



Hospital



University



Correctional facility



Nursing home

April 10, 2018

CHP

Combined Heat and Power

Summit

Eastern Missouri



DePaul Hospital – St. Louis

Andrew Gratton

Energy Center Supervisor

Energy Center Key Equipment

Steam (90 psig)

1300 hp steam boilers (two) (mid-1970s)

350 hp steam boilers (two) (2009)

Chilled water

900 ton, electric two-compressor centrifugal chiller (1987)

1000 ton, electric centrifugal chiller with VFD (1996)

1300 ton, steam absorption chiller (2004)

Plate & frame heat exchanger

Operating Strategy - Boilers/Chillers

Winter Season

Summer Season

Spring/Fall "Shoulder" Seasons

Absorption chiller is an important part of the strategy

Ameren Electric Service Key Points

- Current service as Large Primary Service (LPS)
- LPS Minimum monthly billing demand is 5,000 kW
- Actual demand is less than 5,000 kW
- Small Primary Service (SPS) not subject to 5,000 kW minimum
- Standby Service Rider (SSR) applicable to self-generating customers (CHP)

Assessing CHP Feasibility

Accepted no-cost assistance from Central CHP TAP

Meter interval data in SSR billing study tool – both LPS and SPS

Confirmed existing service under SPS would be higher cost (est. 3% higher)

CHP reduces demand - reason to consider move to SPS service

Estimated simple payback of about 7 ½ years for 2,500 kW of CHP generation

Payback sensitive to gas and electric costs

5-year payback possible - scenario of reduced gas cost, increased electric cost