

## . Next Generation Power Systems for IMS Stations

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Power systems play a critical role across all of the monitoring system technologies in the International Monitoring System (IMS). Power systems form the very backbone of station design, where any deficiencies cast a direct impact on the overall station performance and its data availability. With the strong mandate to sustain high annual data availability throughout the network in face of harsh environmental, logistical, and meteorological challenges, it becomes imperative to design power systems with increased resiliency, added redundancy and trusted components, which passed the test of time. The design and deployment of the next generation IMS power systems thus creates a window of opportunity to modernize station design, minimize catastrophic failures at the existing stations, and incorporate the latest technological advancements at new installation or station upgrades as part of the forthcoming IMS network recapitalization period.

The next-generation IMS power systems are based on the open system architecture concept, utilizing ad-hoc selection and substitution of various power sources and power system components derived from the environmental demands and logistical restrictions present at the station location. These purpose-built, yet standardized power systems thus adapt to the site-specific input and output requirements, without requiring extensive redesign and cost when deployed at other stations throughout the IMS network. The high degree of standardization simplifies installation, maintenance and future upgrades as components can be freely interchanged throughout their life cycle without impacting the overall system. The presentation provides an overview of the engineering challenges, design requirements and methodology used in the initial phases of the project, and details the roadmap spanning from conceptual design, manufacture, prototype testing, factory acceptance up to the deployment of the next generation power systems through the IMS network.