The GPG program enables GSA to make sound investment decisions in next generation building technologies based on their real world performance.

CAPTURE & DISPLAY CRITICAL INFORMATION IN REAL-TIME
OPERATORS IDENTIFY WAYS TO INCREASE ENERGY-EFFICIENCY

WIRELESS SENSOR NETWORKS FOR DATA CENTERS

OPPORTUNITY

How much energy is used by data centers in the U.S.?

2% OF ALL U.S. ENERGY IS CONSUMED BY DATA CENTERS*

~50% GOES TO NON-IT LOADS*

TECHNOLOGY

How do Wireless Sensor Networks save energy?

CAPTURE & DISPLAY CRITICAL INFORMATION IN REAL-TIME
OPERATORS IDENTIFY WAYS TO INCREASE ENERGY-EFFICIENCY

M&V

Where did Measurement and Verification occur?

LAWRENCE BERKELEY NATIONAL LABORATORY assessed the effectiveness of a wireless sensor network provided by Synapsence at the USDA National Information Technology Center in St. Louis, Missouri

RESULTS

How did Wireless Sensor Networks perform in M&V?

17% ENERGY SAVINGS
48% REDUCTION IN COOLING LOAD*

EFFECTIVE TOOL FOR ON-GOING OPTIMIZATION OF DATA CENTERS*

3.4 YEARS PAYBACK AT $0.045 kWh
< 50% of national average $0.11 kWh*

Data Center Power Usage Distribution

48% Cooling Load Reduction, 17% Overall Data Center Energy Reduction

DEPLOYMENT

Where does M&V recommend deploying Wireless Sensor Networks?

ALL DATA CENTERS*

Estimated $61 million in annual savings and annual decrease of 532,000 metric tons of CO2, if implemented by tenant agencies throughout the GSA portfolio

Data center assessment kit developed during study reduces deployment time and power interruptions during installation

*Wireless Sensor Network for Improving the Energy Efficiency of Data Centers: Rod Mahdavi, William Tschudi LBNL, March 2012, p.27
*Ibid, p.29
*Ibid, p.3
*Ibid, p.29
*Subject to evaluation and approval by GSA-IT and Security

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Results of energy savings and payback analysis for wireless sensor network deployment in data centers.

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