

APPENDIX A - DETAILED ACTION PLAN BASED UPON UN SDG TOPICS

Each of the seventeen SDGs is presented below. These tables show the following information:

- Scope and definition
- Comment
- Vision in 2007 and status in 2021
- Vision for 2030
- Pathways from 2022 forwards
- Build upon
- To do
- Responsible parties

The scope and definition section presents the targets within each SDG and how these relate to Orkney’s Energy Strategy and this Action Plan. The Vision in 2007 and Status in 2021 compares the vision that was presented in A Vision for Orkney’s Sustainable Energy Strategy (Aquatea Ltd, 2007) with the status in 2021 to show the progress has been made to date in relation to these key topic areas. The Vision for 2030, Pathways from 2022 forwards, Build Upon and To Do sections detail what is still to do in relation to these SDGs in the context of Orkney’s Energy Strategy Vision and how to achieve them. Finally, the Responsible Parties section outlines those key organisations and stakeholders in Orkney that can play a role in these actions.



Figure 1 UN Sustainable Development Goals

A.1 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 1. END POVERTY IN ALL ITS FORMS EVERYWHERE

Major topic	1. No Poverty	
	UN SDG Targets within the Goal of No Poverty	Relevance to Orkney's Energy Strategy
Scope and definition	1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day.	Not relevant in Orkney context.
	1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.	30% of household in Orkney are currently within the national poverty classification ¹ .
	1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.	Systems in place such as the Child Poverty Task Force ² but more to be done to reduce number of households in long term poverty.
	1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.	This needs to target energy costs, building standards, connectivity, mobility and remote working opportunities.
	1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.	Poor shown to be vulnerable to pandemics, also extreme climate scenarios due to reduced resources to buy resilience. People living in poverty are least able to ride through economic crisis without support.
	1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions.	In addition to the needs of developing countries, it is well recognised that there are distinctive needs of island communities; whereby normal services may not be accessible without significant costs.

¹ Orkney Local Child Poverty Action Report (2020), available online: shorturl.at/mHJY1

² <http://www.orkneycommunities.co.uk/communityplanning/index.asp?pageid=718086>

Major topic	1. No Poverty	
	1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions.	<p>Need to improve housing and energy efficiency to reduce costs, need to encourage local jobs for local people, need to provide affordable and just carbon transition options</p> <p>Need to support communities in addressing these issues through innovation, application of sustainable practises, education and capacity building.</p>
Comment	<ul style="list-style-type: none"> • The Orkney population has grown by 10% over the last 20 years, but growth is not evenly distributed, it is skewed towards Kirkwall and away from the outer and southern isles. The population has increasing levels of older residents. Digital working is enabling many more residents (new and established) to work remotely from Orkney. • The community pays a high price for the energy it uses and there is high energy usage due to weather, remoteness, house type and exposure and off-island travel. • 30% of Orkney households are in fuel poverty (25% national average) and 22% are in extreme fuel poverty (12% national average)³. 	
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • Vision in 2007: <ul style="list-style-type: none"> ○ Measures to encourage growth in the local population have been implemented. ○ Ambitions to eradicate fuel poverty has been acted upon with through various national home improvement programmes, however, more people have entered the poverty trap. ○ Community 'parish' type wind turbine projects have been established in five out of 20 communities and OIC has invested in Hammer's Hill Project and progressed planning with three wholly owned windfarms. ○ Orcadians have shown great commitment to decarbonisation, especially where there are appropriate incentives and opportunities and have shown even greater fortitude under challenging policy, regulatory and fiscal conditions. • Status in 2021: <ul style="list-style-type: none"> ○ Over 30% of households are directly involved in the energy revolution as advocates, workers, generators, investors or early adopters⁴. ○ Despite repeated recognition of the benefits that can come from renewables the prioritisation of local content and benefits has yet to be fully established and managed. 	
Vision for 2030	<ul style="list-style-type: none"> • The renewables sector and the drive to decarbonisation continues to create further job opportunities, with a further 1,500 sector related jobs by 2030. • Household poverty levels are reduced, and affordable housing, heating, mobility and connectivity is available to all residents, with all households out of poverty by 2030 and secondary poverty issues around energy, connectivity and mobility also removed. • Renewables generation is creating increased wealth for all of local society though local ownership, local investment and additional benefit agreements. 	

³ <https://www.orkney.gov.uk/Files/OHAC/Orkney%20Local%20Child%20Poverty%20Action%20Report%202019-2020.pdf>

⁴ Orkney Energy Audit, 2019. Available from Aquatera Ltd on request.

Major topic	1. No Poverty
	<ul style="list-style-type: none"> • All households have the opportunity to directly engage in decarbonisation activities and benefits through micro generation, flexibility services, generation dividend • Orkney established as a UK and globally leading carbon transition community and break out of current fuel poverty status • High levels of local content in all workstreams and active workforce optimisation from within the community
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Continue to establish progressive and ground-breaking energy transition projects supported by a growing locally based workforce. This will require excellent talent spotting, capacity building, recruitment processes and an adequate supply of appropriate housing choices. • Establish a better understanding of the pathways to energy, mobility and connectivity poverty within Orkney. • Establish a capital investment and support framework for delivering improved energy and connectivity infrastructure locally. • Create investment mechanisms for community involvement in leading and participating in wider energy and infrastructure initiatives. • Encourage all households to engage through work, energy generation, flexibility services, investment and early adoption. • Ensure high levels of local content in Orkney based works on land and at sea. • Ensure that Orkney is afforded the recognition, mandate and flexibility to be a UK and global lighthouse carbon transition community. • The work to understand, plan, undertake and monitor the transition is undertaken locally wherever possible though broad academic, business, community and government (ABCG) collaboration and co-operation. • Develop a Net Zero strategy and action plan for Orkney that prioritises the just transition for the entire Orkney community.
Build upon	<ul style="list-style-type: none"> • Ongoing Orkney promotion activities through orkney.com; and Orkney, 'the Brand'. • Individual business and organisation activities within the wider Orkney 'brand' envelope. • Local businesses and organisations to build upon project development work, proposal preparation work, tendering locally and wider afield, procurement activity in the energy transition space – all maintaining continuity and creating growth. • Existing work of THAW, OIC housing, OHAL, local builders on more energy efficient and affordable housing (old and new stock). • Efforts to improve housing availability, digital connectivity and transport links. • Existing parish and island community trusts with available revenues targeting lifting people out of poverty. • Work with existing community trusts and organisation that are already engaged in the carbon transition process. • Use ASPIRE as an Orkney wide community trust, with strong links to wider business activity. • ReFLEX project and related investment mechanisms to establish, manage and use a wider carbon transition fund. • Green innovation port proposals. • Islands deal; Islands Centre for Net Zero (ICNZ) activities. • Use Islands Act and related goals of island-appropriate measures to revolutionise public and private sector procurement and investment practises.

Major topic	1. No Poverty
To do	<ul style="list-style-type: none"> • Upgrade and revamp recruitment website as proactive talent trawling as well as reactive recruitment tool – working for local and well as participants moving to Orkney for work. • Prepare a comprehensive quality of life support package for all workers, those seeking to work and those unable to work. This could include online material and physical material to support with housing and family matters (schools, local amenities, jobs for partners etc.) • Develop a comprehensive and accelerated energy/mobility/connectivity improvement strategy • Link together THAW/ OIC/ ReFLEX/ OHAL/ Warmworks/ NHS/ Cloudnet/ OREF etc into a coordinated affordable energy services action team and ensure continuity of resources behind this energy services action team. • Promote and encourage housing upgrades and insulation in new and existing buildings and support people to upgrade 'hard to adapt' homes. • Grow and strengthen transition service delivery through ReFLEX but with strong collaboration and involvement where appropriate from established local service suppliers. • Develop a comprehensive and robust community investment, wealth management and governance structure which makes local capital work better in and for the benefit of the local community. • Develop a Net Zero strategy and action plan for Orkney that prioritises the just transition for the entire Orkney community.
Responsible parties	<ul style="list-style-type: none"> • OIC Social Services • OIC Housing • OIC Technical Services • OHAL • NHS • Age Scotland • Cloudnet • Construction companies • Mobility providers • Fuel suppliers (in order for managed transition away from fossil fuels) • CES • HIE • Citizens Advice Bureau • ReFLEX • Energy supply chain • Poverty eradication supply chain • Support services/companies working for those in poverty • OREF

A.2 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 2. END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

Major topic	2. Zero Hunger	
	UN SDG Targets within the Goal of Zero Hunger	Relevance to Orkney's Energy Strategy
Scope and definition	2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.	Possible additional local foodstuffs produced and distributed locally using renewable energy supported farming techniques and waste heat from energy facilities.
	2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.	Not relevant in Orkney context.
	2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.	Use accelerated decarbonisation of farming and fishing with suitable capital support to future proof local food production sectors. Explore opportunities for energy production from farming land and multiuse of blue energy producing areas for fishing and aquaculture. Use food production markets as a tool for technology and energy systems advancement. Establish carbon sequestering farming techniques, especially for beef.
	2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.	Establish carbon sequestering, water retaining, nutrient wash out reducing and soil stabilising farming techniques, especially for meat production in Orkney.
	2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.	Use decarbonised energy systems to help retain and enhance local and rare breed/ varieties/ biodiversity of plants and animals that are farmed, fished, harvested, cultured or are linked to such practises.

Major topic	2. Zero Hunger	
	<p>2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.</p>	<p>Further develop and add new facets of sustainable energy in farming, fishing and aquaculture to the innovation, demonstration and applications activities in Orkney.</p>
	<p>2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round.</p>	<p>Consider the best balance of locally produced versus imported food stuffs and maintain some level of independence from corporate food supply lines – minimising food miles and associated carbon footprints.</p>
	<p>2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.</p>	<p>No direct energy link at present locally.</p>
Comment	<ul style="list-style-type: none"> • Orkney food and drink sector has major role in the Orkney economy and has leading brands and quality products in the range on offer. • The breadth and volumes of food stuffs and product lines is continuously developing. • There are good synergies between sustainable/ decarbonised energy supplies and brand values • The 2030 Orkney decarbonisation target should include food production in terms of emissions, low carbon approaches to food production, vehicle and vessel transition and localisation. 	
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • Vision in 2007: <ul style="list-style-type: none"> ○ Whisky, other spirits, beef, biscuits, cheese & dairy, shellfish, lamb, beer, baking, preserves, smoked food, farmed fish all exported as well as consumed locally. • Status in 2021: <ul style="list-style-type: none"> ○ Number of major products lines using renewable energy in branding. 	
Vision in 2030	<ul style="list-style-type: none"> • All product lines decarbonised – including farming and fishing which may include retrofitting in some cases 	
Pathways from 2021 forwards	<ul style="list-style-type: none"> • Continue to establish progressive and ground-breaking energy transition related to food production. • Establish a better understanding of the carbon pathways linked to food production. • Establish a capital investment and support framework for delivering decarbonised foodstuffs. • Create investment and support mechanisms for community involvement in local food production. • All households encouraged to consider carbon footprint of foodstuffs and where necessary given the finance to shop with that priority. • Orkney is afforded the recognition, mandate and flexibility to be a UK and global lighthouse community for decarbonised food production. 	

Major topic	2. Zero Hunger
	<ul style="list-style-type: none"> • The work to understand, plan, undertake and monitor the carbon transition for food is undertaken locally wherever possible through broad ABCG collaboration and co-operation.
Build upon	<ul style="list-style-type: none"> • Food bank activities. • Market stall/ farm shop type outlets to reduce food miles. • Work with existing community trusts and organisation that are already engaged in the carbon transition process to focus on the food and drink industry. • Support that industry with the Orkney 'Brand' marketing around renewable energy. • Use ASPIRE as an Orkney wide community trust, with strong links to wider business activity. • Green innovation port proposals as they apply to agriculture, fishing and aquaculture. • Islands Deal ICNZ activities. • Use Islands Act and related goals of island appropriate measures to revolutionise public and private sector procurement and investment practises.
To do	<ul style="list-style-type: none"> • Engage further with Agricultural community • Further promote sustainable credentials of Orkney and its energy system • Enhance links to food research and farming techniques • Develop food sectors understanding of energy use and carbon reduction
Responsible parties	<ul style="list-style-type: none"> • NHS • OIC • Cloudnet • CES • HIE • Energy supply chain • Poverty eradication supply chain • Universities (HWU, UHI, & RGU) • Orkney Food and Drink • Orkney food and drink companies • Hospitality trade • OREF

A.3 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 3 ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

Major topic	3. Good health and well being	
	UN SDG Targets within the Goal of Good health and well being	Relevance to Orkney's Energy Strategy
Scope and definition	3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	Not relevant in Orkney context.
	3.2 By 2030, end preventable deaths of new-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	Not relevant in Orkney context.
	3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	Not relevant in Orkney context.
	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	Not relevant in Orkney context.
	3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	Not relevant in Orkney context.
	3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	Carefully consider how EVs and automation will contribute to risks.
	3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	Not relevant in Orkney context.
	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Promote and consider how best to link health outcomes to energy access, especially for those least able to afford it.

Major topic	3. Good health and well being	
	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Decarbonisation and greater use of renewable energy will help clean up the air.
	3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	Not relevant in Orkney context.
	3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all	Not relevant in Orkney context.
	3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	Apply learning from other sectors (e.g., medical) into the energy sector.
	3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	Renewables may make greater reliability and resilience to energy and other related crises.
Comment	<p>An estimated 31% of households in Orkney are fuel poor⁵ which can have obvious impacts on health, particularly for older people and babies and children. There are a number of health conditions that can be exacerbated through living in cold and damp conditions. Efficient use of energy to offset these conditions is a key issue that needs to be looked at.</p> <p>Eradicating energy poverty is a key national priority. At national level low energy prices are seen as a key route to reducing energy poverty. However, low prices can encourage increased usage and create a culture of energy dependency. Higher prices may stimulate greater energy efficiency and cheaper energy efficient appliances. Local energy wealth created from renewables could be used to reduce rural fuel poverty in areas such as Orkney. A local action group has been set up to tackle fuel poverty. Keep Orkney Warm and Orkney Care and Repair also have activities aimed at supporting energy vulnerable members of the community.</p>	

⁵ Orkney Local Child Poverty Action Report (2020), available online: shorturl.at/mHJY1

Major topic	3. Good health and well being
	<p>Many of the hazards faced in the home relate to energy technologies and energy uses. Moving to less intense energy uses or less hazardous materials may provide significant safety benefits.</p>
<p>Vision in 2007 and status in 2021</p>	<ul style="list-style-type: none"> • Vision in 2007: <ul style="list-style-type: none"> ○ Eradicate cold related illness and death. ○ In thinking of new ways to use energy, we also look to improve safety simultaneously. ○ To eradicate fuel poverty across the county by reducing heating requirements through energy efficiency and saving measures and to also provide direct support to those in need. • Status in 2021: <ul style="list-style-type: none"> ○ Efforts have started to help vulnerable households through THAW, OIC and others ○ Level have reached 63% by 2014 (Orkney Fuel Poverty Strategy 2017-2022)⁶.
<p>Vision for 2030</p>	<ul style="list-style-type: none"> • Fuel poverty eradicated by 2030. • Ensure that the energy transition contributes to reducing risks through design and materials. • Ensure that innovative technologies such as household batteries and car batteries and hydrogen do not add to risks. • Link better, warmer, drier homes to better health outcomes. • Energy connectivity helping improve household safety- temperature/ motion monitors.
<p>Pathways from 2022 forwards</p>	<ul style="list-style-type: none"> • Support people to move to electric heating. • Ensure that the transition to net zero is optimised with regard to cost and does not exacerbate the situation. • Ensure health benefits in relation to air quality through use of EVs and other transitional technologies are maximised.
<p>Build upon</p>	<ul style="list-style-type: none"> • High penetration of renewable energy technologies. • High health status of the community. • Work done by Thaw and others in this space. • Support mechanisms for household insulation.
<p>To do</p>	<ul style="list-style-type: none"> • Eradicate fuel poverty. • Promote and encourage housing upgrades and insulation in new and existing buildings & support people to upgrade 'hard to adapt' homes • Ensure all renewable technologies maximise health benefits as well as economic considerations.
<p>Responsible parties</p>	<ul style="list-style-type: none"> • OIC • Orkney Health Board • NHS Orkney • Community organisations

Major topic	3. Good health and well being
	<ul style="list-style-type: none">•Thaw•VAO

A.4 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 4 ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

Major topic	4. Education	
Scope and definition	4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	In relation to education in sustainable energy, Orkney has developed a number of links between education and energy within the community. This has been completed through industry involvement in the schools and showcasing of opportunities for school leavers within these local industries
	4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education	In ensuring that early childhood education kickstarts learning in sustainable energy; Orkney is at the forefront of sustainable energy developments, and this is regularly communicated within school curriculum.
	4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education	Orkney has a very highly regarded educational system and hosts three university campuses
	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	Orkney is leading the way in this task with a large percentage of the community involved in the energy sector receiving training in skills needed for this sector.
	4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations	The educational opportunities within Orkney are of a very high standard and fully embrace inclusivity
	4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve minimum levels literacy and numeracy in order to engage in sustainable energy activity.	The educational opportunities within Orkney are of a very high standard and fully embrace inclusivity
	4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	Orkney has a general understanding of energy issues, and this regularly features in training opportunities as well as returning university graduates. There are also good opportunities all through the local energy supply chains. The Orkney community also has a high understanding of and connection to the concepts of sustainable lifestyles and global citizenship.

Major topic	4. Education	
	4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Orkney has a range of educational establishments and training opportunities including night classes, short courses, college courses, university level education as well as a wide range of non-vocational and on the job training options
	4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries	Not directly relevant in an Orkney context. Orkney based companies do work with universities and training programmes all over the world and get involved in training programmes and skills development in developing States.
	4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States	Not relevant in an Orkney context.
Comment	<ul style="list-style-type: none"> •The first step in increasing awareness and understanding about energy issues across all our communities is to provide information for people. Given the potentially controversial nature of many of the issues related to energy it is very important that this information has a quality and integrity that gives people confidence •Delivering any information in a suitable way is also important •Having provided people with information, the next stage is to try and influence their behaviours so that people generally become more energy aware and energy efficient. In the end it is the individual behaviour of the public that will determine the success or otherwise of wider energy saving initiatives. •As well as addressing individual behaviour industry needs to be more aware and better informed on energy issues and needs to make better decisions about energy use and energy saving opportunities. •Young children are perhaps the most easily influenced regarding changed behaviours. Not only do the children themselves grow up with a more sustainable attitude, but they can also influence the adults with whom they interact. •Although the variety of issues that teenage children have to deal with, apparently diminishes the impact of a single issue such as energy use, it is still vital that sustainable energy practices are emphasised at this level in their development. There are a number of initiatives which endeavour to do this, but more could probably be done. •Orkney has benefited particularly well from embracing tertiary education within its communities. The benefits can arise in a number of different ways ranging from increased numbers of young people being part of the community to finding novel solutions to key local challenges. In today's world, tertiary education also provides a more likely link into future jobs and business activity across a number of employment sectors. •Orkney has a tradition of being involved in research and pioneering activities. Historically as well as in the present-day Orkney has sought to push the boundaries of knowledge and understanding. The fact that it sustains such a vibrant Science Festival is an indicator of the importance of research to the community •All available evidence suggests that there is majority support for renewable energy developments. There is, however, a significant minority of people who are strongly opposed to renewable 	

Major topic	4. Education
	<p>schemes. If as a community, there is a desire to develop a significant renewables sector in Orkney within the overall energy activities locally, then efforts to encourage consensus backing for such a scheme should be undertaken.</p> <ul style="list-style-type: none"> • Communication lies at the heart of economic activity whether it is communication with investors, communication with clients, communication with local stakeholders etc. Given some of the natural advantages that Orkney has in relation to energy, but also the disadvantages for example, in terms of remoteness the messages that are communicated about energy in Orkney need to be carefully managed. The range of topics, the audiences and the mediums used all need to be considered.
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • Vision in 2007: <ul style="list-style-type: none"> ○ Although there has been tremendous activity in the area since 2008, public availability of clear and impartial information still appears to be a barrier to discussion and decision making ○ However, the Orkney public is now recognised as being particularly energy aware by others ○ The business sector is performing to higher standards of energy efficiency and wider energy management than in 2008 but still has a long way to go, and arguably lags behind the public sector and private individuals. • Status in 2021: <ul style="list-style-type: none"> ○ Primary children are generally more aware of energy related issues and generally Orkney schools have embraced energy related teaching and school leavers can start to see energy as a good career opportunity ○ With esp. reference to marine renewables and energy innovation, Orkney is seen as an international centre of excellence for energy related research and teaching but there is still huge potential for further growth and expansion across wider energy topics. ○ Issues raised by the energy sector are getting wider acceptance but fall well short of reaching a consensus-based understanding within the community ○ Orkney's energy role is better understood and articulated but still has not reached universal consistency of vision/understanding
Vision in 2030	<ul style="list-style-type: none"> • The Orkney energy story is well archived, chronicled and added to in a live, ongoing, way. • Latest climate monitoring and modelling, energy use and carbon reduction data is available to be presented regularly to the whole community • Live interactive Carbon management dashboard for Orkney is running • Wider influence of Orkney example is tracked • Information about just and inclusive transition has been fully available and acted upon. • Information to assist in individual, organisation, community and business transition has been established, available and updated and built upon for >5 years. • Case study learning is well document and widely available. • Local public are fully aware of energy and climate issues and are considered to be amongst the best informed nationally and globally. • People fully understand the commitment and changes they have made and continue to need to make and the expectations they need to have in order to combat climate change • All businesses and other formal organisations have a decarbonisation plan • Residual Carbon heavy and carbon dependent businesses make offset contribution to help accelerate overall decarbonisation • The number of jobs related to carbon transition and affected by it are monitored and reported

Major topic	4. Education
	<ul style="list-style-type: none"> • Basis for decarbonisation and climate change adaptation is included in core skill development at pre-school and primary school stage • Likewise, capacity to deal with the challenges of a world in crisis are developed as far and early as possible • Basis for decarbonisation and practices for climate change adaptation is embedded into all aspects of the secondary school curriculum • Local Tertiary teaching have developed and continue to offer Masters courses in: <ul style="list-style-type: none"> • Climate change adaptation in island settings • Blue energy project management • Marine resource development and protection • Managing communities through transition • Sustainable finance • Innovation the Orkney Way • EMEC facilities fully utilised and grown to include an offshore floating wind hub • Orkney designated as a Community Innovation Catapult • Orkney an R&D hub for: <ul style="list-style-type: none"> • Decentralised/community energy systems • Green/clean ports/shipping • Wave energy • Tidal energy • Floating marine solar • Energy storage • Hydrogen handling and application • Carbon transition in offshore oil and gas • Community engagement • Data management and ethics • Orkney is at the heart of research cluster building activity in the UK and internationally • Orkney recognised internationally as a centre of sustainable energy excellence (UN/IEA endorsement) • Maintain open and information rich dialogue where options are explored, and as far as possible consensus reached about best ways forwards. All viewpoints are understood and acknowledged even though not all may be satisfied. • Orkney experience (good and bad) is shared with others to help accelerate and improve their transition • Energy related issues are a common topic of conversation based upon good understanding of the issues and good data about progression and performance. • Orkney communicates strongly with neighbours, rest of Scotland, UK, Arctic, Europe, other parts of the world
Pathways from 2021 forwards	<ul style="list-style-type: none"> • Encourage all parts of the energy sector to publish and share peer to peer information which is available about activities, performance and consequences • Publish an annual energy review as well as live interactive “dashboard” resources and community outreach presentations and events based strongly on the Orkney context. • Encourage, initiate and establish public energy awareness; focus on the benefits to the environment and the individual • Develop business awareness packages • Work with companies and businesses to develop energy strategies • Develop a range of learning and teaching support materials about energy issues

Major topic	4. Education
	<ul style="list-style-type: none"> • Develop pathways for young people to follow into energy related careers • Develop a range of learning and teaching support materials about energy issues • Develop the number and range of courses available at Orkney College and form links with other institutes i.e., ICIT and ERI • Better develop links between major energy businesses in the wider Highland and Islands region and the academic institutions in Orkney • Encourage the accumulation of funds under the MRETS program • Encourage the use of Orkney as a 'testing centre' • Encourage and practice transparency and openness • Gauge public opinion on energy matters and use this to practically plan how to persuade the sceptical and catch the interest of the disengaged. • Have regular debates about energy related issues • Further build on existing promotional activities placing energy at the heart of 'Orkney the brand' • Ensure relevant facts and data are available for people interested in energy issues • Have an ongoing conversation within the community about the role that energy can play so that there is broad understanding and transparency about the initiatives that are undertaken • Have a set of standard questions and answers regarding topical issues that all people involved in the energy sector can be aware of
Build upon	<ul style="list-style-type: none"> • Existing and ongoing communication and awareness teams, resources and activities supported through public authority, sectors and private enterprise. • Existing interest and engagement for inclusion of energy topics across the primary and secondary school education curricula and vocational/career development services. • The strong tertiary level presence of HW ICIT at the Stromness campus and the applied training facilities of Orkney College, with their links to wider UHI and more recent establishing local presence and interest from RGU and Edinburgh University. • Existing links and joint activities to other energy education and research practitioners outside of Orkney • Resources and roles of statutory consultees and stakeholders such as NatureScot, SEPA, etc. • Presence and engagement activities of non-statutory bodies and interest organisations such as RSPB, OGG/Greener Orkney, Restart, Orkney Zero Waste etc.
To do	<ul style="list-style-type: none"> • Continued support of university sector within Orkney • Develop renewable energy awareness through schools STEM programme • Attract high quality research posts to Orkney • Fully develop Orkney as a living laboratory for energy related research and projects • Further develop Orkney brand to encompass renewables • Fully engage the public of Orkney in the Orkney renewable opportunities
Responsible parties	<ul style="list-style-type: none"> • OREF • OIC Education department, schools, teachers, and pupils themselves • OIC Housing • OIC Technical Services • Orkney College/UHI • ICIT/HW • RGU • Other external tertiary

Major topic	4. Education
	<ul style="list-style-type: none">• Communication and media teams• Statutory stakeholders• Non-statutory stakeholders• Community Anchor Organisations (e.g., Development Trusts, hall committees, communities of interest)• Sectorial trade groups• CES• HIE• ReFLEX• Energy supply chain

A.5 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 5 ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

Major topic	5. Gender Equality	
	UN SDG Targets within the Goal of Achieve gender equality and empower all women and girls	Relevance to Orkney's Energy Strategy
Scope and definition	5.1 End all forms of discrimination against all women and girls everywhere	Orkney is renowned for its accessibility across sectors and structures from a grass roots level to highest local government. These structures and partnerships should be benchmarked through the lens of gender equality to sense check parity of esteem across various workforces and decision-making bodies, particularly as Orkney infrastructure develops in line with this Energy Strategy.
	5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	Not relevant in an Energy Strategy context.
	5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation	Not relevant in an Orkney context
	5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	As the implementation of Orkney's Energy Strategy takes place, it should be carried out through the lens of gender equality and social inclusion (GESI) to ensure that the value in unpaid care and domestic work is recognised.
	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	See 5.1
	5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences	Not relevant in an Energy Strategy context.

Major topic	5. Gender Equality	
	5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws	See 5.1
	5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women	Enabling technology, particularly connectivity within Orkney is reasonable although there still exists areas that do not have good connectivity. The ability to work from any location with good connection has been enhanced during the COVID-19 pandemic but still needs further roll out of better infrastructure. This should be carried out through the lens of GESI to ensure that no one is left behind.
	5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels	As Orkney's Energy Strategy is implemented, policies need to be developed that incorporate GESI at all stages.
Comment	<p>This factor takes account of the following points:</p> <ul style="list-style-type: none"> • Number of women in leadership/ decision making roles • Rates of pay • Stability of employment • Diversity of employment • Incentives for women to return to work after career breaks/ care giving responsibilities • Compliance with gender pay gap guidance and legislation <p>Orkney is renowned for its accessibility across sectors and structures from a grass roots level to highest local government and national political level. It has a strength in effective partnership working. These structures and partnerships should be benchmarked through the lens of gender equality to sense check parity of esteem across various workforces and decision-making bodies.</p> <p>Scrutinising social norms and power structures begins to level up inequality. Globally, more women than men live in poverty. Sustainable development relies on ending discrimination towards women and providing equal opportunities for education and employment. Gender equality has been conclusively shown to stimulate economic growth.</p>	
Vision in 2007 and status in 2021	There were no specific gender equality targets laid out in 2008	
Vision in 2030	<ul style="list-style-type: none"> • Gender Equality and Social Inclusion (GESI) to be mainstreamed across the energy sector, including all areas of the infrastructure and supply chain discussed in this Strategy. 	
Pathways from 2021 forwards	<ul style="list-style-type: none"> • Encourage and support developments that have impact on inclusion of gender equality ensuring all voices are heard • Awareness raising, training and capacity building; rolling out best practice across sectors 	

Major topic	5. Gender Equality
	<ul style="list-style-type: none"> • Enable businesses, working on areas of Orkney Energy Strategy to achieve their full potential by ensuring a strong gender mix
Build upon	<ul style="list-style-type: none"> • Equality and Diversity policy drivers from national government embedded at local level. • Scottish Business Pledge criteria to ensure gender equality is an integral part of custom and practice across businesses. • Ensuring gender pay gap legislation is upheld by all Orkney businesses working in energy, infrastructure and the supply chains
To do	<ul style="list-style-type: none"> • Secure commitment of vision for 2030 from all Orkney companies and organisations working within the energy and infrastructure sectors. • Orkney to be a leader in gender equality and beacon of best practice with the ability to export these ideals to other areas. • Focus on working with partners to assist in the Energy Transition through the Blue Economy; understanding that gender equality is a key strand of this work and a key contributor to its local, national and international success.
Responsible parties	<ul style="list-style-type: none"> • Major employers • OIC (including at elected member level) • SMEs in Orkney • Third Sector in Orkney • NHS Orkney • UHI and HWU (Higher Education)

A.6 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 6 ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

Major topic	6. Clean water and sanitation	
	UN SDG Targets within the Goal of Clean water and sanitation	Relevance to Orkney's Energy Strategy
Scope and definition	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	Link clean water and clean energy projects together.
	6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	Not relevant in Orkney context.
	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	See 6.1
	6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	Help the world use floating solar to help combat reservoir evaporation and the further distribute desalination infrastructure.
	6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	Not relevant in Orkney context.
	6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	Well planned renewables can help reduce or eliminate damaging minerals and fuels mining and intense habitat destruction
	6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	Link clean water and clean energy projects together
	6.b Support and strengthen the participation of local communities in improving water and sanitation management	Link clean water and clean energy projects together for community collaboration

Major topic	6. Clean water and sanitation
Comment	<p>There are a number of aspects to our existing infrastructure network that relate to energy either in terms of production, distribution or use. Any new infrastructure provisions should carefully consider the energy implications in relation to provision of clean water and sanitation that they will give rise to.</p> <p>New build facilities provide an excellent opportunity for demonstrating how new energy efficient technologies can be incorporated into infrastructure developments</p> <p>When considering waste management in relation to energy, it is important to remember that energy is not only required for transporting and disposing waste, but for producing it. Therefore, by reducing the volume of unnecessary waste, which is increasingly being generated, energy can be saved in later stages of the 'waste chain'</p>
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • Vision in 2007: <ul style="list-style-type: none"> ○ To minimise energy wasted in the water and sanitation infrastructure whilst maximising the energy related opportunities associate with waste disposal, recycling and energy capture. ○ A full range of energy efficient/saving technologies and appliances and micro renewable energy generators are available in Orkney. Advice, assistance and the technical skills to install and maintain the technologies exists within the County. • Status in 2021: <ul style="list-style-type: none"> ○ All electrical energy comes from renewable/carbon free sources
Vision for 2030	<ul style="list-style-type: none"> • All Scottish water facilities utilising maximum renewable energy sources • Public and private sewage schemes all fully renewable and sustainable
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Decarbonisation strategy for Scottish water and OIC owned infrastructure • Develop innovation in water distribution with regard decarbonisation
Build upon	<ul style="list-style-type: none"> • Penetration of renewables across Orkney • OIC high levels of engagement • Scottish Water national objectives
To do	<ul style="list-style-type: none"> • Decarbonise water and sewage infrastructure
Responsible parties	<ul style="list-style-type: none"> • Scottish Water • OIC • Island development trusts

A.7 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 7 ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

Major topic	7. Affordable and Clean Energy	
	UN SDG Targets within the Goal of Affordable and Clean Energy	Relevance to Orkney's Energy Strategy
Scope and definition	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	Eradicate fuel poverty by 2030
	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	Orkney generates 300% of renewable electricity
	7.3 By 2030, double the global rate of improvement in energy efficiency	Total energy demand reduced to 200MW by 2030
	7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	Orkney recognised, mandated and supported locally, nationally and internationally as an innovation hub, a centre of excellence, a living laboratory and a light house community for sustainable energy and carbon transition
	7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	Actively link to and support 20 new locations a year around the world
Comment	<p>There are various means that are used to move energy itself around the country. These have been developed during an era of relatively centralised energy supply. A future based on more dispersed and individual energy production may make existing energy supply networks more redundant.</p> <p>Are we seeking to be a centre of innovation developing novel ideas/technologies as world-wide leaders (or aspirations to be this) or are we an adopter and user of proven ideas/technologies? Do we want to lead or follow innovation?</p> <p>As well as the primary opportunities offered to existing business by the energy sector, there are numerous possible applications for new technologies and new businesses related to energy developments.</p> <p>Orkney's energy use at present is calculated to be equivalent to 400,000 tonnes of CO₂. In order to offset this amount of carbon emissions Orkney would need to operate 230 MW of wind type renewables capacity, generating around 800 GWh of power.</p>	

Major topic	7. Affordable and Clean Energy
<p>Vision in 2007 and status in 2021</p>	<p>• Vision in 2007:</p> <ul style="list-style-type: none"> ○ That Orkney becomes carbon neutral regarding own activities. ○ Energy developments in Orkney are seen as 'best in class' performers in terms of wider environmental relationships. ○ Energy related activities in Orkney are better understood than in other areas. ○ People in Orkney feels that they have been fully consulted about energy related issues in the county. ○ The optimal exploitation of energy resources within a sustainable agenda. ○ That energy related issues within Orkney are managed in a co-ordinated way that is seen as a role model. ○ Energy is synonymous with the other quality values within a successful 'Orkney Brand'. ○ Orkney is seen as an international centre of excellence for energy related research and teaching. ○ Orkney schools excel in energy related teaching and school leavers see energy as a good career opportunity. ○ To establish an energy efficient, fully integrated inter-island transport system which flexibly meets the different needs of passengers, vehicles and freight. ○ All energy required for Orkney's housing sector comes from renewable/carbon free sources and the energy requirements of Orkney's houses are reduced as far possible. <p>• Status in 2021:</p> <ul style="list-style-type: none"> ○ The Orkney public is recognised as being particularly energy aware. ○ A full range of energy efficient/saving technologies and appliances and micro renewable energy generators are available in Orkney. ○ Orkney should seek to develop infrastructure to facilitate development of the islands' energy potential. ○ Maintain and enhance Orkney's position as a strategic energy hub, currently fulfilled by Flotta, Scapa Flow and EMEC. ○ As much energy as possible is produced locally and delivered to the local market by local businesses. ○ Local content from energy related expenditure is maximised. ○ To maintain and enhance the employment provided by energy industries in the Orkney economy. <p>•</p>
<p>Vision for 2030</p>	<ul style="list-style-type: none"> • Installed community turbines are still operating and profitable. • OIC community windfarms are operating successfully. • Private wind farms encouraged to offer community benefit considerably above £5,000/MW/yr. • Encourage opportunities for local investment into development projects. • Ongoing change in energy behaviours to greater efficiency and carbon reduction. • Autonomous as well as EVs. • Local energy conversion for chemical options such as Hydrogen or Ammonia • Local buffer/balancing storage capacity. • 100% local decarbonisation of electricity, transport and heat Orkney acting as an energy hub for nearby offshore wind production and from neighbouring communities. • Suitable energy export links. • Export the model elsewhere having successfully demonstrated it.

Major topic	7. Affordable and Clean Energy
	<ul style="list-style-type: none"> • Orkney as a living laboratory. • Orkney as a recognised UK/Scottish Innovation hub. • Establish a major offshore wind assembly and deployment hub – Scapa Flow Mega Wind Hub & Deepwater Quay. • Expansion of Kirkwall Hatston Pier. • No carbon emitting cruise liners. • All ports green ports. • Host a fleet of decarbonised offshore support vessels. • Develop major ship refuelling/charging capacity. • All aircraft carbon free. • Kirkwall airport an aviation fuel/charging innovation hub. • Continue to develop wave and tidal deployment capacity. • Export electricity transmission cable(s). • Export hydrogen gas pipeline to the UK’s developing hydrogen pipeline network. • Ammonia export capacity - possibly by ship. • Major electricity conversion plant. • Investigate inter-island fixed link bridges to harvest tidal flow as well as make island links. • Data rich road network for autonomous vehicle development. • All vehicles carbon free. • Extensive charging infrastructure. • All ferries decarbonised. • The Orkney energy story is well archived, chronicled and added to in an ongoing way. • Orkney leads or is a leading contributor in discussions and considerations of energy issues on and around Orkney (including offshore waters beyond 12 nm). • A local community focussed energy agency leads on energy issues with strong links to but outside other interested entities. • The ‘Energy of Orkney’ brand should be used and developed. • Orkney has become a major investor in its own energy future. • Orkney’s energy planning guidance has been transformed into best in class for undertaking the energy transition in a just but progressive and effective way. • Energy developments in Orkney are seen as ‘best in class’ performers in terms of wider environmental relationships. • Orkney is over 95% decarbonised by 2030.
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Fully support options to reduce Fuel poverty by supporting Thaw and other relevant organisations. • Ensure decarbonisation is at the forefront of all local and national policies. • Energy should remain as a growth are of business development within the Orkney economy . • Development of an energy agency for Orkney . • Support energy projects within Orkney . • Support of the supply chain to develop energy projects. • Develop OREF as a conduit for energy related information and project coordination . • Further develop Hydrogen capabilities within Orkney . • Fully support communities to develop energy projects. • Develop the Orkney as a living laboratory to enhance research and development.

Major topic	7. Affordable and Clean Energy
Build upon	<ul style="list-style-type: none"> • Success of EMEC as a test centre and centre of excellence. • support from local government. • Support from Scottish and UK Governments. • Market leading position on marine energy and Hydrogen demonstration. • Community projects already established. • OREF engagement. • Strong versatile supply chain. • University presence and development. • Orkney can do attitude. • Large number of energy business tourism visits. • High quality branding. • Cross selling opportunities. • Collaboration with other island groups.
To do	<ul style="list-style-type: none"> • Further development of local energy company taking account of local needs (e.g., ReFLEX). • Develop centre of excellence for hydrogen and cement position for marine energy. • Fully develop Island Centre for Net Zero. • Continue to develop data rich energy monitoring to fully understand impact of changes (as caused by the climate crisis and by the measures implemented to mitigate these effects). • Further develop renewables supply chain including diversification to support sustainable energy businesses. • Develop employment pathways across the energy sector. • Develop training opportunities across the energy sector. • Engage with Flotta Oil Terminal to repurpose infrastructure to support sustainable energy production including retraining available workforce.
Responsible parties	<ul style="list-style-type: none"> • OIC • HIE • Scottish Government • UK government • Local supply chain • Community energy Scotland • Flotta oil terminal • Visit Orkney & destination Orkney

A.8 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 8 PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

Major topic	8. Decent work and economic growth	
	UN SDG Targets within the Goal of Decent Work and Economic Growth	Relevance to Orkney's Energy Strategy
Scope and definition	8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 % gross domestic product growth per annum in the least developed countries.	Orkney has a large percentage of its GDP related to energy and is already recognised a global centre for marine renewable energy development. The recent offshore wind lease area auction is an opportunity to improve overall GDP.
	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value added and labour-intensive sectors.	Orkney is recognised as a global centre for marine renewables. It is also home to two university campuses and a range of other energy related activity. Continued progression in the offshore renewable energy sector as well as the latest technologies in decarbonisation for example hydrogen and smart energy systems will ensure continued economic productivity.
	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.	Orkney has aspired to be a living laboratory for the development of the energy system of the future. As an area with a high degree of renewable energy penetration and a very close relationship with energy has encouraged innovation, and creativity within the energy sphere. This, coupled with the energy campuses, and other research centres supports innovative thinking.
	8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead.	Orkney, although leading in renewable energy penetration, still supports a major oil terminal. Although production has decreased in recent years, it is still supporting jobs within the local economy. There is potential to repurpose the infrastructure and retrain the workers supported by energy transition initiatives.
	8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.	Orkney has always maintained a high level of employment. This has the positive outcome of encouraging inward economic migration but also restricts the potential to develop the local workforce.
	8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training.	See 8.5

Major topic	8. Decent work and economic growth	
	8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms.	Not relevant in Orkney context
	8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	Not relevant in Orkney context
	8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products.	Energy tourism is an increasing area of development. Orkney could take more advantage of its position around energy tourism
	8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all.	This aspect of energy project development has always been challenging within the relatively small Orkney market. The grid capacity issue has also restricted investment options.
	8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries	Not relevant in Orkney context
	8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization	Not relevant in Orkney context
Comment	<ul style="list-style-type: none"> • Jobs are often seen to lie at the heart of economic development. Although they are not the only measure, upon which success can be measured, they are often used as the major indicator. • Inward investment provides an opportunity for capital that would otherwise not be available but also, to some extent, relinquishes control over future decision making. Nevertheless, it is difficult to see how some of the development opportunities that exist will arise without this form of support. By proactively seeking investment, on terms that are optimal from Orkney's point of view, the best win-win scenarios may be arrived at. • Orcadians have a wealth of experience and expertise in energy related areas. There are several energy activities which are of national or international significance. This experience has also been exported to other parts of the UK and the rest of the world. Gaining experience in a small community which holds its members accountable for their actions creates an integrity which is very useful in today's global market. • The amount and type of money spent locally on development projects is one of the key areas where local benefits can be found. Orkney has a very large range of the services and expertise needed to support energy projects available locally. This means that the opportunity for local content in projects is likely to be larger than would be the case elsewhere. • Whether the Orkney community wants to be a centre of innovation developing novel ideas/technologies as world-wide leaders (or aspirations to be this) or an adopter and user of 	

Major topic	8. Decent work and economic growth
	<p>proven ideas/technologies should be determined. This has different implications for education and research – economic development requires highly trained specialists from higher education (HE) and further education (FE)– innovation much more closely linked to HE/FE R&D.</p> <ul style="list-style-type: none"> • As well as the primary opportunities offered to existing business by the energy sector, there are numerous possible applications for new technologies and new businesses related to energy developments
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • 2007 <ul style="list-style-type: none"> ○ To maintain and enhance the employment provided by energy industries in the Orkney economy. Current estimates of 400 RE jobs. ○ In 2008, the vision was for Orkney to attract enough sufficient investment to fulfil its sustainable energy development goals. • 2021 <ul style="list-style-type: none"> ○ Orkney is recognised as an international centre of excellence for energy sector expertise. ○ Local content from energy related expenditure is maximised. ○ As much energy as possible is produced locally and delivered to the local market by local businesses, with a mutual supplier and user incentive for increased energy efficiency. ○ Maintain and enhance Orkney’s position as a strategic energy hub. ○ Orkney is established as an international test bed for sustainable energy technologies. ○ Potential obstacles never become the rate determining factor in energy developments. ○ Orkney is recognised as a centre of commercial innovation in the energy sector.
Vision in 2030	<ul style="list-style-type: none"> • 1,000 local jobs for non-Orkney residents. • 1,000 locally filled jobs. • Additional visiting workers – and identify some kind of residual benefit mechanism for Orkney • Establish local investment funds. • Prioritise/ build local capacity where there can be longer sustainability and continuity of use of the skills and facilities. • Capacity enhanced by knowledge exchange nationally and internationally . • Work with inward capacity in ways which still builds a win/ win situation locally e.g., local delivery partnering. • 100% local production of energy. • Local energy conversion for molecular energy. • Local buffer/ balancing storage capacity. • 100% local decarbonisation of electricity, transport and heat. • Orkney acting as an energy hub for nearby offshore wind production and from neighbouring communities. • Develop suitable energy export links. • Export the model elsewhere having successfully demonstrated it. • Orkney as a living laboratory. • Orkney as a recognised UK/ Scottish Innovation hub. • Orkney seeking designation as a sustainable development Catapult location (working with UKRI). • Local businesses encouraged to expand and grow into spaces. • Incoming businesses encouraged to fill remaining gaps and add necessary capacity . • Encourage collaboration and partnerships.

Major topic	8. Decent work and economic growth
Pathways from 2021 forwards	<ul style="list-style-type: none"> • Encourage and support developments that have lasting job opportunities. • Use local firms wherever possible and appropriate. • Grow local businesses to their full potential with the aim to break out of the “Small to Medium-sized Enterprises” culture. • Reassignment of existing energy jobs within the sector. • Recognise where inward investment can play an optimum role in terms of economic development. • Develop a package to encourage appropriate inward investment. • Show tangible support for indigenous and existing businesses so that the inward investment is not seen as a threat. • Examine the opportunities for establishing a carbon offsetting fund linked specifically to generation activities in Orkney. • Assess how experience and expertise can be used/ adapted to establish new and maintain existing energy industries. • Welcome outside experience where gaps exist but encourage training to enhance local skills. • Encourage local businesses to develop a range of skills and services to support the energy sector. • Promote the capabilities of the local energy sector to prospective customers. • Ensure that enough capacity exists within local businesses and communities to exploit the full range of opportunities associated with future energy developments. • Encourage local businesses to take on agency supply agreements for energy technologies. • Establish local energy generation and supply companies. • Encourage local energy users to purchase their energy from locally established suppliers. • Encourage the development of systems for using energy that are focussed upon energy types available locally. • Encourage investigation and investment in schemes that provide long-term benefits in terms of energy costs and energy security. • Seek recognition for Orkney as a strategic research hub in energy related areas. • Examine mechanisms for setting up an investment fund focussed on research, novel approaches and technologies. • Maintain and further develop the commitment to tertiary education and research within the community. • Consider the feasibility of using the processing infrastructure and skills on Flotta to examine commercial scale energy conversion to e.g., hydrogen.
Build upon	<ul style="list-style-type: none"> • Construction of the Flotta Oil Terminal and 25 years of terminal operation. • Continue the success and development of EMEC. • Development of extensive renewable energy supply chain. • Development Herriot Watt University and UHI campuses and others. • Over 100% of electricity demand met by renewables since 2013. • Development of hydrogen demonstration projects. • Establishment of Orkney renewable innovation campus (ORIC). • Availability of local skills and services to support onshore wind developments. • Provision of marine support vessels to assist with oil, gas and renewables operations. • High penetration of renewable technologies within Orkney (heat pumps, micro wind turbines, EVs and solar energy). • Well informed Orkney residents. • Orkney Energy audits completed in 2015 and 2019.

Major topic	8. Decent work and economic growth
	<ul style="list-style-type: none"> • Grid constraints and innovation around the Active Network Management (ANM) system.
To do	<ul style="list-style-type: none"> • Engage with Flotta Oil Terminal to repurpose infrastructure to support sustainable energy production including retraining available workforce. • Further develop EMEC into Centre of Excellence for Hydrogen and cement position for marine energy • Further develop renewables supply chain including diversification to support sustainable energy businesses. • Continued support to locally based universities HWU and UHI. This should also include recent RGU Orkney based initiatives. • Further research and optimisation of energy system as living laboratory for the rest of UK. • Continue to support local skills development. • Further development of local energy company taking account of local needs (e.g., ReFLEX).
Responsible parties	<ul style="list-style-type: none"> • OIC departments • OIC Economic Development • EMEC • OIC Harbours • Industry • OIC Development Services • HIE • ICIT, RGU, UHI • OREF • Scottish Government

A.9 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 9 BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

Major topic	9. Industry, Innovation and Infrastructure	
	UN SDG Targets within the Goal of Industry, Innovation and Infrastructure	Relevance to Orkney's Energy Strategy
Scope and definition	9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.	Orkney has worked for a number of years to enhance the grid connection to the UK mainland. This development would allow for a larger penetration of renewable energy and further enhance Orkney's path to net zero.
	9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.	Orkney has almost full employment and is also experiencing inward migration.
	9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.	A number of Orkney based energy related businesses have developed utilising grant support and government agency partnerships. There are still gaps in this provision as well as a challenging route to private investment.
	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.	Orkney already has over 100% of electricity demand coming from renewable energy. We are falling short on heat and in particular, transport. Overall Orkney still has a high percentage of fuel poverty. The community is ahead of most metrics (Scottish Government and UK Government targets) although often challenged by initiatives that do not consider island and remote communities
	9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending.	Orkney is home to two university campuses as well as inputs from other Scottish universities. Orkney is also positioning itself as a living laboratory available for innovative R&D projects across the energy sector. There are a number of SMEs within Orkney already undertaking significant R&D activity.
	9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States.	Orkney SMEs are already working across the globe, and particularly in developing countries and island areas to support sustainable energy projects including EMEC, Aquatera, CES, and ICIT.

Major topic	9. Industry, Innovation and Infrastructure	
	<p>9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities</p>	<p>Orkney, for a relatively small community, is already well invested in UK related R&D. EMEC is a world leading marine and hydrogen energy test centre. Local SMEs have also developed alongside EMEC to showcase technology developments.</p>
	<p>9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020.</p>	<p>Orkney is reasonably well connected although there still exists areas that do not have good connectivity. The ability to work from any location with good connection has been enhanced during the COVID-19 pandemic but still needs further roll out of better infrastructure.</p>
<p>Comment</p>	<ul style="list-style-type: none"> • There are a number of aspects to our existing infrastructure network that relate to energy either in terms of production, distribution or use. Any new infrastructure provisions should carefully consider the energy implications. • New buildings/ facilities provide an excellent opportunity for demonstrating how new energy efficient technologies can be incorporated. • There are a number of initiatives that OIC and other agencies should take advantage of to improve infrastructure in a coordinated and sustainable way. • Orkney’s energy use at present is calculated to be equivalent to 400,000 tonnes of CO₂⁷. In order to offset this amount of carbon emissions, Orkney would need to operate 230 MW of wind type renewables capacity, generating around 800 GWh of power. • Establishing where the balance lies between protection of localised populations and management of global issues such as greenhouse gas emissions is a key issue that needs to be resolved. 	
<p>Vision in 2007 and status in 2021</p>	<ul style="list-style-type: none"> • 2007 <ul style="list-style-type: none"> ○ Orkney should seek to develop infrastructure to facilitate development of the islands’ energy potential. ○ All energy comes from renewable/carbon free sources across public properties. • 2021 <ul style="list-style-type: none"> ○ All energy required for Orkney’s housing sector comes from renewable/ carbon free sources and the energy requirements of Orkney’s houses are reduced as far possible. ○ A full range of energy efficient/ saving technologies and appliances and micro-renewable energy generators should be available in Orkney. Advice, assistance and the technical skills to install and maintain the technologies exists within the county but should be enhanced. 	
<p>Vision in 2030</p>	<ul style="list-style-type: none"> • Establish a major offshore wind assembly and deployment hub – Scapa Flow Mega Wind Hub & Deepwater Quay. 	

⁷ Orkney Energy Audit, 2019. Available from Aquatera Ltd on request.

Major topic	9. Industry, Innovation and Infrastructure
	<ul style="list-style-type: none"> • Expansion of Kirkwall Hatston Pier. • No carbon emitting cruise liners. • All ports are green ports. • Host a fleet of decarbonised offshore support vessels. • Develop major ship refuelling/ charging capacity. • Majority of aircraft carbon free. • Kirkwall airport an aviation fuel/ charging innovation hub. • Continue to develop wave and tidal deployment capacity. • Use of an export electricity transmission cable. • Export hydrogen gas pipeline to St Fergus, Aberdeenshire. • Ammonia export capacity - possibly by ship. • Major electricity conversion plant. • Data rich road network for autonomous vehicle development. • Sea level protection strategies for Kirkwall, Stromness and St Margaret's Hope. • Upgrade and bury all electricity distribution wires. • All vehicles carbon free. • Extensive charging infrastructure • All oil boilers replaced with carbon free heating systems. • Major insulation programme completed. • All new property passive or carbon negative. • EV charging at all sites with parking. • Ongoing waste and packaging minimisation. • Reduction in waste food supply. • Replicate Stromness civic amenity site layout at other sites. • Actively promote recycling. • Readiness to handle batteries. • ReFLEX model for leasing appliances. • Ensure access for all to latest efficient technology. • High-capacity water tanks. • Micro-renewables access easy and widespread over 70% of homes.
Pathways from 2021 forwards	<ul style="list-style-type: none"> • Secure necessary support for initial infrastructure programme including indigenous and inward investment, develop a strategic energy infrastructure plan for medium- and longer-term requirements. • Ensure all new building developments (commercial or private) have energy plans. • Improve energy standards in existing buildings and consider retrofitting. • Work with local businesses to ensure that they stock full ranges of energy saving and efficient appliances. • Advertise and promote energy efficient technologies for the homes and businesses locally. • Provide manufacturers with the opportunity to test-run equipment and technologies in a challenging environment. • Develop options for adoption of hydrogen infrastructure building on "Big Hit" and "Heat Smart Orkney" projects. • Use funding appropriately.

Major topic	9. Industry, Innovation and Infrastructure
Build upon	<ul style="list-style-type: none"> • Well established ports throughout the county with good quayside facilities. • County wide energy Audits for 2015 and 2019. • Carbon footprint established for a number of businesses including OIC. • Number of housing and building initiatives already completed. • University campuses and expertise already within Orkney or working in Orkney. • ReFLEX project has developed Orkney wide modelling of energy systems. • Sustainable SMEs already established within Orkney.
To do	<ul style="list-style-type: none"> • Link up decarbonisation planning across county and industries. • Further development of local energy company taking account of local needs (e.g., ReFLEX). • Fully island proof Scottish and UK government initiatives. • Fully develop Island Centre for Net Zero. • Engage with Flotta Oil Terminal to repurpose infrastructure to support sustainable energy production including retraining available workforce. • Further develop Scapa Flow to take advantage of offshore wind leasing rounds. • Fully green Orkney ports. • Establish alternative fuel hub.
Responsible parties	<ul style="list-style-type: none"> • OIC, health board, housing association and other agencies responsible for housing • OIC Economic Development • EMEC • OIC Harbours • Industry • OIC Development Services • HIE • ICIT, RGU, UHI • OREF • Scottish Government • UK Government • Flotta Oil Terminal

A.10 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 10 REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

Major topic	10. Inequality and Communities	
	UN SDG Targets within the Goal of Industry, Innovation and Infrastructure	Relevance to Orkney's Energy Strategy
Scope and definition	10.1 By 2030, progressively achieve and sustain income growth and energy affordability of the bottom 40 per cent of the population at a rate higher than the regional average	Orkney has traditionally been a lower income community but recently this has been turned into a high than average wage community. This should be maintained and progressed alongside the development of a decarbonised community.
	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion, location, or economic or other status	Orkney is a fully inclusive society and individual communities regular promote full integration and equality within their projects.
	10.3 Ensure equal opportunity and reduce inequalities of outcome including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard	Orkney has little influence in national policy but can influence common practice where possible.
	10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	Orkney has little influence in national policy but can try and influence common practice where possible.
	10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations	Orkney has little influence on regulations and is often hampered within energy developments by regulation linked to national policy.
	10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions	OREF supports all areas of the community to become involved in Energy developments where possible.
	10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies	Orkney is promoted as a living laboratory and a test centre for a number of innovative areas of energy development including marine energy and hydrogen.
	10.a Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements	Maximise all opportunities for community-led ownership, civic responsibility and collective action where it supports an inclusive, fair and just increase and delivery of sustainable energy activity across all our islands and communities in Orkney.

Major topic	10. Inequality and Communities	
	10.b Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes	See 10a.
	10.c By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent	No Relevance to Orkney's Energy Strategy
Comment	<ul style="list-style-type: none"> • At present much of the investment capital from Orkney is invested elsewhere. Investment in renewables could provide good returns and ensure control of, and benefits from renewables remain as far as possible, in Orkney. • Maximise all opportunities for community-led ownership, civic responsibility and collective action where it supports an inclusive, fair and just increase and delivery of sustainable energy activity across all our islands and communities in Orkney. • Where the energy sector can deliver premium returns, benefits to the community can be realised. This can provide security for pension provision and reserve fund investment. • Although many people within society may not have cash to invest in energy related developments, the fees that they pay for services i.e., energy supply in part support energy investment. • There is a strong relationship between the community organisation and governance structures that are in place and the way in which community benefit may best be provided and accepted. • The potential for communities to generate significant wealth from renewable energy developments under their control provides a special opportunity for community benefit that occurs rarely. • Over recent times, communities have had little responsibility for the direct management of funds. Central government and local authorities have had the primary responsibility of providing facilities, services and resources to communities. In energy rich areas, such as Orkney, new forms of energy production such as renewables, but possibly including conventional energy sources as well, provide opportunities for communities to accumulate funds. Developing the decision-making processes and mechanisms for using and distributing these funds, fairly and effectively, is a key challenge. 	
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • 2007 <ul style="list-style-type: none"> ○ To establish both local and community investments that have the potential to generate long-term income opportunities that can be used for common good within the community whilst ensuring that all communities have the opportunity to invest in energy projects and benefit from any revenue generated. • 2021 <ul style="list-style-type: none"> ○ large number of community energy companies established to develop and manage local energy projects. Some of these making substantial returns to be re invested to the community benefits. Some have been severely restricted and stressed by poor internal electricity infrastructure. 	
Vision in 2030	<ul style="list-style-type: none"> • Maintain community energy projects. • Develop stronger internal electricity infrastructure. • Research and develop innovative energy use for the benefit of the community. • Establish local investment funds. 	

Major topic	10. Inequality and Communities
	<ul style="list-style-type: none"> • Presently have over £1.5B invested by Orkney elsewhere (population, business, public sector etc) • If 20% repatriated and invested locally = over £300M. • Seeking inward investment to help fund the energy transition, Cost estimated at £500M (Source: ReFLEX). • Priority benefit for community from creating jobs. • Installed community turbines are still operating and profitable. • OIC community windfarms are operating successfully. • Private wind farms encouraged to offer community benefit considerably above the £5000/MW/yr. • Encourage opportunities for local investment into development projects. • Establish equity across all parishes.
Pathways from 2021 forwards	<ul style="list-style-type: none"> • Investigate and establish the best community benefit mechanisms for Orkney. • Ensure community is at the centre of energy developments. • Minimise external profit grabbing. • Maximise local content in energy related projects. • Ensure local supply chain is developed within communities.
Build upon	<ul style="list-style-type: none"> • Existing community energy company experience and structures. • Strong community ethos. • Orkneys living laboratory concept. • Existing energy projects. • Educational establishments. • Supply chain companies.
To do	<ul style="list-style-type: none"> • Establish more community energy companies and projects. • Develop centre of excellence for hydrogen and cement position for marine energy. • Fully develop Island Centre for Net Zero Find sustainable energy funding for community projects. • Ensure communities benefit from any energy projects developed in the county. • Ensure equality across communities in the distribution of energy project benefits.
Responsible parties	<ul style="list-style-type: none"> • OIC Social Services • OIC Housing • OIC Technical Services • OHAL • NHS • Age Scotland • Cloudnet • Construction companies • Mobility providers • Fuel suppliers (managed transition out) • CES • HIE • Citizens Advice Bureau • ReFLEX • Energy supply chain • OREF

Major topic	10. Inequality and Communities
-------------	--------------------------------

A.11 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 11 MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

Major topic	11 Make cities and human settlements inclusive, safe, resilient and sustainable	
	UN SDG Targets within the Goal of Good health and well being	Relevance to Orkney's Energy Strategy
Scope and definition	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	A key component of the strategy is to improve the housing stock across Orkney particularly by encouraging energy efficient house building and the highest levels of insulation possible. This includes retrofitting and dealing with the hardest properties.
	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	Fully integrated transport and the use of low emission options for all public transport is encouraged across the islands. The development of car clubs, EV promotion and hydrogen infrastructure are all developments supporting this target.
	11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	Including energy in urban planning should support increased renewable penetration and developing consumer options for more sustainable energy living has been a feature of infrastructure Orkney developments.
	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	Orkney has some of the best cultural and natural resources. These have been harnessed to develop some of the most advanced sustainable energy projects globally and this has been done while protecting the cultural and natural integrity of the islands.
	11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	Orkney may not have high levels of poverty, but we do have some of the highest levels of fuel poverty in the UK. This needs to be addressed and finding options to tackle this is a key driver for the whole community. Developing projects that have a direct impact on consumers is a focus of a number of energy related projects in Orkney.
	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying	Waste in Orkney has for a number of years been recycled and also utilised within the waste to heat

Major topic	11 Make cities and human settlements inclusive, safe, resilient and sustainable	
	special attention to air quality and municipal and other waste management	system in Shetland. Although this supports this target there is more that we should strive for.
	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	Orkney has a large amount of natural landscape and affords access to all to enjoy its benefits.
	11.a Support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening national and regional development planning	Orkney has been developing the designation of a living laboratory and within this showing how integrating large amounts of renewable energy can be managed technically, as well as socially to help form the basis of future planning policies.
	11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels	Orkney has been developing the designation of a living laboratory and within this showing how integrating large amounts of renewable energy can be managed technically, as well as socially to help form the basis of future planning policies. This includes risk reduction and high levels of sustainability.
	11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local material	Orkney has supported hundreds of visits from countries across the globe to see how we are integrating new energy project into the community. A number of local companies have also been exporting the knowledge gained in Orkney to countries and communities across the globe.
Comment	<ul style="list-style-type: none"> • Fuel poverty <ul style="list-style-type: none"> ○ An estimated 31% of households in Orkney are fuel poor. ○ Orcadians have a wealth of experience and expertise in energy related areas. There are a number of energy activities which are of national or international significance. This experience has also been exported to other parts of the UK and the rest of the world. Gaining experience in a community where the community is responsible for their actions creates an integrity which is very useful in today's global market. • Renewable energy <ul style="list-style-type: none"> ○ Energy planning guidance over recent years has focussed upon wind turbine developments. ○ Although this type of energy scheme is the most prevalent at present, other forms of renewable energy are likely to become more common. Wider energy projects also still need to be planned appropriately. When it comes to marine energy projects there is at present no statutory role for the local authority in the planning process. • Heritage and history <ul style="list-style-type: none"> ○ Orkney has an extremely rich heritage of ancient and historical monuments. These range from the established World Heritage Site to many other visitor attractions to scheduled sites, known sites and perhaps most intriguingly the prospect of even greater 	

Major topic	11 Make cities and human settlements inclusive, safe, resilient and sustainable
	<p>sites that have yet to be discovered. Seeking an appropriate balance between modern day energy development and preservation of “historical setting” will be a key challenge.</p> <ul style="list-style-type: none"> • Orkney & the world <ul style="list-style-type: none"> ○ Establishing where the balance lies between protection of localised populations and management of global issues such as greenhouse gas emissions is a key issue that needs to be resolved. • Infrastructure <ul style="list-style-type: none"> ○ There are a number of aspects to our existing infrastructure network that relate to energy either in terms of production, distribution or use. Any new infrastructure provisions should carefully consider the energy implications that they will give rise to. ○ New buildings/facilities provide an excellent opportunity for demonstrating how new energy efficient technologies can be incorporated into buildings etc. ○ Domestic and industrial uses of energy are two important areas to be considered. Building in efficiency from the start provides the best opportunity for meeting local and national targets ○ Car ownership is relatively high in Orkney compared to Scotland. Fuel is expensive in Orkney due to transport surcharges. ○ Farming, fishing, construction, haulage and other industries that utilise commercial vehicles and vessels, contribute largely to Orkney’s carbon footprint yet directly sustain the local economy. It is, therefore, important to realise an alternative to the current fuels used in the County; as a reduction in the number of vehicles and vessels used in these industries is neither likely nor sought after as it would signal a decrease in productivity. ○ Our existing fuels are expensive to supply to Orkney. Novel locally produced fuels may therefore provide a cheaper alternative. ○ Buses and taxis provide an ideal opportunity for demonstrating change. ○ Our existing marine fuels are expensive and one of the largest sources of Carbon emissions in Orkney. Novel low carbon fuels may therefore provide a better option. • Waste management <ul style="list-style-type: none"> ○ When considering waste management in relation to energy, it is important to remember that energy is not only required for transporting and disposing waste, but for producing it. Therefore, by reducing the volume of unnecessary waste, which is increasingly being generated, energy can be saved in later stages of the ‘waste chain’. ○ It is also important to fully understand how energy can be more efficiently transported and disposed of, whilst fully realising the potential for energy generation from waste.
<p>Vision in 2007 and status in 2021</p>	<ul style="list-style-type: none"> • Vision in 2007 <ul style="list-style-type: none"> ○ To minimise energy wasted in the disposal of domestic and industrial waste whilst maximising the energy related opportunities associate with waste disposal, recycling and energy capture. ○ To eradicate fuel poverty across the County by reducing heating requirements through energy efficiency and saving measures and to also provide direct support to those in need. ○ The Orkney population adopts energy efficient behaviours and demonstrates a significant change in the levels of energy use ○ Orkney is recognised as an international centre of excellence for energy sector expertise

Major topic	11 Make cities and human settlements inclusive, safe, resilient and sustainable
	<ul style="list-style-type: none"> ○ As much energy as possible is produced locally and delivered to the local market by local businesses; with a mutual supplier and user incentive for increased energy efficiency. ○ Orkney is established as an international test bed for sustainable energy technologies ○ Orkney should seek to develop infrastructure to facilitate development of the islands' energy potential ○ All energy for public buildings comes from renewable/carbon free sources ○ All energy required for Orkney's housing sector comes from renewable/carbon free sources and the energy requirements of Orkney's houses are reduced as far possible ○ To replace all current buses and taxis with equivalent carbon free vehicles, creating a sustainable public transport fleet which is extensively used by the public as an alternative to private vehicles <p>•Status in 2021</p> <ul style="list-style-type: none"> ○ A full range of energy efficient/saving technologies and appliances and micro renewable energy generators are available in Orkney. Advice, assistance and the technical skills to install and maintain the technologies exists within the County ○ To reduce private vehicle usage and replace Orkney's conventional fuel supply with carbon free sources. ○ To establish an energy efficient, fully integrated inter-island transport system which flexibly meets the different needs of passengers, vehicles and freight ○ Orkney is seen as an international centre of excellence for energy related research and teaching ○ Energy is synonymous with the other quality values within a successful 'Orkney Brand' ○ That Orkney makes best use of the resources that it has available with regard to energy issues ○ To ensure that Orkney always has a relevant strategic energy plan which looks forward in short, medium and long-time scales. ○ That Orkney's rich archaeological and historical heritage and energy related developments find a way of accommodating each other within the landscape. ○ Orkney retains its reputation for rich wildlife populations and valuable habitats and is recognised as a pioneer in resolving perceived conflicts between energy development projects and conservation <p>•That Orkney becomes carbon neutral regarding own activities.</p>
<p>Vision for 2030</p>	<ul style="list-style-type: none"> •Fuel poverty Eradicated by 2030 •Changed behaviours to deliver greater energy efficiency and carbon reduction •100% local production of energy •Local energy conversion for molecular energy •100% local decarbonisation of electricity, transport and heat •Export the model elsewhere having successfully demonstrated it in Orkney •Orkney as a living laboratory •Orkney as a recognised UK/Scottish Innovation hub •Orkney seeking designation as a sustainable development Catapult location (working with UKRI) •Continue to develop wave and tidal deployment capacity •Export electricity transmission cable in place •All vehicles carbon free •Extensive charging infrastructure

Major topic	11 Make cities and human settlements inclusive, safe, resilient and sustainable
	<ul style="list-style-type: none"> • All oil boilers in public and private buildings replaced with carbon free heating systems. • Major insulation programme completed. • All new property passive or carbon negative • EV charging at all sites with parking • Actively promote recycling • Readiness to handle batteries for recycling • Micro-renewables access easy and widespread over 70% of homes • All private vehicles EVs • Number of private vehicles reduced from 11,000 to 6,000 • Much greater use of public transport and pooled use vehicles • 50% autonomous vehicles • Pick-up and drop vehicles at mainland Scotland hubs • Fleet fully decarbonised 100% • All ferries decarbonised • Local public are fully aware of energy and climate issues and are considered to be amongst the best informed nationally and globally. • A local community focussed energy agency leads on energy issues with strong links to but outside other interested entities • Orkney's energy planning guidance has been transformed into best in class for undertaking the energy transition in a just but progressive and effective way • Conservation management strategies have embraced the climate induced change that is taking place and the fact that renewables roll out is the best way of combating climate change • Generation projects still avoid key areas of environmental and social sensitivity and/or are managed to mitigate serious effects but risk management is less precautionary where key resources are needed • Energy developments in Orkney are seen as 'best in class' performers in terms of wider environmental relationships • Orkney is over 95% decarbonised by 2030
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Work with and support Thaw to reduce fuel poverty • Adequately fund fuel poverty eradication • Establish an organisation which allows mass public investment • Evaluate and if appropriate, encourage preferential investment of local moneys into renewable energy projects • Encourage community investment in energy related projects and initiatives • Establish a mechanism for all communities to invest in projects i.e., not solely those with resources (Community investment does not necessarily need to be Parish based) • Identify key areas of required behaviour change • Identify target groups • Raise awareness in energy related issues and inform people as to the actions that they can • Promote and encourage housing upgrades and insulation in new and existing buildings • Ensure that enough capacity exists within local businesses and communities to exploit the full range of opportunities associated with future energy developments • Establish local energy supply companies • Establish local energy generation companies • Seek recognition for Orkney as a strategic research hub in energy related areas • develop a strategic energy infrastructure plan for medium- and longer-term requirements

Major topic	11 Make cities and human settlements inclusive, safe, resilient and sustainable
	<ul style="list-style-type: none"> • Ensure all new builds have energy plans • Improve energy standards in existing builds • Develop and maintain energy efficiency standards in housing • Ensure all new large-scale housing developments have an energy plan • Determine and assess the carbon footprint associated with current waste disposal operations in Orkney and compare to all potential alternatives • Provide the necessary services and infrastructure for full recycling in Orkney (domestic and commercial) • Advertise and promote energy efficient technologies for the home locally • Promote Orkney as a destination for experimenting with new fuel systems • Investigate the potential for using alternative low carbon fuels across transport sector • Encourage the use of public buses as an alternative to private vehicles to maximise efficiency of internal travel from an energy perspective • Fully consider the merits of fixed bridge/causeway links with associated tidal power generation before investing in new ferries. If ferries are required, ensure that the vessels themselves are as efficiently powered as possible using alternative fuels if available. • Publish an annual energy review • Further build on existing promotional activities placing energy at the heart of 'Orkney the brand' • Ensure relevant facts and data are available for people interested in energy issues • Implement an energy management strategy that provides both energy and costs savings • Adopt an enlightened approach to energy issues, adopting such principles as 'spend to save' • Encourage the use of energy links and values within the promotion of other parts of the 'Orkney brand' e.g., tourism, food and drink production, cultural and artistic endeavours • Engage all sectors with an interest in energy issues • Seek resources to support an overall co-ordinating/facilitating body • Establish an Orkney sustainable Energy Agency • Ensure guidelines are flexible enough to accommodate ever changing technologies. • Ensure that direct damage to sites of significance is avoided • Identify sites where the setting has particular significance • Develop nature conservation management plans that, where appropriate, recognise the benefits of sustainable energy developments
Build upon	<ul style="list-style-type: none"> • Orkney reputation as a research and demonstration centre • Orkney designation as a marine energy park • The establishment of EMEC as foremost marine energy test facility in the world • High penetration of domestic renewable take uptake • High penetration of EVs • Strong EV infrastructure across mainland Orkney • High levels of understanding of energy issues across community • Two established university campuses • progressive housing association and building firms • OREF as an information resource • Progressive local council on energy matters • strong energy related supply Chain
To do	<ul style="list-style-type: none"> • Fully establish energy efficient building plans • Fully develop energy related plans for all infrastructure developments

Major topic	11 Make cities and human settlements inclusive, safe, resilient and sustainable
	<ul style="list-style-type: none"> • Develop centre of excellence for hydrogen and cement position for marine energy. • Develop integrated local transport policy to fully embrace decarbonisation • Further develop charging infrastructure • develop solutions for large transport decarbonisation • Further development of local energy company taking account of local needs (e.g., ReFLEX). • Re-establish energy advice centre for consumers • Develop heating solutions that support decarbonisation • Seek recognition for Orkney as a strategic research hub in energy related areas
Responsible parties	<ul style="list-style-type: none"> • OIC • HIE • OREF • CES • Building federation • THAW • VAO • Orkney Housing association • Hitrans • Local supply chain • Orkney Ferries

A.12 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 12 ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

Major topic	12 Ensure sustainable consumption and production patterns	
	UN SDG Targets within the Goal of Clean water and sanitation	Relevance to Orkney's Energy Strategy
Scope and definition	12.1 Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	Orkney has produced a strategy and now working on an action plan that is live. Orkney projects are developing solutions to energy sustainability that can be replicated across the globe
	12.2 By 2030, achieve the sustainable management and efficient use of natural resources	Orkney is already over 100% of electricity demand supplied by renewable energy and is working on efficiently using the abundant natural resources efficiently to increase sustainability
	12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	Orkney is predominantly a food producing region and has very limited food waste and has a highly regarded agricultural production industry
	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	Orkney has limited chemical pollutants although with agricultural there are strict controls on fertiliser use required to minimise waste and potential pollution.
	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Waste from Orkney is delivered to Shetland to a district heating scheme
	12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	There are a limited number of large companies within Orkney, but they are engaged in developing opportunities to become more sustainable. There are a number of options being investigated to decarbonise the Flotta oil terminal.
	12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	The procurement practices locally have been taking more account of sustainability within their decision-making processes

Major topic	12 Ensure sustainable consumption and production patterns	
	12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	Orkney has a very high level of public understanding of renewable energy, sustainability and also the values of our natural resource
	12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	Orkney based sustainable energy companies regularly travel across the globe to develop and support projects that have been trialled and demonstrated in Orkney
	12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and product	Orkney has had increasing numbers of tourists who are interested in energy. These are business and private interests and OREF have supported the development of an energy trail to show case what is going on
	12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	Orkney based companies are contracted across the globe to showcase how Orkney has integrated energy projects to support the development of a sustainable community
Comment	<p>The potential for communities to generate significant wealth from renewable energy developments under their control provides a special opportunity for community benefit that occurs rarely.</p> <p>Orcadians have a wealth of experience and expertise in energy related areas. There are a number of energy activities which are of national or international significance. This experience has also been exported to other parts of the UK and the rest of the world. Gaining experience in a community where you are accountable for all of your actions creates an integrity which is very useful in today's global market</p> <p>Orkney has a very large range of the services and expertise needed to support energy projects available locally</p> <p>Under present energy supply models, much of the value associated with our purchase of energy is exported to other places. Also, existing energy supply markets are currently based upon a link between the amount of energy used and the profitability of for the supplier, creating a business driver for reduced rather than increased efficiency.</p> <p>We seeking to be a centre of innovation developing novel ideas/technologies as world-wide leaders (or aspirations to be this)</p> <p>When considering waste management in relation to energy, it is important to remember that energy is not only required for transporting and disposing waste, but for producing it. Therefore, by reducing the volume of unnecessary waste, which is increasingly being generated, energy can be saved in later stages of the 'waste chain'.</p> <p>The first step in increasing awareness and understanding about energy issues is to provide information for people. Given the controversial nature of many of the issues related to energy it is very important that this information has a quality and integrity that gives people confidence</p>	

Major topic	12 Ensure sustainable consumption and production patterns
	<p>Having provided people with information, the next stage is to try and influence their behaviours so that people generally become more energy aware and energy efficient. In the end it is the individual behaviour of the public that will determine the success or otherwise of wider energy saving initiatives</p> <p>Orkney has a tradition of being involved in research and pioneering activities. Historically as well as in the present-day Orkney has sought to push the boundaries of knowledge and understanding</p> <p>All available evidence suggests that there is majority support for renewable energy developments.</p> <p>The way in which Orkney wants to portray itself internally and to the wider world is important. There are a number of existing initiatives underway, the degree to which, any energy strategy would impinge upon the existing messages, or contribute to any future messages, needs to be carefully assessed.</p> <p>The various technologies associated with energy production and use can have a number of direct impacts upon particular species, heritage, and landscape resources.</p> <p>With any planning of developments, the amount of development already underway and planned in Orkney will provide many opportunities for establishing best practice in environmental control, as has been the case with the existing oil related developments.</p>
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • Vision in 2007 <ul style="list-style-type: none"> ○ Communities feel that they have benefited appropriately from energy projects within the County ○ The Orkney population adopts energy efficient behaviours and demonstrates a significant change in the levels of energy use ○ Orkney attracts enough sufficient investment to fulfil its sustainable energy development goals ○ As much sustainable energy as possible is produced locally ○ Maintain and enhance Orkney's position as a strategic energy hub, currently fulfilled by Flotta, Scapa Flow and EMEC ○ Orkney is established as an international test bed for sustainable energy technologies ○ All energy comes from renewable/carbon free sources ○ To minimise energy wasted in the disposal of domestic and industrial waste whilst maximising the energy related opportunities associate with waste disposal, recycling and energy capture. ○ That energy related issues within Orkney are managed in a co-ordinated way that is seen as a role model. • Status in 2021 <ul style="list-style-type: none"> ○ To maximise the utilisation of home-grown food and home-produced goods, whilst ensuring that all exports and imports have the lowest possible carbon footprint. ○ The Orkney public is recognised as being particularly energy aware ○ Orkney is seen as an international centre of excellence for energy related research and teaching ○ Energy is synonymous with the other quality values within a successful 'Orkney Brand' ○ To ensure that Orkney always has a relevant strategic plan which looks forward in short, medium and long-time scales ○ Orkney retains its reputation for rich wildlife populations and valuable habitats and is recognised as a pioneer in resolving perceived conflicts between energy development projects and conservation • Energy developments in Orkney are seen as 'best in class' performers in terms of wider environmental relationships

Major topic	12 Ensure sustainable consumption and production patterns
Vision for 2030	<ul style="list-style-type: none"> • Ongoing change in energy behaviours to greater efficiency and carbon reduction • Ensure that the energy transition contributes to reducing risks through design and materials • Capacity enhanced by knowledge exchange nationally and internationally • Orkney as a living laboratory • Orkney as a recognised UK/Scottish Innovation hub • Orkney seeking designation as a sustainable development Catapult location (working with UKRI) • Alignment between local public sector and commercial sector interests • Incoming businesses encouraged to fill remaining gaps and add necessary capacity • Encourage collaboration and partnerships • Ongoing waste and packaging minimisation • Reduction in waste food supply • Micro-renewables access easy and widespread over 70% of homes • The Orkney energy story is well archived, chronicled and added to in an ongoing way • Carbon management dashboard for Orkney is running • Local public are fully aware of energy and climate issues and are considered to be amongst the best informed nationally and globally. • Information about just transition is fully available • Maintain open and information rich dialogue where options are explored, and as far as possible consensus reached about best ways forwards. • Orkneys sustainable energy credentials should be a core part of the wider Orkney brand • The 'Energy of Orkney' brand should be used and developed • Other energy related activities and organisations have established a strong governance, action, monitoring and reporting framework • Approach to strategic planning is being shared with other communities • Orkney considered as an exemplar • Orkneys protected sites have not suffered any material damage from energy developments • Conservation management strategies have embraced the climate induced change that is taking place and the fact that renewables roll out is the best way of combating climate change • Energy developments in Orkney are seen as 'best in class' performers in terms of wider environmental relationships
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Assess and test various investment tools • Source funding to support schemes and initiatives • Establish an organisation which allows mass public investment options • Encourage community investment in energy related projects and initiatives • Take the time required to investigate and establish the best community benefit mechanisms for Orkney • Explore the relationships between community generated income and centrally provided income • Identify key areas of required behaviour change • Raise awareness in energy related issues and inform people as to the actions that they can undertake • Promote and encourage housing upgrades and insulation in new and existing buildings • Assess how experience and expertise can be used/adapted to establish new and maintain existing energy industries • Welcome outside experience where gaps exist but encourage training to enhance local skills

Major topic	12 Ensure sustainable consumption and production patterns
	<ul style="list-style-type: none"> • Promote the capabilities of the local energy sector to prospective customers • Take an integrated approach to supply chain development covering all enterprise sectors (knowledge base, services, light industry, maritime, professional services) • Establish local energy supply and generation companies and an integrated energy system for the islands • Encourage the development of systems for using energy that are focussed upon energy types available locally • Guide new energy demand towards locally available energy sources • Recognise the strategic position of Orkney with regard to national and international energy flows • Encourage investigation and investment in schemes that provide long-term benefits in terms of energy costs and energy security • Encourage local innovation and assist where appropriate future opportunities exist • Seek recognition for Orkney as a strategic research hub in energy related areas • Encourage innovative, blue sky thinking, so that future opportunities are maximised and the reputation of the community for pioneering advances is maintained and enhanced • Secure necessary support for initial infrastructure programme including indigenous and inward investment, develop a strategic energy infrastructure plan for medium- and longer-term requirements • Determine and assess the carbon footprint associated with current waste disposal operations in Orkney and compare to all potential alternatives • Provide the necessary services and infrastructure for full recycling in Orkney (domestic and commercial) • Promote Orkney as a destination for experimenting with new fuel systems • provide incentives to businesses for using alternative fuels. • Encourage the commercial sector to use alternative fuels and energy efficient vehicles; thus demonstrating to their viability and sustainability • Encourage all parts of the energy sector to publish information which is available about activities, performance and consequences • Publish an annual energy review • Encourage, initiate and establish public energy awareness; focus on the benefits to the environment and the individual • Encourage the use of Orkney as a 'testing centre' • Implement an energy management strategy that provides both energy and costs savings • Adopt an enlightened approach to energy issues, adopting such principles as 'spend to save' • Have a rolling review of strategic plans on an annual basis • Develop targets for energy production and use • Maintain and enhance the protection of designated sites whilst encouraging appropriate energy developments • Monitor the relationships between energy developments and wildlife • Develop nature conservation management plans that, where appropriate, recognise the benefits of sustainable energy developments
Build upon	<ul style="list-style-type: none"> • Orkneys reputation as an energy community • High levels of community energy collaborative projects • The local sustainable energy supply chain • Strong local authority support for energy projects • EMEC developments

Major topic	12 Ensure sustainable consumption and production patterns
	<ul style="list-style-type: none"> • Links to Shetland waste energy project • High levels of local energy awareness • Strong energy credentials of the local community • A large number of energy related projects developed in Orkney • Community corporation ethos • Flotta oil terminal development towards energy transition
To do	<ul style="list-style-type: none"> • Further development of local energy company taking account of local needs (e.g., ReFLEX). • Become a centre of excellence for sustainable energy issues • Find investment options to support relevant energy related projects • Ensure that the Orkney environment and society is minimally affected by the integration of energy related projects • Engage with Flotta Oil Terminal to repurpose infrastructure to support sustainable energy production including retraining available workforce.
Responsible parties	<ul style="list-style-type: none"> • OREF • CES • OIC • HIE • Community development Trusts • Local energy supply chain • Flotta oil terminal

A.13 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 13 TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS*

Major topic	13 Take urgent action to combat climate change and its impacts*	
	UN SDG Targets within the Goal of Affordable and Clean Energy	Relevance to Orkney's Energy Strategy
Scope and definition	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	Orkney like everywhere have to deal with climate change. The production and use of energy is vital to combatting climate change and Orkney is supporting change to lower carbon economy. Orkney does also host an oil terminal
	13.2 Integrate climate change measures into national policies, strategies and planning	Orkney has already declared a climate emergency and decarbonisation is key to a number of policies
	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	Orkney hosts two university campuses that have various courses related to climate and sustainable energy. Orkney also has a very high awareness of sustainable energy across the general public
	13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	Orkney recognised, mandated and supported locally, nationally and internationally as an innovation hub, a centre of excellence, a living laboratory and a light house community for sustainable energy and carbon transition. Orkney based supply chain business also regularly export their sustainable energy expertise across the globe
	13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities * Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.	Orkney is seen as a showcase of how island and remote communities can embrace sustainability and deliver decarbonisation. Orkney based supply chain business and education establishments also regularly export their sustainable energy expertise across the globe.
Comment	Oradians have a wealth of experience and expertise in energy related areas. There are a number of energy activities which are of national or international significance. This experience has also been exported to other parts of the UK and the rest of the world. Gaining experience in a community where you are accountable for all of your actions creates an integrity which is very useful in today's global market.	

Major topic	13 Take urgent action to combat climate change and its impacts*
	<p>Orkney is seeking to be a centre of innovation developing novel ideas/technologies as world-wide leaders.</p> <p>As well as the primary opportunities offered to existing business by the sustainable energy sector, there are numerous possible applications for new technologies and new businesses related to energy developments and the focus on climate change.</p> <p>Farming, fishing, construction, haulage and other industries that utilise commercial vehicles and vessels, contribute largely to Orkney's carbon footprint yet directly sustain the local economy. It is therefore, important to realise an alternative to the current fuels used in the County; as a reduction in the number of vehicles and vessels used in these industries is neither likely nor sought after as it would signal a decrease in productivity.</p> <p>Our existing fuels are expensive carbon rich to supply to Orkney. Novel fuels may therefore provide a cheaper and lower carbon alternative.</p> <p>The issue of carbon emissions associated with air transport is currently under global scrutiny. The simple fact remains that, at this time, there is no alternative method for travelling long distances in the relatively short space of time that can be achieved by flying. It is likely therefore, that this will remain an attractive transport option for tourists, locals and businesses alike until a comparative alternative is realised.</p> <p>It is important to provide information to people, the next stage is to try and influence their behaviours so that people generally become more energy aware, climate aware and energy efficient. In the end it is the individual behaviour of the public that will determine the success or otherwise of wider energy saving initiatives.</p> <p>As well as addressing individual behaviour industry needs to be more aware and better informed on energy and climate issues and needs to make better decisions about energy use and energy saving opportunities. Orkney has a tradition of being involved in research and pioneering activities. Historically as well as in the present-day Orkney has sought to push the boundaries of knowledge and understanding.</p> <p>Because energy and climate influences every aspect of society it is easy for no-one to take responsibility. A key question is therefore how should energy related issues be organised strategically and by whom Orkney's energy use at present is calculated to be equivalent to 400,000 tonnes of CO₂. In order to offset this amount of carbon emissions Orkney would need to operate 230 MW of wind type renewables capacity, generating around 800 GWh of power.</p>
Vision in 2007 and status in 2021	<p>• Vision in 2007</p> <ul style="list-style-type: none"> ○ The Orkney population adopts energy efficient behaviours and demonstrates a significant change in the levels of energy use ○ Orkney attracts enough sufficient investment to fulfil its sustainable energy development goals ○ Orkney is recognised as an international centre of excellence for energy sector expertise ○ As much energy as possible is produced locally and delivered to the local market by local businesses ○ Orkney is established as an international test bed for sustainable energy technologies

Major topic	13 Take urgent action to combat climate change and its impacts*
	<ul style="list-style-type: none"> ○ Orkney should seek to develop infrastructure to facilitate development of the islands' energy potential ○ All energy comes from renewable/carbon free sources ○ Replace all current buses and taxis with equivalent carbon free vehicles, creating a sustainable public transport fleet which is extensively used by the public as an alternative to private vehicles ○ That Orkney becomes carbon neutral regarding own activities. <p>•Status in 2021</p> <ul style="list-style-type: none"> ○ To reduce private vehicle usage and replace Orkney's conventional fuel supply with carbon free sources. ○ To reduce the greenhouse gas emissions associated with commercial vehicles and vessels as much as practically and economically possible whilst encouraging and supporting commercial activity in the County ○ Orkney needs to offset the impacts that arise from air travel through the provision of clean energy in other sectors. ○ Availability of information is never a barrier to discussion and decision making ○ The Orkney public is recognised as being particularly climate and sustainable energy aware ○ Orkney is seen as an international centre of excellence for energy related research and teaching ○ Orkney's sustainable aspiration and needs are fully understood by all levels of key decision makers ○ Energy is synonymous with the other quality values within a successful 'Orkney Brand' ○ That energy related issues within Orkney are managed in a co-ordinated way that is seen as a role model. ○ That Orkney makes best use of the resources that it has available with regard to energy issues ○ There should be optimal exploitation of energy resources within a sustainable agenda ○ Orkney retains its reputation for rich wildlife populations and valuable habitats and is recognised as a pioneer in resolving perceived conflicts between energy development projects and conservation
Vision for 2030	<ul style="list-style-type: none"> •Ongoing change in energy behaviours to greater efficiency and carbon reduction •Individual awareness of carbon footprints and active management to zero •ReFLEX stimulus to customer behaviour •Prioritise/build local capacity where there can be longer sustainability and continuity of use of the skills and facilities •Capacity enhanced by knowledge exchange nationally and internationally •100% local production of energy •Local energy conversion for molecular energy •Local buffer/balancing storage capacity •100% local decarbonisation of electricity, transport an heat •Orkney acting as an energy hub for nearby offshore wind production and from neighbouring communities •Suitable energy export links •Export the model elsewhere having successfully demonstrated it in Orkney •Orkney as a recognised UK/Scottish Innovation hub •Encourage collaboration and partnerships

Major topic	13 Take urgent action to combat climate change and its impacts*
	<ul style="list-style-type: none"> • Focus of new business models appropriate for more sustainable approaches • No carbon emitting cruise liners • All ports green ports • Host a fleet of decarbonised offshore support vessels • Develop major ship refuelling/charging capacity • All aircraft carbon free • Kirkwall airport an aviation low carbon fuel/charging innovation hub • All new property passive or carbon negative • All oil boilers replaced with carbon free heating systems. • All private vehicles EVs • Number of private vehicles reduced from 11,000 to 6,000 • Smaller vehicles all EVs, 100% conversion • Larger vehicles hydrogen/ammonia and EVs, 80% conversion • All ferries decarbonised • All aircraft de-carbonised • All road haulage directly to and from Orkney decarbonised • Decarbonised delivery system co-ordinated with public transport • Latest climate monitoring and modelling data is available to presented regularly to the whole community • Carbon management dashboard for Orkney is running • Wider influence of Orkney example is tracked • Information to assist in individual and business transition is available • Local public are fully aware of energy and climate issues and are considered to be amongst the best informed nationally and globally • Information about just transition is fully available • People fully understand the commitment and changes they need to make and the expectations they need to have in order to combat climate change • All businesses have a decarbonisation plan • Carbon heavy and carbon dependent businesses make offset contribution to help accelerate overall decarbonisation • The number of jobs related to carbon transition and affected by it are monitored and reported • Basis for decarbonisation and climate change adaptation is embedded into the educational curriculum • Orkney recognised internationally as a centre of sustainable energy excellence • Orkney leads or is a leading contributor in discussions and considerations of energy issues on and around Orkney • The steps taken in the energy transition need to be fair, justified and well managed • Orkneys sustainable energy credentials should be a core part of the wider Orkney brand • Project and activity implementation is monitored in a way which feeds back into future decisions • Conservation management strategies have embraced the climate induced change that is taking place and the fact that renewables roll out is the best way of combating climate change • Orkney is over 95% decarbonised by 2030
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Identify key areas of required behaviour change • Identify target groups • Raise awareness in energy related issues and inform people as to the actions that they can undertake

Major topic	13 Take urgent action to combat climate change and its impacts*
	<ul style="list-style-type: none"> • Assess how experience and expertise can be used/adapted to establish new and maintain existing energy industries • Welcome outside experience where gaps exist but encourage training to enhance local skills • Appropriate consultation on Orkney's future roles • Encourage local innovation and assist where appropriate future opportunities exist • Seek recognition for Orkney as a strategic research hub in energy related areas • Consider the feasibility of using the processing infrastructure and skills on Flotta to examine commercial scale energy conversion to e.g., hydrogen • Ensure all new builds have energy plans • Determine and assess the carbon footprint associated with current waste disposal operations in Orkney and compare to all potential alternatives • Investigate the potential for using alternative and novel fuels for example, consider switching Orkney's diesel fuel supply to biodiesel • Promote Orkney as a destination for experimenting with new fuel systems • Liaise with local garages and car dealers to provide local alternatives to conventional vehicles and fuel • Provide incentives for first time buyers to buy energy efficient e.g., hybrid vehicles • Investigate the potential for using alternative and novel fuels in commercial vehicles. • Provide incentives to businesses for using alternative fuels • Encourage the use of public buses as an alternative to private vehicles thus strengthening the market and funds available for modernisation whilst reducing the impacts of increasing private vehicle use • Look at the island groups individually and collectively to ascertain how best to provide an energy efficient transport service • Determine Orkney's air travel carbon footprint and allocate part of our energy generation to offsetting potential • Determine the best means for offsetting the carbon emissions associated with air transport in Orkney • Encourage all parts of the energy sector to publish information which is available about activities, performance and consequences • Work with companies and businesses to develop climate change and energy strategies. • Encourage and practice transparency and openness • Gauge public opinion on energy matters • Have regular debates about energy related issues • Establish an Orkney sustainable Energy Agency • Have a rolling review of strategic plans on an annual basis • Develop targets for energy production and use • Exploit the full capacity of existing grid infrastructure, through active management. • Support the establishment of a new grid connection and build a further 180 MW of renewables capacity
Build upon	<ul style="list-style-type: none"> • High levels of energy and sustainable awareness within Orkney community • Establish businesses in energy, sustainable sector within Orkney • Establishment of OREF • Establishment of EMEC • Marine renewable developments within Orkney • Hydrogen developments with Orkney • Two fully established universities within Orkney and strong connections to others

Major topic	13 Take urgent action to combat climate change and its impacts*
	<ul style="list-style-type: none"> • Supportive local authority • Climate targets established for OIC and a number of other public companies. • Funding opportunities to de carbonise • The need to do it • High levels of renewable generation already established • ReFLEX project • OIC climate change post
To do	<ul style="list-style-type: none"> • Secure commitment of vision for 2030 from all Orkney companies and organisations working within the energy and infrastructure sectors. • Fully understand climate change implications • Further development of local energy company taking account of local needs (e.g., ReFLEX). • Become a centre of excellence for sustainable energy issues • Develop centre of excellence for hydrogen and cement position for marine energy. • Fully develop Island Centre for Net Zero • Get national recognition for work to date • Fully develop sustainable energy and climate change opportunities with farming and fishing industries
Responsible parties	<p>OIC Universities Energy supply chain General public HIE HITRANS Transport operators</p>

A.14 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 14 CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

Major topic	14. Life below Water	
	UN SDG Targets within the Goal of Life below Water	Relevance to Orkney's Energy Strategy
Scope and definition	<p>14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution</p>	<p>As stated in relation to Goal 2. Zero Hunger, decarbonisation of Orkney's agriculture will be undertaken as part of this Strategy. This should be carried out with the additional priority of significantly reducing nutrient pollution into the marine environment.</p> <p>Renewable energy should offset more polluting forms of energy production, so more clean energy protects the seas</p>
	<p>14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans</p>	<p>Sustainable management of marine and coastal ecosystems is required by law in Orkney through Scottish and UK legislation. This is upheld to a high standard and supplemented through the marine planning framework.</p>
	<p>14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels</p>	<p>As a living laboratory, Orkney's R&D and marine biological expertise is extremely strong. In adapting to climate change through this Energy Strategy, Orkney's Living Laboratory will also continue to study the effects of climate change such as ocean acidification. This knowledge should be reflected in all energy related policies and activities in Orkney.</p> <p>Quicker and greater roll out of renewables will contribute to reducing acidification.</p>
	<p>14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics</p>	<p>Not relevant in an Energy Strategy context.</p>

Major topic	14. Life below Water	
	<p>14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information</p>	<p>All energy related infrastructure developments will be carried out through the lens of environmental stewardship at all times, as required by law.</p> <p>Offshore renewable energy development areas can contribute to conservation of certain habitats and species.</p>
	<p>14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation</p>	<p>Not relevant in an Energy Strategy context.</p>
	<p>14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism</p>	<p>Orkney SMEs are already working across the globe, and particularly in developing countries and island areas to support sustainable energy projects including EMEC, Aquatera, CES, and ICIT. These projects are frequently related to working sustainably within the marine environment and hence involve local fisheries, aquaculture and tourism sectors.</p>
	<p>14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries</p>	<p>As a living laboratory, Orkney's R&D and marine environmental expertise is extremely strong. In adapting to climate change through this Energy Strategy, Orkney's Living Laboratory will also continue to study the effects of climate change and how new technologies can improve ocean health. This knowledge should be reflected in all energy related policies and activities in Orkney</p>
	<p>14.b Provide access for small-scale artisanal fishers to marine resources and markets</p>	<p>Not relevant in an Energy Strategy context.</p>
	<p>14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want</p>	<p>Renewable energy production in the sea can contribute to better ocean health and biodiversity if planned and implemented in optimal ways</p>

Major topic	14. Life below Water
Comment	<p>Orkney has very close ties to the marine environment, enjoying the many resources that it provides for fishing, sailing, swimming, diving, aquaculture, marine energy, coastal walking, hiking and climbing and for connectivity to the Scottish mainland. This connection to the marine environment works in parallel with the stewardship that is built into all activities within the marine environment as prioritised by the Orkney community.</p> <p>The importance of environmental stewardship over the marine environment within the Orkney community is echoed in local and national policy and legislation. There are legal requirements to protect the marine environment and the animals that live there through all kinds of development or activity that may affect it.</p> <p>There is a wealth of experience and expertise in Orkney around the concept of environmental stewardship for the marine environment, through the Council, EMEC, the universities and SMEs. As this Energy Strategy is implemented, there will be a need to incorporate and prioritise environmental stewardship in all aspects of infrastructure and energy-based developments to ensure that an appropriate balance is struck between minimising damage to the environment and implemented climate change adaptation strategies.</p> <p>It is important to note that Climate Change may have a more significant impact to life below water and on land, than any particular infrastructure or energy related developments in Orkney. It is therefore extremely important to tackle the carbon-based nature of our current energy systems and work towards Net Zero goals. However, this must be done in a way that minimises the impacts to biodiversity and habitats below water.</p>
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • Vision in 2007 <ul style="list-style-type: none"> ○ In attempting to influence energy related behaviours, it is important to focus on the benefits to the individual as well as on those to the environment. For example, by demonstrating that money can be saved by; incorporating energy efficiency measures into the home, car sharing and using alternative (active) modes of transport, more people may take notice; not everyone is environmentally conscious. • Status in 2021 <ul style="list-style-type: none"> ○ Individual awareness of carbon footprints and active management to zero
Vision for 2030	<ul style="list-style-type: none"> • All aspects of the Orkney Energy Strategy to strive towards decarbonisation of Orkney's Energy systems and hence tackle climate change-based risks to the marine environment. • All aspects of the implementation of the Energy Strategy such as offshore renewable energy developments (Offshore wind, wave and tidal energy), port and harbour infrastructure development (Scapa Flow Mega Wind Hub & Deepwater Quay) are carried out with the highest standard of environmental stewardship as a key priority. Close consultation and collaboration with key marine stakeholders such as Marine Scotland, NatureScot, the Wildlife Trust Scotland, RSPB and SEPA. • Decarbonisation of agricultural practises in line with this Energy Strategy carried out with high standard of environmental stewardship in relation to potential impacts on the marine environment through nutrient run off.
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Prioritise the protection of designated sites and areas • Learn through trials and experience whether perceived impacts, conflicts and benefits actually occur • Adapt management and protection strategies to take account of that learning • Maintain and enhance the protection of designated sites whilst encouraging appropriate energy developments
Build upon	<ul style="list-style-type: none"> • Environmental awareness calendar distributed

Major topic	14. Life below Water
	<ul style="list-style-type: none"> • Energy developments in Orkney are seen as 'best in class' performers in terms of wider environmental relationships
To do	
Responsible parties	<ul style="list-style-type: none"> • Environmental groups and organisations • Major employers • OIC (including at elected member level) • SMEs in Orkney • Third Sector in Orkney • NHS Orkney • UHI and HWU (Higher Education)

A.15 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 15 PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

Major topic	15. Life on Land	
	UN SDG Targets within the Goal of Life on Land	Relevance to Orkney's Energy Strategy
Scope and definition	<p>15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements</p>	<p>As stated in relation to Goal 2. Zero Hunger, decarbonisation of Orkney's agriculture will be undertaken as part of this Strategy. This should be carried out with the additional priority of significantly reducing nutrient pollution into the marine environment.</p> <p>Need to be very clear and understanding of actual impacts of existing and transitional energy technologies and systems on land ecosystems. The current baseline is in many cases neither favourable nor static.</p>
	<p>15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally</p>	<p>Consider best forms of carbon sequestration through land use practises in Orkney</p>
	<p>15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world</p>	<p>All strategies to reform and modernise the land use strategies in relation to decarbonisation must be carried out with the additional priority of restoring degraded land and soil or maintaining land and soil quality. This is particularly relevant to agricultural practises and the management and enhancement of peatlands in Orkney.</p>
	<p>15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development</p>	<p>Not relevant in an Orkney context.</p>
	<p>15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species</p>	<p>Sustainable management of terrestrial ecosystems is required by law in Orkney through Scottish and UK legislation. This is upheld to a high standard and supplemented through the planning framework.</p> <p>All energy related infrastructure developments will be carried out through the lens of</p>

Major topic	15. Life on Land	
		environmental stewardship at all times, as required by law.
	15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	Not relevant in an Energy Strategy context.
	15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	Not relevant in an Energy Strategy context.
	15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	Sustainable management of terrestrial ecosystems is required by law in Orkney through Scottish and UK legislation, with specific reference to management of invasive non-native species. This is upheld to a high standard and supplemented through the planning framework. All energy related infrastructure developments will be carried out through the lens of environmental stewardship at all times, as required by law.
	15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	Not relevant in an Energy Strategy context.
	15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	Environmental stewardship and conservation should be prioritised within all aspects of energy related development or reform. This includes appropriate levels of funding for that management and monitoring. Use a portion of investment returns for biodiversity management.
	15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	Not relevant in an Orkney context.
	15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities	Not relevant in an Orkney context

Major topic	15. Life on Land	
Comment	<p>Orkney is internationally renowned for its landscape diversity, and the local wildlife and scenery plays a significant role in attracting tourists and new inhabitants to the Islands; therefore, playing an important role in the local economy. This connection to the environment works in parallel with the stewardship that is built into all activities within the environment as prioritised by the Orkney community.</p> <p>There has been a particular focus upon the visibility and landscape aspects related to wind turbine developments. These issues have the potential to swamp other, perhaps more important, aspects of energy development. The degree of subjectivity and the varying opinions associated with these issues make them particularly difficult to assess, manage and resolve.</p> <p>The importance of environmental stewardship over terrestrial ecosystems within the Orkney community is echoed in local and national policy and legislation. There are legal requirements to protect the environment and the animals that live there through all kinds of development or activity that may affect it.</p> <p>Existing designated areas are often considered sacrosanct to development. As experience is gained of operating new energy technologies the validity of such exclusions can be better understood. The intensity of sensitivities and development potential in Orkney provides an interesting opportunity for resolving some of these issues locally but with wider application.</p> <p>There is a wealth of experience and expertise in Orkney around the concept of environmental stewardship for the marine environment, through the Council, EMEC, the universities and SMEs. As this Energy Strategy is implemented, there will be a need to incorporate and prioritise environmental stewardship in all aspects of infrastructure and energy-based developments to ensure that an appropriate balance is struck between minimising damage to the environment and implemented climate change adaptation strategies.</p> <p>It is important to note that Climate Change may have a more significant impact to life on land, than any particular infrastructure or energy related developments in Orkney. It is therefore extremely important to tackle the carbon-based nature of our current energy systems and work towards Net Zero goals. However, this must be done in a way that minimises the impacts to biodiversity and habitats below water.</p>	
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • Vision in 2007 <ul style="list-style-type: none"> ○ In attempting to influence energy related behaviours, it is important to focus on the benefits to the individual as well as on those to the environment. For example, by demonstrating that money can be saved by; incorporating energy efficiency measures into the home, car sharing and using alternative (active) modes of transport, more people may take notice; not everyone is environmentally conscious. • Status in 2021 <ul style="list-style-type: none"> ○ Orkney retains its reputation for rich wildlife populations and valuable habitats and is recognised as a pioneer in resolving perceived conflicts between energy development projects and conservation ○ Individual awareness of carbon footprints and active management to zero 	
Vision for 2030	<ul style="list-style-type: none"> • All aspects of the Orkney Energy Strategy to strive towards decarbonisation of Orkney's Energy systems and hence tackle climate change-based risks to the marine environment. • All aspects of the implementation of the Energy Strategy such as offshore renewable energy developments (Offshore wind, wave and tidal energy), port and harbour infrastructure development (Scapa Flow Mega Wind Hub & Deepwater Quay) are carried out with the highest 	

Major topic	15. Life on Land
	<p>standard of environmental stewardship as a key priority. Close consultation and collaboration with key stakeholders such as Orkney Islands Council, Marine Scotland, NatureScot, the Wildlife Trust Scotland, RSPB and SEPA.</p> <ul style="list-style-type: none"> • Decarbonisation of agricultural practises in line with this Energy Strategy carried out with high standard of environmental stewardship in relation to potential impacts on the environment through nutrient run off.
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Prioritise the protection of designated sites and areas • Learn through trials and experience whether perceived impacts, conflicts and benefits actually occur • Adapt management and protection strategies to take account of that learning • Maintain and enhance the protection of designated sites whilst encouraging appropriate energy developments
Build upon	<ul style="list-style-type: none"> • A more progressive approach to managing change in the landscape has been developed and applied which provides better protection where required and greater freedom where appropriate. • Environmental awareness calendar distributed • Energy developments in Orkney are seen as 'best in class' performers in terms of wider environmental relationships
To do	<ul style="list-style-type: none"> • Continue developing improved understanding about the trends and requirements of local habitats and species • Explore areas of possible impact, coexistence, synergy between habitats and species and energy related developments • Monitor the relationships between energy developments and wildlife • Develop nature conservation management plans that, where appropriate, recognise the benefits of sustainable energy developments
Responsible parties	<ul style="list-style-type: none"> • Environmental groups and organisations • Major employers • OIC (including at elected member level) • SMEs in Orkney • Third Sector in Orkney • NHS Orkney • UHI and HWU (Higher Education)

A.16 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 16 PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS

Major topic	16. Peace, justice and strong institutions	
	UN SDG Targets within the Goal of Peace, justice and strong institutions	Relevance to Orkney's Energy Strategy
Scope and definition	16.1 Significantly reduce all forms of violence and related death rates everywhere	Not relevant in Energy Strategy context.
	16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children	Not relevant in Energy Strategy context.
	16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all	Regulatory justice is important in energy systems; many established regulatory frameworks favour centrist development strategies (from central government). The localisation of decisions and flexibility are key to developing new sustainable energy systems.
	16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime	Not relevant in Energy Strategy context.
	16.5 Substantially reduce corruption and bribery in all their forms	Not relevant in Energy Strategy context.
	16.6 Develop effective, accountable and transparent institutions at all levels	Energy arena has competing jurisdictional responsibilities between and challenging roles and responsibilities through regional bodies, quangos, regulators and other agencies.
	16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels	Systems of gauging opinion, consulting upon options and leading essential transition need to be improved
	16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance	Need more regional representation at national level.

Major topic	16. Peace, justice and strong institutions	
	16.9 By 2030, provide legal identity for all, including birth registration	Not relevant in Energy Strategy context.
	16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements	Rights over energy data need to be better understood and managed for the consumers/ data originator’s benefit.
	16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime	Not relevant in Energy Strategy context.
	16.b Promote and enforce non-discriminatory laws and policies for sustainable development	Ensure regional and island appropriateness of rules and regulations
Comment	<p>Orkney needs to engage with outside bodies to support:</p> <ul style="list-style-type: none"> • Encouraging inward investment • Grid connectivity • Allocation of research and facility development funds • Permitting procedures for larger scale and marine projects • The Role of The Crown Estate/ Crown Estate Scotland <p>The OIC has a key role in demonstrating that energy efficiency and novel energy technologies can work effectively. It can lead by example with regards to:</p> <ul style="list-style-type: none"> • OIC’s own policy in house • Facilitating wide community development • Consultation and engagement processes <p>The overall management strategy for energy developments will be best delivered when it is closely tied to the resources that are available. Resource availability encompasses technological practicality, reasonable cost and planning acceptability. All of these factors need to be addressed within any strategic development framework and any performance factors that are developed also need to take account of these factors</p>	
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • 2007 <ul style="list-style-type: none"> ○ Orkney’s aspiration and needs are fully understood by all levels of key decision makers. ○ That energy related issues within Orkney are managed in a co-ordinated way that is seen as a role model. ○ That Orkney makes best use of the resources that it has available with regard to energy issues. • 2021 <ul style="list-style-type: none"> ○ OIC to become recognised as a leading authority in energy management issues. ○ Energy is synonymous with the other quality values within a successful ‘Orkney Brand’. ○ That the strategic reserve fund is able to grow through investment in local initiatives that give a good rate of return. 	

Major topic	16. Peace, justice and strong institutions
	<ul style="list-style-type: none"> ○ That where a strategically important opportunity is identified consideration is given to using the fund to create long term sustainable benefits to the community. ○ The optimal exploitation of energy resources within a sustainable agenda.
Vision for 2030	<ul style="list-style-type: none"> • Orkney seeks to maintain strong links to its neighbouring island groups, Scotland, UK, Europe, Scandinavia, the Arctic and international islands network despite any political upheavals with a strong island identity. • Orkney leads or is a leading contributor in discussions and considerations of energy issues on and around Orkney (including offshore waters beyond 12 nm). • Orkney has recognition, mandate, and flexibility to explore pioneering approaches to tackling sustainable energy issues at a Scottish and/or UK level. • A local community focussed energy agency leads on energy issues with strong links to but outside other interested entities. • The steps taken in the energy transition need to be fair, justified and well managed. • The reasons for doing and not doing things need to be fully explained and transparent. • People's opinions on key choices and their satisfaction with the transition process should be periodically monitors through opinion polls or similar. • Orkneys sustainable energy credentials should be a core part of the wider Orkney brand • The 'Energy of Orkney' brand should be used and developed. • Sub branding around particular achievement and approaches should be used. • People and organisations should be recognised as ambassadors where suitable alignment and understanding is demonstrated. • The energy agency and other energy related activities and organisations have established a strong governance, action, monitoring and reporting framework. • Orkney has become a major investor in its own energy future. • Private, and public resources have been deployed to create progressive infrastructure. local generation and export generation, along with energy conversion capacity. • Local jobs have been created and supported by the public sector through a positive localisation strategy. • That the strategic reserve fund and other strategic resources have been mobilised to help Orkney achieve decarbonisation. • The value of the local funds have doubled. • The return from the funds have increased to over £20million per year. • The investments made equate to over £400 million. <p>Key focus areas are:</p> <ul style="list-style-type: none"> • Local investments • Offsetting investments • Decarbonisation levels • Local content and benefit • Environmental stewardship
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Ensure success of islands bill and Islands Deal. • Develop islands proofing for all Scottish and UK legislation and energy initiatives. • Continue inter island collaborations. • Ensure energy policy supports Orkney's aspirations. • Maintain research and development status for Orkney. • Ensure Orkney benefits from Offshore wind licensing rounds.

Major topic	16. Peace, justice and strong institutions
Build upon	<ul style="list-style-type: none"> • Existing support of OIC • Crown Estate Scotland licencing • Islands Deal and Island Bill
To do	<ul style="list-style-type: none"> • Further development of local energy company taking account of local needs (e.g., ReFLEX). • Deliver Islands Deal. • Lobby government to island proof regulation. • Develop flexibility in nationally applied regulation to allow for innovation opportunities to be trailed in Orkney. • Fully island proof Scottish and UK government initiatives.
Responsible parties	<ul style="list-style-type: none"> • Scottish Government • UK Government • OIC • Crown Estate Scotland • Other island authorities • Islands Centre for Net Zero

A.17 ORKNEY ENERGY STRATEGY IN RELATION TO THE UN SUSTAINABLE DEVELOPMENT GOAL 17 STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

Major topic	17. Partnership for the goals	
	UN SDG Targets within the Goal of Partnerships for the goals	Relevance to Orkney's Energy Strategy
Scope and definition	Finance 17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection Continue to make tax avoidance difficult and all taxation progressive	Not relevant in Energy Strategy context.
	17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries Apply the 0.7% assistance level to local spend with 0.35% local and 0.35% international	Not relevant in Energy Strategy context.
	17.3 Mobilize additional financial resources for developing countries from multiple sources Invest 5% of funds locally and 5% internationally	Not relevant in Energy Strategy context.
	17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress Make debt more available locally	Not relevant in Energy Strategy context.
	17.5 Adopt and implement investment promotion regimes for least developed countries Develop a local investment regime	Not relevant in Energy Strategy context.

Major topic	17. Partnership for the goals	
	<p>Technology</p> <p>17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism.</p> <p>Work with neighbours, island twins and other likeminded communities to achieve goals. Also embrace Nordic heritage links</p>	<p>Orkney is well established centre of research and development and as such has support a large number of visitors to see technology, integration and community benefit from renewable energy.</p> <p>Orkneys supply chain have established global businesses that support energy related projects across the world</p>
	<p>17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed</p> <p>Engage in carbon transition globally</p>	<p>Orkney promote sustainable projects across the globe and foster community involvement</p>
	<p>17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology</p>	<p>Ensure Orkney is at the forefront of the technology, data, connectivity and carbon transition revolution. Help other island communities to achieve the same.</p>
	<p>17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation.</p> <p>Use local skills and expertise wherever possible, share learnings and best practise regionally and globally</p>	<p>Orkneys supply chain have established global businesses that support energy related projects across the world</p> <p>Orkney supports international project by hosting visits and exporting locally gain expertise to projects across the globe</p> <p>Orkney supply chain support the establishment of local capacity</p>
	<p>17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda</p> <p>Encourage and maintain free trade and service provision across jurisdictional boundaries</p>	<p>Not relevant in Energy Strategy context.</p>
	<p>17.11 Significantly increase the exports of developing countries, in particular with a view to</p>	<p>Address Orkney's 80% trade deficit as a priority, wherever we sell try to buy back or build local capacity</p>

Major topic	17. Partnership for the goals	
	doubling the least developed countries' share of global exports by 2020	Orkneys supply chain have established global businesses that support energy related projects across the world
	17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access	Not relevant in Energy Strategy context.
	17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence	Link local policy where appropriate to Scottish, UK and international policy and seek policy alliances at all of these levels as well.
	17.14 Enhance policy coherence for sustainable development	Address SDGs in all that we do
	17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development	Allow communities to help determine their own futures, help don't dictate.
	Multi-stakeholder partnerships 17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries	Promote use of the SDGs in methods and systems
	17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	Build on the concept of Team Orkney, actively seek out partnerships at local, regional, national and international levels
	Data, monitoring and accountability 17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic	Non-discriminatory approach to data handling and digital communications (May need direct action)

Major topic	17. Partnership for the goals	
	location and other characteristics relevant in national contexts	
	17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries	Orkney has very strong data management and also has already completed two energy audits to fully understand the market. This should be continued to fully understand the impact of sustainable developments on the island
Comment	<p>There is a strong relationship between the community organisation and governance structures that are in place and the way in which community benefit may best be provided and accepted. The potential for communities to generate significant wealth from renewable energy developments under their control provides a special opportunity for community benefit that occurs rarely.</p> <p>The amount and type of money spent locally on the back of development projects is one of the key areas where local benefits can be found. Orkney has a very large range of the services and expertise needed to support energy projects available locally. This means that the opportunity for local content in projects is likely to be larger than would be the case elsewhere.</p> <p>The way in which Orkney wants to portray itself internally and to the wider world is important. There are a number of existing initiatives underway, the degree to which, any energy strategy would impinge upon the existing messages, or contribute to any future messages, needs to be carefully assessed.</p>	
Vision in 2007 and status in 2021	<ul style="list-style-type: none"> • Vision in 2007 <ul style="list-style-type: none"> ○ Orkney is recognised as a centre of commercial innovation in the energy sector • Status in 2021 <ul style="list-style-type: none"> ○ Fully established supply chain with international connections ○ Promote Orkney as a living laboratory and support visits to the island ○ Encourage local participation with international visits ○ Orkney is recognised as a centre of commercial innovation in the energy sector 	
Vision for 2030	<ul style="list-style-type: none"> • Local businesses encouraged to expand and grow into spaces • Incoming businesses encouraged to fill remaining gaps and add necessary capacity • Encourage collaboration and partnerships • Focus of new business models appropriate for more sustainable approaches • Establish centre or centres of excellence 	
Pathways from 2022 forwards	<ul style="list-style-type: none"> • Support visits to island and global reach of supply chain • Establish funding support for island visits • Establish energy tourism opportunities • Develop cross selling across sectors (food, drink, energy, environment, history) 	

Major topic	17. Partnership for the goals
Build upon	<ul style="list-style-type: none"> • Establish supply chain • Visit Orkney and destination Orkney support • Orkney quality branding • Orkneys “can do attitude” • links with SDI and other agencies
To do	<ul style="list-style-type: none"> • Establish a fund to further support promotional activity • Establish energy tourism • Further develop renewables supply chain including diversification to support sustainable energy businesses. • Develop the research and demonstration opportunities linked to the establish Orkney as a research centre
Responsible parties	<ul style="list-style-type: none"> • Visit Orkney • Destination Orkney • Supply Chain • EMEC • Local and national press • OIC • Other local industry bodies • SDI • HIE • Trade bodies (SHFCA etc)