VITAL ENERGi

CASE STUDY

Coed Ely Solar Farm

INNOVATIVE PUBLIC SECTOR PARTNERSHIP

PROJECT OVERVIEW

The Coed Ely Solar Farm is an innovative partnership between Rhondda Cynon Taf County Borough Council (RCTCBC) and Cwm Taf Morgannwg University Health Board (CTMUHB), which demonstrates a new way for the public sector to decarbonise.

Through cooperation and shared vision, RCTCBC's solar farm will export 5MW of electricity to the grid, whilst transmitting 1MW of clean electricity to Glamorgan Hospital via a 3.2km private wire link.

This partnership, based on a long-term energy purchase agreement, will see the council save over 1,140 tonnes of carbon per year, whilst the hospital reduces its emissions by almost 250 tonnes per year.

VITAL SOLUTION

Coed Ely Solar Farm is a core part of Rhondda Cynon Taf County Borough Council's (RCTCBC) decarbonisation strategy to support the Welsh Government's target of net zero by 2030.

The 84-hectare site, which is a former colliery spoil tip, was unused for over 20 years before being repurposed into a solar farm and we worked with the council to enhance biodiversity across the site through a range of measures.

The system consists of more than 9,000 bifacial panels that generate electricity from both sides, increasing overall energy yield. We installed all supporting infrastructure, including inverters and substations, and coordinated with the District Network Operator to establish a 33kV connection for exporting power to the grid.

Additionally, we performed extensive works to connect Royal Glamorgan Hospital, which now receives approximately 20% of its annual electricity via a 3.2km, 11kV private wire connection. Our engineers also upgraded the hospital's electrical infrastructure to make it fully compatible with the new system.

Developing & Procuring the Project

The council initially worked with several framework providers to find a procurement solution, but due to the complexity of the project, which included challenging topography, a former coal tip site, and a 3.2km private wire route, felt that none were suitable. They then opted for an open tender to identify a contractor with the experience to overcome these obstacles.

Once appointed, we worked with the council's professional team to enhance the design to best meet the topography of the site and support the technical and commercial models to strengthen the overall business case.

Prior to Vital's involvement, the council partnered with the Welsh Government's Energy Service to develop the project and complete feasibility studies, supported by £325,000 in Ystadau Cymru development grants.

The Coed Ely Solar Farm was jointly

PROJECT SUMMARY:

CLIENT

Rhondda Cynon Taf County Borough Council

PROJECT

6 MW Solar Farm

THE BENEFITS:

- 1,390 tonnes of carbon savings delivered.
- Innovative public sector partnership with power purchase agreement.
- Repurposing a colliery spoil tip site
- Focussing on delivering significant, long-term social value for the wider community.
- Designed to cause minimal disruption on highways and hospital grounds.

(Right) A bird's-eye view of the solar farm which will also export 1MW of clean electricity to the Royal Glamorgan Hospital.
(Below) Vital Energi supporting local primary school's Eco Avengers programme.

'Vital Energi have consistently demonstrated that geography is no barrier to collaboration. From the outset, they've been fully engaged, always available, whether on site or at the end of the phone, and ready to support with any query or challenge. Their communication has been clear and proactive, and they've shown a genuine commitment to being part of the wider delivery team.'

COED ELY PROJECT TEAM

funded by RCTCBC, the UK Government through the UK Shared Prosperity Fund (UKSPF), and part-funded by the Welsh Government.

Maximising The Socio-Economic Benefits for the Area.

We believe that large infrastructure projects are an opportunity to improve communities by buying, hiring and investing locally. We worked with the council to maximise local spend and delivered over 20 hours of workshops to help local businesses engage with the project and win work. This saw £620,000 injected into the local economy by buying, hiring, and investing locally.

Additionally, 10 people from the city region were employed on the project, resulting in a further £288,000 investment in the local economy and bringing the direct financial benefits to over £900,000.

Supporting Community Organisations and Charities

We identify the local organisations and charities which make communities so special and try to find opportunities to support them. In addition to financial support, our staff often volunteer their time to practically contribute to these causes.

On this project we were able to commit £1,500 to support the social enterprise, Coalfield Flower Farm, which helps improve mental health through growing and cutting flowers. We also supported Valley Kids with £1,000 towards their initiative supporting pre-school children.

Biodiversity Enhancements

The original site was a colliery spoil tip and had been unused for over 20 years. We shared the council's vision that the site could be improved during the construction phase. We began by working with local ecology experts to create a comprehensive biodiversity management plan, which would increase biodiversity, enhance local habitats and support wildlife.

Key parts of this plan included planting 550m of new native hedgerows and installing 30 bat boxes, 90 bird boxes and multiple bee-posts across the site. Eco-piles and compost heaps were created from the vegetation clearance to provide shelter for invertebrates and small mammals.

Our team worked to ensure the swales and drainage for the site were optimised to support the local ecology, and that sheep continue to graze in the lower sections of the farm, further enhancing soil and grass quality.

This, alongside other land management actions, will result in a more biodiverse site, which has converted a former spoil tip into a place where insects, animals and plant life can thrive.

Stakeholder Engagement

Work at the solar farm took place on a semi-secluded site, causing minimal disruption to the wider community. However, installing the 3.2km private wire cable and completing hospital upgrades required careful planning and strong communication.

Initially, the council led early engagement efforts, educating internal teams within the council and health board about the project's benefits and fostering a sense of ownership. Engagement also included the Welsh Government Energy Service, and the tenant farmer whose land would be affected by the cable route.

At Royal Glamorgan Hospital, the works involved temporary access restrictions and restricting vehicle parking in certain areas. We collaborated with the health board to ensure all emergency routes remained open and essential access was maintained, using bilingual communications for critical updates such as temporary car park closures.

Performing A Complex Cable Pull, Whilst Minimising Disruption on Highways

The cable pull route followed the highway, and there was added sensitivity around the works because a recently completed project had already caused significant local disruption. We worked closely with the Authority to create a traffic management plan that prioritised carrying out as much of the work offline as possible. This meant preparing and completing activities away from live traffic to limit the need for road controls.

When it was necessary to work directly on the highway, we ensured the road was opened again before the afternoon traffic rush, removing items like temporary traffic lights or lane closures. This ensured the road returned to normal, reducing the impact on road users at peak times.

In the busiest areas, the work was scheduled to coincide with periods of naturally lower traffic. An example of this was the work at the hospital entrance, which took place on a Sunday and was carried out under staffed traffic lights operated by trained personnel. This ensured safety while minimising disruption for staff, patients and visitors.

Meeting A Challenging Delivery Programme

The project was delivered in just 12 months from groundbreaking to energisation, despite poor soil and weather delays. Early mobilisation and a flexible schedule were key, with security fencing installed at the outset to protect valuable equipment and enable controlled, seasonally timed vegetation clearance.

Using local companies with a deep understanding of local terrain proved invaluable in a challenging environment and ensured steady civil engineering progress.

Modular construction and pre-approved technical submittals streamlined procurement, while trial holes and intrusive surveys ensured accurate private wire installation along its route, avoiding delays and mitigating unexpected issues.

The design of the project split the solar arrays into grid export and private wire zones, allowing parallel installation and commissioning, enabling energisation 12 months after the project began.

Success was driven by smart sequencing, local knowledge, and adapting to site constraints.

Benefits

The project has a projected life expectancy of 40 years and will deliver significant benefits.

Royal Glamorgan Hospital will receive approximately 20% of its annual demand from the solar farm, with that number increasing significantly during peak summer days. Annually, they will receive over 1,100MWh and reduce carbon by 249 tonnes per year.

The council's main 5 MW facility will generate over 5,070 megawatt-hours of clean electricity, which can be exported to the grid. This will save over 1,140 tonnes of carbon each year.

Over the 40-year lifecycle of the project, it will reduce carbon by over 52,000 tonnes making it a fantastic new addition to Wales's low-carbon infrastructure.