Technology III – Alternative Energy Sources

IBWC Water Quality Summit

N. Jason Pittman
Alternative Energy Sources and Considerations
Challenges

- Energy Security
- Utility Rates
- Public Outreach
- Sustainability
- Regulations
Utility Rates

Texas Residential Rates vs. Natural Gas

76% Correlation
80% 12-month Lagged Correlation

Natural Gas ($/Mcf)

Avg. Annual Electricity Price ($/kWh)

Electricity Trading Range ($/kWh)

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

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
• 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?

Contact info

jason_pittman@urscorp.com
210/321.1112