**Tai Tarian, Neath Port Talbot County Borough Council – ORP 3.3**

Installation of Solar PV systems to 383 tenanted properties (fabric works completed prior to installation of solar PV)

**Background**

Installation of Solar PV systems to 383 tenanted properties (fabric works completed prior to installation of solar PV).  Working towards MSC quality targets.  The project started in November 2024 and is due to complete in March 2025.

**Project learning**

The most significant learning to date from this project has been the immediate savings to contract holders bills, we have had reported bill savings of 50% decrease in electricity costs since the installs which is really making a difference to our contract holder.  We have also learned the importance of selecting inverters with low start-up voltages, which can generate power earlier in the day and extend energy production during lower light conditions.  A key learning was the flexibility provided by dual MPPT (Maximum Power Point Tracking) inverters.  These inverters allow for multiple roof orientations to be used effectively, which was particularly valuable for properties with limited or non-south-facing roof space.  By utilising both MPPT inputs, we were able to install larger systems by spreading panels across different roof orientations.  This approach maximised roof space and provided tenants with more substantial systems, leading to greater reductions in their energy bills.

**Project innovation**

One of the most innovative aspects of this project was the use of dual MPPT (Maximum Power Point Tracking) inverters, which allowed us to optimise energy production from properties with multiple roof orientations.  Unlike traditional systems that rely solely on south-facing roofs, this technology enabled us to install panels on east- and west-facing roofs, maximising available space and increasing energy generation.  This flexibility ensured that even properties with smaller or less ideally oriented roofs could benefit from larger, more effective solar PV systems.  Smart Meters and iOpt Environmental Sensors are also being installed.  Another notable feature was the emphasis on selecting inverters with low start-up voltage capabilities. This innovation allowed the systems to begin generating electricity earlier in the day and continue later, enhancing overall energy output and providing tenants with even greater savings on their energy bills.  Additionally, working with multiple contractors exposed us to a variety of cutting-edge solar technologies, ensuring the final solution was both efficient and tailored to the specific needs of each property.  These combined features not only optimised system performance but also demonstrated a forward-thinking approach to solar PV installation, delivering substantial benefits to contract holders and showcasing the potential for solar in diverse housing scenarios.  Through this project we have really enhanced the technical knowledge of solar PV design and installation and our Project Manager know has a good insight of how to tailor different solutions to different properties ensuring optimal performance and greater benefits to contract holders.

**Challenges**

Several challenges have emerged during this project that provided valuable learning opportunities:

* One significant issue was contract holder refusals, as some residents did not believe they would benefit from the solar installation.  This delayed progress and highlighted the importance of early and effective communication with contract holders, which now forms part of our tenant engagement strategy
* Another challenge was ongoing chimney repairs, which had to be chased up and completed before the solar installations could proceed
* These delays underscored the need for better coordination between teams and contractors
* For future projects we would aim for a more structured pre-installation process
* Once we have determined which properties are suitable for solar, the addresses should be shared with our Tenant Liaison Team well in advance of selecting a contractor.  This would allow the team to notify contract holders about the upcoming works, address any concerns, and resolve potential refusals early
* Additionally, all selected properties should be cross-checked against Tai Tarian’s system to identify any outstanding repairs or DMC issues
* These should be rectified before the project begins to avoid delays
* By the end of this project in March 2025, we aim to produce a detailed specification for future solar PV installations.  This will include standardised requirements, such as the type of inverters we prefer for consistency and ease of maintenance, while allowing flexibility for contractors to choose Tier 1 panels, provided they are locally sourced.  This will ensure that our Maintenance Department can readily source replacements if needed.
* The specification will also include clear guidance on wiring and system design to streamline future maintenance, fit in with Tai Tarian’s Compliance departments recommendations and ensure long-term reliability.