PICOGRID: SATELLITE-CONNECTED REMOTE MONITORING FOR FIELD SENSOR SUITE DEPLOYMENT

PROJECT OVERVIEW

Training ranges, sensitive environmental sites, and other high-value government assets often exist well beyond available power sources or connectivity infrastructure making monitoring, securing, and protecting these assets exceptionally challenging. The Picogrid Lander is a fully self-contained, grid-independent remote monitoring terminal designed to supply persistent power and to secure, high-bandwidth connectivity to sensors and remote field equipment for years without maintenance. Picogrid terminals will be deployed at the Barry M. Goldwater East range in southwestern Arizona to augment existing environmental field operations on Luke AFB/56th RMO.

BENEFITS

The current state of the art for accessing data in remote areas without cellular service often requires complex, ground-radio networks or frequent manual access. Deploying field-equipment with Picogrid terminals enables faster installation and greater reliability than ground radio networks since each terminal is independently solar powered and maintains a dedicated satellite internet connection. The frequency of manual access is reduced through network connectivity. This technology enables federal land managers, including DoD range management offices, environmental divisions, and security teams a live, real-time connection to the field.

PATH FORWARD

The primary objective of this project is to clearly demonstrate the effectiveness and efficiency of the Picogrid satellite-based technology at transmitting data collected from remote ground sensors to a secure internet site, from which data can be readily accessed by the end-user. This project will demonstrate the technology's capability to operate with a wide range of existing sensors and equipment to enable rapid, cost-effective integration into existing operations for a wide array of applications. The goal of the project is to develop a process using the Picogrid technology that provides the DoD a cost effective and efficient enterprise-scale method for accessing and transferring ground-based sensor data in remote areas without the need for physical data retrieval. Our transition partner for this project is Luke AFB/56 RMO in Arizona. Other DoD (Naval Base Ventura County) and non-DoD organizations (Alert Wildlife, Seychelles Dept. of Foreign Affairs, Pacific Gas & Electric, various fire departments in CA, etc.) have also expressed interest in this technology.

In-situ mockup of Picogrid terminal unit and example sensor suite.

Graphic showing the general component parts of the Picogrid Lander terminal.

FOR FURTHER INFORMATION

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