

ECLSS COMPANY

Aerospace

Systems
Engineering



Electrical
Engineering



ENVIRONMENTAL CONTROL AND LIFE SUPPORT SYSTEM (ECLSS) SUPPORT FOR MULTIPLE SPACE OUTPOST PROGRAMS

APPROACH

- Establish multidisciplinary team of systems, electrical, and algorithm and controls engineers for ECLSS projects related to two different space outpost programs
- Define requirements and sub-requirements for the electrical power subsystem (EPS), command and data handling subsystem (C&DH), and payload service module of a space outpost
- Develop power bus isolation and grounding architecture and define fault mode detection, isolation, and recovery
- Conduct trade studies for power bus switching and distribution design options and for payload power transmission design options

RESULTS

- Defined requirements and sub-requirements for subsystems and identified additional considerations for the system and subsystems to be defined
- Developed power bus isolation and grounding architectures and reviewed with client's design teams to optimize designs
- Presented trade studies for power bus switching, distribution design, and payload power transmission, highlighting the key factors needed for consideration in each design
- Provided our recommendations of best path forward given the current system requirements

KEY TOOLS & TECHNOLOGIES

- MATLAB
- Simulink
- C#
- Python
- Jama
- Excel
- Visio

ALTEN TECHNOLOGY