

Solar Power Substation Lifted and Supported by 186 ECP Steel Resistance™ Piers

Central, California





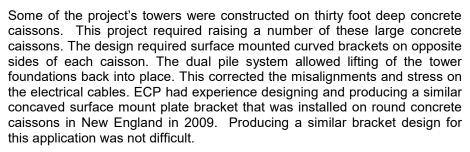
This part of the substation is where a huge transformer and wiring framework settled and needed underpinning.

This solar power substation in Central California was damaged by an earthquake at the beginning of 2020. The earthquake caused settlement of transformers and other structures within the substation. foundations dropped as much as six inches. movements at column foundations caused misalignment of the framing for the electrical distribution structures. This distress had the owner considering suspending plant operations because the framing misalignments were causing serious stress to the high voltage cables.



Technicians are preparing the transformer footing for bracket installation.

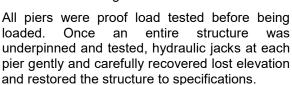
The massive transformer seen above needed to be lifted and restored to the original elevation. The special foundation for the huge transformer was designed to contain transformer oil leakage. If the transformer leaked, oil would be held within a four foot deep well surrounding the transformer pad. The load of the transformer needed to be supported with piers adjacent to the transformer pad. Additionally, underpinning was required at the outer perimeter of the oil containment foundation.





Workers are installing wall mount pier brackets on the transformer footing.

The design and specifications were prepared by Engineering Wavpoint Vancouver. Washington 98660. The design called for ECP PPB-350 WM Flat Wall Mounted Brackets along with ECP PPB-350 WM Curved Wall Mounted Brackets. The 124 placements used 3-1/2 inch diameter tubular pier pipe. In addition, 62 ECP PPB-300 Eccentric Underpinning Brackets were installed to lift and level the building structures. The PPB-300 ECP Steel Pier™ System mounts under the footing and uses a three inch diameter tubular pier pipe. The average installed depth



was 35 feet below grade.

This is a view of a completed pier installation on a caisson.

The special concave column

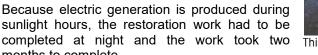
mounted bracket is shown.



Hydraulic jacks are used to lift the transformer and footing.



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months to complete.