THE CERTIFIED POWER RECOVERY ENGINEERING TEAMS INITIATIVE

A multi-sector emergency staffing program hosting pre-certified, trained technical staff, supplementing corporate engineering teams in responding to severe emergencies.
ADDRESSING BLACK SKY HAZARDS

In recent years, concerns have grown that severe “Black Sky Hazard” events could damage power grid hardware over very wide regions, resulting in long duration power outages. Black Sky Hazards include uniquely severe scenarios in six categories:

- Cyber
- EMP
- Earthquake
- Coordinated Physical Assault
- Severe Space Weather
- Severe Terrestrial Weather

Power restoration following a Black Sky Hazard requires coordinated resilience investments, planning and real time support crossing government, corporate and NGO sector boundaries.

Since each of these hazards is expected to cause significant hardware damage distributed over very large regions, restoration will also typically require far more engineering support staff than under ordinary conditions. And given the number of power companies that would be affected, sharing corporate staff will likely be insufficient to address this shortfall.

The CPR ET Plan

The CPR ET Initiative addresses this scenario by utilizing engineering personnel normally working with “resource” companies or government agencies outside the power industry – e.g., with roles in aerospace, microelectronics or other high-tech industries – as an emergency resource.

Their fundamental mission: Emergency technical support following a black sky event, at power companies or other client organizations.

CPR team skill sets planned include Information Technology and Operations Technology personnel, and electronics, software and electrical engineers and technicians.

By prearranged agreement with resource companies in different regions, engineering teams that meet multi-level technical, security and emergency availability requirements will receive training and periodic retraining, coordinated with client power companies.

In the event of a black sky hazard, these certified, trained personnel will be made available to clients by their resource companies.

SUPPLEMENTING THE MUTUAL ASSISTANCE PARADIGM

While the CPR Engineering Team Initiative is designed to have broad applicability to both government and corporate needs, the primary focus of the CPR Engineering Team initiative is to supplement Mutual Assistance Agreements historically used by power companies to exchange emergency response personnel in time of need.
The CPR ENGINEERING TEAM system is designed to provide a framework that can host supplemental emergency engineering labor in a broad selection of technologies and job categories, training certifications and security levels. To ensure maximum flexibility for client-specific programs, this framework includes a baseline template – applicable to all engineering team personnel – and is also designed to accommodate a wide variety of training and certification template options.

The Baseline Template

All engineers and technicians participating in the CPR ET program will be subject to a common set of baseline technical, procedural, security and training requirements.

- **Procedural Requirements:** Written agreement by the candidate and the resource company to a standard set of conditions.
  - Availability for initial training and retraining (both baseline emergency response and corporate).
  - Emergency response availability, and agreement to fulfill the baseline emergency response procedures.
  - Agreement to abide by required client proprietary agreements.

- **Technical Requirements:** Candidates will be selected in a variety of technical competencies, including engineers and technicians experienced in IT, OT, electronics (low voltage and high voltage), software, control systems and a range of specialties and experience levels within these professional categories.

- **Security Requirements:** All candidates will be subject to standard background checks to verify acceptability and reliability for typical corporate environments. Clients may request candidates willing to sign and abide by corporate proprietary rights agreements. In addition, companies with unique sensitivities or security requirements may request candidates who hold government security clearances, or who would be willing to undergo a client-designated background check.

- **Training Requirements:** Engineers and technicians are made available by their resource companies specifically for black sky events, when their companies would be shut down with no need for their support. This would not be the case – and therefore such personnel would generally not be available – in intermediate level disaster scenarios, although limited support might be available under such conditions.

Since such events will result in a highly disrupted environment, basic lifeline infrastructure services and normal communications and transportation will generally not be available. All team personnel will therefore receive special training, and in some cases special equipment, to allow them to operate in such environments. This will include means for pre-planned coordination with designated client personnel, and for communication with local emergency service providers to arrange transportation and ensure basic security for themselves and their families.

The Training and Certification Template

Following baseline certification (and periodic recertification), team personnel will join the CPR ET talent pool. Once “activated” – selected for emergency support by one or more clients – engineers and technicians will receive additional certification, with categories and levels as requested by the clients they support.

As part of their CPR ET startup process, client corporations will define their requirements for supplemental emergency support, including required skills and job categories, experience levels, and any specialty skills. The Certification Template is planned as a two-level process.

- **Primary Training and Certification:** Clients will develop their own corporate training and retraining programs for CPR ET personnel, to familiarize team members with the system they will be expected to support, and provide requisite training and materials (handbooks etc.) for their support roles.

- **Secondary Training and Certification:** Where required, at client request, selected team members may be asked to undergo separate specialty skill certifications (e.g., protective relay certification), either from their own, corporate internal process, or from external training courses.