STATES OF GUERNSEY

Renewable Energy Team (RET) Strategy – 2012 and Beyond

COMMERCE AND EMPLOYMENT
A STATES OF GUERNSEY GOVERNMENT DEPARTMENT

GRET
Guernsey Renewable Energy Team

Context

- **2008 Energy Policy** noted by the States gave Commerce and Employment (C&E) (which delegated this work to RET) the mandate to progress local macro marine renewable energy.
- **2011 Energy Resource Plan** (debate January 2012):
  - Indicates that "urgency is needed if we are to meet our low/zero carbon energy targets"
  - Identifies "an energy vision for 2020 whereby:
    - There will be a gradual decarbonisation of Guernsey's energy generation;
    - There will be a diversification of energy generation between low carbon and renewables;
    - We will continue to provide a sustainable and secure energy supply for Guernsey."
  - "recognizes that:
    - Energy has become an essential commodity for the economic and social wellbeing of the Island and we need to ***provide*** affordable security and resilience of our energy supplies.
    - We should ***promote*** the efficient use of energy, thus using it wisely and not wasting it.
    - We should recognise that energy generation and energy use have environmental impacts and we should ***plan*** to adopt carbon reduction measures proportionate to Island circumstances to reduce those impacts locally and as part of our contribution to international initiatives"
  - "the States remain committed to the following targets: to reduce Guernsey's carbon dioxide emissions by 30% on 1990 levels by 2020; and to reduce Guernsey's carbon dioxide emissions by 80% on 1990 levels by 2050."
  - Refers to renewable energy in section 7 and the RET strategy contained within this document is in alignment with this section and States policy.
- RET is assuming that in the **second half of this decade** there will be commercially ready macro marine renewable energy technologies applicable to Guernsey (especially in terms of tidal power).

Document summary - RET Presents

- The **RET vision** including:
  - potential **targets** for renewable energy - 2020 and beyond.
  - the **realistic** optimal level of macro marine renewable energy in Guernsey (based on 2011 information):
    - to 2020 - small scale local developments for local consumption.
    - Post 2020 – larger scale local developments with some export.
- The **RET mission.**
- A **long term legacy** for Guernsey from renewable energy.
- The **"Conditions"** needed to fulfil the vision and mission.
- RET's **Strategy** and **objectives** (pre 2015 and 2015-2020) which will ensure the **conditions**, **long term legacy**, **mission** and **vision** are achieved.
- List of acronyms used appear on the final page of this document.

RET Mission

- RET will aim to ensure that all the required **political, legal** and **commercial processes** and **approvals** are in place, as well as a base line **environmental** understanding, to enable at least the **initial deployment** of macro **renewable energy** generators in local waters in the **second half of this decade.**

2020 / 2030 Targets

	2020			2030
	"Installed" capacity (MW)	GWh (at stated capacity)	% of total electricity (based on predicted 2020 load)~	
Locally Generated				
Tidal*	10-20	35.04-70.08	7-15%	TBC
Wind #	10-20	26.28-52.56	5-11%	TBC
Wave	0	0	0	TBC
Other (photovoltaic/ heat pumps etc)$	TBC	TBC	TBC	TBC
Imported through CIEG cable$	15	131.4	27%	
Total Electricity from all renewable sources	35-55	192.72 - 254.04	39-53% ^	TBC

* Assumes 40% capacity
\# Assumes 30% capacity

$ Other renewable energy resources are not under RET's remit, however they will be part of the total renewable energy within Guernsey and the overall strategy going forward

^ During summer period with lowest demand supply may exceed demand and therefore not all electricity generated may be used on island

~ GEL predicted 2020 demand of 480GWh based on trended organic load growth prediction and estimated migration to electric heating

- 2020 local generation is expected to form the first stage of a larger project that increases significantly through the '20's up to 2030.

Vision – Long Term Legacy

- Guernsey Identity / overall sustainable vision - including
  - Renewable power generation for:
    - domestic consumption at first and
    - export in the long term
  - More secure energy supply, reducing carbon emissions and use local natural resources
  - Centre of excellence for education/University base in Guernsey
  - Maximise local economic development / employment
  - In time export Guernsey expertise
  - Transport – integrated strategy including use of renewable energy
  - Tourism benefits
  - Encompassing overlapping areas of policy
  - Public articulation of the vision
- High level "buy-in" and responsibility for delivery of above – e.g. Chief Minister uptake
- Potential changes to local infrastructure – e.g. ports

- <u>Objectives Pre2015</u>
- Engage with Chief Minister and Policy Council
- Discuss with off island initiatives – e.g. Isle of Wight, Isle of Man and other jurisdictions with renewable energy vision
- Continue active role in Guernsey Finance Renewables / Cleantech initiative to attract cleantech financial services to Guernsey
- Continue and expand University links and projects
- RET advise parties involved with all areas of relevant policy
- Local Businesses / Interested parties "buy-in" and participate in RET vision where appropriate (RET to identify business plan before implementation)
- Outline mechanism for capturing Intellectual Property and "applied experience" generated on Guernsey – ability for transfer to other jurisdictions

- <u>Objectives 2015-2020</u>
- Build on previous objectives
- Maximise local employment including, but not exclusively, high value jobs, maintenance and day to day jobs relating to renewables
- Explore further the proportion of construction and maintenance engineering could be performed on island
- Incorporate renewables into an overarching "sustainable Guernsey" vision
- Develop a full understanding of Guernsey's maximum renewables potential
- Outline a plan to take forward the exploitation of resources developing "marginal" fields first – a "future proof" plan
- Create a sustainable renewable energy research base on Guernsey – potentially aligned with a UK University

Conditions Required

- Mature Technology
- Resource Assessed
- Environmental Understanding
- Acceptable Energy Economics
- Political buy-in for benefits and economic requirements
- Commercial and Legal processes established
- Channel Island Electricity Grid (CIEG) and cabling in place

Conditions Required

- Effective Communications
  - General Public
  - Political Awareness
  - Young People
  - Business/Commercial
  - Through Media – traditional and social
- Channel Island Collaboration – CIMREG
- International Collaboration (working with ERG)
  - DECC/UK
  - France/EU

Conditions – Mature Technology

- Technology has to be at a commercial stage with known deployment / operational data and costs
- Costs differential for renewable / traditional generation needs to be acceptable to public / industry
- Proactive communication of Guernsey's position
- Actively involved commercial users
- Strategy on how to approach market in place

- <u>Objectives Pre2015</u>
- Prepare a model that looks at overall development costs and how these would feed into electricity costs or energy costs for the island – GEL
- Identify what is acceptable to Guernsey population - University Studies
  1. Public engagement (Exeter) - 2012 and beyond
  2. Technical assessment of wind (Cranfield) - Q3 2012
  3. Financing/Economics of renewables specific to Guernsey (Universities)
- Attendance at relevant events and interaction with industry
- Monitor development and associated costs
- <u>Objectives 2015-2020</u>
- Attendance at relevant events and interaction with industry
- Final identification and potential selection of appropriate technologies/development partners ("winners") for Guernsey
- Approach market

Conditions – Wind Resource Assessed

- Sufficient wind resource

- <u>Objectives Pre2015</u>
- Process and analyse data from wind mast
- Publish principle findings
- Identify specific wind farm location
- Monitor wind at specific location
- Interaction with public re acceptability of offshore / near shore wind in local waters

- <u>Objectives 2015-2020</u>
- Refine/update understanding with regards to newly available technologies
- complete geotechnical surveys for optimal wind farm location

Conditions – Tidal Resource Assessed

- Sufficient Tidal Resource

- Objectives Pre2015
- Understand modelled tidal resource
- Understand empirical tidal data
- Publish conclusions
- Identify specific array locations
- Measure specific array locations

- Objectives 2015-2020
- Refine pre 2015 understandings depending on specific sites/information

Conditions – Wave Resource Assessed

- Sufficient Wave Resource

- Objectives Pre2015
- Understand modelled wave resource
- Understand empirical wave data
- Publish high level conclusions
- Identify specific areas
- Measure specific areas

- Objectives 2015-2020
- Refine pre 2015 understandings depending on specific sites/information

Conditions – Environmental Understanding

- Appropriate baseline environmental data in relation to wind, wave and tidal
- Appropriate baseline data on natural and human environment
- Engaged Key Stakeholders – e.g. Environment department

- <u>Objectives Pre2015</u>
- Follow up on work identified in REA
- Involvement of Environment department – and other key Stakeholders
- Collect baseline environmental data relating to wind – e.g. birds etc
- Start collecting baseline data relating to tidal – e.g. Mammals etc
- Start collecting baseline data relating to wave
- Update Mapping to incorporate new data

- <u>Objectives 2015-2020</u>
- Continue building on baseline data
- Update Mapping to incorporate new data

Conditions – Energy Economics / Consumer Costs

- Engage with Key Stakeholders – T&R, public and business
- Financing options (e.g. FIT, Carbon Tax, sale of surplus, other) with T&R
- Deviation from merit order

- <u>Objectives Pre2015</u>
- Understand and inform the financing option debate
- Surveys etc. to explore public views about the potential options for funding renewables
- Understand the parameters of merit order variation
- Continue work on accessing FITs/ROCs from UK and extend to France
- Keep informed of T&R's work to identify financing options

- <u>Objectives 2015-2020</u>
- Financing mechanism concluded and in place

Conditions – Political Buy-in to RET Vision

- Informed states members on key renewable issues including all areas of RET vision and strategy contained in this document, with specific focus on:
  - **Financing** – as renewable energy is relatively more expensive at present
  - **Timing** – technology maturing but not yet commercially available (except offshore wind)
  - **Scale** – any local renewable energy project is likely to be small later in this decade but will increase significantly after 2020
- <u>Objectives Pre2015</u>
- Refine and deliver existing Communications Strategy
- Presentation/seminar/briefing with new states members. – May/June 2012
  - C&E Board – April 2012
  - Energy Policy Group
  - Environmental Policy Group
  - T&R Board
  - States members generally
  - Policy Council
  - Chief Minister
  - Chief Officer Group
- Repeat message and update annually
- <u>Objectives 2015-2020</u>
- Annual update

Conditions – Commercial and Legal Process

- Licensing and lease arrangements in place

- <u>Objectives Pre2015</u>
- Licensing regime finalised – 2012 or when most appropriate
- Engage with T&R regarding overall RET leasing and respective responsibilities
- Zoning – establish areas for development
- Commercial leasing parameters decided – following analysis of options (e.g. Different charges for Local consumption/export/export only)
- Locations to lease
- Finalise the head lease (or equivalent) parameters with the Crown
- Lease (or equivalent) initial areas of seabed for development

- <u>Objectives 2015-2020</u>
- Lease (or equivalent) of further areas of seabed for development

Conditions – CIEG - Cabling

- "Local" island cabling infrastructure
- Future proofing for the potential export of renewable energy
- "Interconnector" cabling infrastructure which allows secure supply

- Objectives Pre2015
- Feed into GEL strategic review of cabling
- Output of GEL's strategic review of cabling to permit:
  1. local renewable energy generation
  2. export of local renewable generation (long term)
- Understanding use of system charges for transmission of energy

- Objectives 2015-2020
- Extend pre 2015 objectives – cabling etc

Conditions – General Communications

- Identification, engagement and communication with stakeholders, including:
  - General Public
  - Environment department
  - T&R department
  - C&E (Fisheries, Tourism)
  - Policy Council - ERG
  - States Members
  - Energy Companies
  - La Societe Guernsiase
- Effective communication through appropriate channels including all media
- Official communication point within RET

- <u>Objectives Pre2015</u>
- Communicate informed stories
- Refine existing Communications Strategy to include all above stakeholders (and others as identified)
- Communicate balanced argument for renewables
- Meetings with members of the media to outline RET vision going forward – 2012
- Presentation to newly elected States Members
- Co-ordination with EPG

- <u>Objectives 2015-2020</u>
- Continue with pre2015 objectives

Conditions – Channel Island Collaboration – CIMREG

- Work with all channel Islands on an integrated strategy on relevant areas

- <u>Objectives Pre 2015</u>
- Initiate and take forward CIMREG
- Ongoing relationship with the other islands at officer level
- Collaboration on large projects – e.g. FITs etc from other jurisdictions

- <u>Objectives 2015-2020</u>
- Ongoing pre 2015

Conditions – International Collaboration

- Ability to export locally generated renewables
- International FIT's/ subsidies/ incentives applicable to Guernsey

- <u>Objectives Pre2015</u>

- Explore commercial agreement opportunities with France / other EU
- Liaise with French (relevant authorities) / other EU
- Continue Liaison with UK/DECC
- Liaise with ERG where relevant

- <u>Objectives 2015-2020</u>
- Obtain access to FITs (or equivalent) for export

Conclusions/Next Steps

- Guernsey can be ready to take advantage of local macro marine renewable energy with the first developments before 2020 and with the island benefiting from a long lasting legacy in multiple areas.
- More information on RET and it's strategy can be found on: www.guernseyrenewableenergy.com

Acronyms used in this document

- C&E = Commerce and Employment Department
- CIEG = Channel Island Electricity Grid
- CIMREG = Channel Island Marine Energy Group
- DECC = Department of Energy and Climate Change
- EPG = Energy Policy Group
- ERG = External Relations Group
- EU = European Union
- FIT = Feed in tariff
- GEL = Guernsey Electricity Limited
- GWh = Gigawatt hours
- MW = Megawatt
- REA = Regional Environment Assessment
- RET = Renewable Energy Team (part of C&E responsible for macro marine renewable energy)
- ROC = Renewable Obligation Certificate
- T&R = Treasury and Resources Department