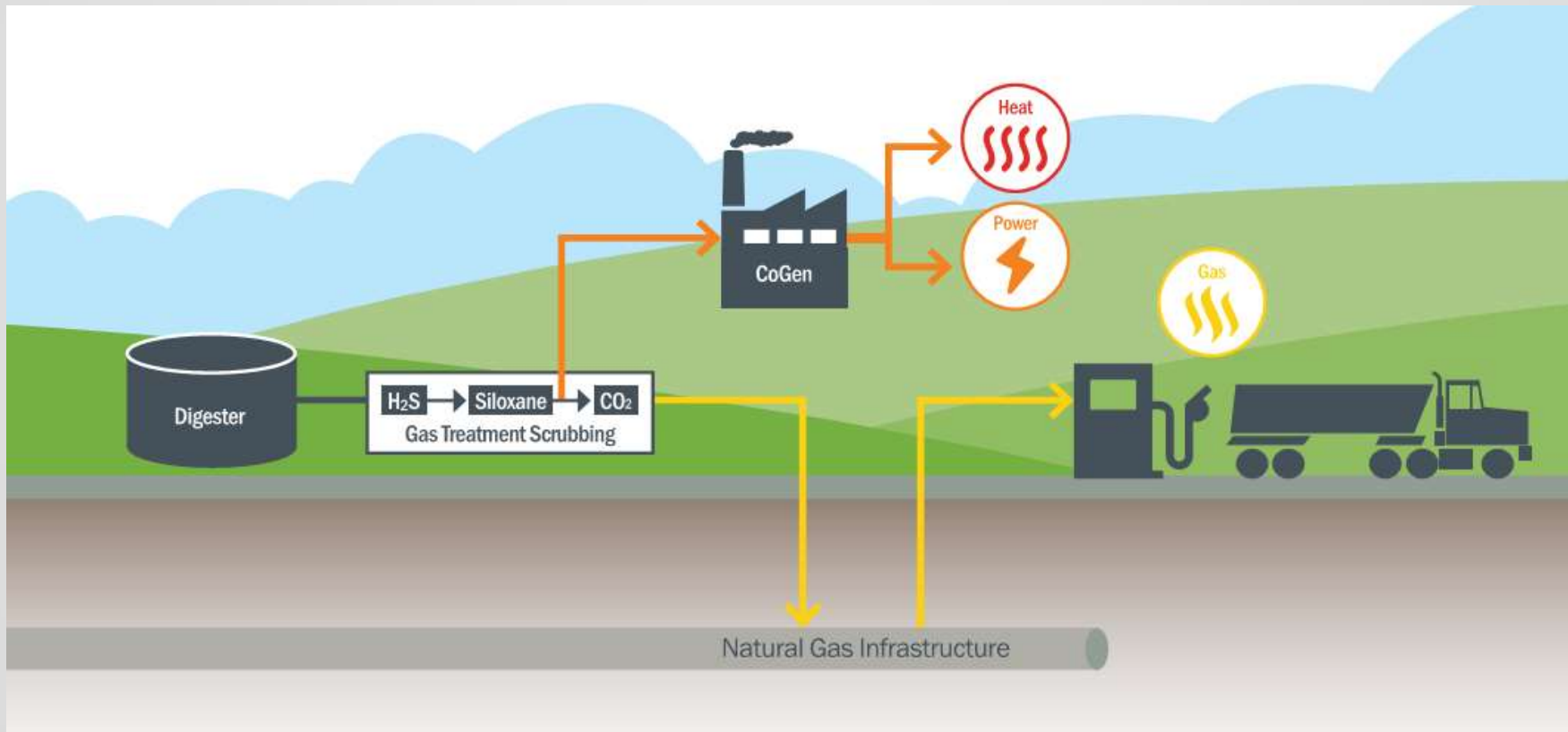


# Post Point Resource Recovery Project

January 27, 2020



# Resource Recovery Project Presents Biogas Use Opportunities



# Renewable Fuel Revenue Opportunities (for Pipeline Injection)

## RINs – Renewable Identification Number

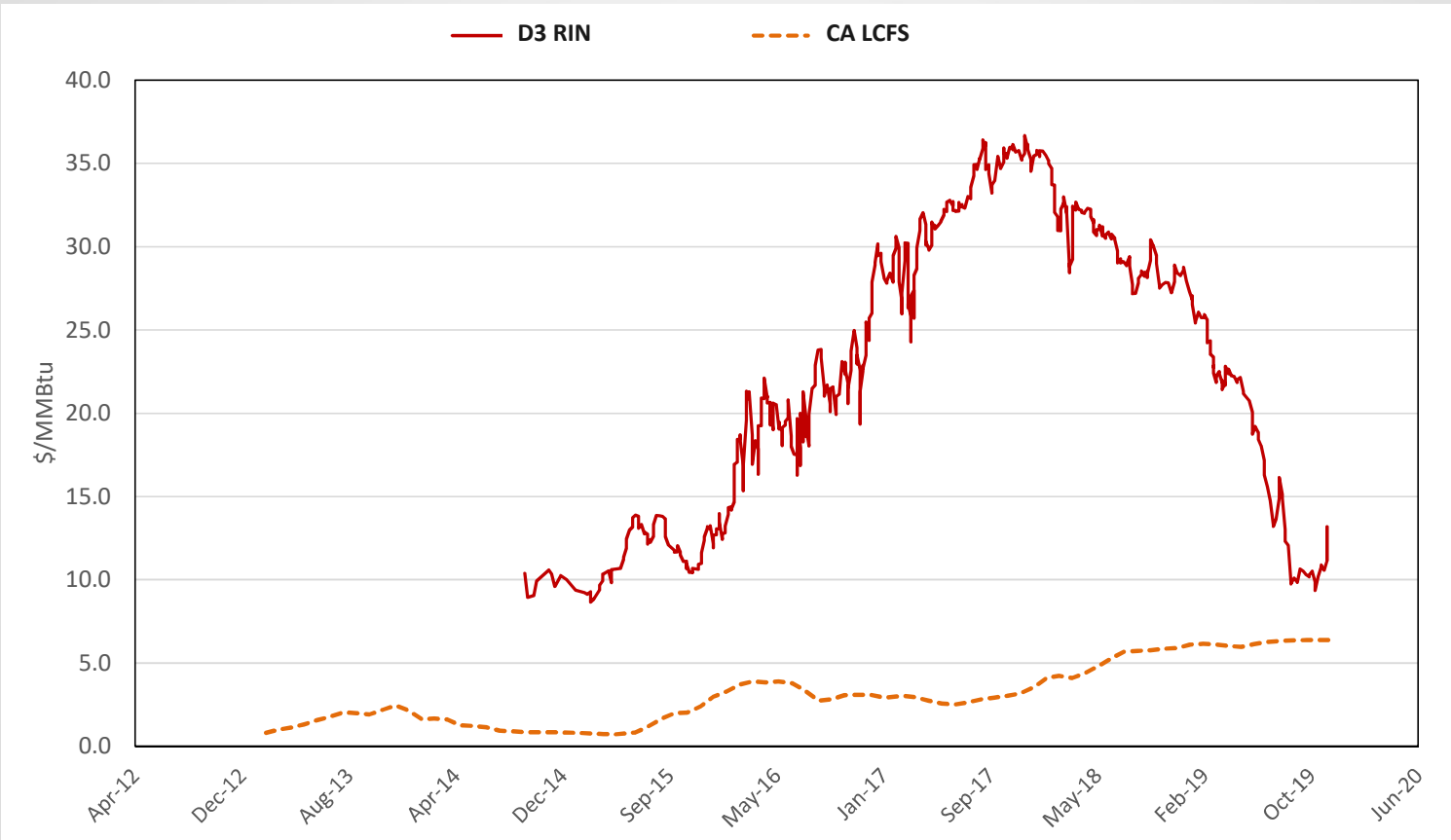
RINs are “currency” of the Renewable Fuel Standard (RFS) program

- Renewable fuel producers generate RINs
- Market participants trade RINs
- Obligated parties obtain and ultimately retire RINs for compliance

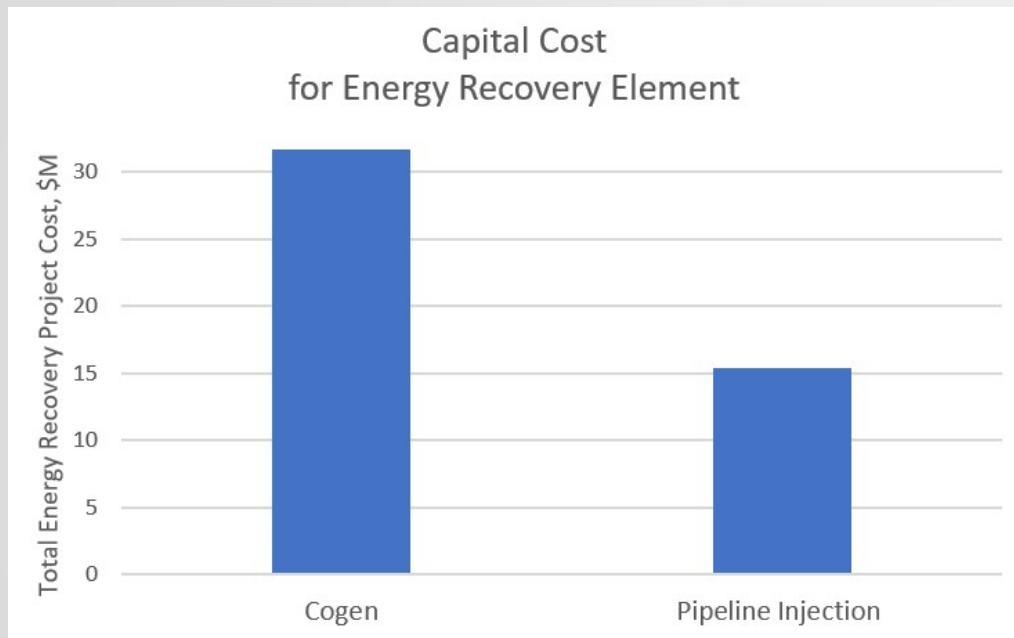
## LCFS Credits – Low Carbon Fuel Standard

- Vehicle fuels required to become cleaner over time – “carbon intensity” of a fuel is regulated
- Adopted programs and markets in California and Oregon
- Fuel producers can meet standard by purchasing LCFS credits from others

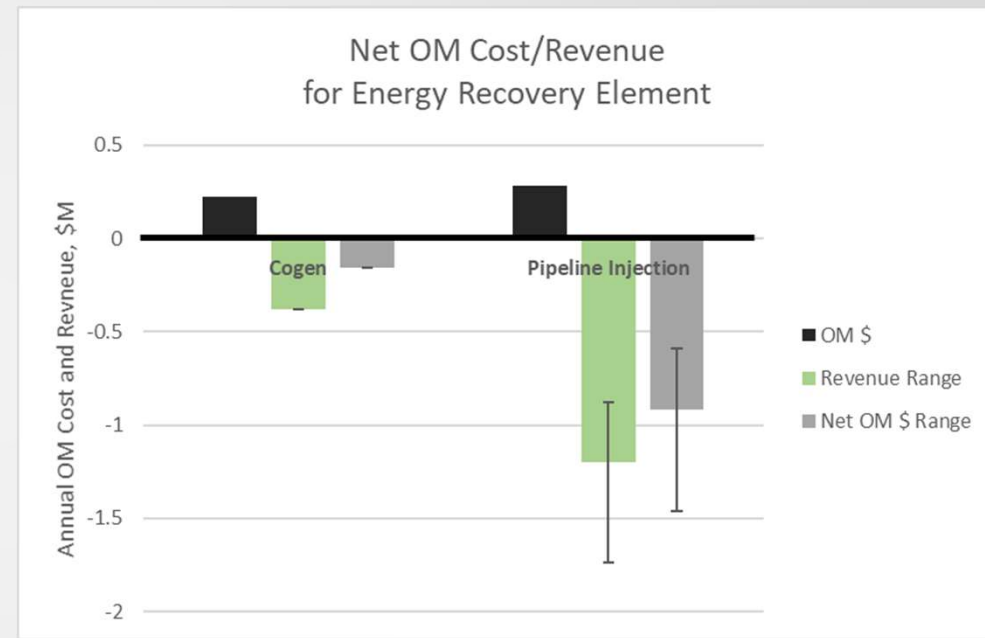
# RINs and LCFS Market Values since 2013



# Cost Comparison



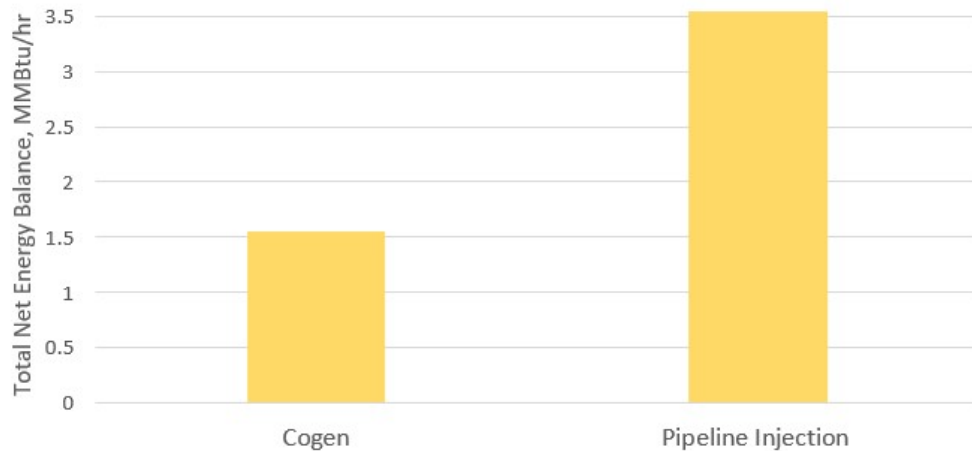
- Both options require some level of gas treatment
- Cogen also requires an engine, generator and other appurtenances



- Favorable RIN and LCFS markets drive high NG value.
- Cogen revenue based on electrical power cost

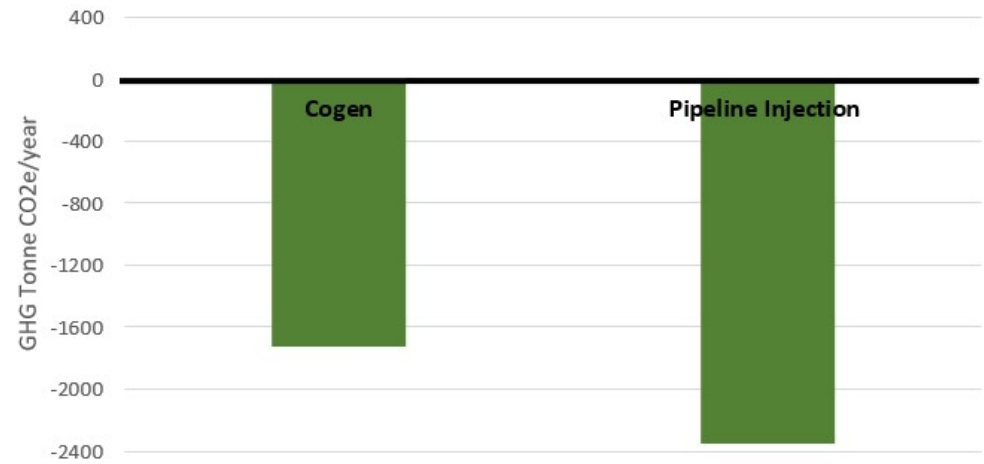
# Environmental Comparison

Total Net Energy Produced and Used



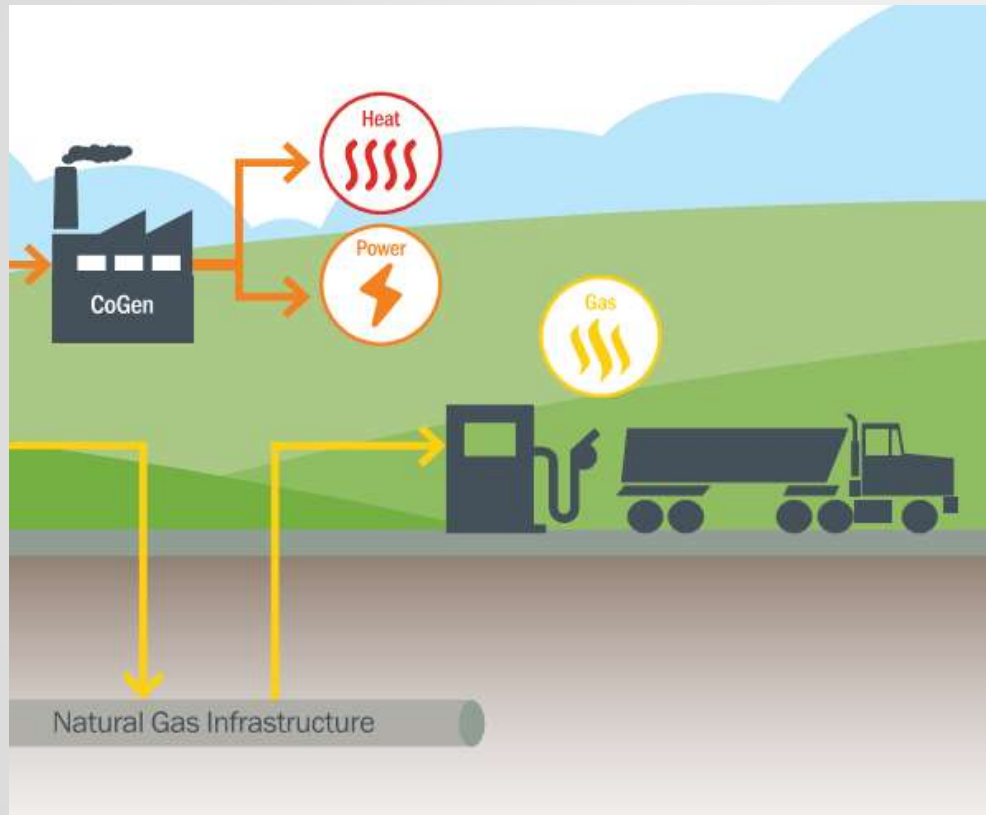
- The net energy production is reduced for cogen because of the engine inefficiency and not all of the heat can be beneficially used throughout the year

GHG Emission Savings



- Pipeline injection offsets use of carbon-based fuels
- As utility power profile becomes more green over time, GHG benefit for cogen would be reduced

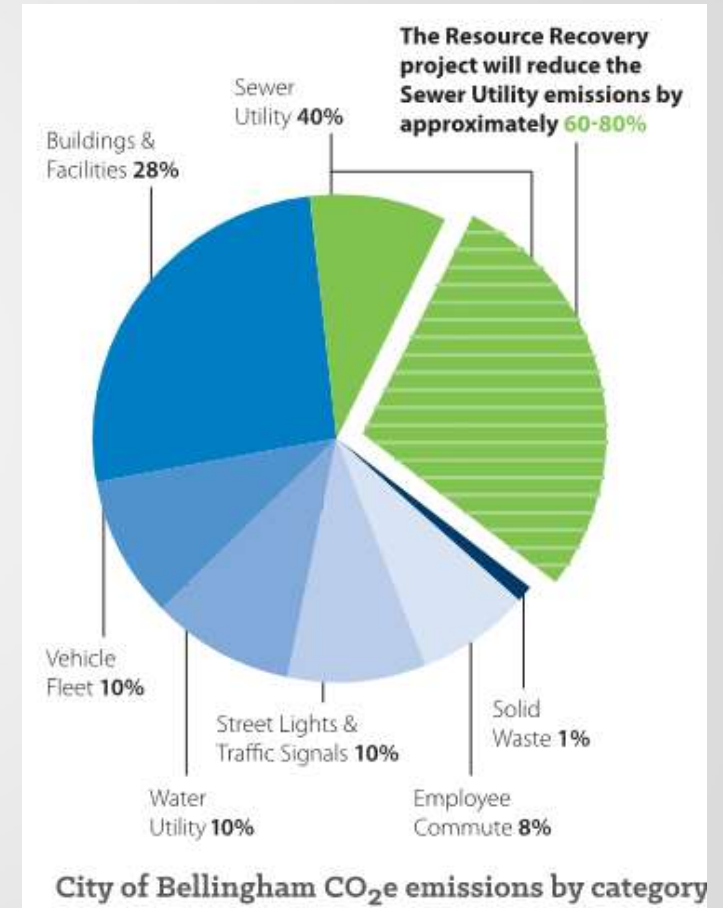
# Other Considerations in Selecting Biogas Use



- Cogen
  - Requires an interconnection agreement with PSE
  - Requires more significant air permitting than pipeline injection
- Pipeline Injection
  - Renewable fuel credits/revenues subject to market changes
  - Significant effort would be required to finalize agreement with natural gas utility
  - Could implement cogen in the future

# Pipeline Injection Recommended to Achieve City Goals

- ✓ Lower capital cost (~\$15M)
- ✓ Lower OM cost
- ✓ Lower 20-year NPW (~\$27M)
- ✓ Greater net energy produced and used (over 2 X)
- ✓ Greater GHG emission savings
- ✓ Fewer air permitting requirements
- ✓ Allows flexibility for other future biogas uses







# Post Point Treatment Plant Resource Recovery Project Update

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