



# Technology III – Alternative Energy Sources

IBWC Water Quality Summit



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# Alternative Energy Sources and Considerations



# Challenges

Energy Security

Utility Rates

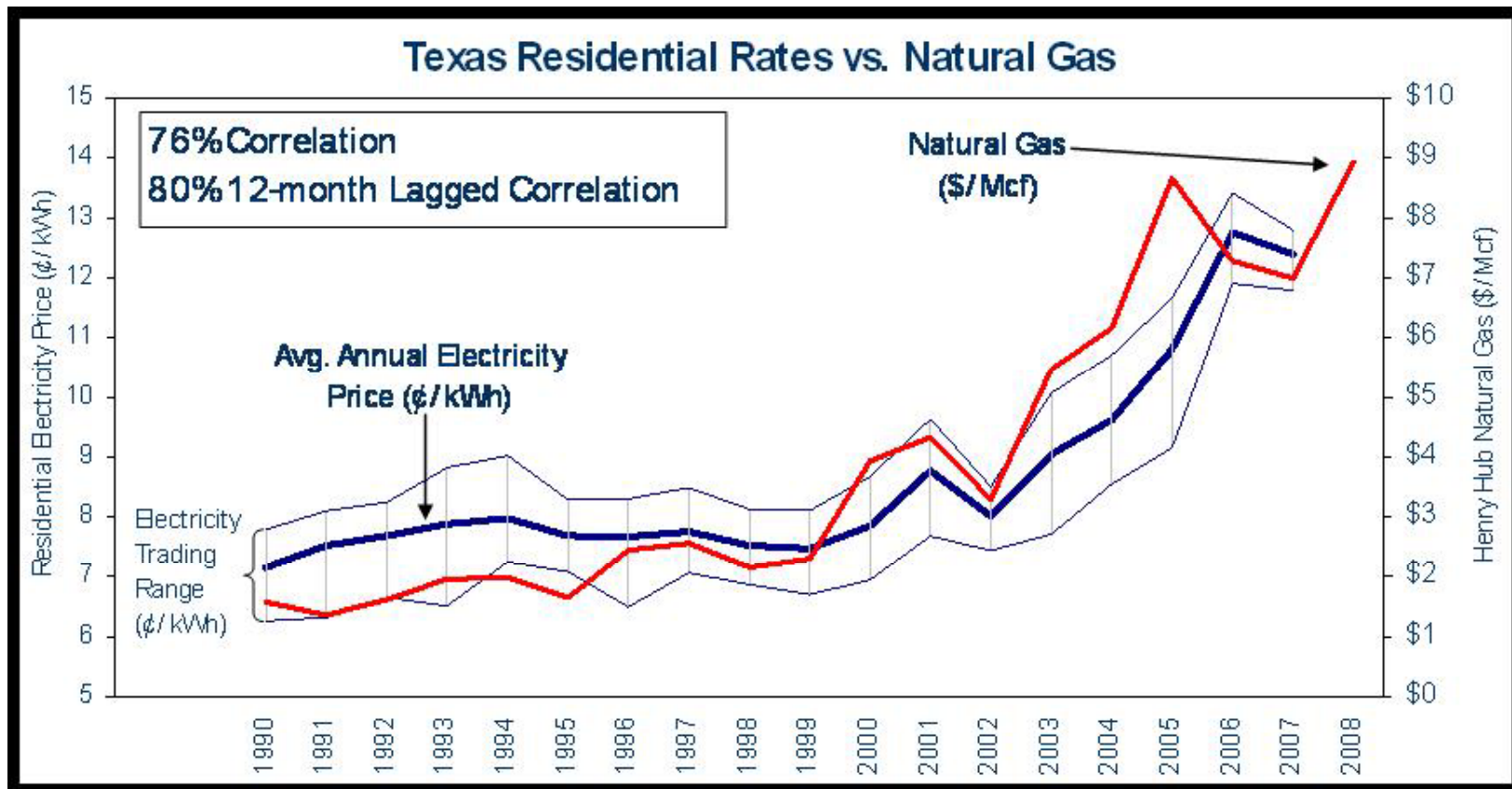
Public Outreach

Sustainability

Regulations



# Utility Rates



Source: EIE, Bloomberg, Natural Gas Week

# Sustainability & Conservation Efforts

- Doing the same job with less resources
- Innovation – technology and operating models
- Triple Bottom Line Analysis
- Public and Private Climate Change Plans
- Eco System Services

# Regulatory Oversight

- Reduced Air Emissions
- Tighter Effluent Restrictions

What's on the Horizon? Zero Waste Plans, Energy Models, Carbon Calculators, Water Balance

# Public Outreach

If funding for operational costs and capital improvements are approved by the public...

How do you engage the public and other stakeholders?





# Biogas

- Purpose – utility offset or deliver to pipeline
- Sludge management – urban and rural
- AD reduces sludge volume & recovers energy
- Sludge contains 10x the energy needed to treat it





# MicroHydro

- Purpose – utility offset
- Similar in size to commercial scale solar (100-500kW)
- San Antonio Water System example
- Payback 6 – 20 years depending on tech, utility costs, and operating parameter



# FOG – Brown Grease

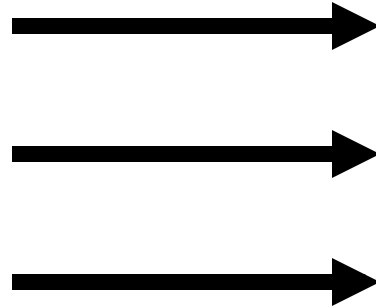
- Purpose - Diesel supplement
- Grease reduces collection system flows
- FOG causes **70%** SSO overflows
- Landfill diversion plans

# Conservation and Efficiency



- Purpose - Use less energy to get same results
- Identify operational change opportunities
- System modeling to shave peaks
- Flow management using SCADA and online/offline storage
- “Transformational” Changes – LA National Guard

# Solar PV



- Purpose – offset utility costs + generate revenue
- Constraints – development in floodplain, costs, technology
- Opportunity for MW+ scale
- Example – EPWU KBH Desal FS

# Economic and Technical Feasibility

- WWTP Operating Economics
- Assessing Energy Savings
- Cost of Compliance and Noncompliance
- Export energy to grid or offset?
- Time of Use Rate Structure?
- Sludge Transportation – petrol & diesel costs
- Economic and Technical Feasibility Studies

# Summary

- Innovative technologies exist
- Triple Bottom Line – economic, social, environmental impacts
- Feasibility studies – low risk
- Uncertain energy cost – high risk
- Reduce operating costs

# Thoughts?

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