



# Green Buildings, Green Neighborhoods: The Mueller Story

**Maureen Scanlon, P.E.**  
**Liana Kallivoka, Ph.D.**  
**Austin Energy Green Building**  
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**AUSTIN ENERGY  
GREEN BUILDING**

# Sustainable Urbanism

## Green Community Design

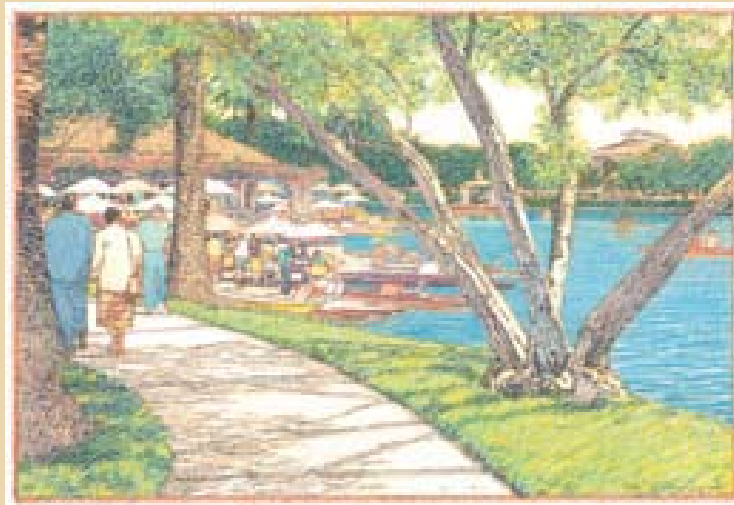
- brownfield remediation and restoration**
- reduce auto dependence**
- increase density**

## Green Infrastructure

- stormwater management**
- open spaces & pedestrian ways**
- reclaimed water**
- CHP plant**

## Green Buildings

- AEGB rated and/or LEED certified**



# Green Community Design

**Transit-oriented, compact, walkable, mixed use community**

**Commuter rail and rapid bus transit lines will connect Mueller to CBD, UT campus, airport, and outlying neighborhoods**

**Walkable network of streets**

**Neighborhood amenities**

**Retail and jobs nearby**

**Diverse demographic composition and income levels**

**15,000 trees will be lining the streets, parks and trails**



# Green Community Design – Transit

Distribute traffic and minimize impact on adjacent communities.

Serve as extension of the open space, pedestrian and bicycle network.

Transit improvements aim at reducing automobile dependence.

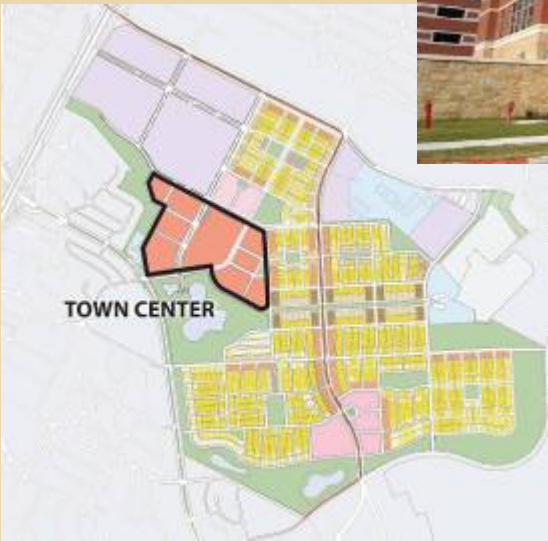


Transit Oriented Development

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# Green Community Design - Town Center and Employment Centers

Provide social, cultural and commercial focus along with opportunities for economic growth and new jobs



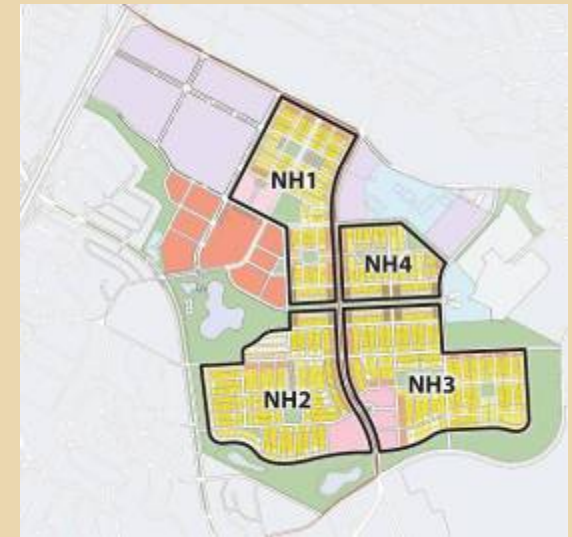
- Seton Hospital
- UT DPRI
- SEDL
- Austin Studios
- Retail



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# Green Community Design - Neighborhoods

Compact and walkable with a  
diversity of housing options.



yard houses (opt. carriage units)  
garden courts  
row houses and shop houses  
Mueller houses (4-6 units)



# Green Infrastructure – Stormwater

**Green, open space controls stormwater quantity and quality. Reduces flooding and naturally filters pollutants from stormwater**



# Green Infrastructure - Parks

**140 acres – more than 20%**

Interconnected system of open spaces and pedestrian ways promote walkability while forging links with surrounding neighborhoods



# Green Infrastructure - Trees

**More than 15,000 native trees will be planted to create a comfortable environment, mitigate the heat island effect, reduce stormwater runoff and filter the air.**



Lake Park

# Green Infrastructure - Streets

Support pedestrian and bicycle circulation



# Green Infrastructure – Streets



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# Green Infrastructure - Irrigation Water

**Reclaimed Water – tank to hold 2 M gallons of water**

**Reduce resource consumption (potable water)**

## Advantages

- less expensive to use or to treat - as little as one-third the price of potable water
- not subject to drought, or watering restrictions during droughts
- supports the City's commitment to efficient use of water



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# Green Infrastructure – CHP Plant

Reduce resource consumption (energy), reduce pollution

## Mueller Energy Center

Modular Packaged Combined Heat and Power (CHP) Plant



# Mueller Energy Center



**COMBINED  
CYCLE** Journal



**2007  
Pacesetter  
Plant Award**

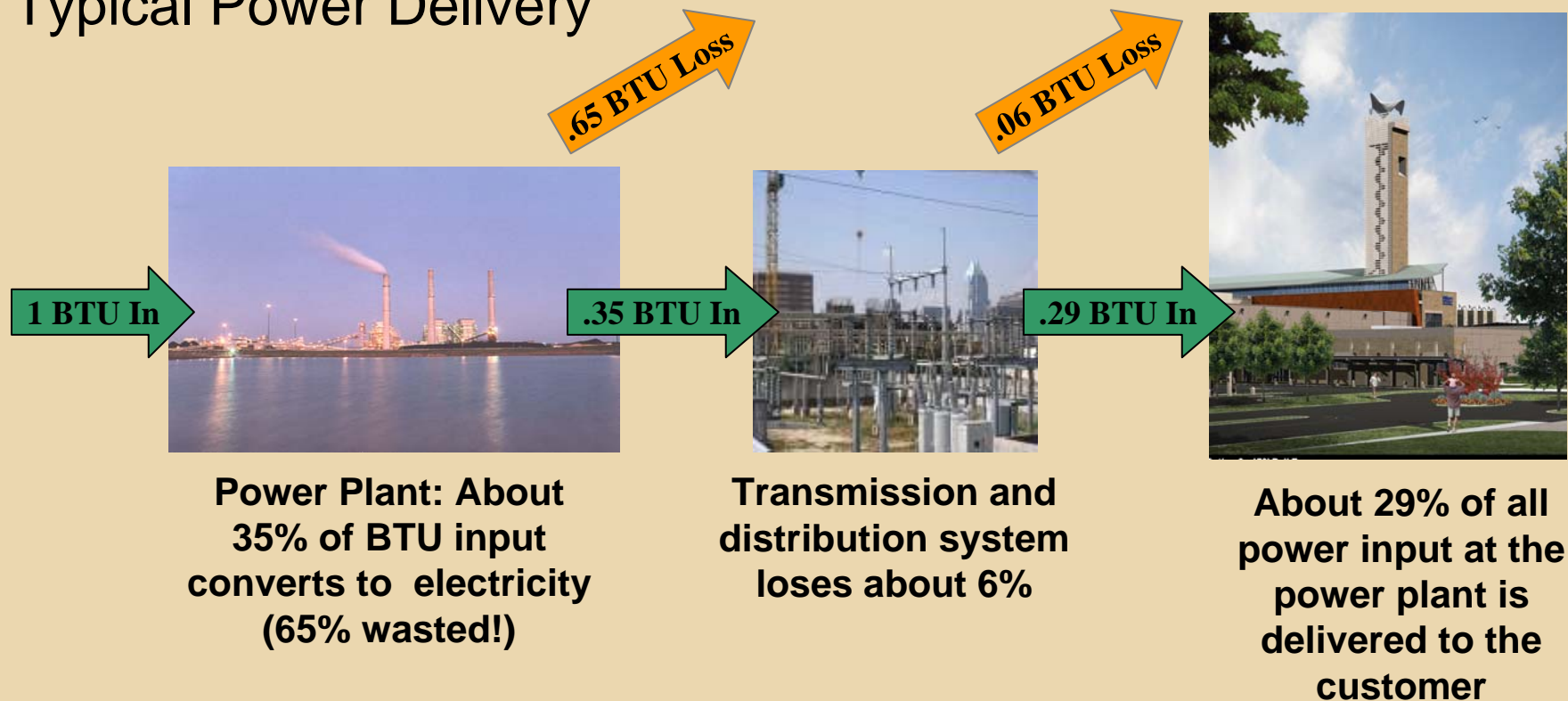


**Steel Tank of the Year - Special Storage  
Dell Children's Medical Center in Austin, TX  
Built by CB&I Constructors Inc.,  
The Woodlands, TX**

# Mueller Energy Center

## Why Choose CHP – Fuel Scarcity

### Typical Power Delivery



# Mueller Energy Center

## Why Choose CHP – Fuel Scarcity

CHP Energy Delivery

1 BTU In



CHP Plant

.30 BTU Loss

.70 BTU In



End User

CHP Energy Conversion and Delivery is a better solution:

CHP has **70% greater efficiency** at conversion of primary fuel to useful energy.

Emissions are greatly reduced – handily beating the TCEQ (Texas Commission on Environmental Quality) requirements.

# Mueller Energy Center

## Impact to the Environment – Austin Energy Mix

Austin Energy's Fleet  
Central Power Plants  
(including nuclear)



**Carbon Dioxide: 47% reduction**

**Sulphur Dioxide: 99% reduction**

**NO<sub>x</sub>: 93% reduction**

**CO<sub>2</sub> 1162 lbs/MWh**  
**SO<sub>2</sub> 2.33 lbs/MWh**  
**NO<sub>x</sub> 0.6 lbs/MWh**

**CHP Plant**



**CO<sub>2</sub> 615 lbs/MWh**  
**SO<sub>2</sub> 0.003 lbs/MWh**  
**NO<sub>x</sub> 0.043 lbs/MWh**

# Mueller Energy Center

## Impact to the Environment Typical Coal Plant

Typical COAL Plant



**CO<sub>2</sub>** 2179 lbs/MWh  
**SO<sub>2</sub>** 8 lbs/MWh  
**NO<sub>x</sub>** 5 lbs/MWh

**Carbon Dioxide: 72% reduction**

**Sulphur Dioxide: 99% reduction**

**NO<sub>x</sub>: 99% reduction**

CHP Plant



**CO<sub>2</sub>** 615 lbs/MWh  
**SO<sub>2</sub>** 0.003 lbs/MWh  
**NO<sub>x</sub>** 0.043 lbs/MWh

# Mueller Energy Center

## Owner's perspective - Economics

- \$7M Initial Capital Cost savings by outsourcing
- No added operational costs for buying thermal and premium power from third party
- Higher productivity for a fully Digital Hospital  
(automated Medical Records, RFID/Bar Code Scan Drug delivery, Computerized Physician Order Entry, etc.)



# Mueller Energy Center

## LEED Recognition

**“I was fortunate to personally meet with the team from the Austin Energy/Seton Healthcare Network and came away amazed by what I experienced. In particular, the low emissions and the high energy conversion efficiencies predicted for the Dell Children's Medical Center of Central Texas (DCMCCT) combined heating and power plant, make it quite possible for this project to be awarded the maximum 10 points allowable under Credit EA-1 and that will, in turn, allow the DCMCCT to become the first LEED Platinum Hospital in the World.”**



*Rick Fedrizzi - President, CEO and Founding Chairman  
United States Green Building Council  
April 14, 2005*

# Green Buildings

## Design Guidelines

**Commercial projects to achieve:**

- **2-star AEGB rating, and/or**
- **LEED Certified**

**Single-Family projects to achieve:**

- **3-star AEGB rating**



# Mueller Green Buildings

**Rated Commercial Projects (as of March 2008):**

**Mueller Central – AEGB 4-stars & LEED Gold**

**Strictly Pediatrics Medical Office Building (AEGB 3-Stars)**

**7 Retail Stores (AEGB 3-Stars)**



**Austin Energy Green Building**



# Mueller Green Buildings

**Projects Completed soon to be rated:**

**DCMCCT (5-star AEGB & LEED Platinum)**

**RMHC (5-star AEGB & LEED Platinum)**



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# Mueller Green Buildings

**Projects Completed soon to be rated:**  
**SEDL (LEED Certified)**  
**8 Retailers (AEGB 3-Star and/or LEED)**  
**Wachovia Bank (AEGB 4-Star)**



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# Mueller Green Buildings

## Commercial Projects under construction:

UT DPRI (LEED)

Seton Headquarters (AEGB and/or LEED)

SV Multi-Family apartment building (AEGB)



# Mueller Green Buildings

**Commercial Projects under construction:**

**Neighborhood Amenities Center (AEGB)**

**Home Depot (AEGB)**

**7 Retail Stores (AEGB)**



# Mueller Green Buildings

## **Commercial Projects in Design:**

**North Regional Retail (AEGB and/or LEED)**

**Frost Bank (LEED)**

**Catellus Medical Office Building (LEED)**

**Catellus TC-9 Residential Units (AEGB)**

**Simmons Vedder Multi Family TC-2 (AEGB)**

**Rathgeber Tract (AEGB)**

**Family Eldercare**

**Austin Children's Services**

**ACS Cottages**

**Austin Film Society**



# Mueller Green Buildings

## Commercial Projects Stats to Date:

**Over 50 Projects**

**Catellus required all retail to be 3-star AEGB**

**36% average annual energy savings**

**35% average indoor water use reduction**

**67% average construction waste diversion**

**Re-use water for irrigation**

**cool roofs**

**low-emitting paints and coatings**

**native landscaping**

# Mueller Green Buildings

**Mueller Central - Catellus**

**AEGB 4-stars & LEED Gold**



**Austin Energy Green Building**



25% energy use reduction

77% water use reduction

64% construction waste diversion

Use of reclaimed water for irrigation



# Mueller Green Buildings

## Single Family Homes

Current phase includes 330 homes, 6 builders

As of March 2008, 112 homes have received a Green Building rating

98 – 3 star homes

6 – 4 star homes

8 – 5 star homes



# Highlights and Key Initiatives

- transit-oriented, mixed use, redevelopment
- increased density
- retail and employment centers
- walkable streets
- 25 percent of housing affordable
- 20 percent open space
- extensive stormwater management system
- hike and bike trails throughout community
- native landscaping and 15,000 trees planted
- reclaimed water for irrigation
- CHP plant (4.3 MW)
- All buildings AEGB rated or LEED certified



**LEED for Neighborhood Development pilot participant**

# Tread Lightly



## Contact Information:

**Austin Energy Green Building**  
**Maureen Scanlon**

[Maureen.Scanlon@austinenergy.com](mailto:Maureen.Scanlon@austinenergy.com)

**Liana Kallivoka**

[liana.kallivoka@austinenergy.com](mailto:liana.kallivoka@austinenergy.com)

***Thank You!***