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<b>Report To:</b>	<b>Environment &amp; Regeneration Committee</b>	<b>Date:</b>	<b>13 January 2022</b>
<b>Report By:</b>	<b>Interim Director, Environment &amp; Regeneration</b>	<b>Report No:</b>	<b>ENV005/22/EM</b>
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<b>Subject:</b>	<b>Net Zero Strategy – 2022/25 Capital Programme Implications</b>		

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## 1.0 PURPOSE

- 1.1 The purpose of this report is to advise the Committee on the implications for the draft 2022/25 Capital Programme and the pressures in connection with addressing elements of the Net Zero Action Plan which is currently in development.

## 2.0 SUMMARY

- 2.1 The Environment & Regeneration Committee approved the Council's Carbon Zero Strategy at its meeting in October 2021. Implementation of the strategy focuses mainly on carbon reduction in our building portfolio and fleet using alternative heat sources and fuels and builds on the success which we have achieved to date in our carbon tonnage reduction. A significant challenge in achieving these targets will be how the associated Action Plan and various interventions are funded.
- 2.2 A draft action plan was prepared by external consultants as part of the development of the approved strategy, this identified 6 buildings for consideration of boiler plant replacement to alternative heat source in the 2021/23 period. The Council's term contractors have identified a number of additional buildings where the age of the plant may require replacement to be considered in the same approximate timeline including a significant number of Inverclyde Leisure managed assets. The Council's Property Service will require to identify a number of buildings based on size / type to take forward more detailed assessment of the technical considerations in respect of replacement of gas boilers with lower emission alternatives.
- 2.3 A review of the Council's fleet replacement strategy will also be required to assess any opportunities / pressures to consider electric vehicles to meet the Government targets by 2025.

## 3.0 RECOMMENDATIONS

- 3.1 That the Committee notes:
- the report and information contained therein;
  - the proposed allocation as part of the draft 2022/25 Capital Programme;
  - the requirement to progress a number of test / pathfinder projects to better understand the technical aspects of implementation of lower emission heating systems and full scope / cost for typical building types / sizes to be funded from the balance of the remaining climate change earmarked reserve;
  - that a longer term costed strategy / action plan will be brought back to Committee following the 2022 summer recess.

**Stuart Jamieson**  
**Interim Director**  
**Environment & Regeneration**

## 4.0 BACKGROUND

- 4.1 The Environment & Regeneration Committee of 28<sup>th</sup> October 2021 approved the Net Zero Strategy for Inverclyde Council which was developed through external consultants and the input of a working group of Council Officers. The report noted that the strategy has been prepared as a public-facing document setting out Inverclyde Council's commitment to achieving net zero, and that sufficient detail had also been produced in schedules of works together with an assessment of the financial implications. It was noted that a detailed action plan would be presented to a future Committee.
- 4.2 In early December, the Interim Director for Finance and Corporate Governance will be providing the Members Budget Working Group (MBWG) with an initial picture of the 2022/25 Capital Programme taking into account formal decisions of the Council, known unavoidable pressures and estimates of Scottish Government Capital Grant over the period. One of the new pressures that will be reported is the need to consider the approach to replacement of gas boilers that are either at, or near end of operational life and likely to require replacement within the next 2 years. It will also be necessary to review the Council's fleet replacement strategy and identify any opportunities / pressures to consider electric vehicles (EV) particularly in the car/van fleet over the next 2 years.
- 4.3 A longer term costed strategy in connection with the wider Net Zero Actions is being developed and will be presented to a future Environment & Regeneration Committee following the 2022 summer recess which will also form part of the development of the 2023/26 Capital Programme.

## 5.0 INVERCLYDE NET ZERO STRATEGY - ACTION PLAN DEVELOPMENT

- 5.1 The agreed net zero strategy includes carbon reduction actions in 4 main sub-sections as below:
  - A. Energy Use in Buildings
  - B. Transport
  - C. Streetlighting and Water
  - D. Waste

### Energy Use in Buildings

- 5.2 Energy Use in Buildings includes the following actions (relevant element underlined below):
  - Creation of an Energy Engineer role to monitor, control and reduce energy use.
  - When fossil fuel (e.g. gas) boilers reach end-of-life, these will be replaced with lower emissions alternatives, such as heat pump technology.
  - Solar panels to be installed on selected buildings, where payback periods are accepted by the Council.
  - Replacement of gas catering equipment with efficient electric alternatives.
  - Further consolidation of Council estate, with closure of buildings where operations allow or replacement with modern efficient buildings in select cases.
  - Where achievable, any new and substantially refurbished buildings to be designed to Scottish Government requirements for Net Zero Public Sector Building Standard.
- 5.2 The consultant engineers appointed to prepare the net zero strategy and action plan were provided with the most recent external condition surveys for the Council buildings. That information includes and assessment of the building services and boiler plant life remaining. This information was used to inform a draft action plan, extracts from which are included as Appendix 1 to this report. This identified 6 buildings for action in the 2021/23 period.
- 5.3 Officers from Property Services have also sought an updated assessment of the main boiler plant across the estate from the existing term contractor dealing with the planned preventative maintenance / servicing including reactive call out response. This information is also incorporated within Appendix 1 and also includes an assessment of the Inverclyde Leisure portfolio which was not considered as part of the draft action plan noted in 5.2 above.

## Transport

5.4 Transport includes the following considerations (relevant element underlined below):

- Vehicle fuel choice and prioritisation towards electric vehicles where new/replacement vehicles are required in line with Scottish Government requirements (aiming for full electric van/car fleet by 2025 and all electric refuse collection vehicles by 2028);
- Fleet ownership models (purchase v leasing);
- Review electric charging infrastructure availability;
- Grey fleet considerations;
- Active travel and public transport considerations.

5.5 The draft action plan included a number of proposals in respect of replacement of car/van fleet with electric vehicles in the next 2 years ahead of the Scottish Government targets. Officers from Environmental Services will require to assess any opportunities / pressures to address these and the extra over cost in comparison to the allowances within the current vehicle replacement funding model / asset plan.

## 6.0 TECHNICAL CONSIDERATIONS / BARRIERS / RISKS

### Energy Use in Buildings

- 6.1 The Council has limited experience of the implementation of heat pump technology. This approach to heat source is still relatively new and an evolving area of activity. To date the Council has employed this technology in only a small number of new build projects including children's homes, one early years centre and a small changing pavilion. The units within these facilities have generally operated satisfactorily to date although there has been an initial learning curve in respect of the maintenance arrangements and operational parameters.
- 6.2 Many crucial aspects of heat pump design are related to the low and medium flow temperatures of these systems, such as sizing and controls. Unlike traditional solutions which operate at anywhere between 60 to 85 degrees, any flaws in the design of a heat pump system will result in more noticeable consequences, such as higher electricity bills and lower levels of comfort. This is why extra attention is needed when calculating pipe sizing and flow rates. Lower flow temperatures and lower temperature differentials for heat pump heating systems mean that more water going through the pipes is needed to ensure sufficient heat transfer. Correctly calculating the system will ensure that the pipework and heat emitters such as radiators will be appropriately sized so that a space is warmed to the desired temperature. Heating solutions designed to run with lower flow temperatures need to be on for longer, which is why setting up the controls in the correct way is paramount to enable the system to perform efficiently.
- 6.3 It should also be noted that most heat pumps in the market operate with lower temperatures, which means that a back-up heater (direct electric immersion heater) is required in the hot water cylinder to store hot water above 60°C – the point at which legionella bacteria is killed. However, as noted in 6.1, the continued development of the technology is now seeing products that use natural refrigerants which can produce higher system temperatures.
- 6.4 The background provided in 6.2 and 6.3 above outlines the technical considerations when designing heat pump systems. These technical considerations become even more important in retrofit situations where, in normal circumstances where we would be looking to simply replace a gas boiler like for like, there is a higher chance of the associated hot water plant and existing distribution pipework / heat emitters being suitable for retention (subject to overall system condition/age). When considering the replacement of a gas boiler system with a heat pump in an existing building, there will be a need for an appropriate external consultant assessment into the design and implications for a wider replacement of associated plant, distribution systems and heat emitters.

6.5 There are a number of other technical considerations in respect of retrofitting heat pumps to existing buildings:

- Air source heat pumps generally require to be situated externally, either on the roof / external wall of a building or in a separate fenced compound. This can present challenges around the suitability of existing structures / available space for siting in restricted sites / planning considerations where involving listed buildings or those in conservation areas.
- The potentially lower operating temperatures outlined in 6.2 above requires careful consideration in retrofit situations where the existing building fabric efficiency / performance may be a factor in the effective operation of the system. In all circumstances (new build or retrofit) it is obvious that the more effective the building fabric then the less effort required to effectively heat / service the building and this will be reflected in the annual running costs. There can also be limitations in terms of possibilities for improving fabric in relation to listed buildings and those in conservation areas. The potential capital cost of fabric upgrades including the disruption to normal operation of the facilities during the course of the works is also a significant factor/ consideration.

6.6 It is proposed to progress a number of pathfinder projects through appointment of the necessary external design consultants who will be engaged to prepare detailed assessment of the scope and cost of implementing heat pump or other lower emission heating systems in a proportion of the buildings outlined in Appendix 1. This work is required to better understand the extra over cost and any technical barriers of implementation as opposed to the previous more straightforward approach of direct gas boiler replacement.

### Transport

6.7 The vehicle replacement programme to date has maximised the opportunities for external funding support in terms of charging infrastructure provision and electric vehicle upgrade with circa 70% of the smaller fleet vehicles already addressed. The remaining car/van fleet includes slightly larger vehicles for which the current market EV options are limited. There are a number of other factors / considerations such as location (where vehicles are based / operated from) in relation to charging infrastructure and/or where vehicles are operated from home locations. Officers from Environmental Services will assess the options for further EV provision and a more detailed assessment of the extra over costs in relation to the existing funding model / asset plan provision.

## 7.0 IMPLICATIONS

### 7.1 Finance

#### Financial Implications:

#### One off Costs

Cost Centre	Budget Heading	Budget Years	Proposed Spend this Report	Virement From	Other Comments
Climate Change EMR	Payment to other bodies	2021/23	£50K		Progression of detailed proposals for lower emission alternatives on a proportion of the assets listed in App.1
Capital Programme	Core Property / Vehicles AMP	2021/23	£350K		Allocation to assist the extra over costs of lower emission alternative heat source projects / EV transport subject to development of detailed proposals.

Annually Recurring Costs/ (Savings)

Cost Centre	Budget Heading	With Effect from	Annual Net Impact	Virement From (If Applicable)	Other Comments
N/A					

**7.2 Legal**

None.

**7.3 Human Resources**

None.

**7.4 Equalities**

Equalities

(a) Has an Equality Impact Assessment been carried out?

	YES
X	NO – This report does not introduce a new policy, function or strategy or recommend a substantive change to an existing policy, function or strategy. Therefore, no Equality Impact Assessment is required

(b) Fairer Scotland Duty

If this report affects or proposes any major strategic decision:-

Has there been active consideration of how this report’s recommendations reduce inequalities of outcome?

	YES – A written statement showing how this report’s recommendations reduce inequalities of outcome caused by socio-economic disadvantage has been completed.
X	NO

(c) Data Protection

Has a Data Protection Impact Assessment been carried out?

	YES – This report involves data processing which may result in a high risk to the rights and freedoms of individuals.
X	NO

**7.5 Repopulation**

None.

## **8.0 CONSULTATIONS**

- 8.1 The report has been prepared in consultation with the Interim Director for Finance & Corporate Governance.

## **9.0 BACKGROUND PAPERS**

- 9.1 Greenhouse Gas Emission Reporting and Achieving Net-Zero – Report to Environment & Regeneration Committee (Item No.5) – 28<sup>th</sup> October 2021.

Property Identified from Condition Surveys	Year	Capital Cost	Additional Capital Cost for Net Zero Solution £	Comment
McLean Museum & Art Gallery - Replace Boiler with Air Source Heat Pump	2023	£255,500	£220,500	Category A Listed building.
Inverkip Primary School - Replace Boilers with Air Source Heat Pumps, use electric DHW & replace Catering Equipment with electric	2023	£192,500	£157,500	Within conservation area.
Port Glasgow Municipal Buildings / Port Glasgow Library - Replace boilers with heat pump	2023	£130,900	£85,900	Category A Listed building.
King George V Bowling Club - Replace Boilers with Heat Pump	2023	£25,400	£15,900	No lease in place.
South West Library - Replace Boilers with Heat Pump	2023	£71,800	£36,800	
Whinhill Golf club - Replace Boilers with Heat Pump	2023	£50,000	£42,000	Now being managed through Inverclyde Leisure.
		<b>£726,100</b>	<b>£558,600</b>	Business as usual cost = £167,500
<b>Property Identified via Term Contractor</b>				
All of the 6 properties listed above also identified by term contractor				
Greenock Crematorium				
Devol Centre				
Kilmacolm Library				Domestic size installation.
Gourock Library				
Wellpark Centre				
Wemyss Bay PS				
Units 5 and 6 Kingston Business Park				Unit 6 Leased
32 Nicolson Street (I-Youth Zone)				
4nr former tied houses				Domestic installaitons.
<b>Property Identified via Term Contractor (no plan to address)</b>				
34 Nicolson Street				To be declared surplus.
Neil Street Children's Home				Will be declared surplus on completion of Crosshill Children's Home.
Fitzgerald Centre				Will be declared surplus on completion of new Learning Disability Hub.
<b>Property Identified via Term Contractor (Inverclyde Leisure)</b>				
Gamble Halls				Category B Listed building.
Ravenscraig Stadium				
Boglestone Community Centre				
Gourock Outdoor Pool				
Greenock Sports Centre				
Lady Octavia Sports Centre				
Ravenscraig Sports Centre				
Port Glasgow Pool				
George Road Pavilion				