

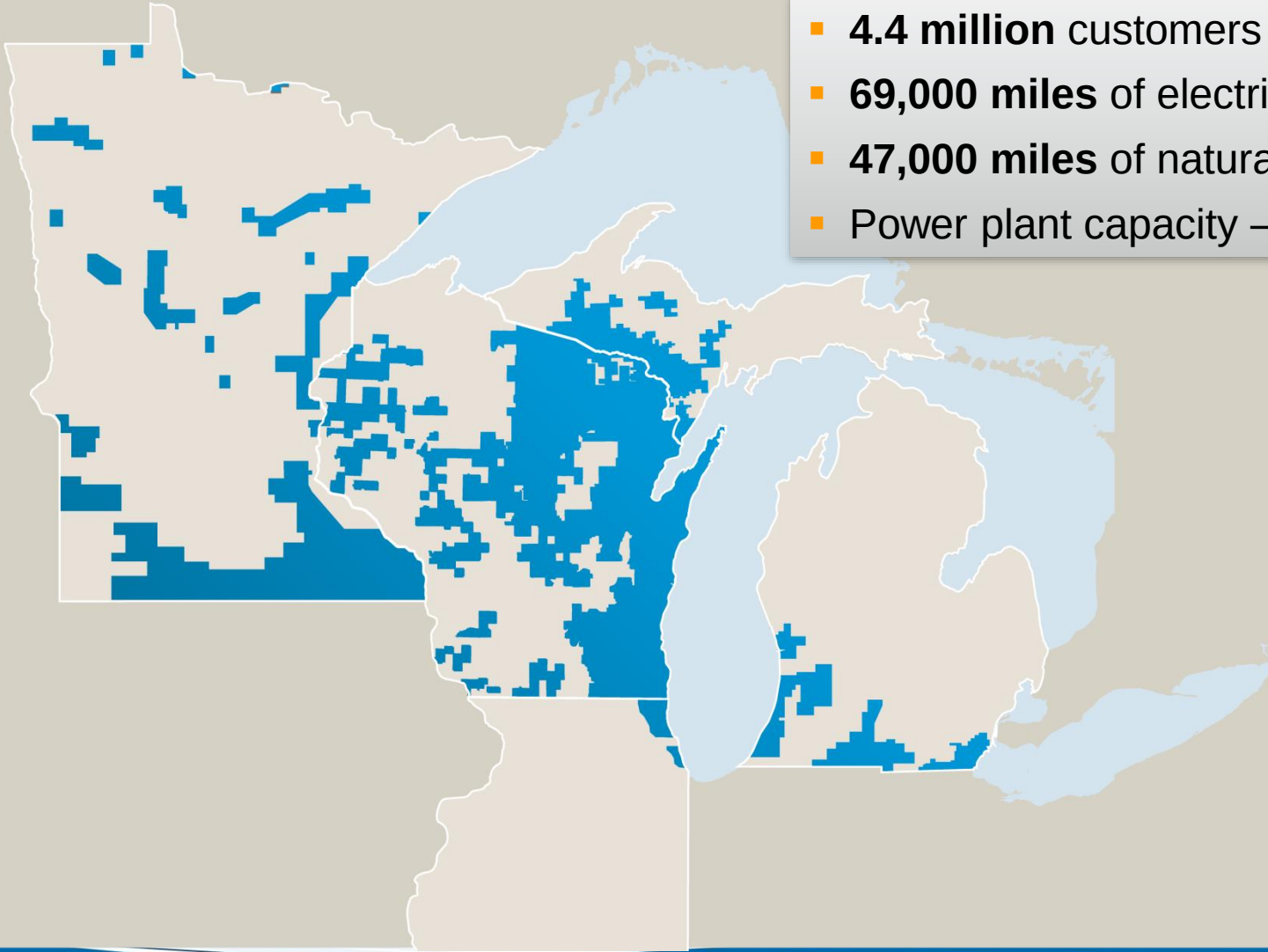


Keyhole Review

GTI – March 21, 2019

WEC Energy Group

- **4.4 million** customers
- **69,000 miles** of electric lines
- **47,000 miles** of natural gas lines
- Power plant capacity – **8,600 MW**



- First utility in the city of Chicago (1850)
- Delivers natural gas to about 843,000 customers in the city of Chicago.
- Operates 4,400 miles of main and over 500,000 services



Agenda

- Program Summary
 - Anodes
 - CP Test Leads
 - Inactive Service Cut-Offs
 - Leak Repair

Anode Installations

- Began in 2009 to decrease restoration costs
- Installations for first 2 years saw failure rates that resulted in a formal audit (400 cores)
- Most failures due to:
 - Poor compaction
 - Improper use of grout
 - Insufficient curing time



Anode Installations

- Improvements
 - Communication with contractor about expectations
 - Better training

Year	Number of Cores	Estimated Savings
2017	1272	\$483,500
2018	725	\$275,500
2019 (to date)	68	\$27,640
Total	2065	\$786,640

Keyhole Coring with Integrated Test Station

- Effort to expand keyhole technology to installation of test stations occurred in 2015
- Input from other gas utilities and GTI
- Pilot installations on company owned property in high traffic areas
- Results brought to CDOT for approval

Keyhole Coring with Integrated Test Station

- All street Test Lead/Anode installations are performed through a keyhole
- CDOT preferred method of excavation
- 2015-2018, ~1000 test station cores have been installed at ~\$750,000 in restoration savings.

Keyhole Core - Fabrication

- 18" X 12" core with 6" test station box molded into the center by corrosion contractor
- Prefabricated with Sakrete high strength 5000 plus mix and allowed a 48 hour cure time



400 E. Monroe



Inactive Service Cut-Offs

- Started in 2017
- Currently performed by one contractor with multiple crews
- Permits issued quicker
- Restoration Savings
 - No degradation fees (\$5K-20K each opening)
 - Avoids full intersection replacement
- Approximately 2,050 keyhole cut offs completed
 - Reserved specifically for inactive services
- ~\$1.2M Savings in Restoration

Workmanship Issues

- Reinstatement to same hole
- Height



Leak Repairs

- Pilot practice began April 2018
- 6" Cast iron low pressure bell joints
 - 34 leaks repaired by Permabond
 - 5 leaks repaired by other means
- Currently performed by one contractor
- Restoration savings ~\$200,000
- Being discontinued