Ten years of renewable energy for Rhug

How our electricity is produced and how much it costs us has been hitting the headlines. Rightly so, it affects emissions, pollution, business viability and our personal pockets. There is a need for change, and, as ever, Lord Newborough made an early start on things. His renewable energy company, Rhug Energy Ltd, celebrates 10 years since incorporation.

We caught up with those involved to get a potted history and to ask what's next for Rhug Energy.

What was the first project for Rhug Energy Ltd?
A 4KW solar array on the roof of the farm shop. The shop is BREEAM accredited meaning it has very good sustainability credentials. The solar panels and the underfloor heating system which uses a ground-source heat-pump are integral to this.

How many renewable energy projects are there now?
There are 11 solar schemes including a 1.2MW site near Corwen. Two wind turbines capitalise on the high winds at Dinas Dinlle and the estate's waterbodies are home to hydro schemes of different shapes and sizes, some of which are community-owned. Over a dozen heat-pumps have been rolled out to residential and commercial properties with one utilising a biomass boiler. We also have two electric vehicle chargers next to the farm shop.

How much electricity do you produce?
We currently generate about 3,000MW per year. We also generate about 500MW per year of heat. This is enough to supply approximately 875 homes for the year.

Do you combine technologies?
Yes, Rug Hall, which is home to Lord and Lady Newborough, is a good example of this. A water-source heat pump was installed in the cellars stripping heat from the lake in front of the Hall. This immediately reduced the site's oil consumption by 70% and we've since gained further efficiencies. An old hydro-electric power site at the end of the lake was brought back to life by installing a new Frances turbine. When the heat-pump calls for power the hydro, if lying idle, will start generating sending any excess power to the grid. Not finished there, Lord Newborough also had a 50KW solar array installed in the old kitchen garden which can also supply the Hall and send excess to the grid.

Are any more projects planned?
Another three properties have been earmarked for air-source heat-pumps before the current incentive ends in March and we are in the final stages of enabling another hydro scheme. Our offering of EV chargers is to be developed too, moving to rapid chargers which will be exciting to see.

Have you considered other technologies?
The feasibility of new technologies is continually reviewed by Philip Hughes. Lord Newborough has a clear target when it comes to rates of return and that return is used to develop the company further. We incorporate new projects into the portfolio as they become viable, if there are no other barriers of course. One thing we'd like to do is sell electricity to our tenants and the local area, the 'hows' are currently being explored.

What is your focus at this 10-year mark?

As well as exploring new technologies we are also focussed on getting more out of what we already have. We look at the siting and whether technologies can be brought together to maximise the benefits. We always seek to improve the efficiency of what we have as well. Emma Story has been concentrating on the latter. This has involved a cost/benefit approach to beneficial works and part upgrades, closer monitoring of the sites so that we pick up on breakdowns and underperformance straight away, looking at how we get parts and engineers to site quickly, and a review of how we sell the electricity produced which led to us cutting out traditional brokers.

Who buys the electricity you produce?

We sell 97% of the electric to energy companies via the grid through power purchase agreements or the Government's guaranteed export payments. A couple of years ago we moved on to a DIY platform where we monitor the energy market closely and put sites out to tender when we believe we might benefit the most. The remaining 3% is used on site. The farm shop buys 30% of its electric from Rhug Energy Ltd and the estate office gets half of its power from photovoltaics. The price is set at the half-way point between what we would get from a power purchaser and what would be paid to a grid supplier. Both companies benefit as well as the environment.

What have been the major enablers?

Lord Newborough's vision and drive without which none of this would have happened. The Government incentives that followed the 2008 Energy Act made several sites viable. Not forgetting the people who have guided us along the way and have been on the ground ensuring we can keep generating.

What have been the barriers?

Planning permission can always be put forward as a barrier to development, but we accept that the planning system has an important role in balancing needs and wants. It is the lack of grid capacity that has been our main barrier and continues to be. There are also the problems which come with doing something new, you have to be quick to build up your knowledge and experience.

How does the energy company fit with the rest of the estate?

It offers a renewable and more affordable supply of electricity to the retail business and the estate offices. The EV chargers likely add footfall at the farm shop and introduce the business to a new market. Of increasing importance is the effect the renewable energy schemes have on the estates carbon footprint. This is a complex area. The estate recently appointed a carbon officer, Mared Williams, to measure baselines and to form a whole estate plan for further improving our impact on the planet. We've also been able to improve the energy performance rates of our built property.

Where would you like to see Rhug Energy Ltd in another 10 years?

At the cutting edge. We'd like to incorporate new technologies as they emerge in everything we do at Rhug. We think it's also important to develop our understanding of the environmental footprint our supply chains leave and take responsibility for improving the impact of the whole chain by making well-informed decisions.