1.0 PURPOSE

1.1 The 2020 Strategy review, our 3rd EES, reports GWHA's progress towards the SG's 2020 EESSH[1] targets, outlines technical challenges associated with GWHA stock profile, and sets out principles for optimising compliance with the anticipated 2032 EESSH2 through targeted feasibility studies, options appraisals, and investment plans.

1.2 A practical approach to optimizing the energy efficiency of our properties has been adopted to ensure a programme that is in the best interests of current and future tenants and represents best value for GWHA.

2.0 CONTEXT

2.1 In 2012 the Scottish Government (SG) launched the EESSH with compliance reporting from 2015/16 in conjunction with the energy targets in the Scottish Housing Quality Standard (SHQS). The final report on compliance with EESSH (1) will be May 2021.

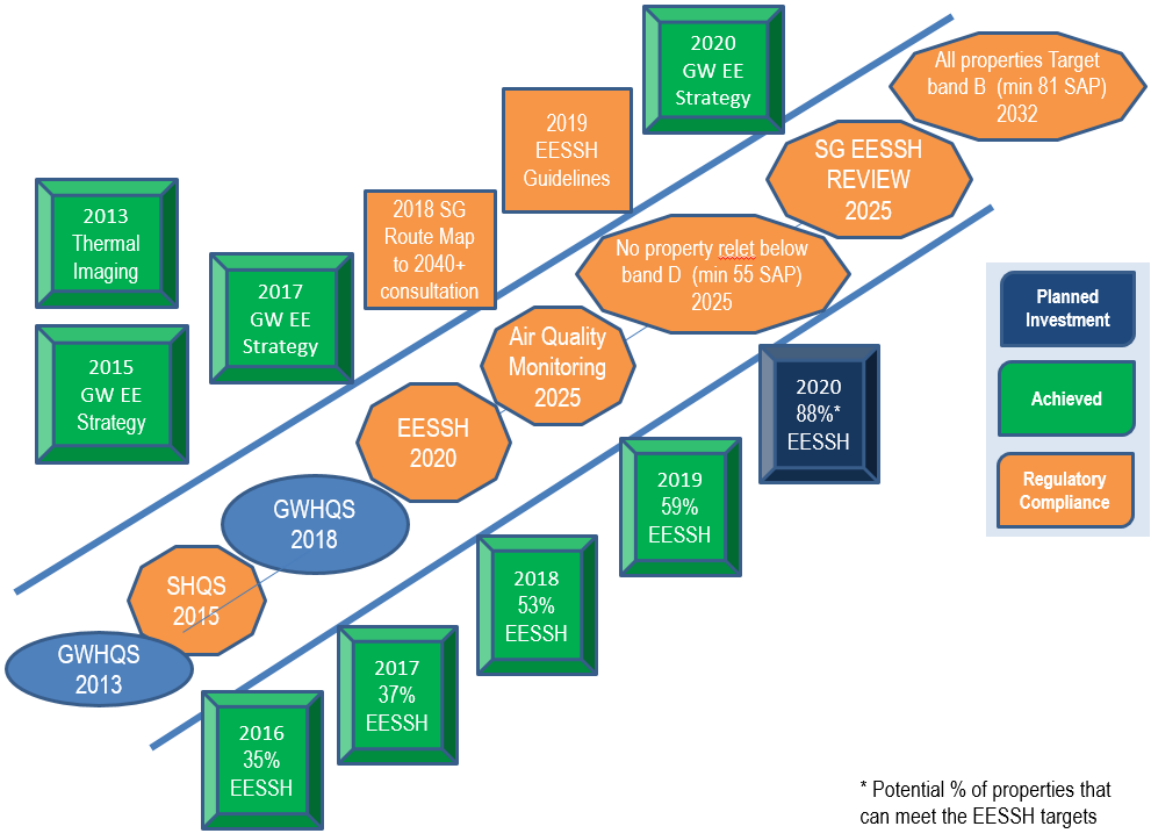
2.2 In 2017 the SG published Scotland's Energy Efficiency Plan (SEEP), a coordinated programme to improve the energy efficiency of homes and decarbonise the heat supply.

2.3 The SG has launched a route map towards an Energy Efficient Scotland[2] with two main objectives:

2.3.1 Removing poor energy efficiency as a driver for fuel poverty

2.3.2 Reducing carbon emissions through more energy efficient buildings and decarbonizing our heat supply.

2.4 Primary driver for Social Housing set out through EESSH 2 milestones:



[1] Energy Efficiency Standard for Social Housing (1)

[2] Energy Efficient Scotland: route map May 2018

3.0 CURRENT PERFORMANCE

3.1 Performance is record through Energy Performance Certificates, using a Standard Assessment Procedure (SAP) See Appendix 1.1A, Understanding SAP.

3.2 The following table provides a summary of EESSH performance against property types:

Stock Profile **(2019 Q3)** 1487 Properties	Tenement (Pre 1919)	Other Flat / Maisonette	Multi-Storey	Deck Access	House
ARC property definitions	674	117	370	324	2
Average EPC	D	D	C	D	C
Average % that Pass EESSH	55%	60%	94%	70%	100%

4.0 STRATEGY

4.1 GWHA's strategic vision is informed by both the context of regulatory compliance and PESTLE framework; and a comprehensive understanding of our stock profile. This knowledge base reflects appreciation for the works already undertaken to Improve Building Efficiency, an understanding of the available technologies, and an appreciation for the technical challenges presented by our mixed tenure stock profile.

4.2 This strategy links with GHWA's Asset Management, Anti-Poverty, Rent Setting strategies and policies, see "Fuel Poverty", section 5 for further policy alignment.

4.3 Reflecting GWHA's vision, values and corporate strategy, our response reflects and enhances the three principles set out in the SG's 2017 SEEP, in a coordinated service approach in step with the SG 2032 ambition, with additional GWHA driver to assist targeted improvement and reflecting our understanding of the buildings.

4.4 **Reduce Fuel Use and Fuel Cost**

4.4.1 Through partnerships with energy advisors and direct support from our Welfare Rights team GWHA will seek to promote measures that actively support tenants to reduce energy use in their homes and will explore solutions that help reduce the impact of fuel poverty and the marginalisation of vulnerable households in the energy market. Examples may include:

- Exploring opportunities / access to grant funding for more energy efficient appliances, or soft furnishings such as carpets / curtains to assist heat retention, advice on optimum heating settings, advice on heating "behaviour" adjustment / best practice, note c£11k Grant award EAS 2019.
- Sign-posting to Citrus / G-Heat 3rd party advisors for advice and assistance with fuel tariff switching.

4.5 Improve Data Quality

4.5.1 Staff knowledge and understanding of GW stock profile allows for critical technical review of the SAP data held. This learning and data intelligence enables targeted data validation and improvement towards increased EESSH performance accuracy. Summary examples identified to-date include an assessor's presumed absence of insulation, and the incorrect assessment of wall, ground, or roof construction.

4.5.2 The EESSH SG Guidance for Social Landlords (Rev March 2020, ref 5.10) acknowledges that accepted "margins of error" in like for like EPC assessments are possible, planned initiatives include evaluating "out-with tolerance" inconsistencies; and demonstrating enhance compliance with targeted EPC or SAP modelling.

4.5.3 Onus is given to landlords to evaluate property performance in a range of methodologies, currently GWHA ARC performance utilises EPC, which in future may be complemented by detailed property and performance modelling.

4.5.4 Performance modelling includes cloning from similar property architype and primary fuel which is used to assist investment planning.

4.5.5 Initiatives to reduce % properties with a representative cloned SAP value have demonstrated improvement in SAP where cloning is undertaken against properties more closely matched in configuration and construction type. Notional average SAP performance increase of +10, with impact 74% properties assessed passing EESSH.

4.5.6 SAP values and EPC certificates have a 10yr validity[3]. The number of valid certificates is a SHR reportable figure. Planned initiatives include business case and specialist consultant appointment to undertake property surveys and SAP 2019 modelling for EPC due to expire over coming years.

4.5.7 Pacing the initiative to reflect rollout of 2019 SAP methodology will maximise the anticipated reduced carbon for properties with electric as primary fuel.

4.5.8 Opportunistic renewal of expired EPC at void stage will continue to ensure EPC provision as part of compliance with landlord's responsibilities at point of a new tenancy.

4.5.9 Overall increase in reportable data will be complemented by EPC issued and modelling undertaken as part of energy efficiency related investment works such as heating renewal, window replacement and other works identified as being for purposes of EESSH compliance as deemed appropriate.

4.6 Improve Building Efficiency

4.6.1 This strategy recognises a current projected maximum EESSH performance level of 88% compliance and adopts the spirit of the EESSH 2032 - maximising SAP attainment towards band B; with a view to progressing energy efficiency of properties as far as possible through appropriate investment.

4.6.2 EESSH 2 stipulates that "no social housing should be re-let[4] below EPC Band D from December 2025, subject to temporary specified exemptions". For properties at risk of being subject to this criteria initiatives are planned for individual property level analysis in conjunction with specialists to develop feasibility and options appraisals. GSWF[5] have ongoing representation to Scottish Government in respect to impact of this condition when applied to pre1919 tenement stock. As a last resort, an alternative tenure strategy and/or disposal will be considered for non-compliant properties, in line with regulatory requirements and GWHA acquisitions & disposal framework.

4.6.3 This strategy requires use of both traditional investment and asset management mechanisms, combined with an open attitude to exploring through options and risk assessments non-traditional / new technologies that will be required to meet the ambitious SAP band B targets. SG published[6] reasonable energy efficiency measures, these have been evaluated and compared to stock profile to inform suitability, see Appendix 1.3A.

4.6.4 A study undertaken to shape this strategy has evaluated the indicative cost of running both gas and electric heating systems for a year, with a comparable evaluation undertaken for the same notional properties with a SAP improvement, +5 GAS with savings equal to £103/property/year and Improvement of +4 Electric with savings equal to £114/property/year. Appendix 1.4A outlines indicative whole life energy savings against proposed investment

[3] https://www.gov.scot/publications/energy-performance-certificates-introduction/
[4] No impact on existing tenancy agreement, comes into effect at void stage.
[5] Glasgow and West of Scotland Forum (correct as at Feb 2020)
[6] 2019 EESSH Guidance for social landlords

initiatives with a view to demonstrating positive social impact of investment against the drivers noted at 4.4 above, and section 5 below. Outlined investment of £7.1M has estimated £59kpa utility savings for residents.

4.6.5 GWHA will seek opportunities to learn from early adopters of new technologies / innovative approaches to energy improvement works (an example of which being John Gilbert Architect's investigation in to the unexpected and detrimental effects of retrofitting insulation to tenement properties).

4.7 Fuel Specification

4.7.1 New individual gas central heating boilers have a projected Life Cycle of 15yrs, with Gas "fuel" systems still currently considered to be the most cost effective solution with respect to installation and running cost.

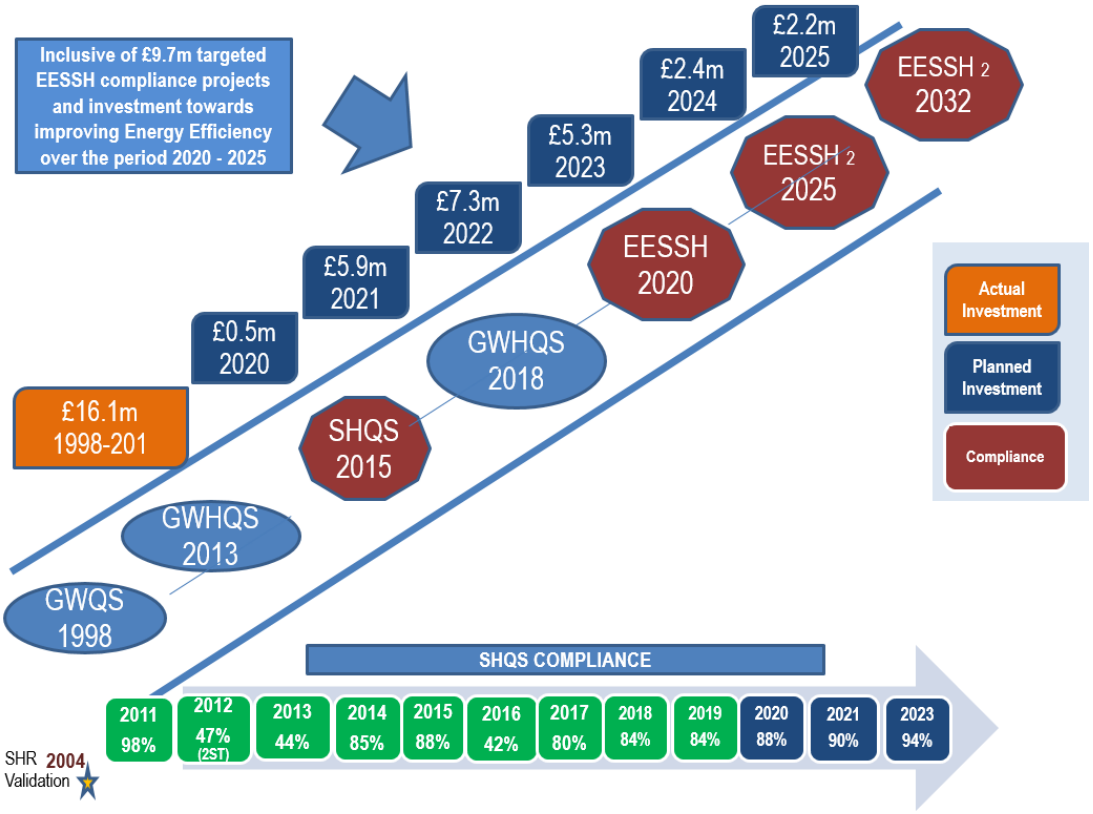
4.7.2 Being mindful of the evolving legislative and fuel utility landscape; whole "building / development" opportunities for low carbon alternatives will be explored, with informed decision being made in relation to the most appropriate site by site solution. The potential for community heating and combined heat and power schemes (CHP) will be explored subject to cost effectiveness. Other technologies currently being installed, tested and developed may provide solutions in the future; and will be subject to individual business cases presented to working groups in the same way as the options appraisal for Blythswood Court.[7]

4.7.3 In the absence of low cost, sustainable, electrical or other fuel source alternative, gas is anticipated to remain the most cost effective option for space heating for the next 10+years. Within this context, where a heating system is due for replacement in an individual property, or a new build /refurbishment project is planned, the following principles will apply:

a) Gas combination condensing boiler, providing central heating and hot water.
b) An electric boiler with a wet radiator system and cylinder water storage (where gas is unavailable or uneconomic to install), with accompanying advice to the occupier on the most cost effective tariff.
c) A replacement heater (where a single heater fails) in properties with electrical storage heating, subject to consideration of the EPC energy efficiency rating currently achieved.

[7] MC 20/11/18

4.8 INVESTMENT TOWARDS 2025



4.8.1 See appendix A1.5 for details of specific project initiatives.

4.8.2 **Summary Investment Action Plans:**

Improve Data Quality	Consultant appointment for programme of SAP modelling and EPC data cleaning.
Improve Building Efficiency	Consultant appointment; Feasibility and Options appraisal, including SAP band E & F property by property analysis.
	Project Management Consultant and Project consultant appointment
	Window replacement. Programme includes addresses previous works refusal, residual single glazed addresses (including planning and conservation area consents), planned element replacement, and adhoc properties identified through Stock condition survey.
	High rise and deck access investment. Approach to include detailed feasibility study. Whole building solutions; with factors such as the age and stock type influencing the design specification. Works phased as part of parallel water system modernisation
	Elemental replacement of individual standard efficiency gas boilers, cyclical replacement condensing boilers.
	Replacement of traditional electric storage heating systems with high efficiency storage / air source heating subject to feasibility study and option appraisal.

4.8.3 Consistent with EESSH technical guidance, all planned investment in measures that improve the overall SAP[8] value of a property will be considered as EESSH investment towards the standard, even where the works do not result in a fully compliant EESSH property. This will result in some LCC planned elemental replacement investment being recorded as EESSH investment.

4.8.4 Framework call off opportunities and other relevant partnerships will be explored as a means of attracting grant funding for energy efficiency works for whole building solution. Likewise, in role of factor, where appropriate for areas of common investment GWEn will explore relevant opportunities for private owner funding, specifically in cases where owner objection, as per the Property Title Deeds would cause obstruction to progression of a project.

4.9 Procurement

4.9.1 For reactive, planned, and development investment undertaken following this EES; the specification of individual components and properties as a whole (with lifecycle anticipated 15yrs+), will seek to enhance EE performance towards the optimum SAP - so far as possible towards the Band B, EESSH 2032 targets.

4.9.2 Within the current market place there are multiple developed framework opportunities that can be utilised for scope of required investment in GWHA stock, aligning with procurement policy, procedures and strategies.

4.10 New Build Development

4.10.1 GWHA Employers requirements for development projects will align with the target performance band as detailed in Section 7 of Building Standards (Domestic) Technical Handbook 2019.

4.10.2 Adoption of Gold / Silver / Bronze target standards will be informed by project aspirations, site opportunities, affordability, and possibly HAG[9] funding criteria.

5.0 POLICY ALIGNMENT

5.1 The Fuel Poverty (Target, Definition & Strategy) (Scotland) Act 2019 sets out a baseline position recognised as a component of our wider Anti-Poverty Strategy values and initiatives.

5.2 Energy efficiency of properties is included as an element in the Rent Setting Mechanism from April 2020 reflecting, where appropriate, adjustments against EESSH and our ongoing steps towards compliance.

5.3 Energy advice is freely available to tenants through referrals to partner agencies along with regular newsletter articles.

5.4 Increasing tenants' income is out-with the scope of influence of GWHA, however, measures to ensure income is optimised as far as possible are promoted through tenancy sustainment services and the aims of this EES.

5.4.1 In support of the drivers noted at Section 4 above; this EE strategy outlines investment, advocacy and advice measures promoting with a view to reducing fuel poverty and increase the secondary benefits of health and wellbeing.

6.0 REVIEW

6.1 This strategy will be reviewed every 3 years, or sooner, subject to a change in legislation or circumstance. Regular updates on progress will be provides to Management Committee.

6.2 The strategy, in parts, attempts to summarise current legislation. In any case of conflict between the two, legislation will always preside.

7.0 DELEGATED AUTHORITY

7.1 Delegated authority is granted by the Management Committee to the Chief Executive and Staff to implement this Strategy.

[8] Standard Assessment Procedure – to determine the energy related costs of works undertaken.

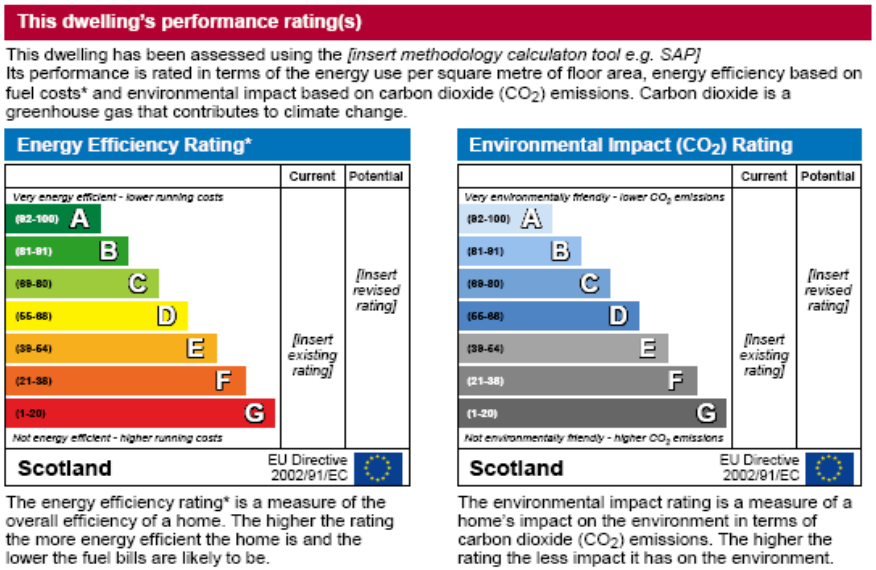
[9] Housing Association Grant

EES 20202 UNDERSTANDING SAP **APPENDIX 1.1A**

A property's energy efficiency is benchmarked through an Energy Performance Certificate (EPC) generated as the output report from a specialist property survey utilising a Standard Assessment Procedure (SAP).

The certificate lasts 10 years and utilizes a 100 point scale, banded A-G to record the energy performance SAP & Environmental Impact of that property. The higher the value, the more energy efficient.

Higher ratings mean that tenants benefit from a warmer home, usually lower fuel consumption, lower energy bills and there is less chance of being in fuel poverty.



GW Notes

1 EPC SAP assessment has evolved to be more complex with increased number of variables to reflect bespoke nature of construction types, geographic locations and evolving Low/Zero Carbon Technologies (LZCT) available.
2 Each EPC outlines property specific capital investment, and occupant measures (energy efficient lighting) that can be taken to improve SAP value, and energy performance.
3 Each EPC records the current and POTENTIAL SAP rating for the property, **which in some cases is less than** the SG 2020 EESSH compliance values of 69 for Gas / 65 for Electric fuel types.

Energy Efficiency Standard for Social Housing (EESSH)	2018/19				2019/20		
	All SLs	QEF	GWHA		PI	Mid-Year	Q3
Percentage of properties at or above NHER / SAP rating			91		93	90	90
% of stock meeting the EESSH	84	89	58		72	59	59
% of properties with a valid EPC	64		70		76	65	65
No of anticipated exemptions as at 31/03/20	128		179		179	179	178
Investment in the EESSH					-	£3,000	£3,000[10]
% of stock anticipated to meet EESSH by end of next reporting year			72		88	63	63

[10] Excludes investment in 12no. Ad hoc (boilers etc: £25,680) which is excluded within EESSH technical guidance, as response investment rather than planned.

EES 20202 REASONABLE MEASURES **APPENDIX 1.3A**

Technology	Pro	Con / Risk	Est SAP increase	Tenement (Pre1919)	Multi-Storey	Deck Access	House
New condensing Gas Boilers	Replacing older standard efficiency boilers. Increase SAP rating.	Not possible for connection to standard efficiency flue	+10 (4)	✓	×	na	✓
Top-up loft insulation	Quick win, ease of access. No tenant disruption where common accessed.	Improve top floor flats only. Restricted by services. Mixed tenure permission rqd.	+3 to 9	✓	na	na	✓
Double Glazing	High profile investment. Individual resident benefits.	Medium to high costs. Disruption to property. Planning approval.	+5 to 10	✓	✓	✓	✓
Under floor insulation	Improved floor surface comfort and reduced heating costs where this exists.	Considerable internal disruption. Mixed tenure permission.	+3	✓	na	na	na
Heating controls	Easy to include as part of standard heating specification.	Decor disruption retrospectively done. No records held on system.	+2 to 4	✓	✓	✓	✓
Storage heating replacement	Match internal property location of heaters very limited disruption	Limited benefit SAP improvement relative to cost.	+4	✓	na	✓	✓
Internal Wall Insulation (IWI) ***Injected bead***	Bead retains existing room sizes. Reduced disruption for tenants. Historic Scotland case studies demonstrate technology advances unlikely to cause condensation.	Technology not widely used. Ventilation of property by tenant required. Patch in décor required. Unknown long term detrimental impact on solid wall (pre-1919 stock).	+8 to 12	✓	na	na	✓
EWI	EWI – Medium to High SAP increase. No disruption for tenants internal flat.	High costs. Private owner engagement. Feasibility studies required. Unknown long term detrimental impact (pre-1919 stock).	+8 to 12	✓	na	na	×
Waste water heat recovery	Provides a healthy indoor environment.	High Costs. Optional use, tenant can turn off.	+4 to 6	Feasibility study / option appraisal required.			
Storage to Electric Wet	Increase SAP rating.	If converting from gas, likely EPC reduction.	+23	✓	na	✓	✓
Storage to Gas	Increase SAP rating.	Conflicts with decarbonise direction. internal disruption	+24	✓	na	✓	✓
Storage to Air Source Pumps	Medium to High SAP rating increase.	Installation limited for location and building types.	+29	Feasibility study / option appraisal required.			
Storage to quantum storage	Match internal property location of heaters very limited disruption.		+14	✓	na	✓	✓
Communal heating system	Medium to High SAP rating increase.	High Costs. High disruption to residents, private owner engagement.	Feasibility study / option appraisal required.				

PV Panels / Battery Storage	Reduction in grid electrical consumption and costs. Battery storage.	Not currently feasible to install in mixed tenure blocks. Planning restrictions	Feasibility study to determine option appraisal.