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PRESS RELEASE

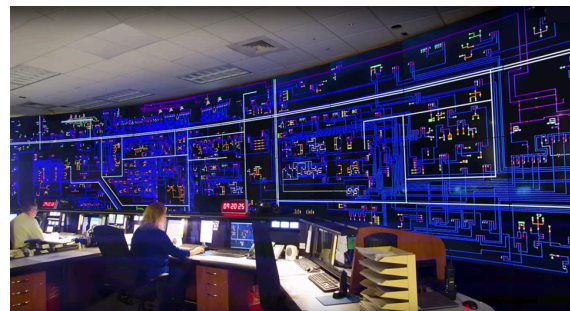
Primate Technologies, Inc. Develops Electrical Monitoring System for NASA

Advanced Operational Awareness of the Kennedy Space Center Power System

Melbourne, Florida, December 1, 2017: Primate Technologies, Inc. (Primate) is pleased to announce the successful deployment and commissioning of the Power Systems Visualization System for NASA's Launch Control Center at Kennedy Space Center (KSC), completed under subcontract to AECOM, the NASA KSC Institutional Services Prime Contractor who also provides management and operations of the Control Center. Primate developed a power system modeling solution to answer NASA's need for real-time situational awareness of all monitored power distribution on the vast KSC complex. The solution provided by Primate is the software and visualization deployed in the Control Center on the video wall utilizing forty 55" HD LED monitors and multiple operator consoles.

"Kennedy Space Center's electric system undergoes frequent changes and reconfiguration to accommodate NASA's ever-evolving missions, so the process to model the system had to be easy for operators to maintain," said Bill Snavely, Primate's Vice President of Operations.

"In response, Primate developed an innovative technique to digitize the original physical mapboard content and automatically generate a new complete network topology. The topology includes 5,400 dynamic devices and 4,000 line sections on the electronic display."



Primate Technologies' Video Wall software and visualization content for Kennedy Space Center's Power Console Operators

The new visualization system Primate delivered is a schematic representation showing the actual state of all devices and circuits that determines connectivity between generation and load. When the display changes, the topology model is automatically updated. This real-time situational awareness has expanded

operational capabilities for monitoring and controlling the power systems at the Kennedy Space Center.

The Primate visualization system was under development, design and testing for 8 months in concert with AECOM, who as the Institutional Services Prime Contractor is also responsible for the primary power systems for NASA at the Kennedy Space Center. The initial phase deployed a similar system that replaced the physical mapboard with a video display, while the second phase provided automated status changes and automatic line updates based upon display changes. *Dori Swift, Control Room Supervisor with AECOM, said, "The upgrade has exponentially improved the monitoring, maintenance, and operation of the electrical power distribution system at Kennedy Space Center. The electronic display shows real-time dynamic configuration of the electrical system by which operational abnormalities can rapidly be identified and addressed."*

The solution has rapidly increased situational awareness for the Launch Control Center power console operators. Within a few seconds, they can identify changes to the electric system and visualize the context of the changes by animation and alerts, which is immensely valuable in those critical moments before a launch. *Jack L. King, NASA System Engineer for the NASA Kennedy Space Center Complex Control Center, states "the realistic power modeling that Primate installed provides greater operational safety and enhances NASA's ability to remain aware of power conditions at the complex. This provides us greater certainty and situational awareness which is always important but of utmost importance when scheduling highly critical events."*

The network model determines the energization status of all 4,000 line segments, using the real-time state of 3,000 points defined in the EMS and another 2,400 points that are manually toggled within the visualization system. When lines or devices are added or moved on the display, the new network design is automatically calculated without requiring any additional administrative work. Within a few seconds, operators can identify changes to the electric system and visualize the context of these changes.

The requirements for monitoring power distribution at the 140,000-acre Kennedy Space Center are complex. The facility includes a Space Station Processing Facility (SSPF) for payload preparation and the Vehicle Assembly Building (VAB), the world's fourth-largest building by volume. Biological laboratories, fuel storage tanks, and clean-rooms require reliable electric power. The majority of the powerlines run underground, making accurate monitoring critical for all of the buildings, launch sites, and laboratories. Primate Technologies' new visualization system will assist in the

continued rapid growth and diversification of the space industry far into the future on Florida's Space Coast.

About Primate Technologies, Inc.: Primate is a visualization software company focused on situational and operational awareness realized through a unique blend of advanced illustrations and data processing (techniques). Primate has a record of performance for delivering products that exceed industry and regulatory standards including compliance with security requirements. Incorporated in 2001, Primate specializes in providing solutions within mission critical control rooms. Primate's experienced staff, design process, and focus on software for power makes Primate a sought-after situational awareness leader.

About AECOM: AECOM is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses and organizations in more than 150 countries. As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges. From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A *Fortune 500* firm, AECOM had revenue of approximately \$18.2 billion during fiscal year 2017. See how we deliver what others can only imagine at aecom.com and [@AECOM](https://www.aecom.com).
