Embracing Cleaner Public Transit
Vehicle Fuel for a Green Future
Fleet and Fuel Availability

- Recent fracking and U.S. reserves have driven CNG prices down
- Fleet owners are seeing a lower life cycle costs for CNG trucks
- Clean Energy, Trillium, Loves, Pilot, and others are installing CNG fueling across the country to respond to demand
Affordable “Green” Fuel

Communities can create C-RNG using their WWTP biogas, landfill gas, and other biogases that would otherwise be flared, and provide their own fleets with fuel

Incentives:

• RINs at a current price of $2.60 per RIN, $3.75 a DGE

• LCFS credits started in CA, now spreading to other states, around $0.50 to $1 per DGE

• With $1 per DGE for the Btu/CNG

• Totals $5.25 per DGE if RNG as opposed to $2 to $2.50 at CNG station

• RNG transaction is within the community, as opposed to outside to Chevron, Shell, BP
Cost to Produce BioCNG

400 scfm of Biogas

- Production of 650,000 DGE per year
- Cost to produce BioCNG (O&M) about $1/DGE, $650,000/Yr
- Initial Capital outlay $3M
- Revenue, $2/DGE to BP at public CNG station, now zero, $1.3M
- RNG incentives $3.75/DGE, $2.4M
- Two years $4.3M cost, $7.4M revenue
Growing Interest in RNG

Colorado
- Grand Junction (Online)
- Boulder (Contracted)
- Longmont (RFP)
- Littleton/Englewood (Recent Board Decision)
- Colorado Springs (Feasibility Study)

California & US
- Sacramento
- South San Francisco
- Las Gallinas Valley
- San Mateo
- Petaluma
- Manteca
- St Landry Parish, LA
- Riverview, MI
- Madison and Janesville, WI
- Many others
Market Leading Expertise

- Over 300 bioenergy projects completed
- RNG project experience from Design Build and Full EPC product delivery to startup and troubleshooting
- BioCNG Biogas upgrading equipment
Electric buses – a win-win

Will Toor
Transportation Director, Southwest Energy Efficiency Project
Bus comparison – Xcel territory

GHG Emissions

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<td>CNG 2016</td>
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RTD mall shuttles

“best value, lowest risk option with the lowest lifetime operating cost.”
Headlines around the world

• LA Metro commits to 100 percent electric buses by 2030
• Colorado Springs transit system hoping to go electric with VW settlement money
• Park City switches to all-electric bus system
• Via Mobility launches $14M electric bus program with Boulder's HOP
• Shenzhen shows the world how it’s done, electrifies all public transit with massive fleet of 16,000+ electric buses
A challenge

• Can we map out a route to zero emissions transit - electric buses connected to a low carbon grid?
• Can we commit to an all electric fleet by 2030?
• How can our utilities help make this transition?