

Infrastructure
Commission
for Scotland 

Scotland's Infrastructure Baseline

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Contents

Introduction	3
Transport	4
Energy	7
Water and Wastewater	12
Digital	14
Housing	17
Health	22
Education	24
Justice	25
Flood Risk Management & Coastal Erosion	27
Waste	29
Police, Fire & Emergency Services	30

Introduction

The purpose of this appendix is to provide an overview of Scotland's current infrastructure baseline for the various sectors set out in the Scottish Government's definition for infrastructure, which are:

- > the networks, connections and storage relating to enabling infrastructure of transport, energy, water, telecoms, digital and internet to permit the ready movement of people, services and goods;
- > the built environment of housing;
- > public infrastructure relating to the delivery of education, health, justice services and cultural facilities;
- > the systems and facilities needed for flood prevention and waste management; and,
- > the facilities required to enable the effective operation of Scotland's emergency services and resilience network.

It is not a detailed infrastructure asset register but rather a high level description of the key aspects of Scotland's current infrastructure which together contributes towards the delivery of the Government's purpose. The information provided is drawn from the source material listed at the end of each sector summary.

To enable the Infrastructure Commission for Scotland (the Commission) to fulfil its remit of "providing an assessment of the long term 30 year strategy for infrastructure to meet the further economic growth and societal needs of Scotland", it is important that it has a good understanding of the current situation. This baseline provides a starting point for that assessment.

It covers:

- | | |
|---|-------------------------------------|
| > Transport | > Housing |
| > Energy | > Water & Wastewater |
| > Health | > Education |
| > Digital | > Justice |
| > Flood Risk Management & Coastal Erosion | > Police, Fire & Emergency Services |
| > Waste | |

Transport

TRANSPORT – ROADS & TRAFFIC

The total length of Scotland's road network is around 56,400 km and comprises approximately 4,000 km of motorway and trunk road (7% of total length, of which 645km is motorway and 780 km dual carriageway), 7,400 of non-trunk A road (13%) and 45,000km of minor roads (80%). Around a third (approximately 19,000 km) is located in just three local authority areas – Highland, Aberdeenshire and Dumfries and Galloway. Scotland has 10.4 km of road per 1,000 people compared to 6.2 km across Great Britain as a whole – by comparison with other countries, Ireland has 24.3 km per 1000 people, Norway 20.3 km and Denmark, 13.1km.

In terms of usage, there are currently some 48 billion vehicle kms driven on Scotland's roads annually, of which 39% (19 billion vehicle kms) are on the motorway and trunk road network – which is just 7% of the whole network - and 48% (23 billion vehicle kms) on rural roads.

Private cars are the greatest users of the network (75% of distance travelled) followed by light goods vehicles (17%) and heavy goods vehicles (5%). Cycles represent just 1% of vehicles using the network.

Responsibility for the management of the motorway and trunk road network rests with the Scottish Government, which spends currently some £620m per annum on road maintenance and lighting. The local authorities are responsible for managing the non-trunk and minor road network, spending around £300m per annum on maintenance and lighting. The annual income to the local authorities from parking charges is currently just over £40m.

The cost of travel is a significant proportion of the average Scottish household budget, with some 14% of household spend being on travel.

TRANSPORT – RAIL

The total length of the current Scottish rail network is just over 2,800 km and is served by 359 stations. 28% of single track kilometres is electrified, primarily in Scotland's central belt. It is estimated that by the end of 2019, 75% of all ScotRail passenger journeys will be by electric traction. The current ScotRail franchise was awarded to Abellio in 2014 and covers all services in Scotland, apart from services to England provided by other operators (Virgin, LNER, TransPennine, Cross Country and the Caledonian Sleeper). ScotRail operate around 2,400 train services per day and delivers almost 98 million passenger journeys per year – this represents a 31% increase in passenger journeys over the past 10 years.

Most journeys originating in Scotland also have a destination in Scotland (some 91%) with journeys to the North of England (5.6%) and to London (2.3%) the next most common.

The ScotRail franchise is the biggest single contract let by the Scottish Government and is worth more than £7 billion over its 10 year life – April 2015 to March 2025.

TRANSPORT – BUS

The annual number of bus journeys made in Scotland is currently about 390 million, of which one third, (approximately 130 million journeys) are made under the National Concessionary Travel Scheme (some 1.4 million people in Scotland are entitled to concessionary bus travel). The average bus journey is around 7 km.

Bus operator revenue amounts to around £685 million per annum, of which £385 million (56%) is received via the fare box and a further £300 million received from local government and Scottish Government funding.

However, bus use is changing – over the past 5 years, journey numbers are down by 8%, bus fleet sizes are down by 10% and staff employed by bus operators down 2%; on the other hand, the vehicle kms travelled per annum is up 2%.

TRANSPORT – AIR

The annual number of air movements in Scotland is currently around 480,000, with some 29.5 million passengers using Scottish airports. Of these, 81% (or some 24 million passengers) were travelling to or from Edinburgh or Glasgow Airports. Over the past 3 years, there has been growth in passenger numbers of: 29% at Edinburgh Airport, 11% at Glasgow, -12% at Aberdeen and 34% at Inverness.

In terms of the most popular destinations and origins for international flights, the greatest number is to Spain (4 million passengers) which is more than twice as many as the next popular destinations The Netherlands (1.5 million), Ireland (1.3 million) and Germany (1.2 million).

60,000 tonnes of airfreight were carried in 2018, which represents an increase of 1.3% in the previous year. This is more than the amount carried 8 years ago – 45,000 tonnes in 2011.

TRANSPORT – WATER

Scottish ports currently handle more than 65 million tonnes of freight per annum and 25% of Scotland's total freight tonnage was by water.

Scottish ferry routes carry around 8.5 million passengers and 3.1 million vehicles per annum, of which around 6 million passengers and 1.5 million vehicles are on the subsidised ferry routes in the Clyde (3 million passengers and 700,000 vehicles), West Coast (2.6 million passengers and 700,000 vehicles) and the Northern Isles (300,000 passengers and 70,000 vehicles).

The Scottish Government provides a subsidy of some £240 million to support the ferry services in the Clyde, Hebrides and Northern Isles routes in recognising that these in many cases are "lifeline services". Among other things, this helps to project the Road Equivalent Tariff fares on the Clyde and Hebrides routes and to provide grant support for priority harbour projects on these routes.

TRANSPORT – CURRENT NUMBERS OF VEHICLES

Currently, there are some 3 million licensed road vehicles registered in Scotland, of which 83% are private cars, 10% light goods vehicles, 2% motorcycles, 2% agricultural vehicles and 2% other vehicles. Of these, 51% are fuelled by petrol, 48% by diesel and 1% are electric hybrid vehicles. Registrations of new electric and hybrid vehicles continues to grow – there were 7,500 registrations in 2017 which is 57% more than in 2016.

70% of adults in Scotland hold a driving licence, with 72% of households having access to one or more cars or vans; 29% of households have access to two or more cars or vans.

There were around 250,000 new car registrations in 2017, which is 8% less than in 2016 and 1% than in 2007.

TRANSPORT – MODE OF TRAVEL

The latest statistics show that people in Scotland are making less trips in 2017 than 10 years ago – 73% reporting travelling the previous day compared to 80% in 2007. [Note this correlates with the findings in the First Report of the Commission on Travel Demand (pub May 2018) which noted that "we make 16% fewer trips than in 1996, travel 10% fewer miles than in 2002 and spend 22 hours less travelling than a decade ago."] In terms of modal share of all journeys, car is still the most prevalent with 65% of all journeys; this is followed by walking 21%, bus 8%, cycle 2%, rail 3% and other 2%.

Of the 525 million journeys made by public transport in 2017, some 390 million (74%) were by bus and 100 million (19%) were by rail. High income and rural households are more likely to travel to work by car – in urban households, the main modes of travel are: Car (55%), bus (15%), walking (15%) and cycling (5%), where as in rural households, the main travel modes are: Car (80%), bus (6%) and walking (11%).

The average commuting time across Scotland by mode in 2017 was: Car 24 minutes, bus 39 minutes and walking 13 minutes. Currently, 30% of commuting journeys to work and 73% of journeys to school are recorded as being by public transport or by active travel.

TRANSPORT – ENVIRONMENT & EMISSIONS

Transport accounts for 37% of Scotland's greenhouse gas emissions, 68% of which is due to road transport. In addition to greenhouse gas, transport accounts for 58% of oxides of nitrogen, 18% of PM10 and 23% of PM2.5. However, around 2,600 Ultra Low Emission Vehicles were registered in Scotland during 2017/18, which represents an increase in registrations of 31% compared to the corresponding period in 2016/17.

TRANSPORT – FORECASTS

Over the next 20 years, Scotland's population is projected to grow by 6.5%, with the number of households increasing by 12%. It is considered this growth is due to the population living in smaller (and, by extension, more) households and because of the increasing proportion of the population which is retired.

From a baseline on 2014, it is forecast that by 2037, personal trips by car will have increased by 25%, with a corresponding 44% increase in goods vehicle trips. It is contended this growth in journeys will result in a 37% increase in vehicle miles overall.

With regard to public transport, it is forecast that by 2037, we will see a 7% decrease in urban bus passenger miles and a 5% decrease in inter-urban bus passenger miles. However, the number of rail passenger miles is expected to increase by 42% over the same period, i.e. from 2.4 billion passenger miles per annum to 3.4 billion.

TRANSPORT – ELECTRIC VEHICLES

According to the latest statistics (2019 Q1), there are nearly 12,000 registered Electric Vehicles (EVs)¹ in Scotland, which is about 0.4% of all registered cars and LGVs. Over the past twelve months there has been a growth of 50% in the number of registered EVs and growth of 130% over the past twenty four months. Also, the adoption rate of EVs in Scotland over the year has outpaced the rate for the rest of the UK (50% in Scotland compared to 37% rUK).

By August 2019 there were over 1000 public charge points available and about a third (35%) of ECV owners have access to at work charge points. It is estimated that the current EV fleet generates savings of around £4.3 million per annum in healthcare costs due to reduced air pollution – this equates to about 40 fewer lives lost. If the proportion of EVs was to increase to 10% of all registered vehicles, it is estimated this would result in healthcare cost savings of £158m and nearly 1,400 fewer lives lost.

Refs:

Transport Scotland

<https://www.transport.gov.scot/media/43316/transport-forecasts-2018.pdf>

Electric Nation 2018: Urban Foresight prepared for Transport Scotland

<https://urbanforesight.org/wp-content/uploads/2018/11/REP-TS-ELECTRIC-NATION-2018.pdf>

Scottish Transport Statistics No.37 – 2018 edition

<https://www.transport.gov.scot/publication/scottish-transport-statistics-no-37-2018-edition/>

Department for Transport Vehicle Licensing Statistics

<https://www.gov.uk/government/statistics/vehicle-licensing-statistics-2018>

¹ Includes all car and LGV models identified as being battery electric, plug-in hybrid electric, or range-extended electric.

Energy

The energy system is a complex mix of infrastructure at all scales and under a wide range of ownership structures. It includes the infrastructure used in extraction, transformation and transport of energy around the country as well as some of the large scale industrial energy users. It also links closely to several other major infrastructure groups including transport and buildings.

The key groups of energy infrastructure in Scotland included in this section are:

- > **Electricity Generation** including both renewables (primarily wind, solar and hydro) and non-renewable (including gas and nuclear)
- > **Energy networks** covering electricity and gas. These networks are used to transport energy from source to demand within Scotland and to facilitate the import and export of electricity and gas with the rest of the UK. These cover both transmission (bulk national transportation of energy) and distribution (delivery of energy to end users and connection of smaller, more local sources to the wider system).
- > **Oil and Gas infrastructure** associated with the extraction of oil and gas from the North Sea. This includes offshore infrastructure such as oil rigs and pipelines to transport oil and gas to onshore sites; and the infrastructure associated with developing, maintaining and finally decommissioning oil and gas fields. It also includes some of the major industrial sites associated with the refining and processing of oil and gas
- > **Heat** infrastructure includes both the production of heat and the delivery of the heat to end use. It includes a growing number of district and communal heating schemes (heat networks) as well as the infrastructure used in the production of heat.
- > **Energy Efficiency** has been designated as a national infrastructure priority in Scotland and covers end use-appliances which represent the final demand for energy, along with building insulation in the domestic and non-domestic sectors

In future these categories are likely to be extended to include **Hydrogen** production and the **Carbon Capture Use and Storage** infrastructure.

Current energy consumption in Scotland is significantly lower (by some 15%) when compared with the mid 2000s.

Around 51% of energy consumed in homes and businesses is for heating, with the majority of this supplied by natural gas; for

example, about 80% of homes in Scotland use gas as their primary heating fuel. Transport accounts for 25% of total energy demand, most of which is petrol and diesel for road transport. Electricity accounts for 24% of total energy demand, with around 80% of this being generated from zero or low carbon sources.

If it is to meet its net zero carbon goals, it is expected that Scotland will need to build on the progress made in decarbonising electricity production and to significantly scale up the decarbonisation of heat and transport. One way of achieving this would be through an uptake in electric heating and transport. This would allow the continued growth of low carbon electricity generation, combined with technologies such as smart storage heaters and heat pumps, to provide highly efficient ways of delivering low carbon end-use space and water heating. However, it is anticipated such an approach would place considerable extra pressure on the electricity system and on the network's ability to generate, store and deliver the energy necessary to meet peaks in demand. An alternative would be the use of low carbon gas such as Biomethane and hydrogen produced in low carbon ways. This may allow greater use to be made of the existing gas network infrastructure, however the costs and feasibility of largescale conversion to green gasses is as yet unknown.

In order to inform and develop its strategy, the Scottish Government prepared two indicative scenarios for Scotland's energy system which illustrate these two approaches. These formed part of the Energy Strategy, published in December 2017 which were consistent with the then prevailing climate change targets.

Community and local ownership of renewable energy is an important part of Scotland's energy strategy. At present there is 0.7 GW of capacity under local and community ownership with an additional 0.6 GW in the pipeline.

ELECTRICITY GENERATION

There is over 14 GW of electricity generation capacity located in Scotland. This compares to a peak electrical demand of 5.3 GW. The majority of that capacity is renewable, with 8.6 GW of wind capacity, 1.7 GW of hydro and 0.4 GW of solar. In 2019 the 588 MW Beatrice wind farm, located in the Moray Firth, became fully operational, and is now Scotland's largest offshore wind farm.

Peterhead gas fired power station is the last major fossil fuel generator in Scotland, providing up to 1.18 GW of generation capacity. There are two remaining nuclear stations at Torness and Hunterston, providing 2.3 GW of generation capacity. Hunterston is

expected to close by 2023 and Torness by 2030 due to the expiry of operating licences issued by the Office of the Nuclear Regulator.

In addition to the major power stations, there are a number of strategically important electricity generators which provide electricity and security of supply to remote and island regions. These include power stations at Lerwick, Kirkwall and Stornoway. The regional importance of these stations was illustrated in winter 2018/19 when a landslide damaged the electricity transmission network linking the Western Isles and Skye to mainland Scotland. A temporary repair to the transmission network required several days; however, electricity supplies were restored within several hours using the backup station at Stornoway.

Electricity generation capacity is privately owned and financed. Revenues come through a mixture of the sale of energy in the GB national wholesale electricity market, provision of technical services such as fast-acting reserve through GB wide 'ancillary service markets', and, for most renewable generation, subsidies provided at the GB level. These subsidies include Feed in Tariffs (FiTS) for smaller renewable generators and either Renewable Obligation Certifications (ROCs) or Contracts for Difference (CfDs) for larger stations.

However, the ROC and the FiT schemes have now come to an end for new entrants, and there is a budget cap on the CfD through the Control for Low Carbon Levies. There are no current plans for UK Government to allow further subsidies for onshore wind, hydro and solar with the exception of large scale wind farms on Orkney, Shetland and the Western Isles – subject to their bidding successfully for a CfD. It is possible that falling capital costs will bring forward 'subsidy free' wind and solar farms in the next few years, although there is significant uncertainty over the scale and viability of many projects without subsidy, or equivalent revenue stabilisation mechanism to reduce the upfront investment cost and risks.

ENERGY NETWORKS

Electricity and gas networks represent a major set of energy infrastructure. In terms of physical assets, Scotland's energy network consists of some 114,000 km of electricity cable, 98,000 electricity transformers and 27,000 km of gas pipeline. The electricity networks deliver around 31,000 GWh per year to consumers and are able to meet a peak demand of 5.3 GW. By comparison, the gas networks deliver 58,000 GWh per year and can meet a peak demand in Scotland of approximately 22 GW.

Both electricity and gas networks are broken down into transmission and distribution. The role of transmission is the bulk transfer of energy across the country, and transmission networks are designed to allow flexibility in the direction in which energy travels to reflect a variety of production, generation and demand scenarios. The role of distribution has traditionally been the delivery of energy from the transmission network to end users, but increasingly includes the connection of small and medium scale generators for electricity, and Biomethane producers for gas.

Electricity Transmission: The high voltage networks (132,000 volts and above) act as the bulk transporter of electricity across the country and are owned by 'Transmission Owners' (TOs). In Scotland, the TOs are Scottish and Southern Electricity Networks (SSEN) in the north and SP Energy Networks (SPEN) in the south.

Electricity Distribution: The low voltage networks that deliver electricity to homes and businesses are owned by 'Distribution Network Owner' (DNOs) who, in Scotland are also SSEN and SPEN. This differs to the situation in England and Wales where different companies act as DNOs and TO. Whilst electricity distribution networks were primarily designed to deliver electricity from the transmission network to consumers, they are increasingly being asked to do the job of connecting small and medium scale distributed generation, particularly wind and solar. This means electricity now regularly flows in both directions: up and down the distribution networks depending on the local balance of generation and demand. The need to reinforce the distribution networks represents a major barrier to the connection of more small and medium renewable generation across much of Scotland

Electricity System Operator: whilst the physical assets are owned by TOs and DNOs, both the long term planning of the transmission network, and the real time operation of the whole electricity system is the responsibility of National Grid Electricity System Operator (NGESO). This includes responsibility for ensuring that the system is secure day to day across Great Britain, a process which involves NGESO adjusting which power stations are operating and ensuring that there is enough back up in the right parts of Britain to cover important contingencies. NGESO is also responsible for recommending which major network investment projects should go ahead, and for ensuring that plans are in place to restore electricity supplies across Britain in the event of a "Black Start", where the whole of Scotland or Great Britain loses power.

Gas Transmission: the National Transmission System (NTS) consists of the high pressure pipelines connecting the major natural gas terminals, interconnectors, and Liquefied Natural Gas (LNG) terminals across Great Britain with major industrial gas consumers

and with offtakes to the distribution systems. Within Scotland a number of major pipelines connect St. Fergus with central belt Scotland and supply gas directly to Peterhead power station and to Grangemouth Oil Refinery. The transmission network links Scotland to England and supplies a gas interconnector pipeline to Northern Ireland. National Grid Gas Transmission is the Gas Transmission owners across the whole of Great Britain and also takes on the role of Gas System Operator, balancing the system on across each day.

Gas Distribution: The Gas Distribution Networks (GDNs) own and operate the Local Transmission System and gas distribution networks which consist of medium and low pressure mains. These networks deliver gas to homes and businesses. There are 8 GDN areas across Britain with one, Scottish Gas Networks (SGN) operating in Scotland. Recently there have been a number of small scale Biomethane sites connected directly to the gas distribution networks, there are currently 15 sites in Scotland injecting green gas directly in the local distribution network.

Statutory Independent Undertaking: SGN also own and operate five islanded gas networks in rural parts of Scotland. These are at Campbell Town, Oban, Stornoway, Wick and Thurso. Four of these are supplied with LNG trucked by road from the Isle of Grain LNG terminal in Kent. The Fifth, Stornoway, requires Liquefied Petroleum Gas (LPG).

Energy Networks are privately owned but form natural monopolies and are therefore heavily regulated by Ofgem. They are funded through price controls which represent agreement between Ofgem on behalf of Great Britain electricity and gas consumers and the network companies themselves. The revenue allowed by the agreements is then recovered from consumers' bills through industry standard charging methods. This leads to some network costs being incurred directly by electricity generation and gas producers, and on some directly on end consumer bill's via energy supply companies.

Transmission network charges on electricity generators in Scotland have traditionally been higher than those experienced elsewhere in Great Britain due to the high levels of generation in Scotland compared with demand, conversely network charges levied on consumers are lower than elsewhere.

At present, all network companies are part of an 8 year price control called RII0-1. Business plans proposals from Electricity Transmission, Gas Transmission and Gas Distribution are due with Ofgem in December 2019 ahead of the start of RII0-2 in April 2021, electricity distribution lags by two years.

The gross annual expenditure on operating and investing in Scotland's energy networks is around £1.2 bn – of this, approximately £1.0 bn is spent on the electricity network, with the remainder, £200 m, on the gas network.

OIL AND GAS

In 2018, the volume of oil and gas production in Scotland is estimated to have increased by 4.6% to 77.2 million tonnes of oil equivalent (mtoe), accounting for 82 per cent of the UK total. Around two thirds (53.1 mtoe) of total oil and gas production in Scotland is of crude oil and natural gas liquids (NGL), while the other third is natural gas production (24.1 mtoe).

For the UK Continental Shelf (UKCS) as a whole, over 43 billion barrels of oil equivalent have been extracted since production began in the late 1960's, and the Oil and Gas Authority estimate that there remain up to 20 billion barrels of oil equivalent still to be recovered, supporting the industry for at least the next two decades.

There is extensive infrastructure associated with oil and gas developments in the UKCS, including seabed and platform-mounted production facilities and networks of pipelines bringing oil and gas ashore for processing. The UKCS has around 500 installations (split between fixed and subsea production systems), approximately 5,000 wells and 3,300 pipelines. Scottish waters alone have over 100 platforms and around 13,000 km of pipelines.

Crude is piped to four Scottish terminals, Kinneil at Grangemouth, Sullom Voe in Shetland, Flotta in Orkney and Nigg Bay, while remaining crude (around a quarter of production) is loaded offshore directly from production or storage facilities to tankers.

The Forties pipeline serves around 80 fields in the central and Northern North Sea area and several in Norway, joining the Scottish mainland at Cruden Bay, 25 miles north of Aberdeen. Crude continues its journey from there to the Kinneil Terminal in Grangemouth where it is either refined at the refinery or transferred to tankers at Dalmeny on the Firth of Forth. The Forties Pipeline system is the largest offshore system in the UCKS by volume, with just under 400,000 barrels per day of liquids throughput in 2018, around 40% of all liquids production in the UKCS.

Crude from east and west of Shetland flows through pipelines to the Sullom Voe terminal on the North Mainland of Shetland, one of the largest oil terminals in Europe. Oil is then loaded onto tankers and sent to UK terminals or exported.

Gas in the Scottish section of the North Sea is largely piped to the St Fergus processing facility near Peterhead, where approximately 35% of all gas consumed in the UK comes ashore, before onward transportation to the National Transmission System (NTS). A number of key offshore pipeline systems enter via multiple facilities at St Fergus, including the Far-north Liquids and Associated Gas System (FLAGS) which connects to a large system of fields in the Northern North Sea, the Fulmar System, Scottish Area Gas Evacuation System (SAGE), the Britannia System and the Frigg System. The Frigg System accepts gas from the expanding Shetland frontier area via the 234km Shetland Island Regional Gas Export system, (SIGRE). Natural Gas liquids are separated from North Sea gas at the St Fergus terminal and transferred by pipeline to the Fife NGL Plant and Fife Ethylene Plant at Mossmorran for processing.

A potential new activity will be the use of depleted fields to store carbon dioxide captured offshore. St Fergus is the landing point for a number of pipeline systems which have now ceased operations and are therefore potential candidates for carbon export – the Atlantic & Cromarty System, the Miller Line, and the Goldeneye system.

Given the maturity of the basin, decommissioning activity is expected to pick up over the next decade, with an estimate spend of £15 billion. Of this, it is forecast that 48% of spending will take place in the central North Sea (of which approximately 90% of assets are in Scottish waters), 30% in the northern North Sea, and 7% west of Shetland. The remaining 15% is in the southern North Sea which does not include Scottish waters.

Heat

Around 80% of households in Scotland use mains gas as their primary heating fuel, with some 12% using electricity – the remainder rely on oil (6%) or other fuel sources (3%). Almost 20% of Scottish domestic consumers live in an off-gas grid area, which means they do not have access to mains gas. Orkney and Shetland are entirely off the gas grid as is almost 90% of the Western Isles. The highest proportion of off-grid properties on the Scottish mainland can be found in the Highlands (63% of properties) and Argyll & Bute (58%).

There is growing capacity of renewable heat generation. In 2017, there was 1.8 GW of renewable heat split across Biomass, Biomass CHP, Energy from Waste, heat pumps and solar thermal. In total this produced 4,568 GWh of renewable heat.

At present, around 30,000, or 1% of the total number of homes in

Scotland, are connected to district or communal heating networks, three quarters of the way towards an ambition of having 40,000 homes connected by 2020. Once all of these homes are connected, 1.5 TWh of Scotland's gross heating demand will be delivered by district or communal heating networks.

The Scottish Government announced in the 2019 Programme for Government that a Heat Networks Regulation Bill will be put before the Scottish Parliament. This will regulate the heat network sector to support and create controls in respect of the development of district and communal heating infrastructure in Scotland. Accelerating the deployment of heat networks will help Scotland to decarbonise its heat supply and will contribute to our climate change targets.

Decarbonising heat is recognised as one of the major challenges for the coming decade. Non-exclusive options include electrification through the use of highly efficient heat pumps, the continued use of bio-energy (including biogas injection into the gas grid), and the use of low carbon hydrogen produced from either renewable electricity or from Steam Methane Reformation (SMR) of natural gas combined with CCUS.

Energy Efficiency

In 2015 Scottish Ministers designated Energy Efficiency as a National Infrastructure Priority reflecting the fact that energy efficiency can help reduce greenhouse gas emissions, fuel poverty and help business remain competitive. Energy efficiency improvement is being driven forward through Energy Efficient Scotland which aims to improve the heat and energy efficiency of the Scottish Building stock.

Energy efficiency infrastructure is closely related to building infrastructure more generally and consists of efficiency measures such as loft and wall insulation as well as investment in efficiency appliances. The most common way to characterise the energy efficiency of the building stock is through Energy Performance Certificate (EPC) bands which rate a building from A to G with A being the most efficient.

For domestic buildings in 2017, 42% were EPC Band C or better up from 37% in 2015. Energy efficiency measures include the use of wall and loft insulation. 63% of Scottish houses have at least 200 mm of loft insulation and 60% have some form of wall insulation.

Statistics for energy efficiency of the non-domestic building sector are relatively new². A recent estimate of Scotland's non-domestic energy efficiency baseline suggests that around three quarters of non-domestic buildings have an EPC rating of E or worse and 5% have ratings of B or better.

Refs:**Annual Compendium of Scottish Energy Statistics May 2019:**

<https://www2.gov.scot/Topics/Statistics/Browse/Business/Energy/ACSES>

Energy Stats Database Sept 2019:

<https://www2.gov.scot/Topics/Statistics/Browse/Business/Energy/Database>

² A non-domestic EPC differs from a domestic one. The non-domestic EPC only contains one rating, which is based on projected carbon emissions rather than energy cost considerations.

Water and Wastewater

Scottish Water is responsible for providing water and wastewater services to around 2.5 million domestic (household) premises and 152,000 businesses in Scotland. It delivers the investment objectives set by Scottish Ministers for a defined regulatory period (it is nearing the end of the 2015-21 period and work is well advanced on objectives for the 2021-27 period and beyond), within the funding allowed by the water industry's economic regulator (the Water Industry Commission for Scotland - WICS) through the Strategic Review of Charges.

Scottish Water's overarching purpose is to deliver high quality clear, fresh drinking water, treat wastewater and help protect Scotland's environment – every day of the year. It owns around 240 water treatment works and delivers almost 1.5 bn litres of drinking water to customers each day through a 48,000 km network of water mains and distribution pipes. In addition, Scottish Water owns and maintains a sewerage network of some 53,000 km which carries almost 1 bn litres/day of raw sewage for treatment at around 1,800 waste water treatment works.

Scottish Water Investment Programme (2015-21)

The objectives set by Ministers for the 2015-21 period, reflected the following challenges:

- > Climate change – responding to the impact that climate change has on the quality and availability of water resources; managing the impact of increased levels of rainfall run-off going to sewer and stricter quality standards and limits in discharging wastewater back to the aquatic environment.
- > Demographic changes & resource availability – assessing the impact on supply of increased demand due to an expected growth in population and households over the next 15 years or so, coupled with the predicted population shift (from west to east); national and local level. In short, is there enough capacity in the system and is it in the right place to meet the projected demand?
- > Statutory obligations – meeting enhanced standards to comply with relevant statutory requirements.

In planning to address these challenges, Scottish Water indicated that its focus would be on improving the resilience of water supplies – in 2015 it estimated that it had the capability to continue to provide normal supplies in extreme events to only 15% of its customers; it has set in motion plans to improve this to 100% by 2040. In addition, it aimed to further improve the quality of drinking water to ensure 100% compliance with relevant standards by 2040,

compared to around 99.92% in 2018/19. Capital expenditure of around £600m per year has been undertaken to deliver these and the other objectives set out by Ministers.

In 2018/19, Scottish Water delivered £659.9m of investment across Scotland. Of this, £384.3m was made on capital maintenance of assets, which accounted for 58.2% of investment.

Planning for the Future

The process to set the investment objectives and agree funding for the next regulatory period (2021-27) is underway, and it is considering how Scottish Water can ensure it is equipped to face the challenges of the future. In line with Ministerial directions, a longer term perspective is being developed looking beyond the single regulatory period, reflecting the long term nature of the industry, its assets and the challenges it faces.

Future capital investment is expected to increase beyond the average levels of recent periods. Expenditure will be necessary to maintain and improve compliance with statutory obligations, but increasing expenditure will be required on capital maintenance as the stock of assets ages

The draft Ministerial directions build on those from previous regulatory periods and confirm the expectations on Scottish Water to maintain levels of service and improve standards of compliance, to support economic growth, to improve resilience, to address issues of surface water management and flooding and to respond positively to the significant implications of climate change for the water industry. In addition, Scottish Water has been directed to address the issues of asset maintenance through developing and implementing a strategic plan for the repair, refurbishment, or replacement of their assets.

The Water Industry Commission for Scotland published a series of Decision Papers throughout 2017/18, which set out its views on the key issues that will form its determination on the Strategic Review of Charges 2021-27. These papers cover topics such as the asset replacement challenge, capital maintenance and the introduction of an investment planning and prioritisation process. These papers, and the underlying work by Scottish Water, confirm that Scottish Water faces an increased investment requirement over the next and subsequent regulatory periods.

This will be needed to allow Scottish Water to continue improving drinking water quality, environmental performance and services to customers, alongside starting to address longer term challenges, such as asset replacement and climate change. Ministers have also

made clear their expectation that Scottish Water has a significant contribution to make in the overall response to the Climate Emergency and moves towards the Circular Economy.

Working with its regulators Scottish Water has identified the long term investment requirement should rise to £1bn-£1.1bn per year over the next 25 years. This total covers long and short term asset replacement, investment related to growth and the zero carbon requirement, and makes an appropriate efficiency assumption. Work is underway on the appropriate trajectory towards that level, the implications for charge payers and the appropriate level of government lending.

Ministerial objectives for the 2021-27 period are due to be finalised by June 2020. After which, the Water Commission for Scotland is expected to publish its Final Determination, which will confirm the funding available to meet the objectives for the next regulatory period.

Refs:

Scottish Water; Shaping the Future of your water and waste water service

<https://www.yourwater.scot/>

Ref: Scottish Water's Strategic Projections: A summary of our current thinking

https://www.watercommission.co.uk/UserFiles/Documents/2021-7_2018%20Decision%20Paper%201_Strategic%20Projections_1.pdf

Scottish Water Strategic Projections Consultation Document (2015-21)

https://scottishwater.citizenspace.com/future/yourwater/user_uploads/shaping-the-future-consultation-document-1.pdf

Scottish Water Annual Reports

<https://www.scottishwater.co.uk/en/Help-and-Resources/Document-Hub/Key-Publications/Annual-Reports>

WICS Decision Papers

https://www.watercommission.co.uk/view_Decision_Papers.aspx

WICS Methodology for the Strategic Review of Charges 2021-27

https://www.watercommission.co.uk/UserFiles/Documents/SRC21_Innovation%20and%20Collaboration_Methodology_WICS_amended.pdf

Strategic Review of Charges 2021-27: Methodology refinements and clarifications

https://www.watercommission.co.uk/UserFiles/Documents/VB2140%20WICS%20Methodology%20update_8.1.pdf

WICS 2018/19 Annual Return Commentary document

https://www.watercommission.co.uk/UserFiles/Documents/Website%20copy_Section%20G%20Tables%202018-19%20Resubmission%2009Aug19.pdf

Digital

The Scottish Government published its Digital Strategy in 2011 to extend connectivity, promote the digital economy, digitise public services and promote digital participation. In 2017, the Government published an updated strategy, building on the platform of success created by the original agenda. The strategy was designed for the whole of Scotland, not just the Government and places digital at the centre of everything we do – for example, supporting the delivery of inclusive economic growth, reforming public services and preparing children and young people for the workplaces of the future.

The revised Strategy describes a series of actions designed to help ensure that Scotland fulfils its full potential in the digital world. These include, among others:

- > Ensuring that every premise in Scotland is able to access broadband speeds of at least 30 megabits per second by 2021;
- > Urge UK Government and Ofcom to ensure that operators deliver 5G coverage to most of Scotland's rural areas before deploying to urban areas;
- > Use City and Region deals to maximise the role that digital innovations and infrastructure can play in delivering economic and inclusive growth
- > Ensure that Scotland's Critical National Infrastructure is secure and resilient against cyber-attack.

DIGITAL AND DATA INFRASTRUCTURE

Programme for Government Commitments 2018

Programme for Government (PfG) 2018 included a number of commitments to invest in data platforms, including:

- > Analytical platforms for public sector analysts and researchers to develop the insights we need to address complex problems and new data driven solutions
- > Continued investment in The Data Lab
- > Investment in the acquisition and development of datasets to enable research, giving the example of clinical imaging data
- > Making more of our data open for social and economic benefit

Programme for Government Commitments 2019

PfG 2019 contained a number of commitments to invest in digital and data infrastructure, listed below:

- > Digital Identity platform
- > Digital & Data Ethics
- > AI Strategy
- > Research Data Scotland
- > Broadband Infrastructure
- > 5G Infrastructure

In addition, a number of proposals to invest in digital and data infrastructure were developed but not adopted as part of the PfG, although the proposals continue to be developed for CSR. These include:

- > A public sector payments platform
- > More ambitious data ethics proposals, with substantial public engagement elements
- > An AI National Institute bringing together bringing together leadership, ethics and information governance, delivery expertise and adoption support for public sector and industry
- > Data Standards, fundamental to enabling use of data to support Sustainable, Inclusive Economic Growth this work supports the adoption of standards across the public sector
- > Supporting 5G work with Glasgow City Council to create a robust connectivity platform would provide a platform for further inward investment
- > Supporting better international connectivity and development of data including opportunities to link Scotland to existing or new transatlantic fibre crossing and promoting Scotland as data host location to attract a new investment into Scottish datacentre development.
- > Emerging work to bring together various public sector interests in relation to data-centric industries, identifying actions for how the public sector could support an ambition of an internationally connected Scotland that can increasingly become a green data hosting location. Initial consideration is being given to taking more strategic approach to how the public sector host its own data.

ANNEX – Programme For Government 2019-20; digital extracts

Digital Identity

Giving everyone a way to identify themselves online, in a secure way where their privacy and personal data is protected, will help to make sure our public services are easy to access from anywhere in the country.

We have completed nearly two years of research to understand how digital identity can improve our public services, explore the barriers people may face using it and conducted a successful proof of concept to test our technological choices. This year we will develop an early version to support Social Security Scotland benefits from 2020 as work continues on a full solution.

Digital & Data Ethics

However, we also recognise the challenges and concerns which must be addressed if we are all to benefit from these opportunities. In the coming year, we will develop principles and frameworks setting out how we will become an ethical digital nation. These will be clear statements of how Scotland will use digital, data and artificial intelligence to improve public services, boost productivity and drive inclusive growth in ways which protect privacy, enhance security and promote accessibility, inclusion and diversity.

AI Strategy

We will develop an AI strategy which will help to ensure that Scotland maximises the potential economic and social benefits of AI and sends a strong signal to the world about our ambition.

Research Data Scotland

Our new Research Data Scotland service will launch in spring next year. It will provide support for researchers to access and use data about people, places and businesses in a secure setting for public benefit and help to attract investment to Scotland.

Broadband Infrastructure

Our plan to provide access to superfast broadband to every home and business in Scotland is the most ambitious of any government in the UK.

We will award the contracts to deliver the R100 programme by the end of the year and begin deployment as soon as possible thereafter. We will continue to press the UK Government to ensure that Scotland does not lose out on its share of funding for UK digital connectivity activity.

5G Infrastructure

5G can help to take our digital connectivity to the next level, and could add £17 billion to our economy by 2034 and create 160,000 new jobs. Our 5G strategy will help to forge our digital future and make sure that we are ready to capitalise on this emergent technology.

In the coming year, we will establish the Scotland 5G Centre, to drive forward the strategy and create a Scotland-wide approach to 5G Rural First, building on the success of the Orkney project. The public sector has a key role to play in enabling 4G, 5G and other telecoms. We will develop rental guidance for public sector land and buildings to site infrastructure, focusing first on those owned by the Scottish Government. We will pilot a sustainable 5G transport corridor along an existing trunk road.

The involvement of commercial operators is also vital.

We will host a roundtable with mobile and digital providers and businesses to secure their commitment to delivery of the 5G strategy and maximise full fibre coverage throughout Scotland. We will continue to support them to invest here, particularly through the 10-year rates relief on new fibre infrastructure. We will launch a Full Fibre Charter for Scotland for mobile and digital providers benefiting from these measures to help us deliver inclusive growth and a fairer Scotland.

Last year, we awarded a contract for the delivery of new masts to boost the coverage of 4G in remote areas – work has begun to secure agreement with mobile operators to deliver the 45 new mast sites currently in the programme by 2022, supported by a £25 million investment.

EXISTING ACTIVITY

Broadband Infrastructure

£600 million has been committed to the Reaching 100% broadband programme, which will extend superfast access to every home and business. Procurement is ongoing and we will award contracts later this year. Delivery timescales will be confirmed once we have a supplier or suppliers in place.

We have led a multi-partner investment in the Digital Scotland Superfast Broadband programme, which has transformed access to broadband services and delivered new fibre across Scotland. Over 936,000 premises across Scotland capable of accessing fibre broadband as a direct result of the programme and deployment will continue into 2020.

Mobile Infrastructure

We are working to increase mobile 4G coverage while taking steps to ensure the foundations are in place for 5G services. Our Scottish 4G Mobile Infill Programme aims to push 4G coverage beyond commercial rollout. We are investing up to £25 million of public funding to deliver future-proofed, 4G mobile infrastructure to selected mobile 'not-spots'.

Our 5G strategy, published on 26 August, sets out our aspiration to position Scotland as a 5G leader and forward-looking digital nation. Together with The Scotland 5G Centre outlined in our latest PfG, we will provide the leadership required to ensure the foundations for the widespread development and deployment of 5G throughout Scotland are put in place

5G in Glasgow City Council

- > Ministers have agreed to provide £400k funding (50% match) to Glasgow City Council to support a Digital Connectivity programme which aims to deliver private investment in city-wide digital infrastructure that is 5G-ready, utilising GCC's assets (including buildings, street furniture and land). This will be achieved by:
 - > a radical re-engineering of GCC processes: rigorous redesign and development of all internal processes that are directly or indirectly involved in opening up its asset base for telecoms usage, and improving internal efficiency and cost effectiveness.
 - > Establishing a 'Digital Connectivity Interface' (i.e. a new dedicated team) within GCC as a single channel to the market for facilitation of all aspects of digital proliferation: includes asset management, the day-to-day operational aspects of digital infrastructure deployment in the City and strategic engagement with the industry.
- > GCC aims to have this in place by June 2020 and for the new interface to be self-sustaining (i.e. paid for by increased levels of rental revenue).
- > This robust connectivity platform would provide the digital foundations that could attract further inward investment in the city by providing large corporations and SMEs the connectivity that is essential for business, supports the city's innovation aspirations and will be a fundamental enabler of inclusive growth.

Refs:

Scottish Government Digital Strategy

<https://www.gov.scot/publications/realising-scotlands-full-potential-digital-world-digital-strategy-scotland/>

Scottish Government Programme for Government 2018/19

<https://www.gov.scot/publications/delivering-today-investing-tomorrow-governments-programme-scotland-2018-19/>

Scottish Government Programme for Government 2019/20

<https://www.gov.scot/publications/protecting-scotlands-future-governments-programme-scotland-2019-20/>

Housing

Number of Households

There are some 2.62 million dwellings in Scotland. Of these, 96% are occupied homes providing accommodation for 2.51 million households, 3% (83,000) are empty and 1% (25,000) are deemed to be second homes.

Since 2001, the number of households has increased by around 13%, whereas Scotland's population has increased by only 7%. This can be explained by an increase in the number of people increasingly living alone or in smaller households. For example, one person households are now the most common type of household - with almost 900,000 such households; two person households are the next most common, at around 850,000 households, with over 700,000 households with three or more occupants.

The changes that have been observed over time in household size and type are due partly to the way people live and partly due to Scotland's aging population – as older people are more likely to live alone or in smaller households. Also, a growing proportion of older people are living in their own home rather than in care homes.

House Building

At the start of the economic downturn (in 2007/08) the annual number of new home completions was around 25,000. Completions then fell year on year until 2012/13, when around 14,000 new homes were built before numbers began to increase again. The latest data available, for the year ending December 2018, shows that over 20,000 new homes were completed, the first time since 2008 that annual completions have totalled over 20,000 homes.

Distribution of Dwellings across Scotland

Over the past ten years, the number of households in Scotland has increased in each local authority area. The areas with the greatest percentage increase in households are Midlothian (an increase of 16%, some 5,300 households), Orkney (13%, 1,200 households) while the City of Edinburgh has seen the largest increase in terms of absolute numbers (16,700 households, an increase of 8%)

The areas with the highest proportion of vacant dwellings are the three Island Councils – Western Isles (8% vacant), Shetland (7%) and Orkney (6%) and; this compares with an all Scotland average of 3.2%.

Argyll & Bute is the area with the largest percentage of dwellings deemed to be second homes (7%) followed by the Western Isles (6%), Orkney (4%) and Highland (3%).

Distribution of Property in terms of Value, Type and Density

Council Tax bands give a proxy as to the relative value of property, with the cheapest falling into Band A and the most expensive in Band H. 60% of dwellings fall into the three lowest Council Tax Bands (Bands A to C) whereas around 13% are classed in the highest Bands (Bands F to H). The highest proportion of properties in Bands F-H are found in East Renfrewshire (34% of all dwellings) and the lowest in the Western Isles (2%).

The area with the highest proportion of detached dwellings is Western Isles (64%) with Glasgow City having the lowest (4%).

Across Scotland as a whole, there are 0.33 dwellings per hectare, however, this varies widely between areas. Highland and the Western Isles have the lowest density – an average of 0.05 dwellings per hectare, whereas Glasgow has the highest density (almost 18 dwellings per hectare) followed by Dundee (12.5 dwellings per hectare).

Housing Quality

In 2017, around 68% of Scotland's total housing stock was reported as having some degree of disrepair, however minor. Around 50% of properties required repair to critical elements, with some 28% in need of urgent repair. Around 5% had some extensive disrepair. Although these reported levels of disrepair remain unchanged from the previous year, there is, nevertheless, a long term trend of improvements in the overall quality of the housing stock.

Just over 90% of properties were reported as being free from damp or condensation – a 2 percentage point improvement on the previous year.

The level of compliance with the Scottish Housing Tolerable Standard remains constant with around 1% (or 24,000) of all dwellings falling below the Standard, which is prescribed by the Housing (Scotland) Act 1987 as the basic level of repair that a property must meet to make it fit for a person to live in. For example, a home may not be fit to live in if:

- > it has problems with rising or penetrating damp
- > it's not structurally stable (for example, it might be subsiding)
- > it does not have enough ventilation, natural and artificial light or heating
- > it's not insulated well enough
- > it does not have an acceptable fresh water supply, or a sink with hot and cold water

- > it does not have an indoor toilet, a fixed bath or shower, and a wash basin with hot and cold water
- > it does not have a good drainage and sewerage system
- > the electric supply does not meet safety regulations
- > it does not have a proper entrance
- > there are no cooking facilities – this does not mean the landlord has to provide a cooker, but there must be somewhere suitable for a tenant to install their own

Across the housing stock, compliance with the Scottish Housing Quality Standard has improved when compared to 2016 levels. Currently, around 40% of homes failed to meet the SHQS, down from 45% in 2016. The SHQS failure rate in the social housing sector was reported as 37% - this is a significant improvement in the situation in 2010, when a 60% failure rate in the social housing sector was reported.

To note:

- > only social landlords are obliged to ensure their tenants' homes meet the SHQS. Furthermore,
- > compliance is monitored by the Scottish Housing Regulator, which in 2017/18 reported 94% of social sector homes met the SHQS.

However, SHR and SHCS figures (the latter of which are reported here) are not directly comparable due to differences in the way data are collected. For example, the SHCS does not take abeyances and exemptions into account.

Finally, some 66,000 households (3% of the total) were living in overcrowded accommodation – with overcrowding defined as falling beneath the bedroom standard.

Energy Performance

The energy performance of Scottish homes is currently showing an upward improvement - In 2017, 42% of Scottish homes were rated as EPC Band C or better and 50% had an energy efficiency rating of 67 or better. This represents an increase from 39% in 2016 and 35% in 2014.

94% of homes have loft insulation of at least 100mm – an increase of 12 percentage points on 2010 levels. Moreover, 30% of lofts have been insulated to a higher standard (at least 300mm of insulation) compared to just 5% in 2010. Levels of wall insulation in 2017 have remained similar to 2016, with 60% of homes having

walls insulated. 75% of cavity wall dwellings are estimated insulated. Of all dwellings, 55% have insulated cavity walls

Currently, some 57% of gas boilers meet the minimum efficiencies specified by building standards – a 5 percentage point increase from 2016.

The average Scottish home is currently estimated to produce 7.0 tonnes of CO2 per year with the average model carbon emissions decreasing from 76 kg/m2 in 2016 to 74 kg/m2 in 2017.

Housing Planning Framework

The More Homes Scotland approach to the planning and delivery of new housing is focussed on providing the “right homes in the right place”. It includes all the actions being taken to increase the supply of every type of home and make the housing system work for people across Scotland, including the Scottish Government’s affordable housing supply programme.

Affordable housing has a vital role to play in meeting the Scottish Government aims for Scotland. Critically eradicating child poverty, which is measured after housing costs, homelessness, ending fuel poverty and increasing energy efficiency, and tackling the climate emergency.

Housing is expected to be fit for purpose for 60 years or more, and therefore decisions regarding the delivery of homes need to take into account current and future requirements.

To achieve this the Scottish Government work closely with local authorities in their role as strategic housing and planning authorities and require close engagement across the council functions and with key stakeholders and specialist groups to ensure a coherent approach to underpin investment decisions for people and place.

The 2001 Housing (Scotland) Act sets out the strategic role of local authorities in relation to housing provision and housing related services within its area. It sets out the role and function of Local Housing Strategies in setting out the local authorities policy for exercising its functions and co-ordinating the functions and activities of other organisations and persons concerned with housing provision and the provision of related services.

Specifically, local authorities must; when required by Scottish Ministers, prepare a Local Housing Strategy supported by an assessment of housing provision and housing related services in an authority’s area.

including in particular:

- > the nature and condition of the housing stock
- > the needs of persons in the area for housing accommodation
- > the demand for, and availability of, housing accommodation
- > the needs of persons in the area for, and the availability of, housing accommodation designed or adapted for persons with special needs
- > any other matter specified in the requirement

The Scottish Government provides detailed guidance for local authorities on the preparation of Local Housing Strategies, the current guidance was issued in 2014 revised guidance is due to issue later this year. The Scottish Government also issues guidance on the preparation of Housing Need and Demand Assessments which provide a key element of the evidence base to support Local Housing Strategies.

Local housing strategies and the HNDA assessments that support them are expected to be updated every five years.

The Town and Country Planning (Scotland) Act 1997 supplemented by the Planning (etc.) Act 2006, places a statutory requirement on all planning authorities to prepare a Development Plan for their area.

There is a requirement to make appropriate provision for housing development as set out in National Planning Framework 3 (NPF3) and Scottish Planning Policy. NPF3 aims to facilitate housing development to ensure a generous supply of housing land in sustainable places where people want to live, providing enough homes and supporting economic growth. Development Plans should be informed by a robust and credible Housing Need and Demand Assessment (HNDA). Scottish Planning Policy (SPP) sets out that in particular provision for new homes should be made in areas where economic investment is planned or there is a need for regeneration, or to support population retention in rural and island areas.

SPP requires the planning system to:

- > identify a generous supply of land for each housing market area within the plan area to support a housing land requirement across all tenures, maintaining at least a 5-year supply of effective housing land at all times
- > enable provision of a range of attractive, well-designed, energy-efficient, good quality housing, contributing to the creation of successful and sustainable places
- > have a focus on the delivery of allocated sites in action programmes, informed by strong engagement with stakeholders.

Overview

1. Local Housing Strategy (LHS)

- > Each local authority is required to develop and publish a five-year LHS, which should align locally with the development plan process which means they are not all developed at the same time nationally. The LHS sets the strategic policy for housing across all tenures, using evidence from the HNDA alongside other data and local knowledge. The LHS development process is used to understand, consider and address housing and housing related priorities for the next five years and beyond.
- > The LHS should show the Local Authority is mainstreaming Equalities and undertaking inclusive Consultation and has clear Strategic Priorities for the next 5 years.
- > The LHS should set out the Local Authority's policies on Housing Supply and Place-Making, Preventing & Addressing Homelessness, Independent Living & Specialist Provision, Private Rented Sector, Fuel Poverty & Climate Change and House condition.

2. Housing Need and Demand Assessment (HNDA)

- > An HNDA is undertaken in support of the Local Housing strategy, provides a, shared and agreed evidence base to inform both housing policy and land use planning. The HNDA is expected to consider both current and future housing requirement including estimates informed by demographic and economic projections of the number of additional homes needed to meet existing and future housing need and demand. The HNDA should be undertaken at a Housing Market area level and consider the flows, interactions and drivers within the housing system to assist policy development, including for new housing supply, management of existing stock the housing needs of specific groups and the provision of housing-related services. HNDAs are submitted to the Scottish Government according to the Local Authority planning cycle.

3. Housing Supply Target (HST)

- > The HST is a policy based assessment and is not part of the HNDA process.
- > The HST is calculated taking the HNDA as its starting point with policy and practical considerations taken into account to

reach a view on the level of housing that the local authority is planning to deliver over a defined period. The HST is presented as a total figure but is also required to be shown as a split between affordable and market housing. This is an important consideration in understanding the balance of future housing requirements and the interactions between the tenures to support delivery. Although there is a clear alignment between the HST and the HNDA estimates, the two are not the same and therefore are not expected to match.

4. Housing Land Requirement (HLR)

- > The HST is used to determine the HLR in development plans, which Scottish Planning Policy (SPP) states should be the HST plus a generosity margin of between 10 and 20 percent.

5. Strategic Housing Investment Plan (SHIP)

- > The Strategic Housing Investment Plan (SHIP) is an important document which sets out a local authority's strategic investment priorities for affordable housing over a 5 year period to achieve the priorities and outcomes set out in its local housing strategy. SHIPs are informed by Scottish Government Resource Planning Assumptions (RPAs) and revised annually to ensure effective forward planning of housing delivery and to inform Scottish Government investment decisions. Local authority SHIPs are submitted to the Scottish Government at the end of October each year for review.

6. Strategic Housing Investment Framework (SHIF)

- > The Scottish Government's Affordable Housing Supply Programme resources are allocated using the SHIF. The framework is a needs-based formula agreed with COSLA, that takes into account affordability, deprivation, rurality and homelessness. The SHIF applies to 30 of the 32 Local Authorities which receive their Resource Planning Assumptions (RPAs) from the Scottish Government's More Homes budget.
- > Edinburgh and Glasgow have management responsibility for the housing supply programme in their areas on behalf of Scottish Ministers and are therefore not part of SHIF.

7. Resource Planning Assumptions (RPAs)

- > RPAs are an indication of how much is likely to be available to spend in each Local Authority area, it is not a set budget allocation and is dependent on delivery through the SHIP process.

8. Strategic Local Programme Agreement (SLPA)

- > In non-TMDF authorities, SLPAs informed by the SHIP and agreed with local authorities are drawn up by the Scottish Government. They cover a three-year period and form the basis of individual RSL and Local Authority programme agreements and are the overarching AHSP working document at a local level.
- > Glasgow and Edinburgh (TMDF authorities) prepare their own three-year SLPA proposals, which are discussed and agreed with the Scottish Government and then used as the working document to manage the local programme and prepare programme agreements.
- > SLPAs are 'live' programme planning and management documents which are updated regularly to reflect progress and revisions to programmes.

9. Programme Agreement (PA)

- > Programme Agreements notify local authorities and RSLs of their annual grant planning targets over a three-year period. The PA confirms anticipated project costs, maximum grant allocation, units, tenure mix and type, grant submission date, start and completion dates.
- > If there is slippage within a Local Authorities Programme Agreement that cannot be picked up by other projects locally within the current financial year, the Scottish Government reserves the right to reallocate funds to a Local Authority that is in a better position to spend them.

Social Housing

Social housing in Scotland is housing owned and managed by Councils' and Housing Associations (also known as Registered Social Landlords). Around 600,000 tenants live in homes provided by social housing landlords.

The Scottish Housing Regulator regulates registered social landlords, and councils' landlord and homelessness services. Its purpose is to: protect tenants' interests and those of other service users, ensure that good quality social housing continues to be provided and maintain funders' confidence.

The Regulator collects information and reports on social housing landlords performance against the Scottish Social Housing Charter which sets the standards and outcomes that landlords should be achieving for their tenants.

Refs:

Scottish Govt: Scottish House Condition Survey 2017

<https://www.gov.scot/publications/scottish-house-condition-survey-2017-key-findings/>

National Records of Scotland: Estimates of Households and Dwellings in Scotland, 2017

<https://www.nrscotland.gov.uk/files/statistics/household-estimates/2018/house-est-18-publication.pdf>

Scotland's Population 2018 – The Registrar General's Annual Review of Demographic Trends 164th Edition

<https://www.nrscotland.gov.uk/statistics-and-data/statistics/stats-at-a-glance/registrar-generals-annual-review/2018>

Health

General

NHS Scotland (NHSS) is the publicly funded healthcare system in Scotland. It operates 14 territorial NHS Boards across Scotland, 7 special non-geographic health boards and NHS Health Scotland. In aggregate terms, NHSS, and its component Boards, currently own physical assets with a gross value of some £7.2 bn, comprising the physical estate, vehicles, medical equipment and information management and technology systems. In addition, NHSS and the Boards also operate assets which are not owned, for example PPP/PFI hospitals and health centres and leased vehicles; the gross value of these assets is estimated to be around £1.4 bn.

Number & Tenure of Assets

In overall terms, the total number of hospitals in the NHSS estate is 202 – comprising 37 Acute Hospitals, 39 Long Stay, 27 Mental Health, 12 Psychiatric, 65 Community and 22 “Other”. Of these assets, 78% are owned outright by NHSS and its Boards, 14% are occupied under a PPP/PFI arrangement, 6% are leased from a commercial landlord and a small proportion, 1%, are part of the Scotland wide “Hub Programme”.

Age of Estate

Approximately 19% of the total estate is relatively new / modern accommodation (i.e. less than 10 years old), which NHSS indicates is evidence of the significant capital investment in property assets over recent years. However, there remains scope for improvement and further investment in the estate in order to move away from old, poor quality and functionally unsuitable properties. For example, 22% of the estate remains over 50 years old though it should be noted that some older properties have been refurbished to modern standards rather than replaced.

Estate Condition

It is reported that, currently, 72% of the estate is in good physical condition (category A or B) with 25% requiring investment to improve its condition (category C) and 3% being unsatisfactory and requiring major investment or replacement (category D). Assets deemed to be in unsatisfactory condition are found in only 7 of the 23 Health Boards – Lothian, Grampian, Ayrshire & Arran, Highland, Dumfries & Galloway, Shetland and the Scottish Ambulance Service. However, all the Boards with assets deemed to be unsatisfactory have indicated that they have plans in place to either

dispose of, replace or improve these buildings over the next 5 to 10 years.

Estate Utilisation

Accommodation space has a direct relationship with cost. Therefore, NHSS aim to hold only that space which is needed to support the delivery and support of effective and efficient service delivery. Analysis of the information contained within each NHS Board's Property and Asset Management Strategy shows that approximately 83% of the NHSScotland estate is fully utilised, with some 5% of assts over crowded, 8% under used and 4% empty. It is noted that the under-utilisation of assets across NHS Highland & Orkney reflects the challenges in providing healthcare facilities in areas with relatively low populations.

Backlog Maintenance

The current backlog maintenance expenditure requirement is the base cost required to bring those parts of the existing estate which are currently not in satisfactory condition, back to Condition B (satisfactory). It is, however, only a singular reference to understanding the current state of the estate and should not be considered in isolation to other important indicators such as the physical condition, age, and functional suitability of available accommodation. The 2017 backlog maintenance expenditure requirement is reported as £899m, which is an increase of circa £12m since 2016.

The Annual Cost of Assets and Facilities Services

The revenue and lifecycle costs associated with asset ownership and use represent a considerable proportion of NHSScotland budgets; expenditure currently extends to around £700m per annum. These costs include:

- > Property Maintenance - regular day to day maintenance including revenue expenditure on backlog but excluding major capital expenditure on upgrading/refurbishment and backlog works)
- > Energy
- > PFI Facilities Management Costs (primarily Hard FM)
- > Rent and Rates
- > Cleaning
- > Waste disposal

Energy Performance

The gross annual cost of energy across the NHSS hospital estate in 2015/16 is currently just under £100 m. Although this represents a 2.6% decrease on the previous year, absolute energy consumption increased by 6.58% in the same period. This increase in consumption is thought to be due to an extensive spell of colder weather during the winter period.

Refs:

Annual State of NHS Scotland's Assets & Facilities 2017

<https://www.gov.scot/publications/annual-state-nhsscotland-assets-facilities-report-2017/>

Education

Schools

Responsibility for the delivery of education in Scotland, including the provision of the required schools, rests with the local authorities. There are 2,500 local authority schools in Scotland, comprising 2,016 primary schools, 358 secondary schools and 126 special schools.

The past 12 years has seen a programme of major investment in Scotland's schools with around 930 schools (some 37% of the entire estate) either built or substantially refurbished. As a result of this investment and reorganisation of the school estate, the proportion of schools in "good" or "satisfactory" condition has increased from 81.7% in 2012 to 88.3% in 2019. This means that in 2019 more than 90% of Scotland's pupils are attending schools deemed to be in good or satisfactory condition compared to 83% in 2012.

In 2018, there were around 335 schools classed as being in poor or bad condition. These were distributed throughout 26 of the 32 authorities - Inverclyde, North Ayrshire, Orkney, Shetland, South Lanarkshire and West Lothian reported that all of their schools were of good or satisfactory condition. The authorities with the highest number of poor/bad condition schools were Highland with 72 schools reported as such (42% of its school estate), Moray with 32 schools (71%) and Scottish Borders with 23 (37%).

Further & Higher Education

There are 26 Further Education Colleges across Scotland and 15 Universities.

Over the past ten years nearly £900 million has been invested in the college sector estate, allowing the construction of 15 new campuses, 9 major campus upgrades and 5 new specialist facilities.

The Higher Education Sector saw capital funding made available to it from Government fall from £41.3 million in 2018/19 to £37.5 million in 2019/20.

Early Years

There are approximately 1,800 existing public sector early learning facilities in Scotland, with a further 161 new build facilities planned as part of an expansion programme.

Refs:

Scottish Government: School Estate Statistics 2019

<https://www2.gov.scot/Topics/Statistics/Browse/School-Education/schoolestatestats>

Justice

Scottish Prison Service

Scotland's prison estate comprises 15 prisons of which 13 are publicly managed and 2 managed and operated by private sector companies under PPP contracts. The operating period for the PPP contracts is 25 years, with the first contract due to conclude in 2024 and the second in 2033.

While the majority of prisons in Scotland are less than 25 years old, there remain 4 which were built over 100 years ago.

Current and planned investment in Scotland's prison estate includes:

- > The Transforming Scotland's Care of Women in Custody programme which involves building facilities in the form of a new £57.1m National Facility for women in custody and a 24 place assessment centre in Stirling which is currently in procurement; and up to five Community Custody Units (CCU) across Scotland totalling £45m, two of which are currently in procurement (Glasgow and Dundee); and
- > Three new build prisons to replace HMP Highland (£80.5m), HMP Glasgow (£170m) and HMP Greenock (£75m), all of which are in preparatory status.

Crown Office & Procurator Fiscal Service (COPFS)

The COPFS' estate comprises 51 properties across Scotland. Of these, 8 are owned outright by COPFS, 18 are leased and 25 are "embedded" within other buildings – for example, where COPFS is located within a court operated and owned by the Scottish Courts and Tribunal Service.

The vast majority of the COPFS estate is standard office accommodation, of various types, age and configurations. COPFS also has 2 "data centres" (in Glasgow and Edinburgh), however, these properties present challenges in terms of their suitability in providing fit for purpose accommodation.

The capital value of the 8 properties owned by COPFS is estimated to be around £6.5m, however, one property – Crown Office, Chamber Street, Edinburgh – is valued at £4.4m, or approximately 67% of the value of the entire estate.

COPFS has developed a 10 year estate strategy (for the period 2016 to 2026) and it is expected that all owned and leased properties will be deemed as either condition A or condition B by 2019. Going forward, the strategy sets out a plan to provide an estate that is fit

for purpose and which fully meets the operational needs of the service. Key priorities are ensuring COPFS buildings are:

- > in the right place;
- > of the right size;
- > of the right configuration;
- > of the right condition; and,
- > delivered for the right price.

Scottish Courts & Tribunal Service (SCTS)

The STCS estate comprises 71 buildings – courts, vulnerable witness suites and offices – across Scotland. The estimated total value of the estate is currently some £470m, with valuations undertaken every 5 years – the next valuation is due in 2020.

Around 44% of the SCTS estate is pre-1960 in age of which 86% is historic and listed, being built pre-1900. This brings a substantial obligation in terms of maintaining a significant part of Scotland's built heritage, for example Parliament Hall in Edinburgh and Glasgow Sheriff Court.

The overall condition of the estate is estimated to be

- > Condition A – 2%
- > Condition B – 52%
- > Condition C – 46%
- > Condition D - <1%

In 2016, SCTS estimated that the cost of bringing the entire estate into Condition B would be around £40m.

Its estate strategy is similar top COPFS aiming to get buildings:

- > in the right place;
- > of the right size; and,
- > of the right configuration.

Current investment in the SCTS estate includes the £32.3m Inverness Justice Centre, which is in construction and planned to be operational in 2020.

Refs:

Scottish Prison Service Annual Report 2017/18

<https://www.sps.gov.uk/Corporate/Publications/Publication-6017.aspx>

SPICE Briefing: The Scottish Criminal Justice System – the Prison Service Feb 2017

http://www.parliament.scot/ResearchBriefingsAndFactsheets/SB_17-11_The_Scottish_Criminal_Justice_System-_The_Prison_Service.pdf

COPFS Estate Strategy 2016-2026

<https://www.copfs.gov.uk/images/Documents/Publications/Strategies/COPFS%20Estate%20Strategy%2030JAN17.pdf>

SCTS Estate Strategy 2016-2026

<https://www.scotcourts.gov.uk/docs/default-source/aboutscs/reports-and-data/publications/scts-estates-strategy-2016-26.pdf?sfvrsn=2>

Flood Risk Management & Coastal Erosion

Background

Flood risk and coastal erosion are projected to increase due to climate change. It is important to bear this in mind when planning the location of new infrastructure, and to improve the resilience of existing infrastructure. Sustainable funding models are required for measures that protect infrastructure, businesses and communities, including supporting flexible adaptation pathways.

It is increasingly recognised that it will not be possible to 'build our way out of' the threat from flooding and erosion. This is a particular challenge for existing infrastructure which must be made more resilient. The Property Flood Resilience Action Plan which was published in the autumn champions an approach that recognises this and aims at a more sustainable approach.

National Flood Risk Assessment

Scotland's National Flood Risk Assessment (NFRA) provides the foundation for a risk-based, plan-led approach set out in the Flood Risk Management (Scotland) Act 2009. The NFRA is founded on evidence on flood risk across Scotland and is publicly available via SEPA's webpage.

The NFRA estimates that there are currently 284,000 homes, businesses and services at flood risk in Scotland. This is more than twice as many identified to be at risk in 2015. Climate change will increase the numbers at risk by an estimated 110,000 properties by 2080. Also, at risk are 2,000 km of roads, 500km of rail network and 200,000ha of agricultural land.

Flood Risk Management Planning

The NFRA identifies Potentially Vulnerable Areas (PVA), for which actions to manage risk are developed through the Flood Risk Management Planning process.

For the purposes of Flood Risk Management Planning, Scotland is divided up into 14 Local Plan Districts (LPD). A lead local authority is assigned to each. Every 6 years, a flood risk management strategy and a local flood risk management plan is published for each LPD. These contain a summary of flood risk in each LPD together with information on catchment characteristics, a summary of objectives and actions, and how they will be delivered for each PVA.

Scottish Flood Defence Data Base

The Scottish Flood Defence Asset Database (SFDAD) provides flood risk management practitioners with access to information on Flood Protection Schemes and their associated defence assets within Scotland. SFDAD provides a record of where Flood defences exist, the level of protection provided and the general areas benefitting from these defences.

Funding for flood risk management

The funding arrangement as set out below was agreed by COSLA Leaders and Ministers in 2016.

Since 2008, the Scottish Government has provided £42 million per year through the local government settlement for new flood protection schemes. This is paid as part of the General Capital Grant with the flooding component earmarked with an agreed distribution. Until 2015/16, local authorities were able to apply for this funding on the basis of criteria agreed by the Scottish Government and COSLA.

In 2015/16, COSLA and Ministers agreed that the future funding of flood protection work should be based on a more sustainable funding agreement and reflect the legislative framework that was introduced in the Flood Risk Management (Scotland) Act 2009. From 2016/17 onwards the flooding capital grant has been allocated on the basis of a hybrid model whereby:

- > 80% of the grant (at an intervention rate of 80%) is allocated to large scale projects and distributed according to the prioritisation of flooding schemes and works set out in the 14 Flood Risk Management Strategies published in December 2015; and
- > 20% is allocated to all 32 councils to contribute to the other elements contained in the Strategies.

Across Scotland, 42 formal Flood Protection Schemes or engineering works have been prioritised for the period 2016-21. These have been prioritised based on a number of criteria including benefit/cost analysis and the social and environmental impact of such schemes. The total number of properties protected by these schemes or works is projected to be 10,000.

The majority of costs for two of the prioritised schemes, Grangemouth and Stirling, fall in the second flood risk management planning cycle (2022-28). In recognition of this, COSLA Leaders and Scottish Ministers agreed that a minimum of £42 million per annum of general capital grant is reserved for flooding over the next 10 years, not just the 6 year lifespan of the current Strategies.

Through this commitment, COSLA Leaders and Scottish Government Ministers have effectively 'locked down' the schemes that will be funded over the next ten years.

While the prioritised list is now fixed for the first 6-year cycle, SEPA is currently working with Scottish Government and local authorities to produce a prioritised list of proposed schemes for a second 6-year cycle for the period 2022/23 – 2027/28. However, the current agreement between COSLA and Scottish Ministers means that additional second cycle schemes can only receive a flooding capital grant when those in the first 6-year cycle have received their grant or re-profiled their expenditure due to delays in commencing the scheme.

Coastal erosion

Coastal erosion and coastal flooding are interlinked and must be considered jointly; both are set to worsen in the near future. Along with the coast changes which can happen suddenly and the damage can be irreversible.

The Dynamic Coast project establishes an evidence base of national coastal change via the National Coastal Change Assessment (NCCA). This assessment summarised the last 130 years of coastal change across all of Scotland's erodible shores and projected the

changes forward to 2050. The project identifies those areas which may remain, or may become, susceptible to erosion in the coming decades and require supplementary support. The identification of such susceptible areas and assets will enable the development of future management policies and adaptation plans that are robustly based on a strategic and objective evidence base.

Dynamic Coast shows that natural defences are playing an essential role along our coasts protecting £13bn of assets. If erosion rates continues at current rates, some of these assets will be eroding and £400m of assets will be threatened by 2050. Residential and non-residential buildings, railway, roads and clean water network as well as significant areas of runways, cultural and natural heritage sites are expected to be affected by coastal erosion.

Early evidence from the second phase of Dynamic Coast, which considers how sea level rise will impact our coast, shows that erosion rates are increasing. Protecting and maintaining beaches, dunes and saltmarshes can help adapt to climate change.

Funding for coastal erosion

Local Authorities currently fund coast protection works from within their own resources. However, where there is an associated flood risk and the works are included in the Local Flood Risk Management Plan, flood risk capital monies may be available.

Refs:

SEPA: National Flood Risk Assessment 2018

<https://www.sepa.org.uk/data-visualisation/nfra2018/>

SEPA: Scottish Flood Defence Asset Database

<https://www.scottishflooddefences.gov.uk/>

SEPA: Flood Risk Management Strategies

<http://apps.sepa.org.uk/FRMStrategies/>

BRE Group: The Property Flood Resilience Action Plan

<https://www.bregroup.com/buzz/the-property-flood-resilience-action-plan/>

Dynamic Coast: Scotland's Coastal Change Assessment

<http://www.dynamiccoast.com/>

Waste

The total annual amount of household waste generated in Scotland is in the order of 2.5 million tonnes, of which around 1.12 million tonnes (45.5%) is recycled and 1.11 million tonnes (45.1%) is sent to landfill. For the first time in 2017, the amount of waste re-cycled exceeded that sent to landfill and, in overall terms, the total amount of household waste generated in Scotland continues to decrease on a year on year basis – roughly by around 1.5% per annum.

In terms of the total amount of waste generated over the past decade in Scotland, construction and demolition waste accounts for 45% - by comparison, household waste accounts for around 25% of the waste generated.

The amount of waste incinerated in Scotland continues to increase – currently around 700,000 tonnes per annum is incinerated, representing an increase of some 70% on the quantity being incinerated at the early part of this decade. Further increases are expected as more energy generated from waste incineration plants comes on-line.

Wood waste is the largest category of waste incinerated in Scotland (around 70%, some 500,000 tonnes, of all waste incinerated), followed by animal waste and household waste. Most of the wood waste incinerated (around 48%) originates from outside Scotland - an almost tenfold increase since 2011 when imported wood waste comprised just 4% of the total. The amount of hazardous waste incinerated (sludge and liquid waste for waste treatment, chemical wastes and health care and biological wastes) has fallen significantly over the decade and is now around 140 tonnes per

annum compared to more than 12,000 tonnes per annum in 2011.

The carbon impact is a measure of the whole-life carbon impacts of waste, from resource extraction and manufacturing emissions, right through to waste management emissions. The carbon impact of household waste generated and managed in 2017 was nearly 6.00 million tonnes of carbon dioxide equivalent (TCO₂e) which is equivalent to around 1.00 TCO₂e per person. This represents a decrease of almost 1.00 million TCO₂e since 2011.

A key challenge for Scotland in the short to medium term will be complying with the ban on the disposal of all biodegradable municipal waste to landfill by 2021 due to an expected lack of capacity in Scotland to receive and treat material diverted from landfill. As a result, some short term exporting of waste is expected.

Key targets and strategies over the next 5 to 6 years include the following:

- > Minimum of 60% recycling rate for household waste by 2020
- > Ban on all biodegradable municipal solid waste to landfill by 2021
- > A 15% reduction below 2011 levels in tonnes of waste generated, of which a 33% reduction below 2013 levels in per capita food waste tonnage by 2025
- > A maximum 5% of waste to landfill by 2025
- > A minimum of 70% of all waste being recycled by 2025

Refs:

SEPA Waste Data

<https://www.sepa.org.uk/environment/waste/waste-data/waste-data-reporting/waste-data-for-scotland/>

Zero Waste Scotland – written submission to Parliament June 2017

http://www.parliament.scot/S5_Environment/General%20Documents/20170630_-_ZWS_additional_WE_on_Waste.pdf

Police, Fire & Emergency Services

Police

The Police Service of Scotland has evolved over the last 100 years or so in response to changing policing demands and occupies the second largest police estate (490k sq. m.) in the UK, with the widest geographical coverage (28,168 square miles). Police Scotland inherited a large, complex and ageing estate that despite improvements remains a legacy of operational structures that pre-date The Police and Fire Reform (Scotland) Act 2012.

Number and Tenure of Assets

Police Scotland's estate (2017/2018) extends to some 605 individual assets, comprising:

- > 349 operational properties (police stations & administrative offices);
- > 113 residential properties; and,
- > 143 telecommunication masts.

Operational properties include a small number of modern specialist facilities, including the Crime Campus at Gartcosh and the multi-use police property at Dalmarnock.

The value of the operational estate is £478m (2017/18). 80% of the operational estate is owned outright by the Scottish Police Authority, with the remainder leased. There is one PFI property – the training facility at Jackton; the contract is due to conclude in 2026.

During 2016/2017 Police Scotland conducted a consultation exercise on proposals to dispose of fifty-three properties that no longer met operational requirements. Forty-nine properties were initially approved for disposal as a result of the public consultation. A programme of disposals is underway.

Since 2013 a total of 2,700 sq. m. of co-locations between Police Scotland and partners (local authorities, Scottish Fire and Rescue, Scottish Ambulance Service, Crown Office and Procurator Fiscal Service) have been completed

Capital receipts generated since 2013 from the sale of assets includes:

- > £20.5m police station sales
- > £8.2m residential house sales
- > £2m miscellaneous sales (masts, police boxes etc.)

Age of Estate

A large proportion of the police estate (about 66%) pre-dates 1980, 33% pre-dates 1950 and a small number pre-date 1900. As a result, many of the older buildings lack the flexibility of modern workplaces with some being disproportionately expensive to occupy and maintain. Only a small part of the estate (around 20%) can be considered as comprising new, purpose built premises.

Estate Condition & Maintenance

Since 2013 41,000 sq. m. (of non-co-located) estate has been modernised.

A condition survey carried out in 2015 identified that 64% of the operational estate was in good or satisfactory condition and that 35% required major repairs or partial replacement. The backlog maintenance requirements was estimated at £278 in 2019. Since then the majority of priority maintenance has been deferred and the estate condition has deteriorated. The next survey is due in 2020/2021.

Police Scotland Estate Strategy 2019

The Scottish Police Authority considered and approved the refreshed Police Scotland Estate Strategy in May 2019. The Strategy reflects the Police Scotland commitment to partnership and creating a modern estate that can attract, retain and empower their people as well as enabling the use of technology to improve operational effectiveness.

Energy Performance

Police Scotland's first Carbon Management Plan (CMP) to support both SPA and Police Scotland was approved in October 2014. The CMP sets out the organisations ambitions to reduce carbon emissions to 25%* by 2020; and to 50%* and by 2030. By 2050 they will strive to be a carbon neutral police service (* based on 2013/14 levels).

Total emissions from all sources (energy for building, waste, business miles, fleet operations and water) amounted to a reduction of 21.5% between 2011/12 to 2017/18.

Scottish Fire and Rescue Service

The Scottish Fire and Rescue Service (SFRS) was formed in April 2013 by amalgamating the 8 legacy fire and rescue services into a single national organisation. The wide objective for SFRS was to deliver on this public sector reform of merger and integration to deliver efficiencies, whilst protecting this vital front line emergency service.

Part of protecting the front line over the past 6 years had been ensuring the 356 fire stations in place in 2013 and still in place today. These vary from modern facilities at some wholetime stations to a wooden shed with no facilities or running water in remote rural areas. Many of the smaller rural fire stations are simply not fit for purpose but the infrequent number of call-outs received and other calls on limited capital allocations makes it unlikely that they will receive capital investment in the medium term.

Capital investment

SFRS has 1551 vehicles in its fleet. This consists of 666 operational fire appliances including 431 pumping appliances, 28 aerial appliances, 42 resilience appliances and 165 other appliances. The other 885 vehicles are a mixture of cars and light vans.

The other significant areas of capital investment in SFRS are in equipment (including firefighter Personal Protective Equipment, ladders, cutting equipment etc) and ICT. SFRS does not share the high priority need for investment in new ICT systems that Police Scotland has but constant investment is needed to ensure its systems and hardware are up to date and fit for purpose.

Many of SFRS's assets (particularly vehicles and equipment) are operating beyond the manufacturers useful life. This was highlighted in the recent HM Fire Inspectorate (Scotland) report on fleet management. Whilst SFRS ensures that all of its assets are properly maintained and safe to use, there is a clear case for additional investment. The SFRS Long Term Financial Strategy (December 2017) highlighted that there was historic under-investment in fire and rescue assets by the legacy services resulting in a capital backlog of £389 million to address the condition and suitability of its assets.

Maintenance

In its May 2018 report, Audit Scotland stated that: To bring its property, vehicles and other assets across Scotland up to a minimum satisfactory condition and maintain them over the next ten years, the SFRS requires an average annual investment of £80.4 million (three years at £170 million and seven years at £42 million). To simply ensure that current assets do not deteriorate any further than the current condition would require an annual investment of £37.8 million over the next ten years but this would mean the SFRS's property, fleet and other assets do not meet the needs of a modern service

Audit Scotland went on to say that it is unlikely that funding will be available to achieve either of these options and that instead SFRS should focus on service Transformation to reduce the level of capital investment required. Many of SFRS's fire stations were put in place in a previous era and much of the industry and housing they were built to protect is no longer in place. At the same time, there are areas of Scotland that have seen significant expansion of population and where new or larger fire stations have not necessarily kept up. There is also a need to maintain cover in remote and rural areas to ensure SFRS can respond to emergencies wherever they occur in Scotland. As part of its Transformation programme, SFRS is carrying out an assessment of future risk and an Appliance and Station review to ensure its assets are in the right place to deal with those risks. Whilst this review should highlight that SFRS can operate with fewer fire stations, it will recommend a changing the footprint of these stations which in itself will require capital investment.

Police, Fire and Emergency Services

SFRS, Police Scotland and Scottish Ambulance Service have worked closely together on collaborating and sharing assets. However, such collaboration is challenging to achieve if there is not the capital funding available to move 3 separate not fully fit for purpose assets into a single purpose built facility. Seed funding and pulling the receipts from disposing of the old facilities is required to fully exploit the opportunities for asset sharing which are available.

Climate change and the objective to move to Scotland being Carbon neutral by 2045 is another significant factor in considering investment in SFRS assets. Continuing to move the light fleet over to electric vehicles when the current vehicles are scrapped and bringing fire appliances up to Euro 6 emissions standards would take £10.8m additional investment over the next 4 years. Bringing property up to zero emissions would take £100m of investment over the next 6 year period.

Refs:

Police Scotland Estates Strategy, May 2019

<http://www.spa.police.uk/assets/128635/556581/estatesstrategy2019>

Policing 2026

<http://www.spa.police.uk/assets/128635/408187/policing2026strategy>

Police Scotland Financial Plan/Strategy:

3 Years - <http://www.spa.police.uk/assets/128635/547126/threeyearfinancialplan201821>

10 Years - <http://www.spa.police.uk/assets/128635/547126/10yearfinancialstrategy>

Scottish Fire & Rescue Service: Fire Safety & Organisational Statistics 2017/18

https://www.firescotland.gov.uk/media/1316680/sfrs_fso_stats_2017_18.pdf

Audit Scotland: Scottish Fire & Rescue Service, An Update: May 2018

<https://www.audit-scotland.gov.uk/report/scottish-fire-and-rescue-service-an-update>

Report: Scottish Fire and Rescue Service annual audit plan 2018/19

<https://www.audit-scotland.gov.uk/report/scottish-fire-and-rescue-service-annual-audit-plan-201819>