

# Hospitals & Electrical Reliability

**Chicago Advanced Energy Stakeholder Breakfast**  
Critical Infrastructure and Microgrids  
Mach 2, 2017

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# Advocate Health Care

- **System of 12 acute care hospitals in Illinois**
  - 356 Sites of Care including 7 Trauma Centers
  - 15 Million sq. ft. of healthcare occupancy
- **2016 – Energy Consumption**
  - 259.5 Million Kilowatt Hours of Electricity
  - 11.8 Million Therms of Natural Gas
- **Sustainability and Energy Focus**
  - Full time Sustainability Director and Manager
  - Full time Energy Manager
    - 20% reduction in energy consumption since 2010



# Caring for Your Health & the Health of the Earth

*"Advocate recognizes that sustaining the health of the environment is critical to preserving human health. With a deeply rooted commitment to our mission, values and philosophy, we are driven to be good stewards of all our resources, including the earth."*

Jim Skogsbergh,  
President and CEO Advocate Health Care

# Hospitals & Electricity

- Hospitals use 2.7 times more energy than a commercial office building
  - Average U. S. hospital consumes about 260,000 btu's per square foot\*
    - Average European hospital consumes about 150,000 btu's per square foot
- Hospitals are not in the power generation business – that is not our core function
  - A few have ventured into alternative and renewable energy sources

\* US Dept. of Energy

# Electrical Reliability

- Number 1 concern for Healthcare Facility Managers is the lost of electricity!
- Hospital are also highly regulated
- Technology has advanced so much over the past decades in medicine and a majority of them are equipment related
  - Robotic surgeries
  - Remote diagnostics
  - Remote monitoring of patient vitals
  - Care of neonates

# Electrical Reliability

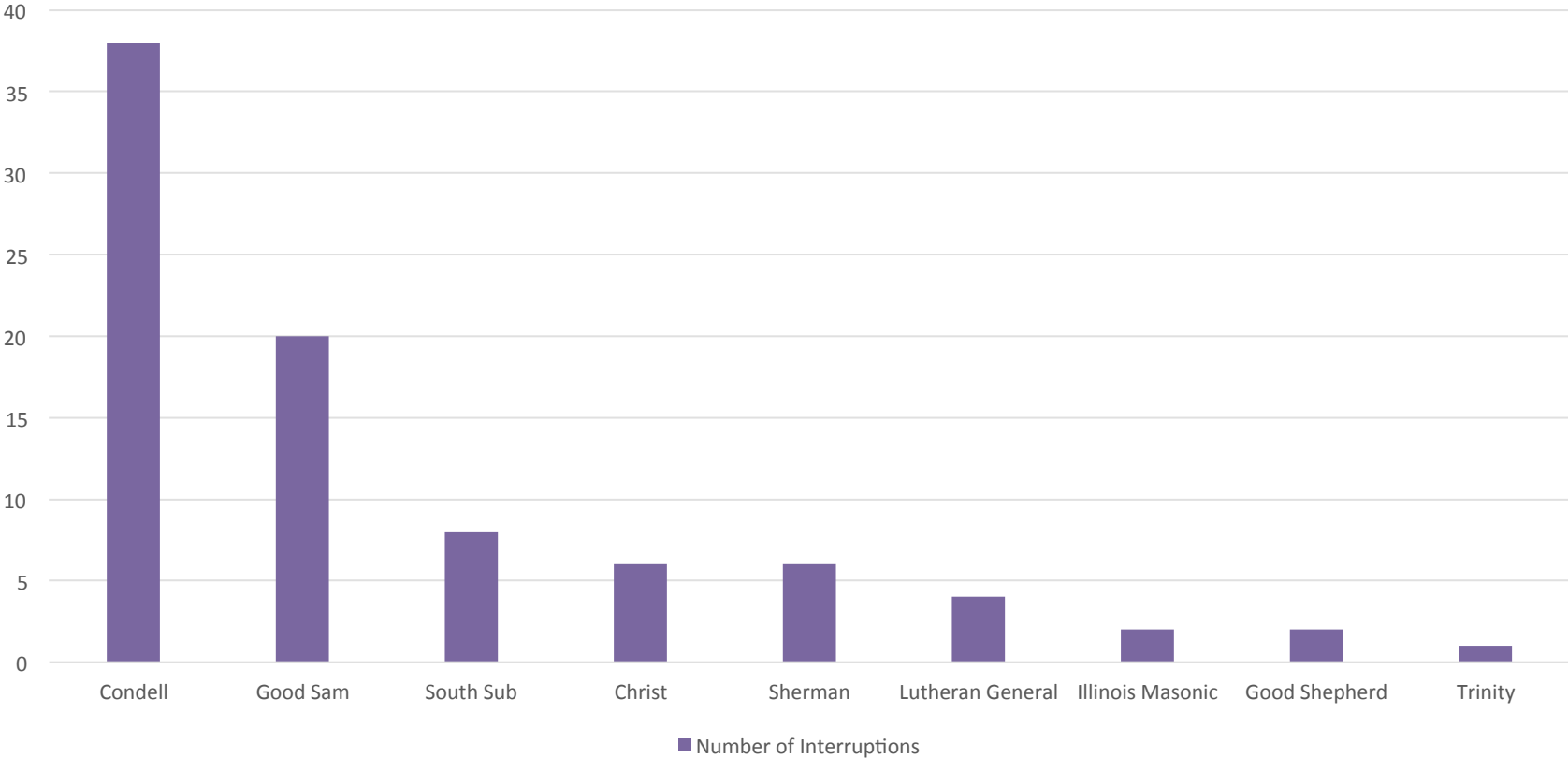
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  - Care of neonates
  - Heart/lung bypass machines

# Electrical Reliability

- High tech equipment are very susceptible to power bumps, spikes and voltage fluctuations
- A lot of equipment go into a self check mode, delaying restart for a period of time, thus jeopardizing life support
- Building support equipment shut down and negatively impact environmental functions
  - Room pressurization relationships
  - Room temperature and humidity parameters

# System Power Outages Jan 2016 – Feb 2017

ComEd Interruptions by Hospital





# Summary

Regardless of how a hospital is supplied electrically, whether from a micro grid or a traditional grid, the most important factor is the reliability and quality of the electrical feed!