Draft

# Sustainable Orkney Energy Strategy 2017-2025

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## Sustainable Orkney Energy Strategy Diagram

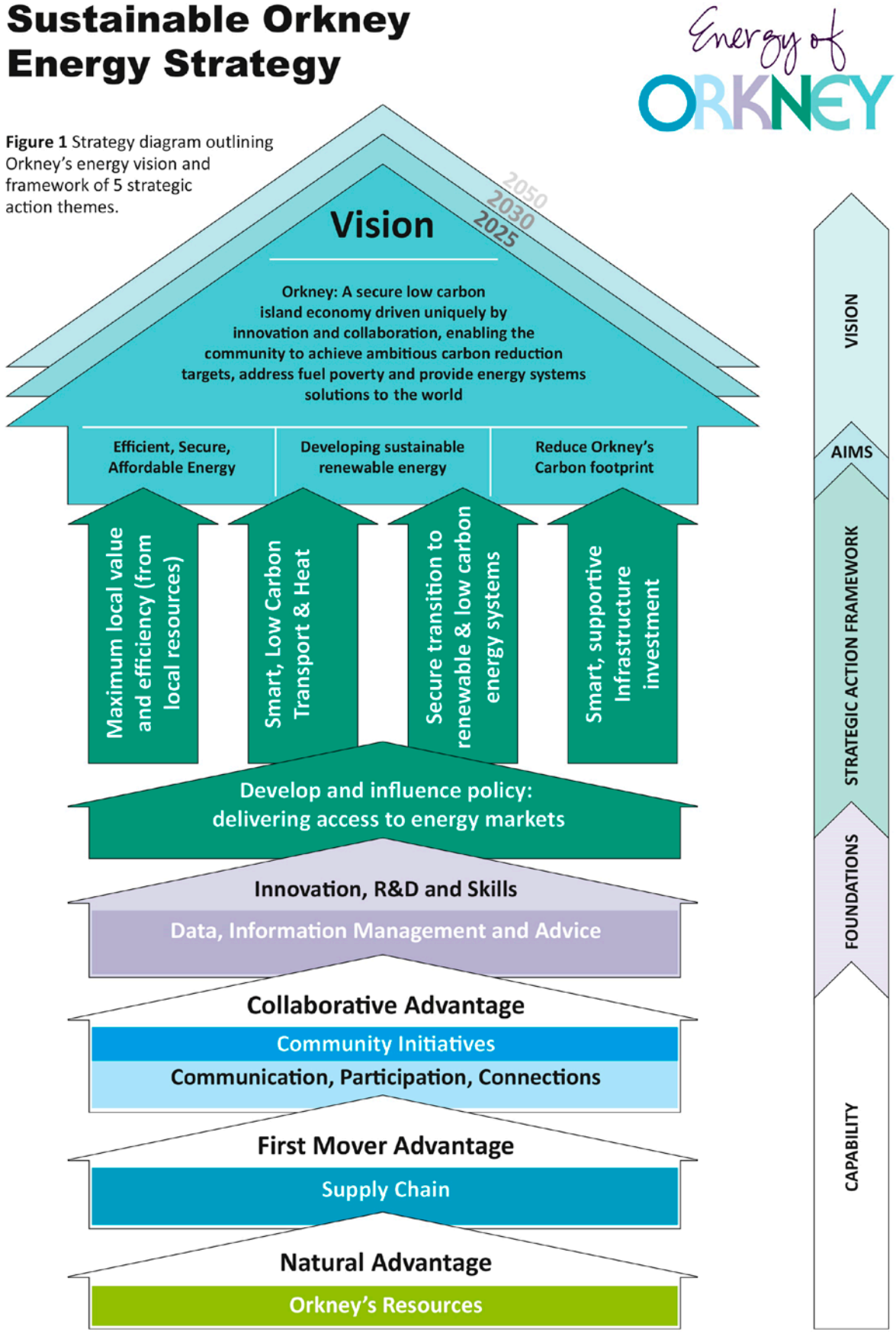



**Figure 1** Strategy diagram outlining Orkney's energy vision and framework of 5 strategic action themes.

# Foreword and call to action (to be drafted for final version)

# Executive Summary

In its Sustainable Energy Strategy for Orkney, published in 2009, the community set three linked overarching aims relevant to its energy.

- To ensure Orkney uses energy as efficiently as possible, and has a secure and affordable energy supply to meet its future needs.
- To add value to Orkney's renewable energy resources, for the benefit of the local economy and local communities, whilst minimising damage to the environment.
- To reduce Orkney's carbon footprint.

Since 2009, considerable progress has been made towards these aims. However, in parallel there have been significant changes in circumstance influenced by the complex regulatory environment and new government policy frameworks that have in turn influenced development and investment decisions.

This revisit of the strategy however reconfirms those 3 high level aims which in turn have informed the following the following vision statement:

**Orkney: A secure low carbon island economy driven uniquely by innovation and collaboration, enabling the community to achieve ambitious carbon reduction targets, address fuel poverty and provide energy systems solutions to the world.**

Realising this vision will deliver the following strategic outcomes:

- The achievement of ambitious Carbon Reduction Targets.
- The reduction and eradication of Fuel Poverty in Orkney.
- Positioning Orkney as the globally recognised innovation region to develop solutions for the world's energy systems challenges.
- Ensure a secure energy supply during transition to a low carbon future.

In order to achieve these outcomes the strategy defines an activity framework based around 5 key thematic pillars.

- Maximum Local Value and Efficiency (from local resources).
- Smart Low Carbon Transport and Heat.
- Secure transition to renewable and low carbon energy systems.
- Smart, supportive infrastructure investment.
- Develop and influence policy: delivering access to energy markets.

The strategy draws on Orkney's sense of ambition and its unique, demonstrable and core capabilities, described in this strategy, that are embedded within the community and the local supply chain. We will build on and exploit Orkney's global connections to further develop from a strong foundation in Innovation and Research and Development (R and D) activities. On that basis, this distinctive mix of capabilities found in the Orkney community, its public bodies and its energy supply chain demonstrates the principle of collaborative advantage. This will continue to be supported to enable more effective and rewarding partnerships with other organisations and other regions to mutual benefit, thereby establishing Orkney as a

region that is recognised globally for its leadership and expertise in developing and delivering sustainable energy solutions.

What is described recognises the complexity of today's energy sector and its markets, with its existing supply and demand challenges. These will increasingly require innovative 'systems solutions' and Orkney is ideally positioned to lead such an approach. The sustainability of Orkney's energy strategy is also key as we must balance economic, environmental and social factors in harmony for the future of our islands and its communities. Crucial, therefore, to the successful implementation of Orkney's Energy Strategy will be partnership working across the public, private, third and knowledge sectors. Partners will need to work collaboratively to embrace innovation and to develop measures and monitor initiatives.

By successfully implementing the 5 thematic pillars of strategic activity, Orkney will achieve further sustainable energy targets in reducing carbon emissions and reducing fuel poverty. It will sustain a secure supply of energy as we collectively transition to a low carbon economy. It will also deliver wider economic benefit and ensure Orkney is recognised as a world leader in providing innovative solutions today for tomorrow's energy challenges.

Stakeholder engagement and consultation has taken place in developing the strategy and it will be critical to its continued development. A Sustainable Orkney Energy Strategy Stakeholder Group will be established to oversee the implementation of the strategy, facilitate essential dialogue and direct progress of its action plan. Specific themed working groups may also develop over time. An Orkney Sustainable Energy Action Plan will set out the initial actions and responsibilities.

# Introduction

Energy in Orkney is a continuing success story. It's one of the country's most dynamic and exciting sectors with the potential to make a significant contribution to, not only, Orkney's future economic prosperity but Scotland's too. Importantly through innovation and collaboration it will also bring the benefits of secure, affordable and sustainable energy to the local community. Much has been achieved over the last 10 years with many projects and new developments being progressed in Orkney with jobs created, against a fast moving and challenging economic backdrop. This new strategy seeks to build on those achievements and take things forward in a new and exciting way.

## How have we been doing?

The following provides an indication of the progress we have made and the areas in need of improvement:

- The largest number of electric vehicles per capita in the UK (first place in UK where electric vehicle owners were directly charging from turbines on their own property).
- Local production of renewable electricity has grown and in 2016 Orkney produced 120.5% of its electricity needs.

- The Council partnered with the Carbon Trust on a programme to reduce its carbon emissions. The Council has achieved 18% reduction of carbon emissions over the last 10 year period.
- During the same period fuel poverty across Orkney unfortunately rose to 58%.
- Orkney and its partners are involved in a range of innovative carbon reducing projects like the Surf'n'Turf and Building Innovative Green Hydrogen in Isolated Territories (BIGHIT) Hydrogen Projects. (Surf'n'Turf funded by Scottish Government Local Energy Challenge Fund with BIGHIT funded by the EU Commission's Fuel Cells Joint Undertakings Fund (FCHJU)).
- The contribution of Hydrogen derived energy to grid load as a percentage is predicted to be the largest in Europe (1.5MW out of 35MW).
- The first smart grid (for Active Network Management) was installed in Orkney.
- In 2014 Orkney's Electric Vehicle Infrastructure Strategy was published with 20 charging points available for use in 2016.
- Public bus usage in Orkney has increased by 42% since 2010 and figures continue to rise.
- Orkney has walking and cycling levels which are higher than the national average.
- A lower-carbon heating replacement programme has been implemented in Council buildings.
- A sea source heat pump installed in Stromness Library.
- The Council adopted a low carbon policy within the Local Development Plan.
- Community Energy Scotland secured funds for a pioneering Demand Side Management project.
- The first Liquid Natural Gas (LNG) ship to ship transfer in the world was managed in Orkney.

## Why Orkney needs an Energy Strategy

This revisit of the Sustainable Energy Strategy for Orkney: 2009 provides an opportunity for the Orkney community to be pro-actively involved in, and help shape the development of local energy resources and their use rather than simply react to external events. A significant external factor has been the delay in major grid reinforcement to Orkney and, although some strengthening of the local grid has been delivered, the 2014 Orkney-wide Energy Audit identified 40-50% curtailment of renewable generation. (Orkney Renewable Energy Forum and Community Energy Scotland Issued by Aquatera Ltd, December 2014). Addressing this constraint remains a goal but it has meanwhile created opportunity out of necessity, resulting in an active focus on storage and other smart infrastructure developments. Continuing this proactive approach is more likely to maximise local, social, economic and environmental benefits.

The strategy also aligns with Scottish Government intentions to consider energy from a whole system and local perspective which, along with policy prescription, seeks to consider a localised and balanced mix approach to energy provision and use. Orkney's intention will therefore support new models of provision that permit a greater stake for the community in this success. It will also drive efficiencies and innovation in the local energy system, whilst addressing the requirements of the continuing and safe transition to low carbon transport and energy use.

This Strategy is required to:

- Provide a strategic framework, to coordinate effort in delivering a common vision and shared aims across a range of stakeholders and partners in Orkney.
- Succeed in gaining the buy-in and ownership of all those who have a role in developing and managing energy resources in Orkney.
- Ensure limited resources and effort are focused in the right direction, by identifying the priority areas where these efforts need to focus to ensure the greatest and most environmentally sustainable benefits for the Orkney community.
- Enable key developments to sustain the energy future of Orkney.

### What does the Strategy Cover?

The strategy refocuses the aims from 2009 towards a vision for 2025 and beyond. A Strategic Action Framework defines 5 interrelated priority themes or pillars that will define the delivery of this vision. As a strategy for Orkney, the unique capabilities of the wider community are recognised and will be built on to capitalise on the collaborative advantage that this offers Orkney partners. Based on this capability, and existing investments, a strong foundation already exists to build further on the Innovation, R and D, and Skills developments that must continue to be strengthened. Orkney has demonstrated an informed and supportive community willing to engage and collaborate in solving its energy problems and this is reflected in the ‘can do’ approach of the energy supply chain. By strengthening the foundations described through this strategy, the supply chain and wider partners will develop further agility and collaborative, as well as competitive, advantage.

## Strategic Action Framework

The 5 strategic action thematic pillars are described. These recognise a level of inter-linkage but also a crosscutting approach that reflects Orkney’s specific challenges as a peripheral Island group.

### 1. Maximising local value and efficiency (from local resources)

This theme is about harnessing efficiencies and innovation by tapping into the potential of local resources in the widest sense. Resource efficiency is an important consideration to be addressed by a number of major actions across Orkney. These will include the expansion of mixed recycling services, developing Energy from Waste (EfW) facilities connected to Orkney’s energy system (for example, heating systems options), the more effective use of community assets and the support of innovation to achieve the aims of a circular economy.

The Scottish Government has designated energy efficiency as a National Infrastructure Priority. This theme thus fundamentally links with the others and represents a significant enabler, since it will not only help create economic opportunity and job creation but will have positive feedback on the Orkney community and its economy.

Orkney has been at the forefront of energy technology development for decades. This spans the full history of Oil and Gas activity at Flotta and with specific reference to Marine Renewable technology development Orkney has played a significant role in overcoming the challenges of extracting energy resource towards commercial roll out. Opportunities to innovate and deliver new efficiencies from Orkney's resources and derive added value will drive and incentivise business growth and supply chain developments.

In particular this theme adds value to the foundation and capabilities described in this strategy relating to Innovation and Data and Information Management.

Delivery of this theme will consider:

- Business support and supply chain development.
- Continued oil and gas related activities, with focus on and the transition to decommissioning and new lower carbon fuels and technologies.
- Options for an Energy Supply Company (ESCO).
- Council consideration of windfarm and private wire options.
- Options for a local Energy Agency and advice.
- Innovation in local grid and energy supply and demand balancing.

As a local authority the Council can consider its own involvement in renewable energy projects that can contribute to this theme, namely:

- Investing in third party energy projects.
- Underwriting a third party energy project.
- As an energy project developer.

In its Carbon Management Programme 2016-2026 the Council aims to reduce fuel poverty by supporting householders, as well as demonstrating leadership as a landlord and adding low carbon housing improvements projects on its housing estate to its carbon management programme. The collective actions of this theme will support the drive to efficient and affordable energy.

## 2. Smart, Low Carbon Transport and Heat

Aligned with Scottish, UK and European Government strategies, Orkney will continue to support the drive to lower carbon transport options with the added value of supporting 'smart' technologies where advantageous to do so. Smart or Intelligent transport systems are advanced applications which aim to provide innovative services relating to different modes of transport and traffic management and enable users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks. Supporting this activity will collectively lead to fuel and energy efficiencies across a wide range of transport options that will deliver carbon reduction targets.

### 2.1. Low Carbon Transport

Orkney is positioned to take advantage and help develop several low carbon transport opportunities.

- **Electric vehicles** have had a higher rate of adoption in Orkney than other parts of the country. Further developments and potential integration with local 'smart grid' present further opportunity for a more integrated energy system approach.
- **Hydrogen** is currently being trialled in Orkney as an energy storage vector (produced from constrained energy) and as a road fuel in tow multi-partner development projects. The Council's Hydrogen Economy Strategy describes further opportunities for potential Hydrogen project development which could also include Marine vessel propulsion.
- **Liquid Natural Gas (LNG)** has significantly lower carbon emissions to those of heavy marine oil and is a proven fuel with a good safety record. Orkney is strategically located for the market to consider LNG bunkering options with the added potential opportunity to develop a local market for LNG as a lower cost, lower emissions heating fuel. LNG is also considered a 'transitional' fuel towards future hydrogen technologies still to be developed.
- **Compressed BioGas (CBG)** is a by-product of Anaerobic Digestion waste treatment. There are opportunities to explore potential uses of CBG as a lower carbon transport fuel and / or as part of a systems approach to energy management. (Other energy vectors such as Urea and Ammonia have potential significance to an agricultural region due to their dual use also as nitrogen fertiliser with ammonia also being demonstrated as an effective fuel in combustion engines).
- **Alternative low carbon fuels** include options to test and utilise technology to produce fuel, for example synthetic diesel using various methods, from constrained energy that may prove economical in due course. Such fuel can be created from carbon dioxide, water, and electricity with a process powered by renewable energy sources to create a carbon neutral liquid energy carrier.

### 2.2. Smart Transport

Smart or intelligent transport options are a strong strategic fit for the energy strategy, linking innovation with efficiencies. This also creates the added value of contributing to carbon reductions by supporting use of public transport networks and low carbon technologies.

### 2.3. Heat

Heat is a significant use of energy in Orkney and for a large number in the community heat is a significant cost relative to income. This strategy seeks to ensure heating homes becomes affordable for everyone, in line with the Scottish Government pledge to ensure that, so far as is reasonably practicable, people are not living in fuel poverty.

- **Towards Affordable Warmth** A person is living in fuel poverty if, in order to maintain a satisfactory heating regime, they would need to spend more than 10 per cent of their household income (including Housing Benefit or Income Support for Mortgage Interest) on all household fuel use (Scottish Government, 2016).
- **Orkney Fuel Poverty Strategy 2017-2022** Fuel poverty is broadly the outcome of three drivers; the energy efficiency of the housing stock, fuel prices and household income. The Council's (draft) Fuel Poverty strategy aims to reduce fuel poverty by 2022 and eradicate it in Orkney by 2032. This is a very ambitious

target and will require a collaborative approach across both national and local agencies and the community.

There is a need to diversify the sources of heat generation to reduce the reliance on fossil fuels. This theme will support the development of new heat generation options as well as enabling more effective distribution and demand reduction programmes.

As we support innovation and development, the transformation of heat-generation and heat-use using new technologies and systems will continue to create new markets and new opportunities.

Orkney is open for business as a test-bed location for trialling and piloting novel transport systems and technologies.

## 3. A secure transition to renewable and carbon energy systems

Orkney has been pioneering the transition to a low carbon economy for decades, with a history of world firsts providing a backstory that illustrates the collective ambition of the Islands community. The strategy recognises the recent achievement in 2016 of generating 120.5% of Orkney's electrical needs but that Orkney's natural renewable energy resources remain largely untapped and therefore represents a significant contribution to the ambitious government targets towards a low carbon economy.

**Smart Energy Management Storage** Orkney continues to demonstrate vibrancy as a hub for energy research, development and production. Key to future development is the 'systems approach' to local energy management which will see the increasing significance of innovative storage and supply & demand balancing technologies.

Building on Orkney's successful lead in supporting innovative developments towards local energy systems, that are already providing local solutions to community needs, we will continue to support and drive expertise in the management of energy systems approach that will increasingly include storage technology to co-ordinate supply and demand. The Scottish Government's 'Surf and Turf' and the FCHJU 'BIG HIT' projects hosted in Orkney are already demonstrating such an integrated energy system using Hydrogen as an energy vector for both heat and power.

The reliance of Orkney's economy on imported fuels, particularly for its agricultural vehicles and equipment and marine vessels, still needs to be recognised. It is therefore imperative that the security of energy supply is carefully considered as further transitional steps towards a low carbon economy are taken in Orkney.

Although referenced as a Transport fuel, LNG represents a step towards lower carbon emissions by replacing heavy oil used in shipping and heating.

Of significance is Orkney's track record in adopting, and its potential to enable the further development of energy storage options.

Regardless of what new technology or low carbon fuel sources dominate in due course, the key to the success of the Orkney strategy is the adoption of an effective systems approach to generation, distribution and management of energy. With its

foundations and capabilities described by this strategy Orkney is ideally suited to enable and exploit the economic benefits by adopting this necessary joined up approach.

## 4. Smart, Supportive Infrastructure Investment

Orkney will need to embrace changes in construction design principles and infrastructure in order to deliver a region with lower CO2 emission levels. Such considerations will play a key part in all levels of the design and planning process. There will be opportunities to trial and utilise innovative new technologies and comply with the latest sustainable building standards, both for new builds and retrofits, whilst expanding digital connectivity.

Consideration will need to be given to ensure that, as old infrastructure is replaced, energy efficiency and smart systems approaches are planned for and implemented. Four areas of specific activity are identified:

- **Orkney Research Campus.** The investment plan for the Orkney Research Campus will significantly underpin this theme. The proposal for this facility will enable current partners to take up new activities and diversify the existing workforce. It will also provide accommodation for new Campus occupants, to include inward investors, existing Orkney companies expanding into new activities or markets, and new ventures formed to take up opportunities that emerge through R and D undertaken at the Campus.
- **Waste Facilities.** Approximately 18,000 tonnes of waste are dealt with by the Council in Orkney every year. The Council is committed to achieving the Scottish Government recycling targets of 70% by 2025. Adopting technologies that drive the circular economy and unlock commercial potential to transfer waste to fuel will contribute to these targets. Investment in innovative approaches to waste handling and management has the potential to become integrated with the systems approach to energy.
- **Smart infrastructure.** Local and distributed energy generation models require new infrastructure developments and investments to be considered, which will take into account risk and reward as new technologies are trialled and incorporated at the local level. This will need to consider the electricity grid and its management as new technologies are adopted, but also the mechanisms to actively manage the storage, supply and demand of energy. Building on Orkney's strengths in pioneering Active Network Management (ANM or local 'smart' grid), energy storage in particular will increasingly be an essential component and consideration within an energy system. Storage systems provide a wide array of technological approaches to managing power supply and demand response that will create a more resilient energy infrastructure and bring cost savings to generators and consumers.
- **Enabling Infrastructure.** Alternative transport fuels and infrastructure are expected to play a crucial role in the transport sector's future. Integrated strategies are needed to ensure alternative transport technologies and fuels are commercialised from the continued research that is needed to support ongoing developments of these fuels and the enabling infrastructure. Orkney's geographical locations, with its reliance as an island group on marine, air and

road transports, along with its agricultural fuel needs, presents an ideal test-bed to trial and develop fuel technology and infrastructure.

With a coherent energy strategy, with its robust low carbon intentions, Orkney will be optimally placed to negotiate external investment funds and access support offered by government schemes, that will ensure the appropriate infrastructure is in place when and where it is needed.

### 5. Influencing and developing policy and access to energy markets

By its nature and as an Island group, Orkney is a special place with special requirements. More specifically, and despite leading the way towards self-sufficient renewable generation, the ability to export energy to the Scottish mainland is constrained by inadequate electrical grid infrastructure. This theme can be considered as crosscutting in support of the strategy to drive Island related issues forward.

In order to deliver and significantly contribute towards the low carbon ambitions of the Scottish and UK governments, Orkney needs significant investment in grid connectivity to export and trade in the energy markets and will continue to seek political support and appropriate investment in upgrades. In recent years the negative impact of constraint and curtailment has cost the community dearly and these barriers to delivering a low carbon economy still need to be influenced and addressed.

Orkney will continue to influence the regulatory frameworks that will determine and support the necessary transformation of the energy industry that is required to tackle climate change.

Following the publication of the Scottish Government's Islands Bill there will be opportunity in pursuing the 'Island Proofing' of regulation in order to address energy related issues. These will include reducing and eradicating fuel poverty, negotiating appropriate energy incentive and grid charging, removal of barriers to more flexible generation and energy efficiency legislation.

## Orkney's Strategic Foundations

### Innovation, Research and Development and Skills

Because energy dynamics are a complex function, a regional system can only really be considered as a whole, not piecemeal, as every part has a functional effect on another. It is therefore appropriate to consider and promote the concept of a vibrant 'Orkney Innovation Ecosystem' or 'Living Laboratory' with a functional goal that enables technology and economic development supported by innovation. Orkney's role as a regionally defined 'Living Laboratory' has many potential advantages in being able to identify both problems and solutions to energy challenges from which other regions can learn. Whilst many definitions of Innovation exist, it can simply be defined as the processes that create new value and/ or capture value in a new way. Regardless of the words, Innovation is an essential and important driver of productivity and economic growth.

**Innovation ecosystem** is the term used to describe the large and diverse array of participants and resources that contribute to and are necessary for ongoing innovation in a modern economy.

Orkney has the privilege of currently hosting two Universities and a community of specialist consultancy organisations that, along with public sector support and an informed community, has generated further interest from other Universities and organisations in the Orkney Research Campus concept. In addition to this, the previous investment in European Marine Energy Centre (EMEC) and the ANM smart grid means that Orkney already demonstrates the component parts and interactions of an ‘innovation ecosystem’ that can develop further.

The ability to process vast quantities of information and data and to turn it into useful knowledge is an increasingly important driver of value and innovation across our economy. Several collaborative investments in Orkney have reflected this growing trend in utilising and exploiting large data sets or ‘big data’ in research and development. This is enabling faster modelling of environmental, regional and technical data and supports the University sector’s aspirations to capitalise on Orkney and its waters as a regional innovation centre and test-bed facility and practical field base.

Although described as a supportive infrastructural investment, the Orkney Research Campus will significantly build this important strategic foundation facilitating further academic partnerships. The proposal for this facility will enable current partners to take up new activities and diversify the existing workforce. It will also provide accommodation for new Campus occupants, to include inward investors, existing Orkney companies expanding into new activities or markets, and new ventures formed to take up opportunities that emerge through R and D undertaken at the Campus. Recognising the value and the potential to manage and commercially exploit Intellectual property including knowhow will support and foster a culture of knowledge and technology transfer across the value chain.

**Skills** The Orkney Skills Strategy 2017-2022, defines the region’s response to Scotland’s skills investment plans and describes Orkney’s skills needs and governance structures that will ensure the ‘right skills are available in the right people at the right time’. This will enable employers to recruit, retain and develop individuals with the skills and experience to respond to the challenges of a dynamic energy sector. By building on this foundation, Orkney’s energy supply chain companies and organisations will be encouraged to develop agility to respond to the fast pace of opportunities that become available in a dynamic and innovative environment.

Innovation, Research and Development and Skills can be considered as a cross-cutting foundation that will underpin each of the 5 strategic action themes described above. This focus on innovation and collaboration will help create synergies across the various disciplines that ‘Energy’ represents and will lead to further embedding of the knowledge sector in Orkney.

### Data, Information Management and Advice

Continuing to build on this important foundation using efficient and novel channels and mechanisms to manage, share and utilise data, information will maximise Orkney's success in providing appropriate advice and will enable the following:

- Opportunities for 'Big Data' and research.
- Development of modelling tools for prediction, monitoring and assessment.
- Addressing Fuel Poverty.
- Improving energy efficiency.
- Managing resources more efficiently (to achieve reduced carbon emissions).
- Promoting and encouraging the trialling and uptake of new technologies.
- Developing low carbon transport vehicles and vessels with smart systems and infrastructure.
- Nurturing a culture of innovation and driving on Orkney's collaborative advantage across all aspects and impacts of the Energy Strategy.

Energy related advice has evolved in parallel with various government initiatives, resulting in a complex mix of agencies and organisations that have taken ownership, often on short-term agendas and funding, of specific aspects of energy advice. This includes Tackling Household Affordable Warmth (THAW), Community Energy Scotland and programmes like Home Energy Efficiency Programmes for Scotland (HEEPS) with an Area Based Scheme (ABS). This strategy will drive efficiency and coherence for the customer and will identify the optimal structure to enable and access appropriate and impartial advice and support where and when it is needed.

## Orkney's Capability

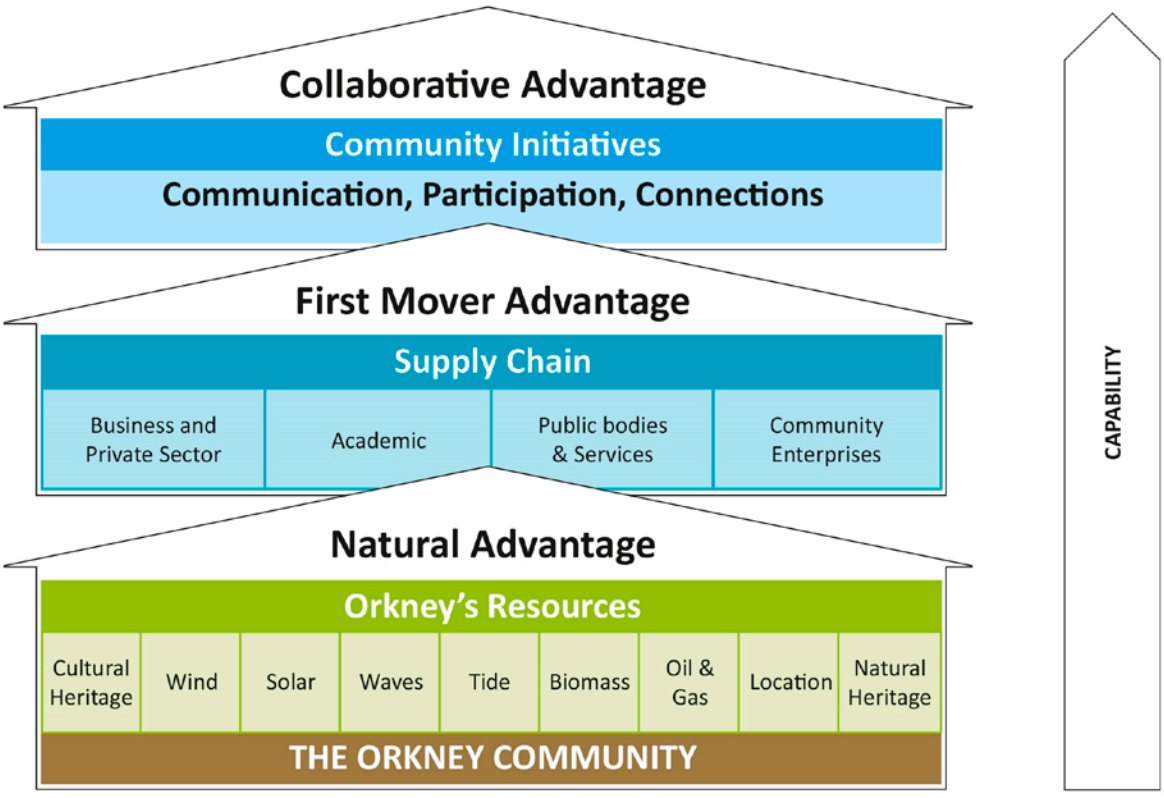
It is well established that Orkney is both rich in ambition and rich in renewable energy sources of wind, wave and tide and that there is recognised opportunity for Orkney to build on its lead as a net exporter of renewable energy to be a major renewable energy producer. The 2009 Sustainable Energy Strategy for Orkney identified the development of these local natural resources as a key pathway to economic development in the islands, enabling the growth of businesses which export to markets outside the islands. The **Natural Advantage** that Orkney has in terms of its natural resources and geographical location has thus been recognised by the community early on, resulting in a long history of energy 'firsts' and an informed supply chain that has frequently demonstrated **First Mover Advantage**. This has resulted in key development and world firsts such as the establishment of EMEC and the Active Network Management of the local grid amongst others. The energy industry represented in Orkney and its supply chain draws on expertise and resources from across the private business community, public and academic bodies and community enterprises.

Having recently demonstrated generation of 120.5% of the Islands' annual electricity needs from renewable energy, the original goal to maximise production and profit and sell into export markets in the UK and beyond, remains, despite ongoing electrical grid constraint.

Innovation in the Energy sector is now so complex that it is rare for the capabilities and intelligence required to convert a new idea into a sustainable business, product or service to reside within one individual, one discipline or even one organisation. In a fast changing world this creates a greater imperative for collaborative advantage which is a characteristic that Orkney's community and the energy supply chain have demonstrated in many ways over the decades.

**Collaborative Advantage** is the ability to form effective and rewarding partnerships with other organisations, for mutual benefit. Orkney takes this to another level by forming relations with other regions and has already demonstrated a unique and collective talent in the art of alliances. This concept, considered at the regional level, represents profound economic opportunity for Orkney. This is evidenced in key developments from the early establishment and ongoing success of EMEC and Heriot Watt University's ICIT and the on-going development of the Orkney Research Campus. This also puts the world's focus on high profile multi-partner innovation projects such as the Scottish Governments' LCEF Surf'n'Turf and FCHJU BIGHIT Hydrogen projects.

Figure 2. **Orkney's Capability** This illustrates the unique mix of natural resources that the Orkney community is participating in harnessing which, along with the component groups that make up an integrated supply chain, reflect a strong capability that delivers and demonstrates collaborative advantage.




This collaborative advantage represents a Unique Selling Point (USP) for how Orkney must now position itself and its supply chain in both the global energy market and knowledge economy in order to extract maximum and sustainable economic value from its collective resources.

# Vision and Aim

The Orkney community set three linked overarching aims relevant to its sustainable energy aspirations in 2009.

- To ensure Orkney uses energy as efficiently as possible, and has a secure and affordable energy supply to meet its future needs.
- To add value to Orkney's renewable energy resources, for the benefit of the local economy and local communities, whilst minimising damage to the environment.
- To continue reduce Orkney's carbon footprint.

These overarching aims remain valid and constitute Orkney's ambitious energy vision to 2025 and beyond. Recognising the complexities of the global energy challenge and the ambition and innovation demonstrated by Orkney, this strategy must be considered as 'emergent'. Whilst setting our energy agenda towards 2025 the strategy will need to evolve and continuously adapt to new government agendas, policies, market drivers and innovations towards a longer term vision.

However by directing action and resources toward these aims we will achieve an Orkney energy vision of:

**A secure low carbon island economy driven uniquely by innovation and collaboration, enabling the community to achieve ambitious carbon reduction targets, address fuel poverty and provide energy systems solutions to the world.**

More specifically there is a commitment to reduce the Islands' total carbon dioxide emissions by 42% from the 2004-2015 baseline by 2026; with 18% already achieved, a further 24% reduction has been committed to by the Council.

Affordable warmth and addressing fuel poverty remain priority aims of the strategy. Due to various factors, Orkney saw an unfortunate increase in fuel poverty over the same period described above. This trend must be reversed and a Fuel Poverty action plan is a key action that the Council will lead on.

Building on the unique collaborative advantage described, Orkney will further develop its USP as a place to innovate and provide industry solutions thus promoting its sustainable energy leadership and expert credentials to the world.

Orkney has the component parts to develop further as a region of innovation and, with its strong foundations already established, will develop the 'Orkney Innovation Ecosystem' enabling systems approaches to energy R and D to be tested and demonstrated drawing on Orkney's unique capabilities and foundations described in this strategy.

# Taking Action

## Delivering the Strategy – next steps

Following consultation this draft strategy will be translated into a robust community owned action plan.