



Community Technology and Telecommunications Commission

District Cooling Program
February 14, 2018

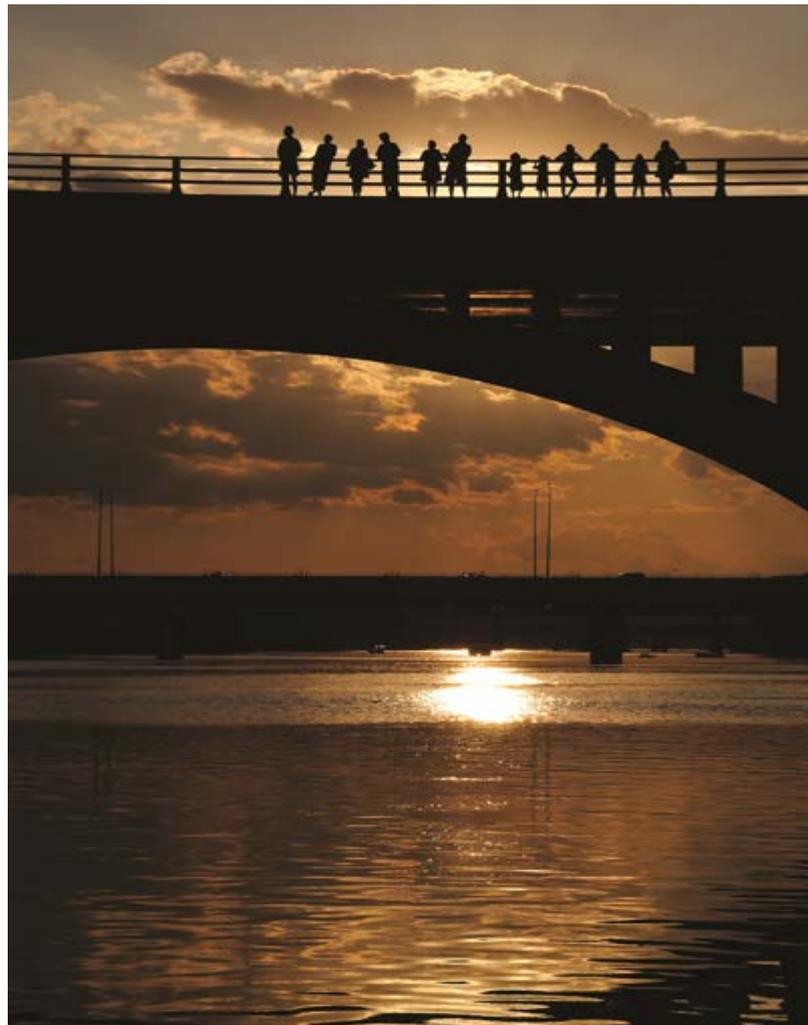
Jim Collins, Director
On-Site Energy Resources





Austin Energy

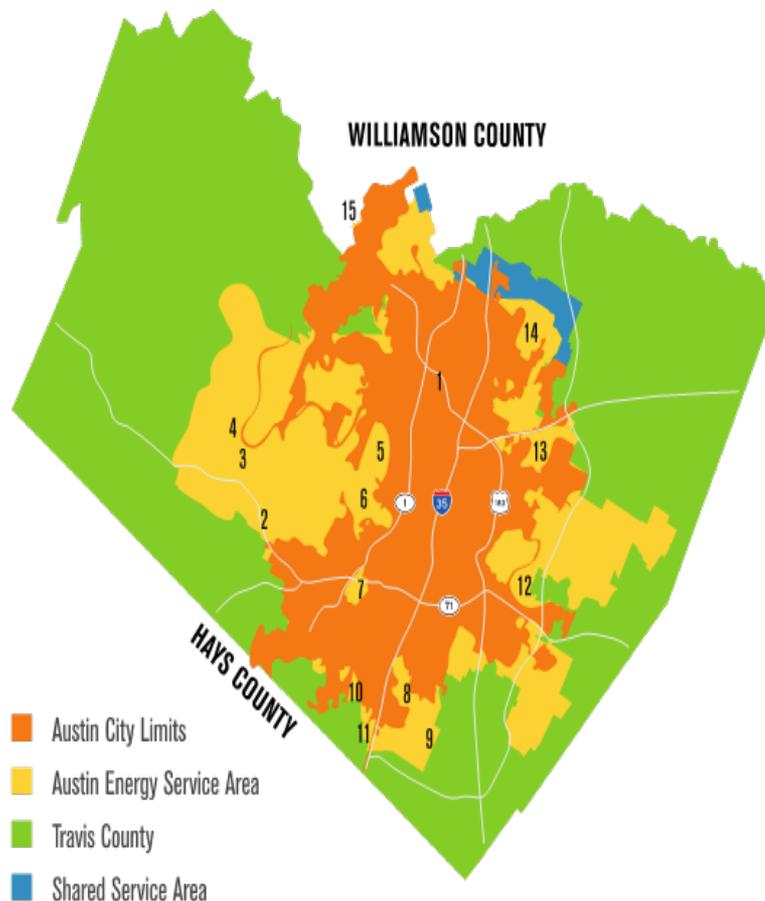
- 7th largest publicly owned electric utility in the U.S.
- More than 473,000 customers and more than 1 million residents
- Mission: safely deliver clean, affordable, reliable energy, and excellent customer service





Austin Energy

- Service area covers approximately 437 square miles
- Operations funded through energy sales and services, and the utility operates within the Electric Reliability Council of Texas statewide market



1. City of Austin
2. City of Bee Cave
3. Village of the Hills
4. City of Lakeway
5. City of Rollingwood
6. City of Westlake Hills
7. City of Sunset Valley
8. Village of Creedmoor
9. City of Mustang Ridge
10. Manchaca
11. Buda
12. Del Valle
13. Manor
14. Pflugerville
15. Cedar Park



ERCOT Annual Peak Demand

ERCOT Annual Peak Demand for 2016

— Peak Demand (MW)





District Cooling

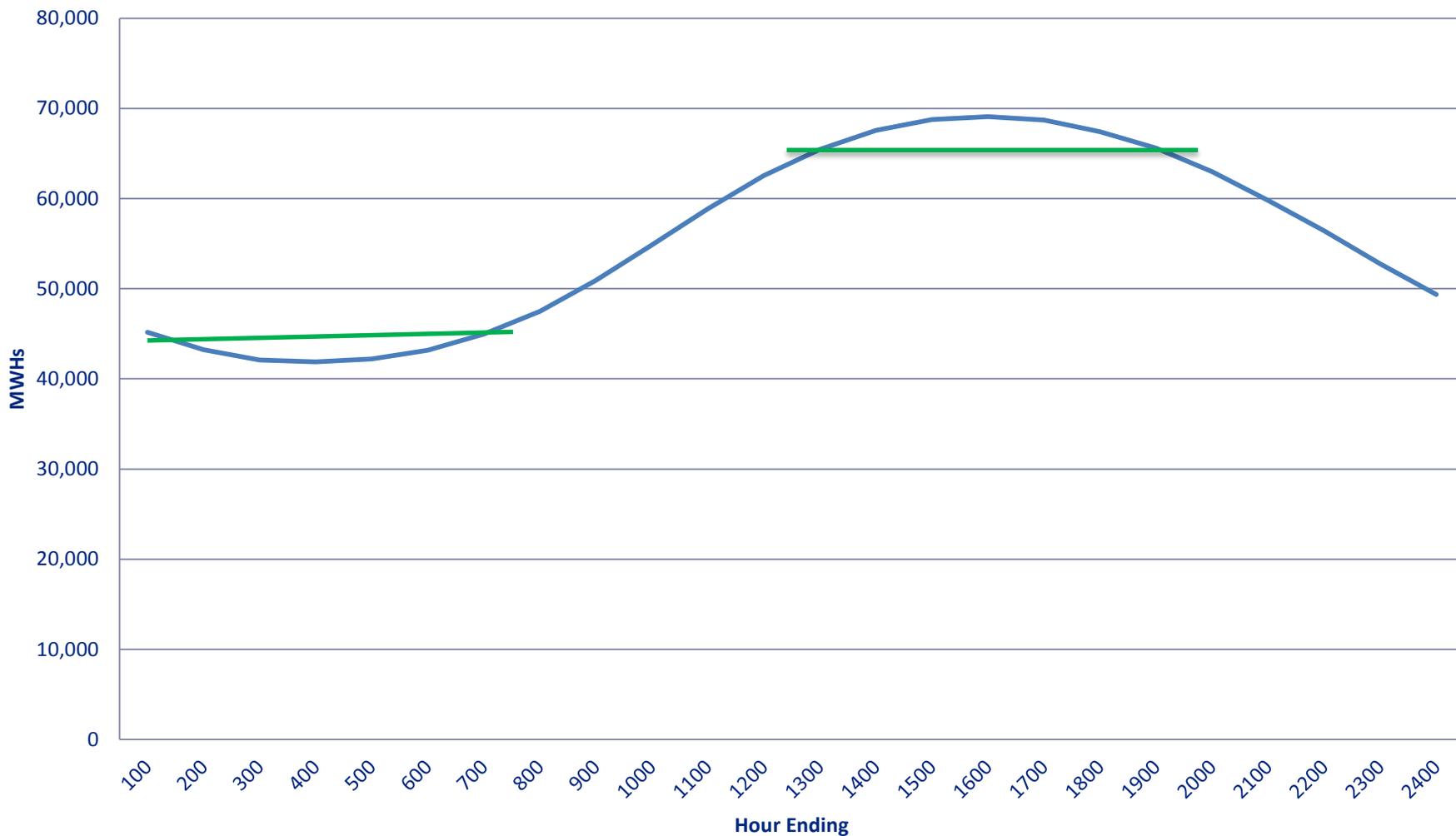


- An underground network of pipes providing chilled water to meet the cooling needs of multiple buildings
- Gathering load generates superior energy savings, reliability and quality
- Thermal storage element shifts electric demand to off-peak



ERCOT Daily Peak Demand

ERCOT Daily Peak Demand – 24-Hour Period



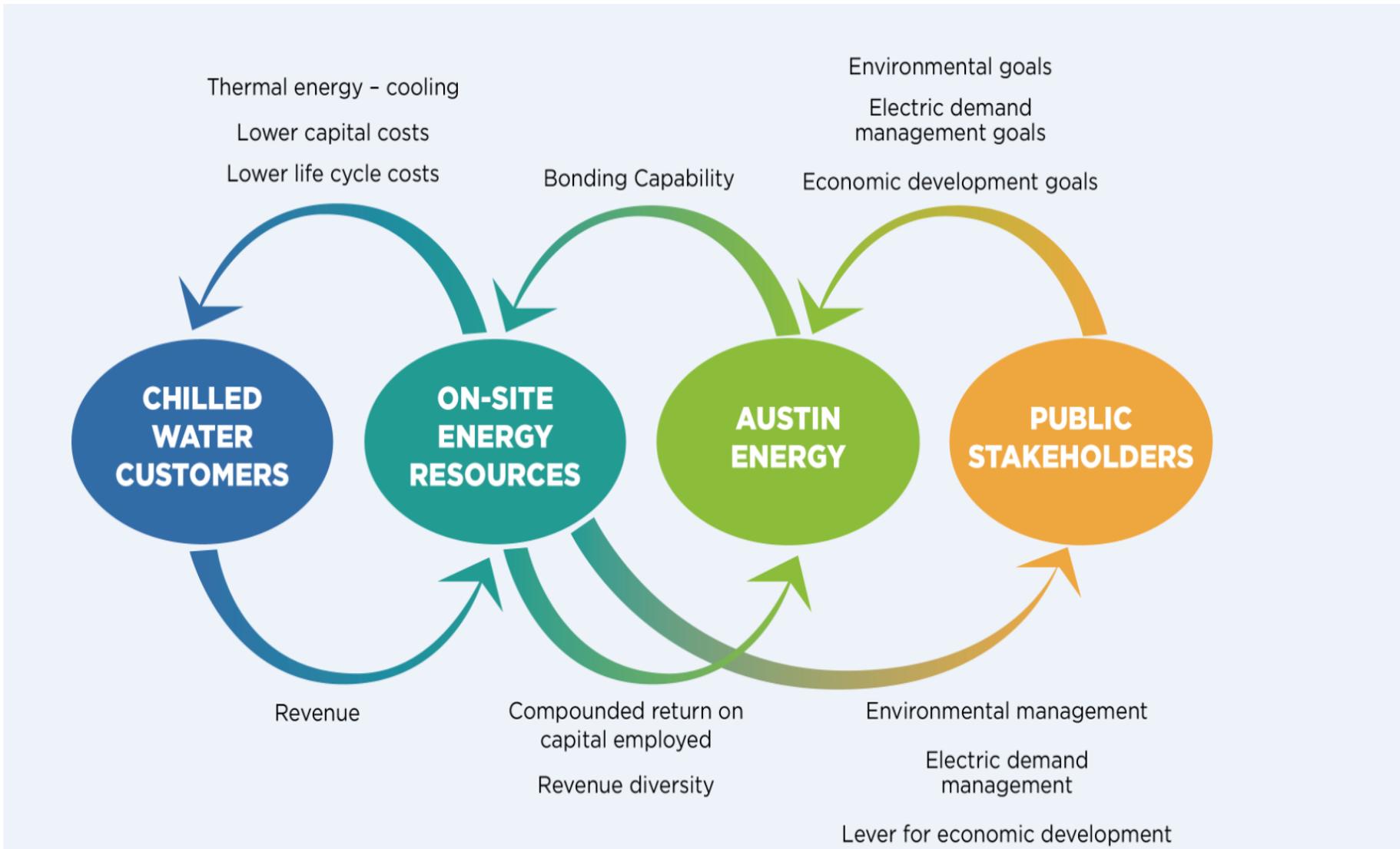


Benefits

- **To Customer:**
 - Eliminates capital costs, reclaims space
 - Financially attractive alternative to stand alone system
 - N+1 provides extraordinary reliability
 - Simplicity – low risk
- **To Austin Energy, our rates payers, and the City of Austin:**
 - Complements economic development
 - New revenue stream – Long term agreements
 - Thermal storage shifts electric demand to off-peak
 - ERCOT market savings
 - ERCOT regulatory savings
 - Supports environmental stewardship



District Cooling Value Chain





District Cooling Plant Locations



Domain

3120 Kramer Lane



Mueller Energy Center

4901 Lancaster Drive

Paul Robbins

300 San Antonio Street

DCP-2

410 Sabine Street





Mueller Energy Center Combined Heat and Power



- Provides electricity, chilled water and steam to Dell Children's Medical Center
- Life safety "emergency" power
- Provides chilled water to the larger urban campus of Mueller Development



Downtown District Cooling Customers



- | | | | | | |
|---------------------------|----------------|-----------------------------|--------------------|---------------------------|-------------------------|
| 1 Future | 6 208 Nueces | 11 New Central Library | 18 Austonian | 26 Restaurants | 34 501 Congress |
| 2 Four Seasons Residences | 7 Whole Foods | 12 Seaholm Residences | 19 Hobby Building | 27 Van Zandt Hotel | 35 Athena Health |
| 3 Hilton Hotel | 8 Spring | 13 Austin 360 | 20 Plaza Loft | 28 The Shore | 36 500 W. 2nd |
| 4 Convention Center | 9 Cirrus Logic | 14 AMLI Apartments & Retail | 21 AMLI Retail | 29 Fairmont Hotel | 37 Shoal Creek Walk |
| 5 Ballet Austin | 10 Monarch | 15 Silicon Labs | 22 Hampton Hotel | 30 Hyatt Place Hotel | 38 5th & West |
| CHILLER PLANTS | EXISTING PIPE | 16 City Hall | 23 The Independent | 31 JW Marriott Hotel | 39 Westin Hotel |
| FUTURE CHILLER PLANT | FUTURE PIPE | 17 W Hotel & Residences | 24 S15 Congress | 32 70 Rainey | 40 A Loft/Element Hotel |
| | | | 25 Marriott Hotel | 33 The Littlefield Retail | |

Rev. 1/4/17



2017 Snapshot

- District Cooling Program has connected 69 customers
- Over 19 million square feet of facilities (i.e. 165 City Halls)
- Summer of 2017 provided 17.2 MW demand shift toward Austin Energy's Resource, Generation and Climate Protection Plan goal of 30 MW by 2027





Look Ahead – Capacity Additions

Downtown

- Paul Robbins Plant
- Crescent Track
- Red River



Mueller

- Dell Children's Medical Center of Central Texas expansion
- Next wave of commercial/retail facilities



Look Ahead – Satellite Plants

Austin Community College





Look Ahead – Satellite Plants

South Central Waterfront



Stephanie Bower | Architectural Illustration

Austin Energy – [District Cooling](#)



Willing to investigate innovative strategies to expel heat (i.e. using Lady Bird Lake or ground source)

Possible location for underground District Cooling facility

Possible location of closed-loop chilled water lines

Alternate location for air based heat-exchanger

Consider future expansion, and/or alternative location for District Cooling facility

- 1. What is District Cooling:** District Cooling provides customers their HVAC requirements through a network of underground pipes. It serves multiple buildings within a particular service area. A District Cooling plant distributes chilled water (approximately 42 to 44 degrees) to the customer's building through a set of heat exchangers located in the customer's mechanical room.
- 2. Benefit to developer:** District Cooling provides substantially reduced initial capital investment and lowers operational and energy expenses. In addition to stabilizing long-term costs, the developer does not need to provide a space for a mechanical room and other on-site HVAC dependent spaces.
- 3. Benefit to city and community.** District Cooling allows Austin Energy to manage peak demand and provide an added value to customers. All costs of the program are recovered through chilled water customer's fees and charges.



Thank you!



**Jim Collins, Director
On-Site Energy Resources**