

## 92kV Line Relay Protection Upgrade (ED, P and R Lines)

### Project Description

The project consists of the replacement of the existing transmission line protection relays with modern SEL multifunction relays to provide faster and higher accuracy fault detection and enable the gathering of synchrophaser<sup>1</sup> fault data in the event of a line fault. The sites for the relay line upgrades are: Mall to Calexico substations (ED Line), Heber Geo to Perry substations (P Line) and Avenue 58 to Coachella Switching Station substations (R Line).

The existing relay protection relays have reached the end of their lifespan and are becoming more difficult to calibrate accurately. The new devices will be SEL 411L, 311L and 751 relays (see attached illustrations) will allow IID to gather situational SCADA data that was not previously available and continue to remove obsolete FOCUS multiplexer communication devices from the IID system.

The project will also replace the existing bank protection relays at the Calexico Substation with modern SEL-487E multifunction relays. The current ABB TPU 2000 relays have also reached the end of their lifecycle and have proven in the past to be unreliable in the event of a fault.

Furthermore, the existing relay protection equipment is no longer supported by the manufacturer. The risk of equipment failure will increase if the proposed project is not implemented. Failure on the equipment is a reliability concern.

Major Deliverable Items
IID System Protection Engineering Design
Removal of old relays JBCG-53M, KC-4, KD-10, KD-11, SEL 121G, TD-4, GCX-17A, IBCG-51E, MDAR, RfPM-11D, P41, SEL321, TPU 2000, KCEG-242, GCX-51A, JBCG-53M and SAM-14B at the various listed substation sites.
Procurement and installation of SEL relays and associated equipment and materials SEL microprocessor relays i.e. SEL411L, SEL311L, SEL751A and SEL-487E.
Protective system settings programming, testing & commissioning

<sup>1</sup>A synchrophasor is a sophisticated monitoring device that can measure the instantaneous voltage, current and frequency at specific locations on the grid. This gives operators a near-real-time picture of what is happening on the system, and allows them to make decisions to prevent power outages