

**POSITIVE
ENERGY
TOGETHER®**

TULSA

**IGSHPA
Conference & Expo**

**OCTOBER 5-6
TULSA, OK**

WITH ALL YOUR POWER  WHAT WOULD YOU DO?



OG+E and Geothermal Energy

- **OG+E** Background Information
- **OG+E** 2020 Vision
- Geothermal Energy Fits **OG+E** 2020 Vision
- **OG+E** Goal: Remove Barriers / Increase Adoption
- Geothermal Industry and Electric Utility Synergies



Looking ahead, we want to avoid the need for additional fossil fuel-based electric generation until 2020. It's an ambitious goal. To reach it, we will need new approaches that embrace renewables while also supporting innovative technologies for partnering with our customers. Customers, after all, determine how much power we must supply. Working together, we want to help them conserve energy and use it more wisely.

A handwritten signature in black ink that reads "Peter B. Delaney".

Peter B. Delaney
Chairman, President and Chief Executive Officer

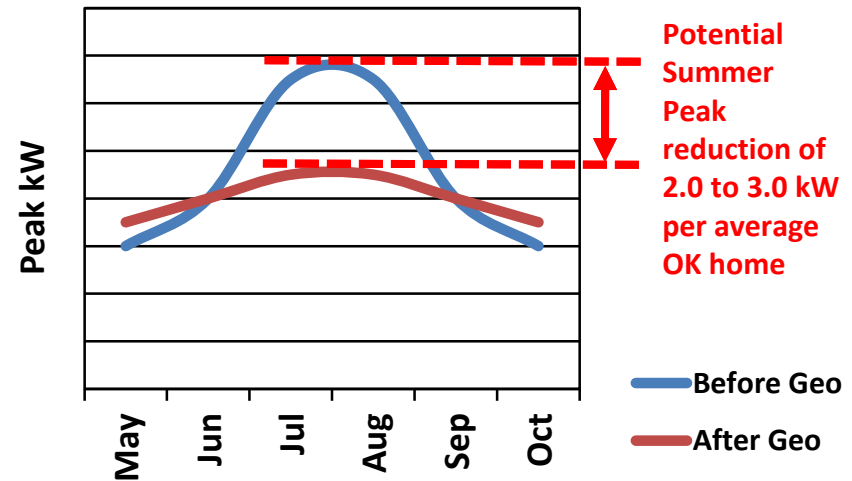


Source: *OG+E 2008 Annual Report*



Geothermal Energy Fits *OG+E* 2020 Vision

- HVAC + Water Heating is ~60% to 70% of Residential Electricity Use
- GSHP Technology is ~30% more Efficient than other HVAC Systems
- Reduces Summer Peak by 2-3kW per Average Home in OG&E Service Area
- Increases Winter Load
- Improves Load Factor





OG+E Goal: Remove Barriers / Increase Adoption

- Examined Barriers to Adoption
 - Lack of Policy Maker Knowledge of Geothermal Benefits
 - Higher Upfront Costs than other HVAC Systems
 - Commercialization and Acceptance of Technology Advancements
 - Etc.

- Multi-Faceted Approach to Address Barriers
 - Work with State Policy Makers, Regulators, and Agencies to Encourage Geothermal Heat Pump Adoption – Ideas include:
 - Officially Recognize “Geotherms” as Renewable Energy – Count as a REC
 - Preferred HVAC Installation in State Buildings should be Geothermal
 - Recognize Property Improvement when Selling the Home or Recognize Total Cost of Ownership Benefits
 - No State Tax Credits at this Time
 - Utility Program to Own Loop to Reduce Upfront Cost
 - Technology Demonstration to Address Loop Cost

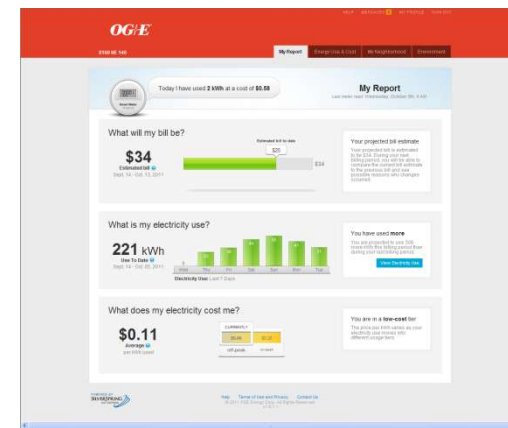


- Oklahoma Corporation Commission helped Fund Geothermal Technology Demonstration to Take Cost out of the Loop
 - Drilling Methods
 - Grout Enhancements
 - Pipe Designs
- Invited Industry Collaboration and Participation
 - 16 Industry Participants
 - 10 Homeowners
- Location – Habitat for Humanity (Hope Crossing Neighborhood in Oklahoma City)
 - Homes were Already Geothermal
 - Mitigated Risk of Any New Technology Design not Performing Adequately
- Hypothesis – Achieve the Same Loop Efficiency as Existing Systems but at a Reduced Cost per Loop Field



Geothermal Industry and Electric Utility Synergies

- Bring Scale / Volume to Industry through Programs
- Help Mitigate Upfront Costs
- Advertise Benefits of Geothermal
 - Industry must Maintain Utility-Type Safety Standards
 - Industry must Enhance Utility's Brand Image
- Work Together to Communicate Benefits to Public Stakeholders
 - Public Utility Commission (PUC's)
 - State Energy Office
 - State Commerce Office
- Help Reinforce Professionalism and Industry Standards
- Quantify Technology Benefits
 - Credible Source of Energy Utilization Information
 - Smart Grid Linkage
 - Real-Time Data Availability





Geothermal Industry and Electric Utility Synergies

OG&E

8160 NE 140 My Report Energy Use & Cost My Neighborhood Assessment

Today I have used **2 kWh** at a cost of **\$0.58**

My Report
Last meter read: Wednesday, October 26, 4 AM

What will my bill be?

\$34
Estimated bill
Sept. 14 - Oct. 13, 2011

Estimated bill to date: \$20
\$34

Your projected bill estimate
Your projected bill is estimated to be \$34. During your next billing period, you will be able to compare the current bill estimate to the previous bill and see possible reasons why changes occurred.

What is my electricity use?

221 kWh
Use To Date
Sept. 14 - Oct. 20, 2011

Electricity Use: Last 7 Days

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Use (kWh)	12	15	18	22	18	15	12

You have used more
You are projected to use 200 more kWh this billing period than during your USDRAG PERIOD.
[View Electricity Use](#)

What does my electricity cost me?

\$0.11
Average
per kWh used

CURRENTLY
\$0.08 OFF-peak
\$0.20 on-peak

You are in a low-cost tier
The price you pay varies as your electricity use moves into different usage tiers.

POWERED BY SILVERSPRING

Help Terms of Use and Privacy Contact Us
© 2011 OG&E Energy Center All Rights Reserved 11/21/11

Technology Demonstration Field Observations Michael Anderson



Project On-Site Field Observations

- Objective: To discuss on-site observations during project installations and provide industry with insights on potential field work improvements
- Project Description
 - Project Planning – Spring 2011
 - Field Work – Summer 2011
 - Analysis & Reporting – on-going thru 2012
- Hypothesis: Industry can help mitigate barriers to entry by improving the effectiveness and efficiency of field operations.
- Observations
 - Customer Service
 - Coordination and Communication
 - Standard Operating Procedures
- Conclusions/Recommendations

POSITIVE ENERGY TOGETHER