Robert Mueller Energy Center
CHP Plant at Dell Children’s Medical Center

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Mueller Energy Center

- Owned and Operated by Austin Energy
- Provides electricity, chilled water and steam to Dell Children’s Medical Center
- Provides chilled water to the larger “Urban Campus” of Mueller Development
Mueller Energy Center
Mueller Energy Center

Strictly Pediatrics

Dell Pediatrics Research Institute

Ronald McDonald House

Dell Children’s Medical Center

Southwest Education Development Lab
Timeline

- **Jun 2003** – Seton and AE Discuss CHP
- **Oct 2004** – Hospital Construction Begins
- **Jul 2005** – Plant Construction Begins
- **Apr 2006** – Chilled Water Flow Begins (hospital)
- **Nov 2006** – Steam Flow Begins (hospital)
- **Dec 2006** – Chilled Water Flow to District Loop
- **Jun 2007** – Hospital Opens
- **Feb 2008** – Phase II Chiller Expansion
Reliability

(Electrical)

- Redundancy
  - 4.3 MW Gas Turbine
  - 12.5 kV Dual Electrical Distribution Feeds
  - 1.5 MW Emergency Generator (Blackstart)
- Grid Parallel/Grid Independent
Reliability

(Steam)

13,500 lb/hr Heat Recovery Steam Generator

(24,500 lb/hr Capacity Duct-Fired)

20,000 lb/hr Packaged Boiler
Reliability
(HVAC Chilled Water)

- 930-Ton Absorption Chiller
- 1,500-Ton Electric Chiller
- 8,000 Ton-Hour Thermal Storage Tank
- Taps at hospital for Temporary Chiller
Reliability
(Dell Children’s Medical Center)

- MEC capable of providing 100% power, HVAC chilled water and steam to hospital during grid outages
- Intentional hospital “islanding” for unusual grid events
- No backup generator in Hospital
How the CHP works…

Solar Turbines Mercury 50 w/ HSRG and Steam Absorption Chiller
Environmental Impact

Mueller Energy Center

- CO$_2$: 615 lbs/MWh
- SO$_2$: 0.003 lbs/MWh
- NOx: 0.043 lbs/MWh

Austin Energy Central Power Plant Fleet

- CO$_2$: 1162 lbs/MWh
- SO$_2$: 2.33 lbs/MWh
- NOx: 0.6 lbs/MWh

- CO$_2$: 47% reduction
- SO$_2$: 99% reduction
- NOx: 93% reduction

* TCEQ Threshold for NOx is 0.14 lbs/MWh for CHP ≤ 10 MW