

SCOPING REPORT

GUERNSEY SOLAR ENERGY

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ACKNOWLEDGEMENTS

October 2021, Guernsey States Deputy David de Lisle (the equivalent of a UK Member of Parliament) organised a meeting of like-minded Deputies to explore renewable energy opportunities for the Bailiwick of Guernsey in a more business-like manner than is usual within the States of Guernsey. Three working groups were formed to explore wind, tidal and solar renewable energy opportunities. This report presents the findings of the Solar Energy Group (SEG).

The Deputies who participated in that meeting or subsequently joined one of the working groups are (in alphabetical order), Chris **Blin**, David **De Lisle**, John **Dyke**, Peter **Ferbrache**, John **Gollop**, Sam **Haskins**, Mark **Helyar**, Rob **Prow**, Lester **Queripel**, David **Mahoney**, Liam **McKenna**, Carl **Meerveld**, Nick **Moakes**, Bob **Murray**, and Alderney Representative Alex **Snowdon**.

This scoping report was written by Deputy De Lisle and presents the findings of the Solar Energy Group comprising (in alphabetical order) Deputies David **De Lisle**, Mark **Helyar**, David **Mahoney**, and Lester **Queripel**.

Deputy Mark Helyar requires special acknowledgements by the Solar Group for assisting with the recommendations and adding comments to the report.

REFERENCE MATERIAL:

Department of Energy & Climate Change, UK Solar PV Strategy Part 1, Roadmap to a Brighter Future, October 2013

Department for Business, Energy & Industrial Strategy, Energy Trends collection, March 2022

Three members of Policy and Resources, the States of Guernsey's most senior committee, Deputies Ferbrache, Helyar and Mahoney were involved from the initiation of the Wind, Tidal, and Solar groups and engagement was also undertaken with the Committee for Environment and Infrastructure and the States' Trading Supervisory Board.

This study will be presented to the Policy and Resources Committee for their consideration of the **RECOMMENDATIONS AND WAY FORWARD**.

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URGENCY

The Government needs to speed-up renewable projects and fast track renewable capacity.

We need to place renewables as a central pillar of economic recovery.

The cost of energy and carbon emissions will continue to rise for the island unless there is support for investment in renewables.

Urgent action is crucial. The support of government is required to boost confidence in existing projects and attract investment in new ones. Leaders of the private sector are anxious to invest in projects and new technologies that could assist in a more rapid transition to sustainability. We need to grasp this unique opportunity for transformation to a green recovery.

BARRIERS TO DEPLOYMENT

The States can further accelerate the growth of Solar PV by addressing key barriers to deployment.

The Solar Group held meetings with private sector industry—essentially established businesses trying to consolidate themselves into a solar renewable growth market.

The private sector businesses expressed frustration at the lack of progress in the energy sector and constant barriers set up by government against progress being made. Businesses wish to invest in large rooftop projects on industrial/commercial buildings and solar farm projects across the island, particularly on disused and unsightly vineyard sites. They are having difficulty activating commercial solar developments due to the Standby Charge and Planning Restrictions.

Private energy businesses are prepared to invest if there is structural change and certainty in the way the market is developed. For example, commercial rooftop opportunities are blocked by the Standby Charge applied to systems over 25kW installed capacity. Many businesses wish to fund and install PV systems on their property roofing systems in order to play their part in decarbonisation and ensuring that their businesses are demonstrating sustainable objectives. Unfortunately, the imposed Standby Charge of £6.85/kWp installed per month simply blocks this initiative for all. The GCRA had begun a process of reducing the Standby Charge by half (at £3.07 per kWp per month) before being taken out of the regulatory function (Appendix 1).

The private industry believes that by getting rid of the standby charge the micro-renewable energy market would open considerably and fast. As another boost to the economy, businesses and other organisations would be able to offset high running costs during the working week daytime operations by earning money at weekends from energy exports. These matters are increasingly important given supply and cost volatility in international energy markets.

The onerous planning and building control process is another level of resistance to the micro-renewable energy path. A fast-track planning application service for both domestic and commercial installations is deemed necessary by the industry to remove the second barrier for solar renewables. Most applications still require time consuming planning permission and proposed exemptions are full of anomalies. Given planning applications are still required in many cases, planning exemptions have been requested by industry for systems up to 23kW. The process needs to be made easier for homeowners and small businesses together with the associated industry designers and installers.

Uncertainty has been introduced by Guernsey Electricity's (GEL) proposals to rebalance tariffs. Islanders are concerned that electricity bills will go up despite efforts to conserve energy by installing solar, insulation and heat pumps. What is needed is an appropriate market structure to enable all local renewable energy providers to operate on a level playing field. The call from private businesses is to adapt the tariff structure to encourage energy transition objectives and promote locally generated renewable energy that all islanders can afford and have access to.

The drive from industry is to take up renewable energy technologies in the form of Renewable Energy Devices (REDs) and discourage direct electric (DE) heating technology. Currently Guernsey Electricity tariffs encourage direct electric heating and boilers rather than encourage RED technology such as solar photovoltaics (PV) and heat pumps.

While the industry encourages the development of Solar thermal technology as an efficient aid to electricity and energy conservation by generating heat as an energy source, it is more expensive and difficult to implement than PV and the primary heating is carbon based with oil or gas boilers and does not offset grid power, so it has no effect upon electricity conservation.

The importance of energy conservation through insulation cannot be underestimated as it leads to energy saving, energy efficiency, sustainability, and carbon reduction. A lot of the energy consumed in homes is wasted and insulation is one way to help reduce fuel bills and avoid many tonnes of carbon emissions. Adding loft insulation and cavity wall insulation can reduce heat loss by 25% in a typical British home and a 40% reduction in heating consumption.

The development of solar farms has been blocked by E&I's amendment extending GEL's conveyance licence exclusivity for a further 3 years and GEL taken out of GCRA regulation. GEL as a result became the only customer private business can sell electricity to and there is no legal or regulatory compulsion to buy or at a beneficial cost. For those islanders who live in apartments (without a dedicated roof space area) and those who find solar developments too costly the alternative to buy certified locally grown renewable electricity is being denied.

The role of renewables while recognised appears to be under-played in the Government Work Plan (GWP) given the global aim to limit climate change and cut carbon emissions and to keep pace with the drive of competing jurisdictions in relation to electrification, energy efficiency, commercial and residential solarisation of government properties.

There was also concern expressed over the time factor objective of the Energy Policy to 2050 which was considered to under-estimate the urgency of reform and also the net zero objective. The preference was for a quicker response with private sector interests calling for zero emissions by 2035.

There is increasing apprehension about a second cable link to France. This is due to the fact that 90% of electricity maximum needs are already provided by the existing newly installed cable through Jersey from France and the need for energy independence and security in any new renewable developments. The recent threats from French ministers to cut the supply of electricity to Jersey has shaken confidence in committing to further cable connection for electricity supply from France.

Given that the cable cannot provide energy independence or security, some prefer to invest the capital resources on island in terms of project developments directed at building insulation and development of smart grid technology. Investment in smart grid technology and storage will be required to incorporate renewable energy into the electrical grid in that renewable sources like solar and wind are variable, and a smart grid would allow easier integration of renewable energy into the grid. At the same time, it will aid transition to a low carbon economy and reduce greenhouse gas emissions. Through employment of information technology resources, a smart grid can reduce electricity waste and energy costs. It is a means to fast forward the islands adoption of renewable solutions.

Whilst the power station may be a hydrocarbon sourced backup it does provide independence from the European electricity grid. The Siemens study completed in 2022 for E&I offered the least cost cohort to the 'Renewables First' pathway. This pathway combined on and offshore renewables with the current GJ1 interconnector and continued Solar PV growth—a robust blend of low carbon and a cost optimal energy option.

UK EXPERIENCE

There are lessons to be learned from the UK experience in the development of the solar industry, the Government's strategic focus on the solar PV industry in the early years and the establishment of the solar strategy working group as a forum for solar deployment. The UK early Solar PV Strategy and Roadmap to a Brighter Future is contained in a publication put out by the Department of Energy & Climate Change in October 2013. (Appendix 2)

The UK solar industry developed from small beginnings. From a starting point of almost zero the use of solar PV to generate electricity in the UK has grown phenomenally since 2010, increasing capacity from 95MW to 13800 MW (13.8GW) at the end of 2021. Solar Energy UK in Feb 2022 notes solar PV capacity sat at 14.6GW up 5.3% compared to 2020 levels (Appendix 3). There are now over one million solar PV installations in the UK. In 2021 solar PV supplied more than 10% of renewable generation and more than 4% of total electricity generation in the UK.

The potential was seen as huge early on. If the UK gave just 1% of its land over to solar panels, it would be able to generate enough electricity from solar power to meet all its needs. In 2011, the International Energy Agency noted that 'the development of affordable, inexhaustible and clean solar energy technologies will have huge longer-term benefits. It will increase the countries' energy security through reliance on an indigenous, inexhaustible, and mostly import-independent resource, enhance sustainability, reduce pollution, lower the cost of mitigating global warming'.

The UK government can claim a part in the success of solar energy industry as a result of the highly successful Feed in Tariff (FIT) scheme which paid those installing panels a rate for both the electricity that was generated and that put back into the grid. The scheme was

closed at the end of March 2019 and concerns were raised given the huge changes needed to meet carbon targets and avoid the worst aspects of climate change.

From January 2020 new regulations through the Smart Export Guarantee forced energy suppliers to pay people for what they exported to the grid. Solar Energy UK notes that more and more consumers and businesses are investing in solar as a proven way to cut energy bills and carbon emissions and a cheap way to charge EV's and decarbonise heating. All three solar markets, residential roof top, commercial scale, and ground mount, are seeing stable sustained growth without government subsidies. But to spur solar developments Solar Energy UK suggest an end to VAT for solar systems and a Contracts for Difference CfD framework as a private law contract to support investment going forward.

Solar Energy UK have called on the UK government to set a deployment target of 40GW to match the ambition of the market. That would support the industry to take long-term investment decisions and build the workforce skills to create thousands of green jobs. They claim that the UK is on course to double its solar capacity by 2030 but will need to treble output to meet its net zero target by 2035.

The drive to solar energy was not seen only helping deliver affordable, clean, and secure energy supplies but also a powerful engine of economic growth—driving small and medium sized businesses and creating thousands of jobs.

Solar PV has become a viable low-carbon technology, and since 2020 provides the cheapest source of electricity. The International Energy Agency (IEA) said in 2021 that 'under its Net Zero by 2050 scenario solar power would contribute about 20% of worldwide energy consumption and solar would be the world's largest source of electricity'.

The rapid growth of the UK solar industry is a success story to be replicated here in Guernsey. Solar projects can be developed and installed very quickly (compared with other renewables) and the fuel, solar radiation, is free. We need a government commitment to put the industry on a sustainable footing, to have a high level of ambition for the industry and recognise the contribution Solar PV can play in supporting decarbonisation and the islands socio-economic development. The Government can help drive the industry by deploying solar energy on government buildings and setting out the strategic direction for solar in Guernsey. This will provide certainty to investors, solar developers, householders, and businesses.

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GUERNSEY POTENTIAL

Clean energy transition provides a key opportunity for Guernsey to diversify its economy while making its energy supplies more secure and affordable. It contributes to the triple global crisis, the climate emergency, the global energy crisis and the socio-economic implications of the Covid-19 pandemic.

Solar PV remains the powerhouse of growth in renewable electricity with potential for immediate generation of electricity on rooftops of residences and commercial establishments. Most domestic and small commercial roofs or open spaces have places to install 5-23kW of solar PV and comply with the maximum current rating.

Guernsey's government plans to sell its social housing stock at a value in excess of £200 million. This windfall money could be used to provide a subsidy scheme for local businesses and homeowners to insulate their properties and purchase solar installations. An amount of say £75 million could result in a significant increase in solar PV by private homeowners, benefit the governments objectives towards sustainability and net-zero as well as reducing electricity bills. The technology is proven and guaranteed for 25 years—this subsidy scheme could rapidly transform our local energy market for the benefit of all.

Renew Guernsey in The Green Industrial Business Strategy Action Plan has shown the potential for Solar PV on the island of Guernsey. The model is based on 30,000 properties on the island with the majority able to generate between 5kW and 15kW and with large industrial buildings and solar fields capable of generating 100kW to 300kW. Taking an average from this of 10kW per property, the whole island could generate 30,000 times 10,000 watts of electricity at peak times through solar PV which amounts to 300MW of electricity. It is estimated that it would take 15 years to roll out this amount of Solar PV

combined with heat pumps. This is equivalent to a small nuclear plant or good-sized offshore wind farm. Small nuclear stations have a maximum capacity of around 400MW but can be as small as 200-250MW. The Flamanville Nuclear Power Plant houses two reactors that produce 1.3GW each.

One can reliably estimate from discussions with energy producers that Guernsey currently has installed 2000kW or 2MW of solar PV and another 1000kW or 1MW of battery energy storage across the island. This leaves the island proportionately well behind the UK in the installation of solar PV panels.

It follows that Guernsey, and the Bailiwick can move quickly along a pathway to become more energy secure and economically independent. The advantage of generating energy on rooftops, commercial scale and ground mount will reduce our dependency on foreign energy sources retaining funds in our islands, creating jobs, and providing security of supply.

RECOMMENDATIONS AND WAY FORWARD

- 1--Put in place a 'framework for substantial growth of the solar industry'-as the uk did in 2014 including a subsidy scheme.
- 2--Form a 'solar strategy group' to place the sector on a sustainable footing.
- 3--Deploy solar on government buildings and brown field sites.
- 4--Unblock the Standby Charge applied to systems over 25kW installed capacity and other barriers to deployment
- 5-Address the need for a fast-track planning service for solar projects.
- 6-Reconsider the need for a second cable link to France
- 7-Create a fund for public solar, paid back by electricity consumed
- 8-Guarantee solar buy-back rates
- 9-Plan for grid scale storage from charged storage units into the grid.
- 10-Enforce new builds to have a mandatory % of solar panels
- 11-Properly promote exterior/interior insulation in order to conserve energy.

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