

Organics to Energy Program Clean Fuel Initiative for Tacoma

City of Tacoma

Environmental Services Department

**Infrastructure, Planning, and
Sustainability Committee**

10/11/2017



Agenda

- Purpose
- Overview
- Business Plan
- Project Benefits



Issue

- Fossil based fuels are the leading contributor of carbon affecting our climate
- Diesel fuel prices are volatile and are predicted to rise
- Wastewater treatment produces methane which can be a clean burning fuel



Converting most of the CTP gas production to CNG would yield over 890 gallons per day of diesel-gallon equivalents.

Overview

What if we move from Waste Management to Resource Management by:

Designing and building a facility to produce

Renewable Natural Gas

(RNG) from biogas (methane).

RNG that could be used for vehicle

fuel in the form of Compressed

Natural Gas (CNG). Replacing fossil fuel in these

vehicles with a renewable fuel?



Converting CTP biogas to RNG would:

- Greenhouse Gas Emissions Reduction:



788

tons per year

- Equivalents

- Gallons of diesel replaced:



324,000 gallons per year

- Equivalent acres of trees planted:

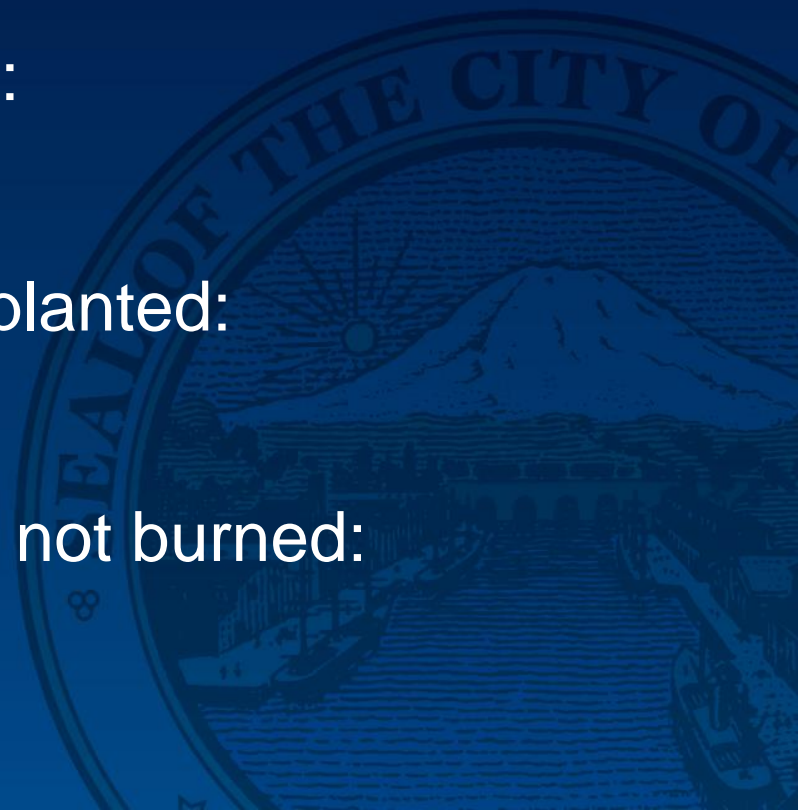


215 acres

- Equivalent pounds of coal not burned:



812,000 lbs. per year

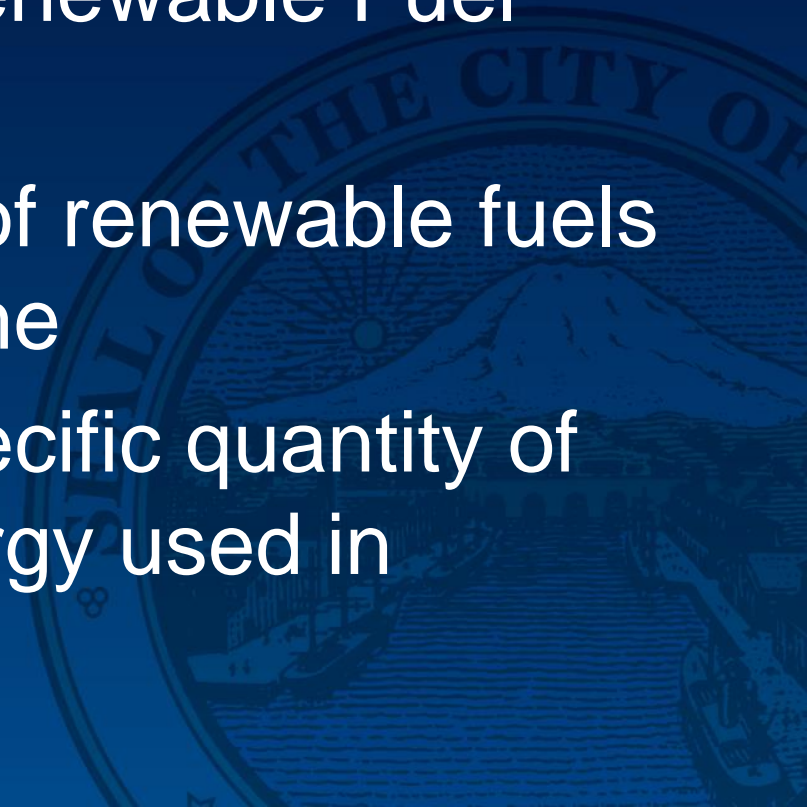


... and Generate Revenue

- Natural gas sale
- LCFS Credits
- RIN Credits

Revenue Elements of Biogas		
Item	MMBTU	DGE
BTU Value	\$ 3.57	\$ 0.46
Low Carbon Fuel Standard	\$ 2.18	\$ 0.28
Renewable Identification Number	\$ 23.45	\$ 3.01
Total	\$ 29.20	\$ 3.75

What is a RIN?

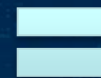
- RIN stands for “Renewable Identification Number”
 - Comes from the EPA Renewable Fuel Standard
 - Goal is to increase use of renewable fuels in transportation over time
 - Each RIN is tied to a specific quantity of qualified renewable energy used in transportation
- 
- A faint, circular seal of the City of Seattle is visible in the background on the right side of the slide. The seal features a mountain, a ship, and the text "SEATTLE" and "THE CITY OF".

What is a RIN? (continued)

- RINs must be purchased by “Obligated Parties” like oil producers, refiners and importers
- Tradable commodity; price fluctuates
- EPA sets renewable fuel volume requirements for each year
- Our proposal using Wastewater and Transportation related transactions take advantage of the “Cellulosic” RIN (most valuable) category

Business Plan

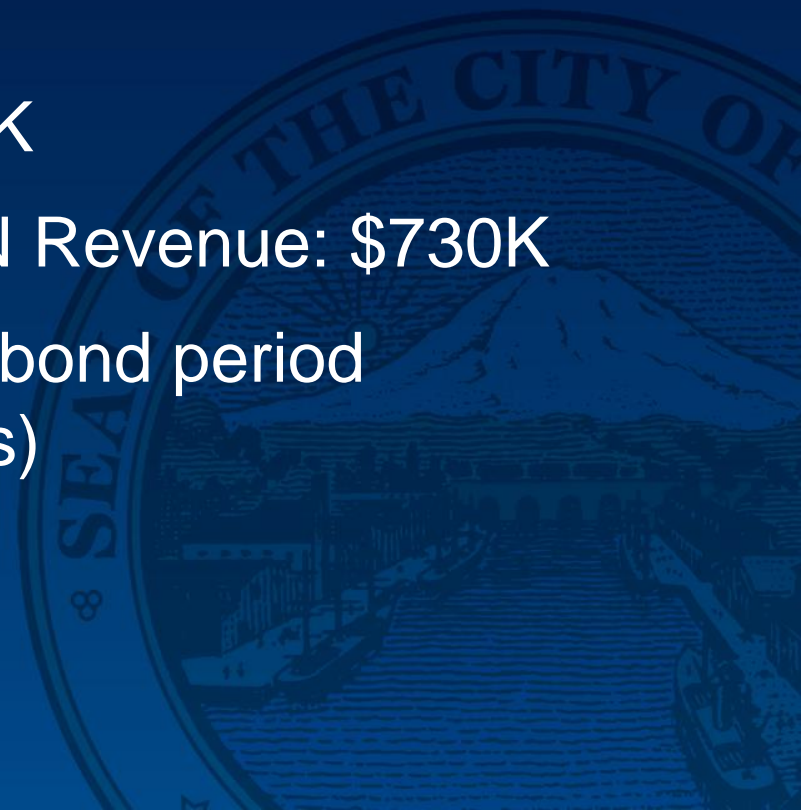
- Environmental Services Department produces Renewable Natural Gas (RNG) using Digester biogas
- ESD Sells RNG and RINs to broker
- Broker sells RNG for use as Transportation Fuel
- ESD receives RNG commodity value plus 75% of RIN value



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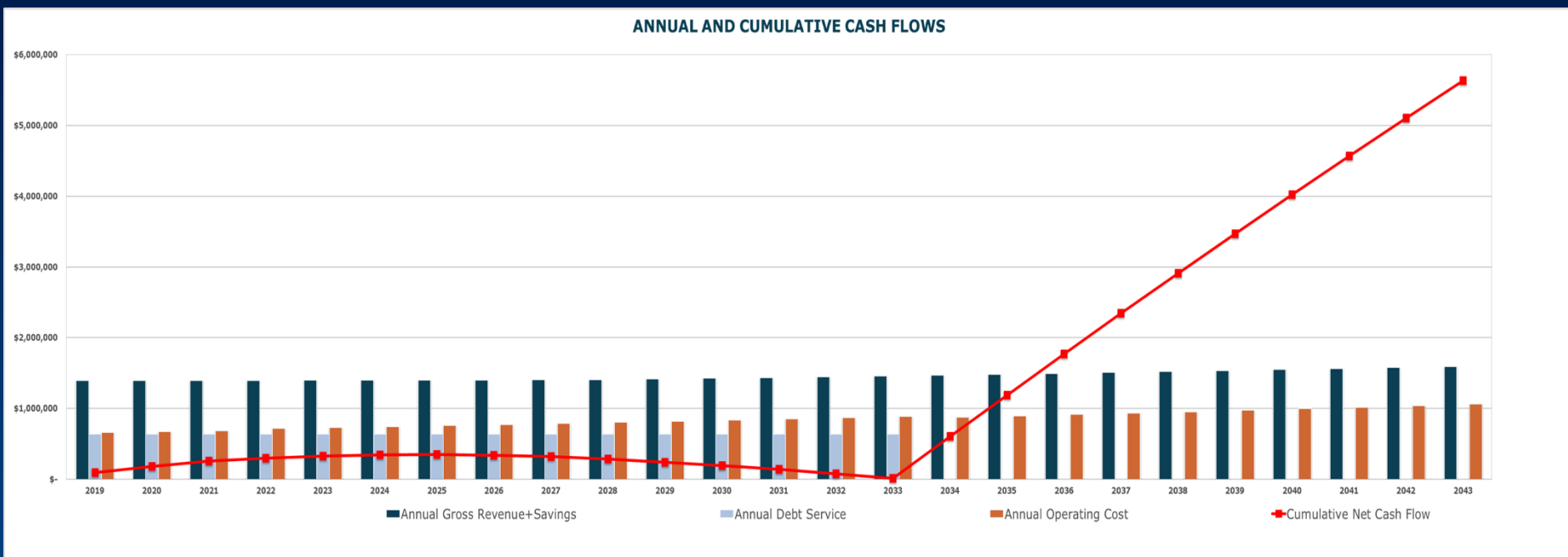
Project Financials

- Project Cost \$7.96 M
Includes gas production facility, upgrade to digester mixers, connection to Puget Sound Energy Pipeline for gas transportation and lighting improvements.
- Grants and Rebates: \$450K
- First Year Net Gas and RIN Revenue: \$730K
- Positive cash flow through bond period
(includes internal City costs)



Self-Funding Financing Cash Flow

- Proposed scenario; annual savings match loan payments during financing period. Then positive cash flow afterwards.



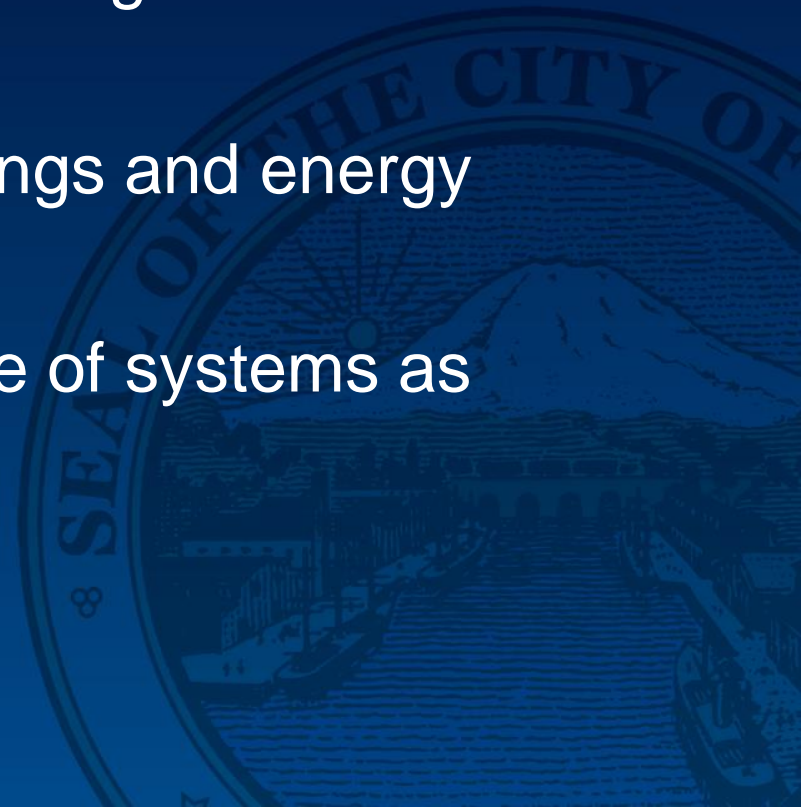
Risks

- Project overruns
- Renewable Fuel Standard could sunset at end of 2022



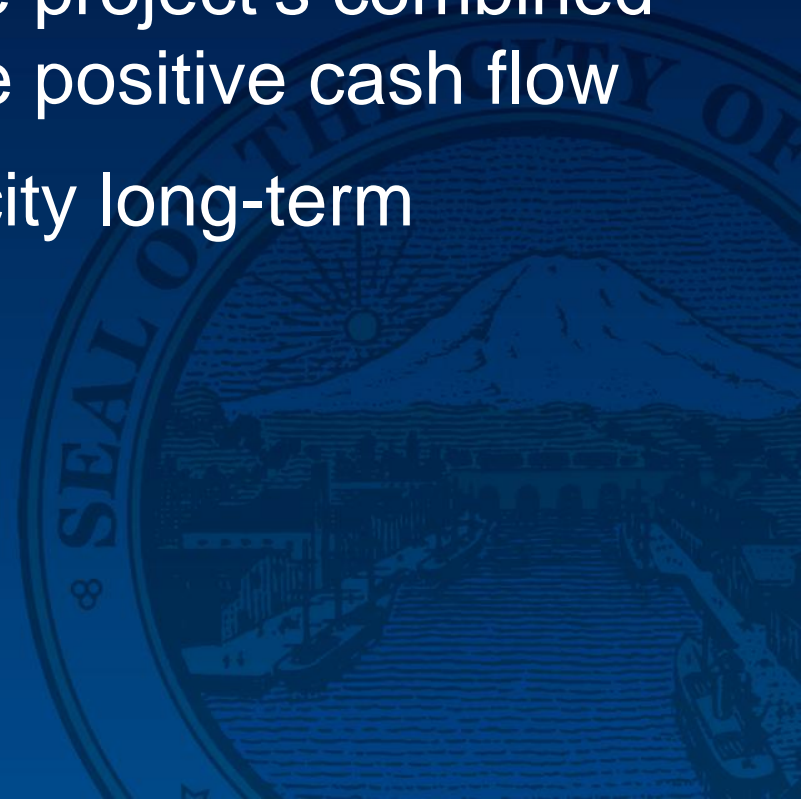
Project Guarantees

- Proposed use of Energy Savings Performance Contract (ESPC). RCW 39.35A
 - Project cost will not exceed guaranteed maximum price
 - Guaranteed energy savings and energy generation
 - Guaranteed performance of systems as designed and installed



Additional Benefits

- 80% reduction in biomethane flaring
- Project pays for itself, and also pays for other energy saving projects at the treatment plant
- After the bond is paid off, the project's combined revenues and savings create positive cash flow
- Stabilizes fuel costs for the city long-term



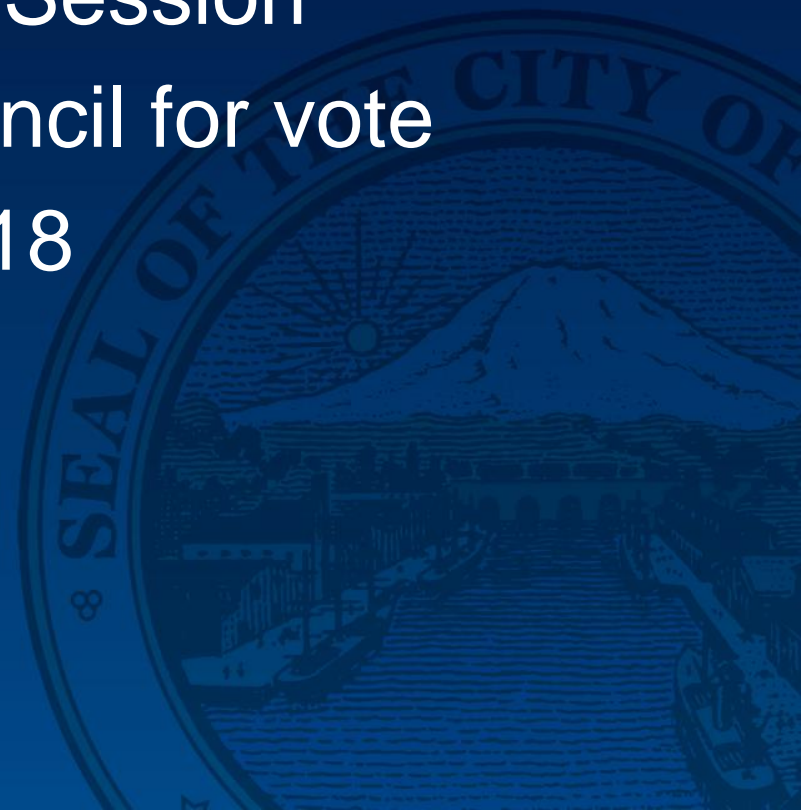
Clean Fuel Implementation

- Grant Submittal for Bio-gas equipment September 18, 2014
- Solid Waste CNG fueling facility installed in early 2015
- RNG Facility Fall 2019
- Solid Waste fleet currently 48 percent CNG, further conversion is scheduled to complete in 2023. Other vehicles be converted over time as appropriate

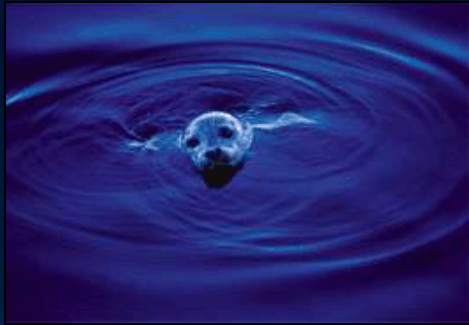


What's next?

- Complete agreements with McKinstry, Puget Sound Energy, and IGI
- Present project at Study Session
- Bring agreements to council for vote
- Begin construction in 2018



Questions?



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