ownership of the site in 2005, emissions have fallen by 37%.

3.6 The Falkirk Council Climate Change Strategy sets out how Falkirk Council plans to meet its climate change obligations, particularly the organisational net zero 2030 target and the national net zero target of 2045. Numerous outcomes have been identified across key areas such as buildings, energy, and transport. The Strategy is accompanied by an Action Plan and Project Register.

3.7 The impacts of climate change can be felt through increased rainfall in autumn and winter, severe weather events, an increase in summer temperatures, and a rise in sea levels, with the Met Office produced [information on projected sea level rises across the UK](#), setting out potential rises to be between 8-90cm on the Firth of Forth by 2100, depending on a low emission scenario vs a high emissions scenario. Section 3 of the Strategic Environmental Assessment Scoping report sets out more information on the current climate trends within the Council area. In 2020, Falkirk Council produced a [Local Climate Impacts Profile \(LCLIP\)](#) which provides details of how Falkirk Council is adapting and supporting others to adapt to climate change. This document:

- Presents climate change trends and projections for Falkirk Council area;
- Details the ways in which the effects of weather were managed or were planned to be managed in the Falkirk Council area; and
- Gathers ideas for further actions which could be taken.

Key areas of action include:

- Addressing the more frequent and severe flooding taking place, as well as the hotter, dryer summers; and
- Providing nature-based solutions including SUDS, tree planting and managed realignment.



Flood Risk

- 3.8 Flooding puts people's lives and livelihoods at risk, as well as causing ecological impacts. Policy 22 of NPF4 seeks to strengthen resilience to flood risk by promoting avoidance as a first principle and reducing the vulnerability of existing and future development to flooding. For areas where climate change is likely to result in increased flood exposure that becomes unmanageable, consideration should be given to alternative sustainable land use.
- 3.9 Falkirk is covered by two Flood Risk Management Plans:
- Forth Estuary: <https://www2.sepa.org.uk/frmstrategies/forth-estuary.html>
 - Forth: <https://www2.sepa.org.uk/frmstrategies/forth.html>
- 3.10 The Strategic Flood Risk Assessment for LDP3 provides further information on flood risk, taking into account climate change, that will enable the Council to understand existing and potential flood risk which will inform future development.
- 3.11 The Grangemouth Flood Prevention Scheme is referenced under National Development 15 (Industrial Green Transition Zones) in NPF4 and is the largest flood defence project in Scotland. The project is currently progressing towards notification of the scheme in 2024.



4. Energy Generation in the Falkirk Council Area

- 4.1 Figure 2 provides an overview of the number of installed energy generation sites within the Falkirk Council area together with their capacity and output.

Figure 2 : Energy Generation in the Falkirk Council Area

Type of Installation	Number of Sites	Installed Capacity (MW)	MWh Generated
Photovoltaics	2473 (taking into account domestic installations)	7.9 MW	5875 MWh
Onshore Wind	23	42.5 MW	103,167 MWh
Hydro	5	0.9 MW	3026 MWh
Landfill Gas	2	12.1 MW	Data not available
Total	2503	63.4 MW	112,068 MWh

Source: Department for Energy Security and Net Zero, UK Government.

- 4.2 Information and guidance on the potential for renewable and low carbon energy in the area is provided in LDP2 Supplementary Guidance SG14 Renewable and Low Carbon Energy.

Wind

- 4.3 NPF4 is broadly supportive of wind energy developments, subject to assessment against specific criteria relating to project design and mitigation. The requirement for planning authorities to produce a Spatial Framework for wind energy development has been removed following the revocation of Scottish Planning Policy, and as such this will not form part of LDP3. Currently, local guidance on wind energy developments, including landscape capacity guidance, is provided in SG14.
- 4.4 Falkirk's installed wind energy capacity is made up of a number of schemes including a 13 turbine scheme at Burnhead, a 4 turbine scheme at Todhill, and a number of single turbines, primarily on agricultural land. Between 2010-2015, a significant number of wind energy proposals were approved, although many unimplemented consents have now lapsed. There does remain some landscape capacity for wind energy development, although viability will largely depend on emerging technology, grid connection and storage, and future subsidy and funding regimes. There has been some interest in relation to extension to existing wind energy developments, as well as repowering existing schemes with larger turbines.



Solar/Photovoltaics (PV)

- 4.5 In 2022, solar PV's share of Scotland's renewable capacity stood at 27 % with the majority of new capacity (86 %) being installed between 2011 and 2017, after which growth began to slow; the Renewable Obligation closed to new entrants in 2016 and the Feed in Tarriff in April 2019. Growth has since improved and during 2022 there were more domestic solar panels installed than in any other year.
- 4.6 Solar/PV remains a viable option for domestic properties, and since the revision of the permitted development rights, many of these systems can be installed without planning permission.
- 4.7 A number of non-domestic solar/PV arrays have been consented in the Falkirk Council area including:
- Campbells Prime Meat Ltd, Whitecross 1.4 hectare site;
 - Scottish Water, Wastewater Treatment Plant, Winchester Avenue, Denny: 445kw output;
 - Scottish Water, Bonnybridge Wastewater Treatment Plant, Bonnybridge: 812kW output;
 - Scottish Water, Dalderse Wastewater Treatment Plant, Falkirk: 217kW output;
 - Greenrigg Cycle Centre, Greenrigg, Falkirk – 19 free standing panels;
 - Little Kerse Sports Club, Grangemouth, 150kW output;
 - Falkirk Stadium, Low Carbon Vehicle Hub: 201kw output.



Hydro

- 4.8 Whilst pumped hydro storage is identified as a National Development in NPF4, the scope in the Falkirk area is for modest smaller-scale hydro development. There has been some limited uptake of hydro electricity generation including a scheme along the River Carron, at Carrongrove former Paper Mill, developed as part of a wider housing site. This site has an installed capacity of 499kW and also incorporates a fish ladder. There remains some scope for similar run-of-river hydro schemes in the area.
- 4.9 There are also hydro turbines installed across Scottish Water pipe infrastructure and which generate electricity.

Heat Pumps and Deep Geothermal

- 4.10 Deep geothermal is a technology which can exist in areas where there is a legacy of mining, which is the case across the Falkirk Council area. There is a potential deep geothermal resource across the Council area which was identified by previous studies, particularly in areas close to settlements where there are abandoned coal mine workings. There have been no commercial/large-scale geothermal proposals to date, although there has been some initial feasibility work on projects where the resource is known to exist, such as at Kinneil Kerse.

Landfill Gas

- 4.11 Disposal to landfill is the least preferred option in the waste hierarchy and should only be used as a last resort after re-use, recycling and recovery options. The gases produced by the decomposition of the waste - mainly a mix of carbon dioxide and methane - are burned off or used in an on-site energy generation plant. Falkirk has landfill gas operations at two sites. Avondale landfill currently operates a 11,376KW landfill gas recovery system, used to generate electricity on-site to feed into the national grid. The landfill gas system at West Carron Landfill site has a modest generating capacity of 480kw.

Energy From Waste

- 4.12 Incinerators in Scotland are fitted with technologies that enable energy to be recovered from the treatment of waste, known as Energy from Waste (EfW). EfW can be used to produce electricity only, heat only, or combined heat and power (CHP). Bioenergy and EfW accounted for 8.1% of all renewable electricity generated in Scotland in 2019 (2,472 GWh).
- 4.13 From 31 December 2025, the landfilling of biodegradable municipal waste in Scotland will be banned as part of the Scottish Government's actions to seek to transition to a circular economy and reduce waste-related greenhouse gas emissions on the path to net zero. The upcoming ban, coupled with increasing landfill taxes and [the waste hierarchy](#) encouraging energy recovery over landfill, has been linked to the rise in incineration as waste is diverted away from landfill and to EfW facilities.
- 4.14 The Scottish Government commissioned a review on the decarbonisation of residual waste infrastructure in 2021. The report ([Stop, Sort, Burn, Bury?](#)) was issued in May 2022 and led to the Scottish Government's decision to ban new EfW plants in the country, noting that an excess in infrastructure capacity was likely. The report makes 12 policy recommendations for the Scottish Government, local authorities and the wider waste industry, including proposing that no further planning permission should be granted to EfW infrastructure within the scope of the review, 'unless balanced by an equal or greater closure of capacity'.
- 4.15 NPF4 is only supportive of new EfW proposals under limited circumstances where a national or local need has been sufficiently demonstrated (e.g. in terms of capacity need or carbon benefits) as part of a strategic approach to residual waste management and subject to specific criteria such as being connected to a heat network.
- 4.16 Locally, there is an EfW development at Earls Gate, Grangemouth. This is a heat and power facility that is intended to meet the energy needs of CalaChem and the chemical cluster industries, along with sufficient capacity to produce additional electricity, steam and/or hot water for businesses, industry and residential purposes. It can process up to 216,000 tonnes of commercial and industrial pre-sorted waste every year, export more than 33MW of heat to CalaChem for industrial use, and produce more than 22MW of electricity.
- 4.17 Planning consent was also granted for an EfW plant at Avondale, with a generating capacity of 38MW.

Hydrogen

- 4.18 Hydrogen, produced from renewable electricity or natural gas with carbon capture and storage, can form a low-carbon source of energy. Hydrogen can be produced from a variety of sources and has application across a wide range of end-uses including heat and transport. Unlike electricity, hydrogen can be stored in multiple ways, e.g. in gas networks, and over both long (e.g. interseasonal) and short timeframes.
- 4.19 There are several variants of the technology which can be summarised as:
- Renewable Hydrogen (also referred to as Green Hydrogen): Produced via electrolysis of water using renewable electricity and is zero carbon;
 - Low-carbon Hydrogen (also referred to as Blue Hydrogen): Produced via reforming natural gas or biogas in conjunction with carbon capture with high capture rates and is very low-carbon;
 - Unabated Hydrogen (also referred to as Grey Hydrogen): Produced via reforming natural gas. This process produces hydrogen and carbon dioxide that is emitted to the atmosphere;
 - Biomass Gasification with carbon capture and storage for the production of hydrogen: Less developed negative-emissions technology which could become part of the energy mix.
- 4.20 Hydrogen is a rapidly evolving field and the Scottish Government reaffirmed its commitment to hydrogen through the 2022 [Hydrogen Action Plan](#). The Action Plan sets out an ambition of 5 GW of renewable and low-carbon hydrogen production by 2030 and 25 GW by 2045.
- 4.21 In terms of local projects, INEOS have announced their intention to build a hydrogen manufacturing plant in Grangemouth. They are also progressing a pilot project undertaken with SGN. This has been granted funding to utilise gas network infrastructure for a hydrogen pipeline between Grangemouth and Granton.
- 4.21 Scottish Gas Networks (SGN) also undertook a [pilot study](#) based in Fife's East Neuk to explore the potential for 'power to hydrogen'. The aim is to create a link between the electricity network - fed by renewables from a variety of sources - and the gas network, which would be used to carry hydrogen to a variety of end-use applications including heating, transport and industry.
- 4.22 In summary, hydrogen is a rapidly evolving technology, and policies in LDP3, as well as any associated guidance, will be required to be adaptable to infrastructure demands, and the roll out of new technologies as they emerge.

5. Energy: Use, Transmission and Storage

Electricity Transmission and Storage

- 5.1 LDPs and their policies should encourage the integration of energy storage and smart energy technologies (which limit and move peak energy demand) within net-zero policies. This is a rapidly evolving area, with innovations being developed at a pace which will likely exceed plan and policy preparation.
- 5.2 In order to facilitate delivery of new energy infrastructure and modification of existing networks, planning will play a key role through helping to deliver energy connections, storage and smart grid infrastructure. Increasingly, the grid is required to respond to the intermittent, fluctuating production from renewable power, and additional energy plants and energy storage is required to facilitate the transition to renewable and low carbon energy generation sources. An example of this locally is the proposal for a synchronous condenser at Torwood, which is designed to balance out the fluctuations within the grid and facilitate higher proportions of renewable energy to be fed into the grid.
- 5.3 Grid capacity is a significant constraint in terms of connection of sources of energy generation. The UK Government and Ofgem have published a joint Connections Action Plan which sets out actions to significantly reduce connection timescales and ensure a timely transition to net zero. This seeks to address the significant delays in network connections by removing stalled projects to release capacity for viable projects and ensure that remaining capacity is better utilised. The UK Government is looking to support an overall shift from a smaller number of large-scale generators, to a more balanced number of generators. Battery storage proposals offer benefits in terms of grid management, but still require grid connection. Proposals are therefore increasingly required to demonstrate viability to secure a connection, to ensure that speculative proposals do not take up grid capacity.
- 5.4 Locally, there are grid connection issues within Grangemouth, with the grid supply point being located within INEOS land. This presents difficulties for new connections whilst ensuring INEOS's critical services are maintained.

- 5.5 Scottish Power Energy Networks (SPEN) have produced an interactive indicative map showing the main areas of constraint in terms of grid supply point and primary substations. For Extra High Voltage lines (EHV) this indicates that the east of the Council area is relatively less constrained, while to the west around Falkirk, Larbert, Denny and Bonnybridge the network is more constrained. For High Voltage (HV) lines, which serve locally on a street/ neighbourhood level, this is a lot more constrained across the whole Council area. For constrained areas of the grid, detailed network analysis is required to ascertain if a grid connection can be achieved. The map also shows the status of grid supply points, and primary substations, and identifies the capacity remaining, supply issues, and the point in which capacity is due to be released (if known). Broadly speaking, there are capacity issues across the Council area and beyond, which may impact energy generation projects coming onstream.
- 5.6 SPEN have also produced an [interactive investment map](#) showing progress on various projects in relation to upgrading electricity grid infrastructure. These include distribution plants, overhead lines, and transmission projects and the map shows around 50 investment projects in the Falkirk Council area.

Electric Vehicles & Charging Points

- 5.7 The number of battery electric vehicles registered in the Falkirk Council area has risen from 203 in Spring 2020 to 1140 in Spring 2023 (Source: DVLA and UK Department for Transport), showing the significant growth in uptake over the last few years.
- 5.8 The Council has set out an Electric Vehicles Charging Deployment Strategy to accelerate the deployment of Electric Vehicle Charge Points (EVCPs) across the Council area. As of January 2023, more than 60 EVCPs had been delivered, including infrastructure that is provided to partners. Charging points are focused on town centres, the large PV solar array facility at Falkirk Stadium, and other community and sports centres.



Heat Networks

- 5.9 Falkirk Council produced a draft [LHEES \(Local Heat and Energy Efficiency Strategy\)](#) in October 2023. This strategy aims to underpin an area-based approach to heat and energy efficiency planning and delivery and sets out the long-term plan for decarbonising heat in buildings and improving energy efficiency across the Falkirk area. In terms of direct links to spatial planning, the main element is the identification of potential strategic heat network zones. These will have long term implications for development proposals as part of the current and emerging LDP, in terms of providing future connections and/or critical mass to enable viability of future heat networks. Decarbonisation of housing stock, including retrofitting of renewable and low carbon energy systems, also has spatial planning implications largely through the consenting process.
- 5.10 Falkirk has a history of district heat network suitability studies. In 2015, the Grangemouth Energy Project undertook feasibility work to identify 3 potential district heat networks linked to INEOS and various residential areas. This project stalled in 2018 due to viability issues.
- 5.11 There is currently a district heat network at the high flats in Callendar Park, Falkirk. This is a gas-powered CHP plant with 6 flat blocks being connected to the plant. This included 400 flats and 71% of residents. In 2019 this network was extended. The SAP rating of the blocks improved from 35 to 65 and the blocks are no longer considered as being in fuel poverty. Through LHEES, further heat network assessment is being undertaken to determine the possibility of new sites.



Gas Infrastructure

- 5.12 94% of properties in the Falkirk Council area are on the gas grid, highlighting the current reliance on fossil fuels. Large areas of the Braes are not currently connected to the gas mains. SGN will shortly be commencing a project to extend the network to connect the villages of Whitecross, Letham, California, Avonbridge, and Slamannan. A map (nongasmap.org.uk) showing the number of properties connected to the gas grid was produced to highlight the different types of heating within datazones, together with the tenure of properties.
- 5.13 The role of hydrogen within the energy mix poses a long-term challenge. Converting gas networks to deliver 100% hydrogen over time will require a long term and coordinated programme of investment through government, covering gas transmission and distribution, the production of low carbon hydrogen, and the replacement or adjustment of existing consumer and industrial equipment.
- 5.14 Under the [Building \(Scotland\) Amendment Regulations 2023 \(New Build Heat Standard\)](#), any new buildings applying for a building warrant from 1st April 2024 must use a 'zero direct emissions heating system', such as a heat pump or heat network.
- 5.15 The government's full definition of a 'zero direct emissions heating system' is a system "by which the building is heated or is cooled, or by which hot water is made available in the building, which uses thermal energy produced by a source of production which during normal operation produces no more than a negligible amount of direct greenhouse gas emissions at the point of use." This translates to alternative systems including heat pumps, solar thermal and solar thermal storage systems, electric storage heaters, electric boilers, fuel cells and direct electric heaters.
- 5.16 In terms of development plan policy, this will mean that the current policies requiring a specified percentage of the reduction in carbon emissions to be derived from LZCGT will not be required in its current form.

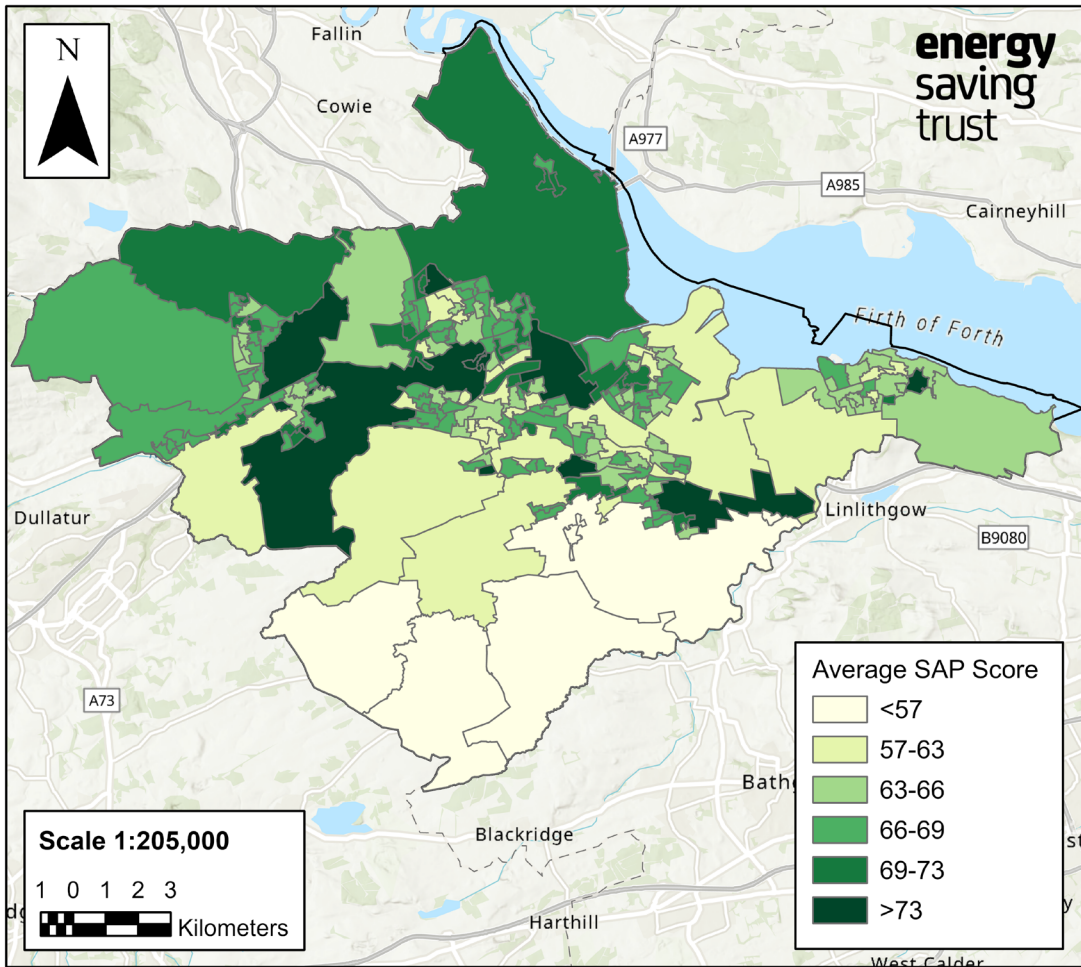
6. Fuel Poverty

- 6.1 Fuel poverty is where a household is unable to afford to heat their home to a comfortable temperature. It is caused by low income, high fuel prices, poor energy efficiency and unaffordable housing prices. The Scottish Government target with the Fuel Poverty Act 2019 is that by 2040, as far as reasonably possible, no more than 5% of households in Scotland are in fuel poverty. Areas with limited access the gas grid are more likely to suffer from fuel poverty. Fuel poverty is now defined by the Scottish Government as any household spending more than 10% (20% for extreme fuel poverty) of their income on energy, after housing costs have been deducted. According to figures published by the Scottish Government in 2021, 25% of Scottish households were in fuel poverty, with the Falkirk Council area slightly lower at 23%. 12% of Scottish households were also in extreme fuel poverty, compared to 9% in the Falkirk Council area.
- 6.2 There are a number of measures which the Scottish Government have taken to address fuel poverty. It has set a target of 15% heat demand reduction by 2032 with 35% of heat from low carbon sources by 2032. [The Heat in Buildings Strategy](#) requires all new homes to use zero direct emissions heating and feature high levels of fabric energy efficiency from 2024. The new Energy Efficiency Standard for Social Housing also requires all social housing to meet Energy Performance Certificate (EPC) B or be as energy efficient as practically possible. In addition, all homes with households in fuel poverty must reach Energy Performance Certificate (EPC) C by 2030 where technically feasible and cost effective.



6.3 The Council’s draft Local Heat and Energy Efficiency Strategy addresses fuel poverty in more detail across the Council area. It has undertaken an analysis of areas where fuel poverty is more prevalent and sets out measures which could address the issue. Figure 3 below shows an example of the analysis undertaken to identify areas with the highest number of properties in fuel poverty. Data taken from mapping exercises and the baseline tool have highlighted that the Braes Villages are shown to have high numbers of properties off the gas grid, highlighting that off gas grid areas are correlated with areas of fuel poverty.

Figure 3 : Average SAP Score across Falkirk Council Area



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7. Waste Management Facilities

- 7.1 NPF4 supports the development of waste management facilities which support the circular economy. National Development 4 notes that facilities for managing secondary materials and recycling facilities will be national developments when they are classified as major developments, i.e. with a capacity exceeding 25000 tonnes annually. Secondary materials are defined by SEPA as materials produced which are not the primary product but have valuable further uses. This could include manure, slurries, compost, sewage sludge or outputs from the whisky and beer industries.
- 7.2 Policy IR17 in LDP2 supports the development of waste management facilities within or adjacent to existing waste management facilities, on land identified for employment or industrial uses or potentially on mineral sites. Policy 12 in NPF4 notably does not safeguard existing waste management facilities or include the consideration of restoration and aftercare schemes for landfill or energy from waste facilities which are only likely to be supported in exceptional circumstances.



Existing Capacity

- 7.3 SEPA's waste sites and capacity tool lists licenced waste management facilities in the Council area which include landfill sites, transfer stations and waste recycling facilities. The number of facilities is shown in Table 2 for Clackmannanshire, Falkirk and Stirling Council areas as required capacity is calculated by SEPA for the Forth Valley area. The majority of facilities in the Forth Valley are in the Falkirk area.

Figure 4 : SEPA Waste Sites (2022)

Forth Valley	Operational Waste Sites	Non-operational Waste Sites	Total for Local Authority
Falkirk	25	22	47
Clackmannanshire	5	4	9
Stirling	10	8	18
Total	40	34	74

Source: SEPA Waste Sites and Capacity Tool

- 7.4 SEPA lists all licenced sites which are operational or non-operational. Of the operational sites in the Falkirk Council area there are 11 transfer stations, 6 metal recycling sites, 4 landfill sites, 2 civic amenity sites and 2 other treatment types. Transfer stations are the largest category of sites across the Forth Valley area with 17 operational and 10 non-operational sites. They facilitate the collection and sorting of waste before transfer to another destination such as a landfill site or recycling facility.
- 7.5 The Earls Gate Energy from Waste facility in Grangemouth has a capacity of 236,500 tonnes/year and is included in the non-operational sites in Table 2. It is currently completing construction and commissioning. The Material Recycling Facility (MRF) at Avondale, Polmont has a capacity of 200000 tonnes/year. It was a non-operational site in 2022, although it is now operational.

7.6 In 2022, the Forth Valley area has four operational landfill sites as shown in Table 3, although the Broadside Landfill site is now non-operational. Two sites are for non-hazardous waste and one site at Avondale is for hazardous waste. Although the estimated date of closure for the Avondale landfill sites is shown as 1/12/23 both sites are still in operation.

Figure 5 : Landfill Capacity Operational Sites (2022)

Operational Landfill Sites	Remaining capacity at 31/12/22	Estimated date for closure
Avondale Landfill, Polmont (non-hazardous)	36,981	1/12/2023
Avondale Landfill, Polmont (hazardous)	17,225	1/12/2023
West Carron Landfill, Falkirk	239,881	1/12/2027
Broadside Landfill	208,502	1/01/2074

Source: SEPA Waste Sites and Capacity Tool



Future Capacity

- 7.7 Scotland's targets for waste and resource management are set out in 'Making Things Last: a circular economy for Scotland' (Scottish Government 2016). SEPA has produced an estimate of the national shortfall in waste management infrastructure capacity required to meet these targets. The last available capacity estimates are based on 2018 data and were published in December 2020. Tables Figures 6 and 7 show the capacity requirements for the Forth Valley.

Figure 6 : Additional operational waste management infrastructure capacity required to meet the Making Things Last targets (tonnes) (SEPA 2018 data)

Forth Valley	Stirling, Falkirk, Clackmannanshire
Total additional diversion capacity needed	105,000
Additional capacity needed to manage source segregated recyclables*	45,000
Additional capacity needed to manage unsorted waste†	60,000

Source: SEPA. Reported to nearest 5,000 tonnes.

* clean MRF, AD, composting, and other e.g. baling, shredding and cleaning source segregated recyclables

† dirty MRF, MBT, MHT, EfW

Figure 7 : Ten year rolling landfill capacity required (tonnes) (2018 data)

Forth Valley	Stirling, Falkirk, Clackmannanshire
10 year capacity of existing landfill infrastructure	2,050,000
10 year landfill required capacity	800,000

Source: SEPA. Reported to nearest 10,000 tonnes

- 7.8 The Avondale MRF near Polmont and the Energy from Waste Plant in Grangemouth will exceed the Table 4 capacity requirements for managing unsorted waste. There is scope for additional facilities to address capacity requirements for source segregated recyclables and LDP policies should continue to ensure that a supportive framework exists to enable the capacity requirements to be met. However, NPF4 does not support any new EFW plants except in exceptional circumstances and a Direction for Planning Authorities to notify Scottish Ministers of applications that have 'minded to grant' status has been in place since 2021.
- 7.9 Operational landfill capacity at December 2022 is now less than the 10 year landfill required capacity in Table 5 however this is based on 2018 data. Further updates will be considered in LDP3. In addition, Avondale Landfill site has a minded to grant application for a hazardous waste cell with an assumed capacity of around 77692 tonnes based on the site volume provided.
- 7.10 The Scottish Government ban on biodegradable municipal waste (BMW) going to landfill is due to come into force at the end of 2025. Alongside this is a target to send no more than 5% of all waste to landfill by 2025. BMW is household waste and waste from commercial, industrial or institutional sites that is similar to household waste and includes paper and cardboard. From 2025 alternative processing and treatment will be required for such waste. The ban on BMW going to landfill sites may extend the life of existing landfill sites as they could be filled at a slower rate than currently with other waste streams. The ban on BMW may also see an expansion of other waste management facilities to process and treat this waste.
- 7.11 The Scottish Government wishes to see a managed retreat from landfill with the number of active sites reducing and closing in accordance with permit requirements and ensuring necessary aftercare. While NPF4 Policy 12 only supports landfills in exceptional circumstances further guidance for existing operational landfill sites may still be required in the next local development plan in addition to Policy 12.

8. Minerals

- 8.1 NPF4 recognises that minerals are a valuable resource. Sufficient resources should be available to meet industry demands but communities and the environment should be protected from the impacts of mineral extraction.

Coal, Onshore Gas and Peat

- 8.2 The Falkirk Council area has a history of both deep and shallow coal extraction and has remaining coal reserves with one extant planning consent for opencast coal to the south of Avonbridge. Scottish Planning Policy previously required LDPs to identify surface coal mining areas of search, and LDP2 earmarked an areas on the Slamannan Plateau.
- 8.3 The area has been the subject of Petroleum, Exploration and Development Licences (PEDL) for onshore unconventional oil and gas and PEDL 133 covers the northern part of the Council area remains in place. Oil and gas licencing powers were devolved in 2018 and licences are mapped on the Marine Scotland website.
- 8.4 Policy 33 in NPF4 does not support the extraction of fossil fuels except in exceptional circumstances. Specifically, the Scottish Government does not support the development of unconventional oil and gas in Scotland. A direction is in place requiring notification to Scottish Ministers of any applications for unconventional oil and gas and requirements to provide information where a local authority proposes to grant planning permission. This is in effect a moratorium on such developments.
- 8.5 Peat extraction takes place at one site near Letham.

Aggregates

- 8.6 Two crushed rock quarries operated to the north-west of Denny until recently. These are now understood to be under the same operator. One other hard rock quarry in the Stirling Council area is not currently operational. The area has also had a number of sand and gravel extraction quarries although there are no longer any active workings in the area.
- 8.7 LDPs are expected to support a landbank of construction aggregates of at least 10 years at all times while promoting sustainable resource management and safeguarding important workable mineral resources.
- 8.8 The extent of the landbank of permitted reserves for construction aggregates in the Falkirk area is unknown. The small number of quarries in the area mean that information is omitted for the Forth Valley area from the most recent 2019 Aggregates Survey for confidentiality reasons. This highlights difficulties with the availability of reliable data for aggregates in the area.
- 8.9 The survey does however indicate that resources are available outwith the Forth Valley area. The highest rate of export for sand and gravel was from East Central Scotland, mainly to the Forth Valley with some also being imported from the Tay area.
- 8.10 For crushed rock smaller flows into the Forth Valley are shown from West Central Scotland and East Central Scotland. This suggests that the majority of crushed rock requirements are met within the Forth Valley Area.
- 8.11 The survey notes that the Town and Country Planning (Scotland) Act 1981 made provision to impose an end date on all planning permissions for mineral workings which did not have a specified end date at 1982, with consents to end in 2042. The hard rock quarry in the Stirling Council area which has consent until 2042 has the potential to extract 13.1 Mt over 25 years, once operational, based on information submitted for a Review of Mineral Conditions application in 2018.
- 8.12 The survey notes that across Scotland permitted reserves of primary aggregates in active and inactive sites was 68.9 Mt for sand and gravel and 1229.2 Mt for crushed rock at 31/12/2019. For crushed rock 61% of reserves were in the Highland Region. The report also notes that for Scotland, sand and gravel reserves are equivalent to 18 years output in 2019 and crushed rock reserves are equivalent to 72 years output in 2019.

- 8.13 Table 15a in the survey estimates supply in Scotland from active sites as 13 years at 2019 sales levels for sand and gravel and 33 years for East Central Scotland with the Forth Valley being its largest export customer. Table 15b estimates supply from active sites for crushed rock to be 70 years. For East Central Scotland and West Central Scotland which each import into the Forth Valley, the supply is estimated at 24 and 36 years respectively.
- 8.14 The Mineral Products Association notes in its 2019 Annual Mineral Planning Survey Report that the 10-year average replenishment rate of new permitted reserves across the UK for crushed rock currently stands at 75% and for sand and gravel at 63%. It shows sales for land won sand and gravel in Scotland as being higher than newly permitted reserves between 2009 and 2018. For aggregates in Scotland sales were slightly less than the new permitted reserves figure.
- 8.15 The Forth Valley area imports sand and gravel and to a lesser extent, hard rock aggregates into the area and has a small number of consented hard rock sites. LDP policy will continue to support a landbank of construction aggregates in the area.

Dimension Stone

- 8.16 One small dimension stone quarry has an active consent to the north-east of Denny.



9. Summary

9.1 The key points are:

- National policy, including the National Planning Framework (NPF4) is supportive of renewable and low carbon energy development, in order to support a Just Transition to the low carbon economy.
- The Climate Emergency declared by Falkirk Council and the Climate Change Strategy requires the Council to take urgent action to address the risks of climate, change to meet stringent targets for reduction in carbon emissions.
- There are a number of energy generating developments across the Council area, including wind energy developments, domestic and non-domestic solar/PV and Energy from waste. There are undoubtedly opportunities to further exploit the potential for renewable and low-carbon energy generation, and opportunities for proposals such as geothermal energy will continue to be explored in the future, particularly as fuel poverty and requirement for heat networks continue to influence energy policy.
- Hydrogen continues to be an emerging technology, with delivery challenges around distribution within the gas network and viability.
- Electricity distribution infrastructure remains under pressure, with a backlog of connections, and a move towards prioritisation of viable projects and infrastructure upgrades.
- In terms of waste, the Scottish Government ban on biodegradable municipal waste (BMW) going to landfill is due to come into force on 31/12/25 as well as a target to send no more than 5% of all waste to landfill by 2025.
- There are sufficient mineral and aggregate resources available to meet demand. The effective Scottish Government moratorium on unconventional oil and gas remains in place.

Sources

- [National Planning Framework 4](#)
- [Falkirk Climate Change Strategy](#)
- [Falkirk Council Local Climate Impacts Profile \(LCLIP\)](#)
- [SP Energy Networks Distributions Heat Maps](#)
- [SG14 - Renewable and Low Carbon Energy](#)
- [Scottish Energy Statistics Hub](#)
- [ULEV Ownership data](#)
- [UK Renewable Energy Planning Database](#)
- [Scottish Government Heat in Buildings Strategy](#)
- [Applying the Waste Hierarchy: Guidance](#)
- [Waste Site Information](#)
- [Planning and Waste Management Advice 2015](#)
- [Making Things Last: a circular economy for Scotland](#)
- [Regional capacity calculations for Scottish Planning Policy \(SPP\) \(2018 data\)](#)
- [Stop, Sort, Burn, Bury?](#)
- [SEPA Waste Sites and Capacity Tool](#)
- [2019 Aggregates Minerals Survey for Scotland](#)
- [8th Annual Mineral Planning Survey Report](#)
- [Marine Scotland Maps MNPI](#)
- [British Geological Survey Onshore Maps](#)