BCSE Clean Energy Briefing

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Saving Energy in the Military

To save money, reduce energy waste, and address national security through reduced dependence on foreign oil it is not enough to simply install smart meters or renewables. The Military needs to:

- Follow Congressional directive to install energy management and control systems.

- Save money by utilizing Energy Savings Performance Contracts (ESPC) with no upfront cost to the government.

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Defense Authorization Act of 2010

- **Section 2841**: mandates unified energy monitoring and controls systems to monitor energy use, indoor environments, lighting, renewables and distributed power.
- **Sect 335:** Energy Security on DOD Installations: develop a plan for electricity.

Without energy management and unified control systems meters will not bring energy savings.

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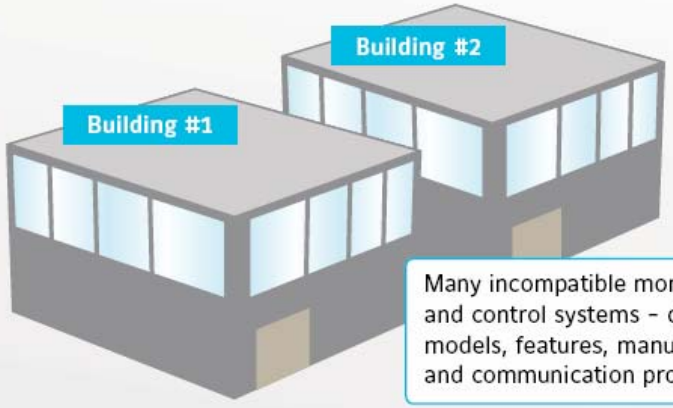
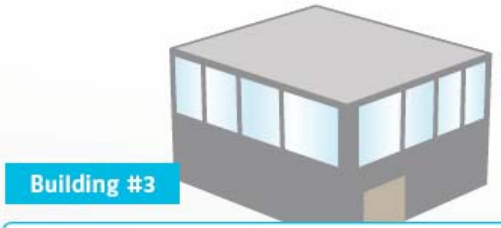
Today's Installations

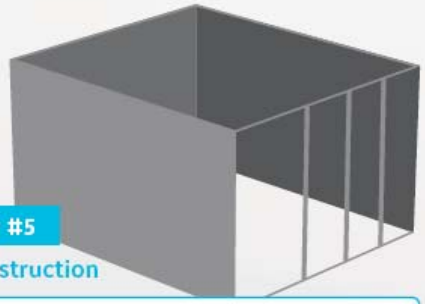
Lack Installation-wide Energy Monitoring and Utility Control Systems



Many incompatible monitoring and control systems - different models, features, manufacturers, and communication protocols.

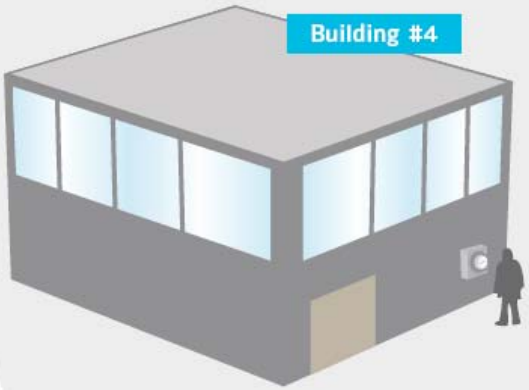


- Lacks energy efficient control
- Old direct digital controls (DDC) or pneumatic controls (analog)
- Unable to integrate to installation-wide system



Under construction

Does not comply with upcoming specifications. Will become just like buildings #1 and #2.



- Newly metered building may lack automated data collection
- Unable to take required control action to reduce energy consumption

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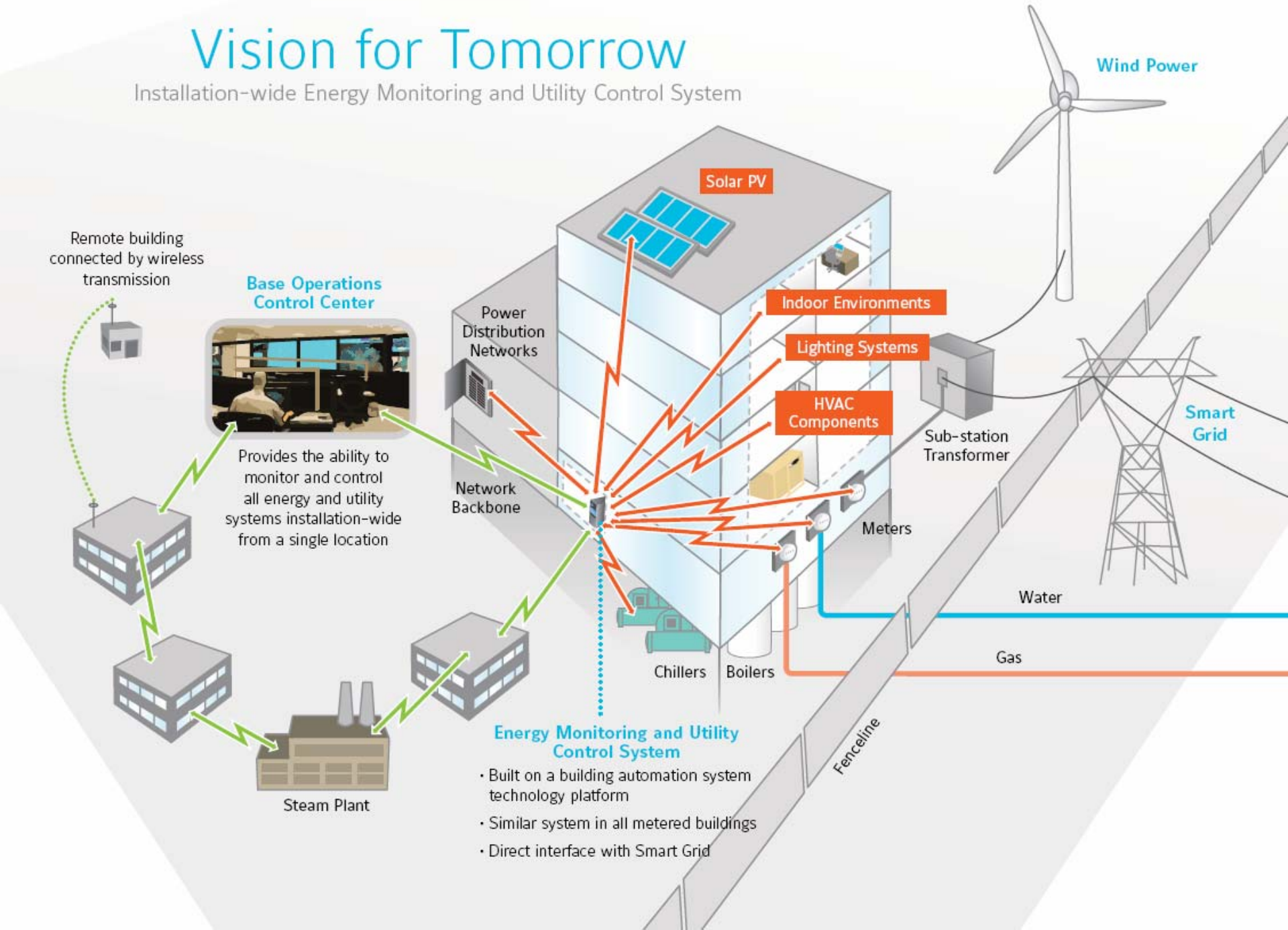
Vision for Tomorrow

Installation-wide Energy Monitoring and Utility Control System



Fort Lee … an example of an installation-wide UMCS that could easily become the foundation of an energy monitoring and utility control system

- Existing controls were updated and a 33 building integrated base network is being constructed on a competitive 2007 ECIP contract ($3M)
- New controls technology is saving energy
- All (35) buildings planned, constructed (as part of BRAC, etc.) or renovated since, will use new technology and be tied into the network
- Plans for ~50 additional existing building control systems to be updated and integrated into the installation-wide network on various contracts
- By 2013, ~120 facilities will reside on the UMCS network

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The Pentagon – BOCC Integrated Systems

- Central Monitoring
- Life Safety Smoke Control
- Fire Alarm Detection
- Fire Evacuation System
- Fire Sprinkler System
- Gas Detection System
- Water Leak Detection System
- HVAC Control
- Access Control
- Lighting Controls
- Room Temperature and
- Humidity Control
- Custom reports
- Integration to the Metasys
- System
- Power Monitoring
- Electrical metering
- Building Operations Control Center

During 9/11 integrated control systems were able to provide air barriers, channel and eliminate black smoke, minimize damage and communicate with the entire 6.5 million sq ft building.

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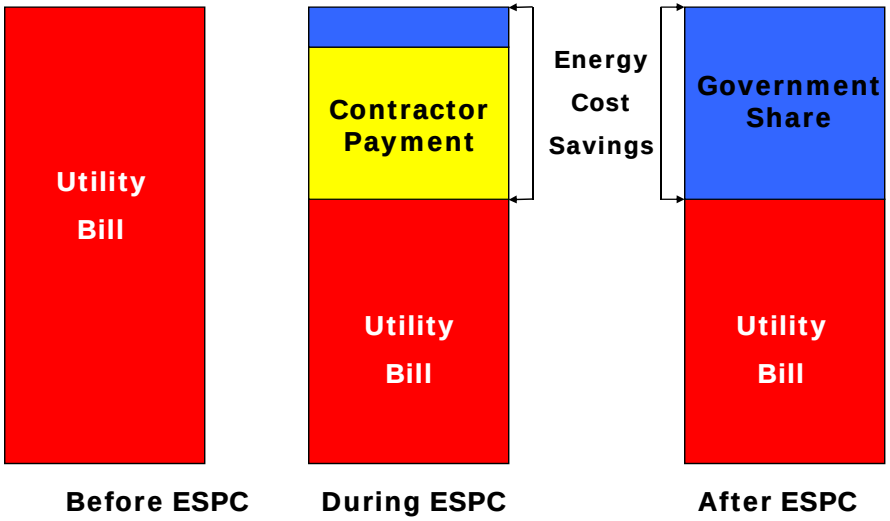
FINANCING ENERGY EFFICIENCY AND ENERGY MANAGEMENT AT NO UPFRONT COST TO FEDERAL GOVERNMENT:

ESPC- Energy Services Performance Contract



Federal dollars wasted on utility bills

- Energy Service companies finance, install, maintain no energy efficiency equipment with no upfront cost to the government.
- Private sector is paid off with utility bill savings.
- Results are guaranteed.
- Payback over time, no more than for utilities before ESPC.

Government keeps all savings after the investment is paid off

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Twenty-nine Palms Marine Corps Training Grounds, CA ESPC

Utility Problems on Base

- Located at the end of electrical distribution
- Frequent power disruptions
- High cost of electricity

Needs

- Increase electrical power reliability and self-sufficiency
- Reduce the need to purchase electricity from outside sources
- Improve living conditions on base
- Meet federal orders to reduce energy consumption and utilize renewable energy sources

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Benefits to Twenty- nine Palms after the ESPC

- Energy Independence from Grid
  - Up to 6 days for critical loads
  - Increased Power Quality

- Quality of Life Improvements
  - Air Conditioning improvements in Barracks
  - Improved working conditions through HVAC upgrades
- Reduced Costs
  - Energy Savings and Utility Maintenance
  - Future MilCon – New buildings will tie into central plants rather than build their own systems
- Secure underground utility tunnels
- Reduced Emissions

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CONCLUSION

- Energy Savings are not only about installation of renewables or smart meters. Savings are achieved through energy management and control systems.

- There are Congressional mandates for the military to install such systems for the purpose of saving energy.

- Financing doesn't need to be costly to the government.

- Project results (i.e. savings) are guaranteed by the project developer.

- As stimulus money dries up and fiscal responsibility is important, ESPCs can and should be used more to reduce tax payer money going to federal utility bills.

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