Capability - Power

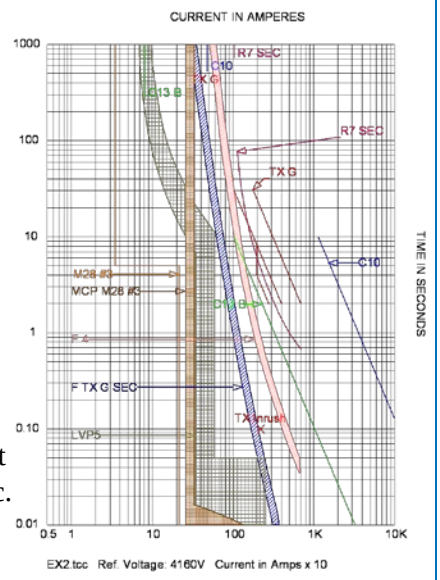
Power System Calculations, Engineering, Design, System Modeling

The HCS Group Power System Team members have years of experience in performing power systems studies, analysis and power system engineering for projects worldwide. The HCS Team can provide full system short circuit analysis, arc-flash studies, coordination studies, load flow, dynamic power system evaluations, and a host of other critical system modeling features. HCS Group is familiar and capable with working with networks worldwide with varying voltage distribution potentials and frequencies. The Team is well versed in the International Building Codes, European and Asian electrical codes and equipment requirements.

State of the art and the most robust software is utilized in-house by our team of professionals at HCS to model, evaluate and predict real system behavior. Proposed designs can be modeled to enhance the engineering process while existing systems can be modeled to evaluate system vulnerability issues, failure points, modifications and/or upgrade requirements.

Power System Studies include but are not limited to the following:

- Survey Existing Conditions & System Performance – Energy Uses & Losses
- Voltage Profiles, Voltage Drop & Regulation
- Load Studies – Types, Profile & Swings and Load Flow Analysis
- Short Circuit, Protective Device Coordination Studies and Arc Flash Analysis
- Transient and Stability Analysis
- Harmonic and Power Quality Analysis
- Reliability Analysis & Contingency Plan Analysis
- Power Factor Analysis and Control, Reactive Power/VAR Flow Studies
- Equipment & Insulation Integrity Evaluation
- Component and Cable Ampacity Analysis
- Grounding Analysis
- Power Generation Planning – Peak Shaving, Cogeneration & Load Management
- Network Interactions – Harmonics, Capacitors, Transients, Neutral Currents, etc.
- Recommendations - Translating Energy into Costs



Power System Engineering includes but is not limited to the following:

- Electrical Transmission/Distribution up to 138 kV
- Primary & Secondary Unit Substations
- Data Centers & Uninterruptible Power Supplies (UPS)
- Primary and Secondary Unit Substations
- Total Energy Plants (TEP) & Central Energy Plants (CEP)
- Prime Power Plants & Backup Power Plants
- Renewable Energy Systems (Solar and Wind)
- Healthcare, Laboratories, Essential Electrical Systems
- Load Control and Load Shed Systems
- Power System Protection: Power System Relays, Ground Fault, Sectionalizers, Re-Closures, fuses, surge protection, etc.
- Controls, Operation and Maintenance

Hospital Substation, Emergency Power Supply
David Grant Medical Center, Travis AFB, CA

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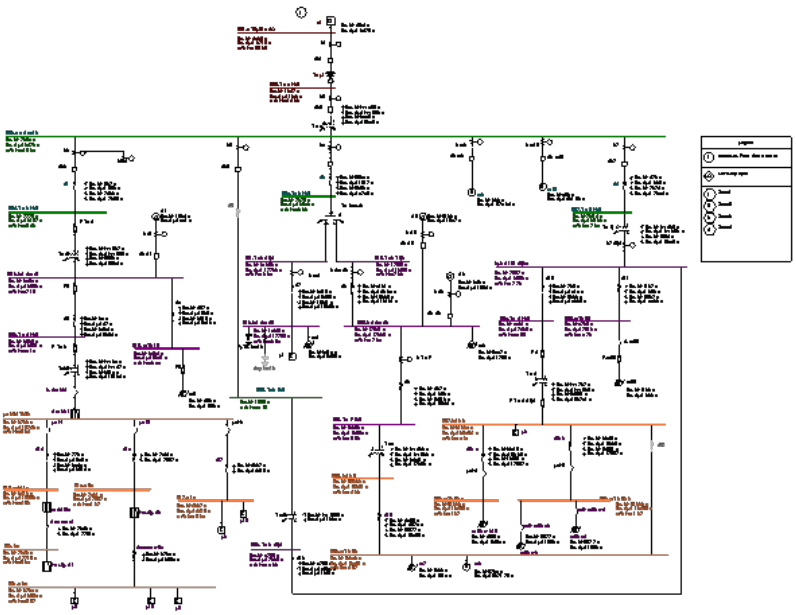
HCSgroup
Engineering and Technical Solutions

Leadership – "Our Team's Greatest Asset"
Integrity – "Our Teams Greatest Responsibility"
Service - "Our Team's Greatest Privilege"

Power systems should be designed to be resilient, maintain mission first and consider islanding critical infrastructure by utilizing smart grid and micro-grid technology. Protection should be considered on the basis of safe and reliable operation of the system.

Whether your network or system is critical care or mission critical, we know how important it is to you. The professionals at HCS Group can assist you in your energy delivery system planning and engineering needs to facilitate and enhance system performance.



Typical Power Systems Studies & Upgrades
Incirlik Medical Clinic—Incirlik, Turkey
Power Generation, Paralleling Gear
Load Control and Shedding
Essential Electrical Systems

Prime & Standby Generation
Incirlik Medical Clinic—Incirlik, Turkey

Electrical Data Room Upgrade
Walter Reed National Medical Center
Bethesda, Maryland

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