

City of Edmonds City Council Presentation April 17th 2018

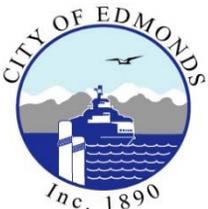
Presentation Goals:

Conduct a brief review of the Energy Savings Performance Contracting (ESCO) approach to project delivery and recent success.

Discuss condition of current Incineration equipment, cost of operation and regulatory compliance.

Discuss Phase 6 Energy – Carbon Recovery project in terms of Carbon Recovery, Resolution 1389 and O&M expenses.

Answer questions.



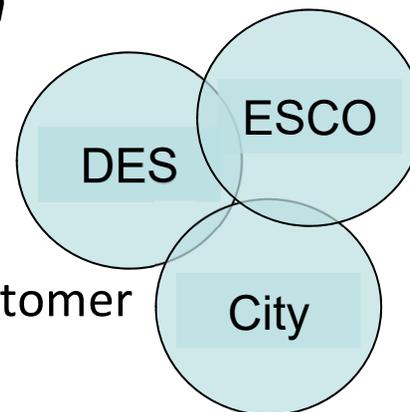
Energy Savings Performance Contracting

An ESPC is a contract between an energy services company (ESCO) and the Washington State Department of Enterprise Services (DES), under which the ESCO ***guarantees not-to-exceed cost, system performance and energy savings.***

ESPCs shift project risk from the customer to the ESCO.

ESPCs provides single-source accountability and enhances customer control of equipment & sub-contractor selection.

ESPCs reduce future energy costs and use the savings to pay for infrastructure improvements implemented today.



Previous ESCO Projects – Financial Performance

Phase 1 HVAC at City Hall, Library and Public Safety Buildings

Phase 2 Lighting and Water Conservation

Phase 3 Citywide Projects: HVAC, Lighting, Building Controls

Phase 4 WWTP project: Aeration System upgrade – Blowers/automation

Phase 5 WWTP project: Dewatering System upgrade – Screw Presses

Project Costs & Energy Savings – WWTP Projects

	Project Cost	Commerce Grant Funds	Utility Incentives	Annual Savings	Annual Maintenance Savings
Phase 1 WWTP	\$405,778	N/A	\$176,840	\$33,909	N/A
Phase 4 WWTP	\$1,065,330	\$255,000	\$80,767	\$34,062	N/A
Phase 5 WWTP	\$3,698,583	N/A	\$108,242	\$107,050	\$26,161
Total	\$5,169,691	\$255,000	\$365,849	\$175,021	\$26,161

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Annual Energy Savings + Annual Maintenance Savings

(\$175,021 + \$26,161)

= 4.4% ROI

TPC Grants + Incentives NPC

\$5,169,691 - \$620,849 = \$4,548,842

an independent energy solutions company

ESCO Project - Environmental Performance

The WWTP ESPC projects save 1,354,022 kWh and 30,480 therms = \$175,021/yr.

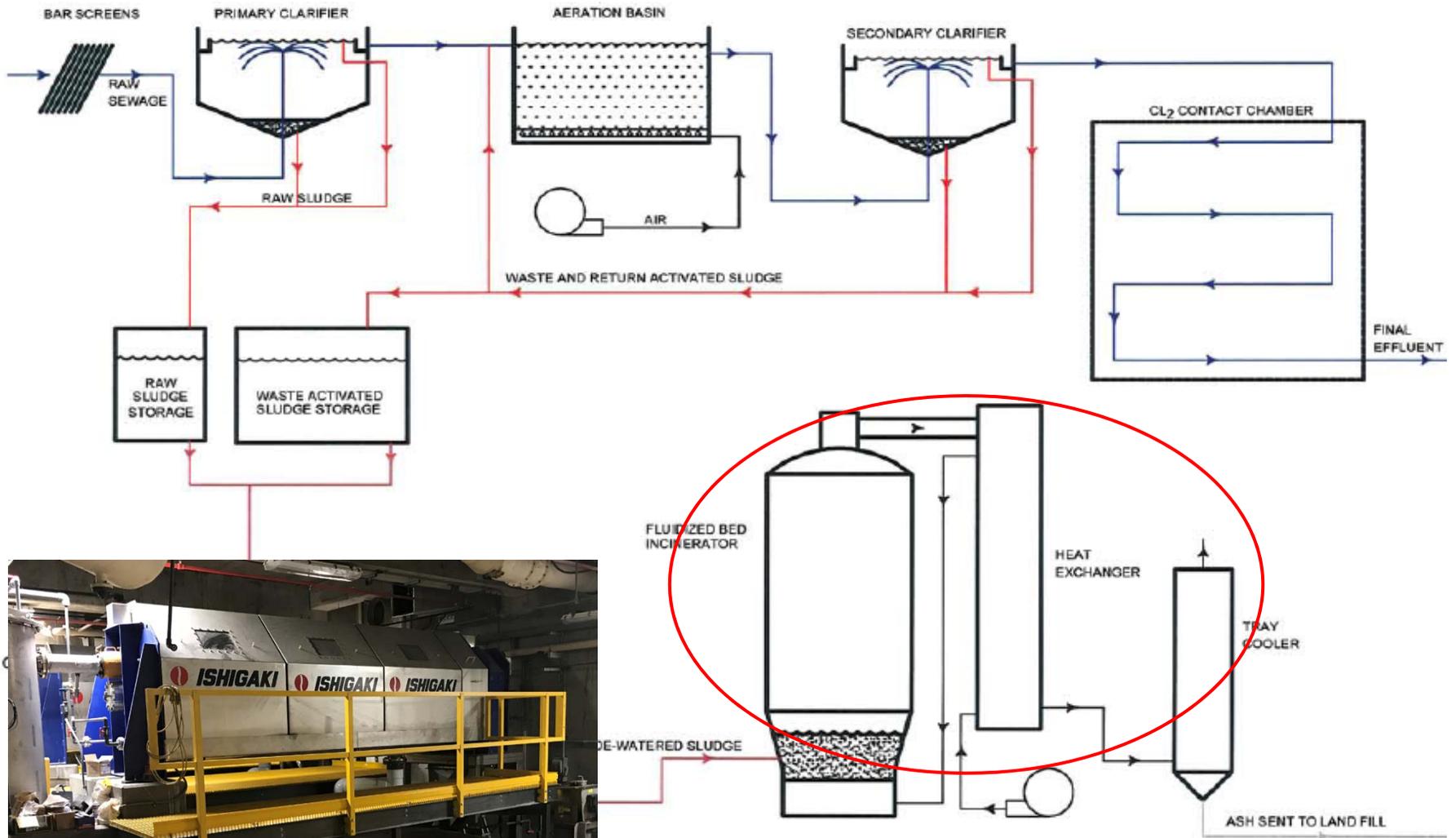
Energy savings equivalent to powering 120 Snohomish County homes.

Carbon footprint reduction of 1,146 tons/yr. CO2



an independent energy solutions company 

Edmonds WWTP Process Flow



Project Drivers

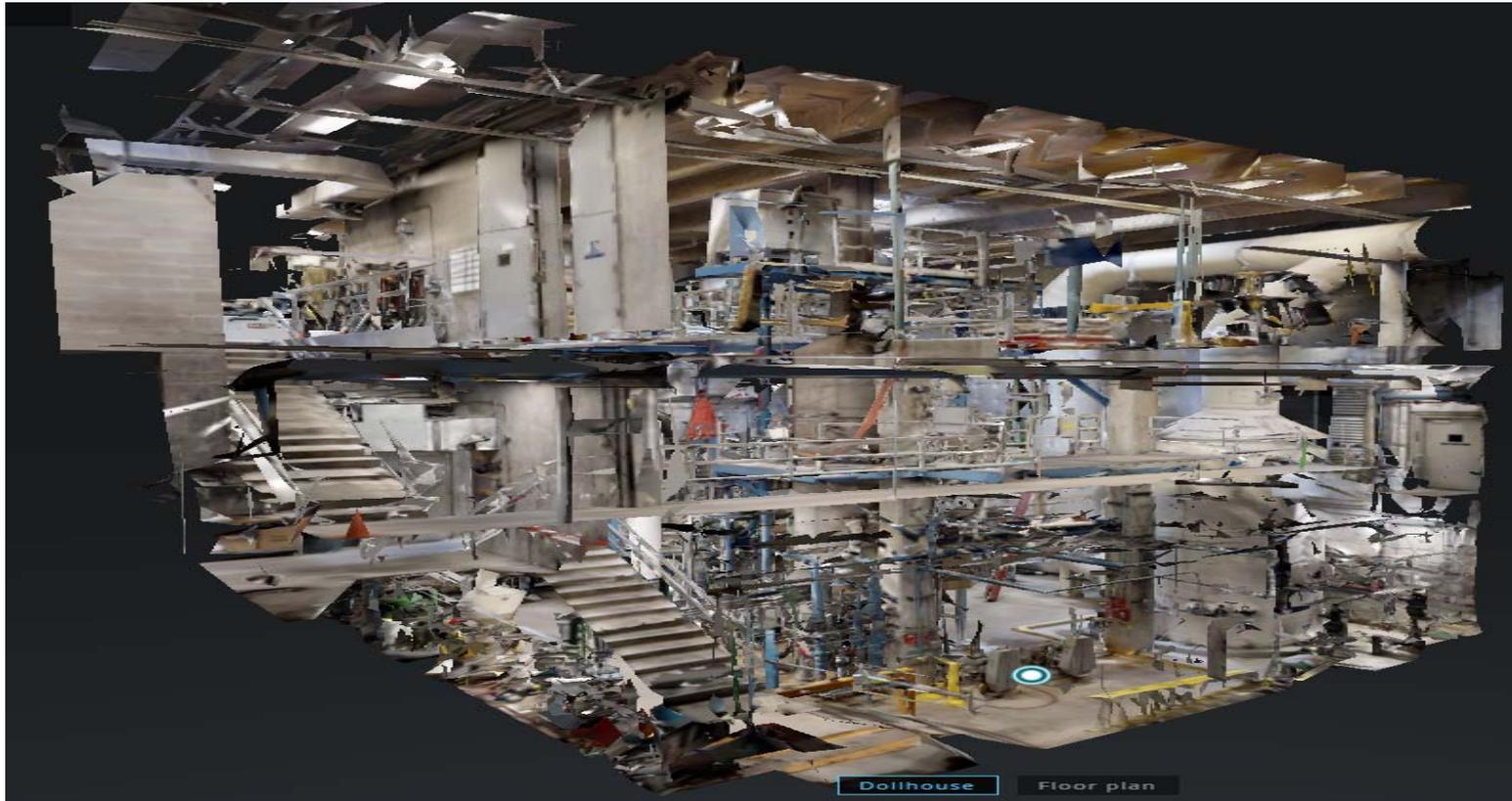
Primary

1. Equipment operation has high O&M cost in terms of electrical usage, disposal costs, operation staffing, repair and maintenance and emission controls. *Just over \$700,000/year*
2. The equipment is currently operating significantly beyond it's useful life expectancy – *in operation 30 years.*
3. The equipment was installed at a time when the need to reduce energy and reuse of bi-products was the not focus.

Secondary

1. Regulatory burden has significantly increased with the new Sludge Incinerator Regulations under 40CFR Part 60 Subpart O.
2. § 60.150 states compliance with new emissions standards must be met... *When the cumulative cost of the changes over the life of the unit exceeds 50 percent of the original cost of building and installing the unit (not including the cost of land) updated to current costs.* The term “changes” has not been adequately defined. Current estimates are that we are likely between 25% and 36% of the original cost of the equipment.

SSI Equipment – installed 1988

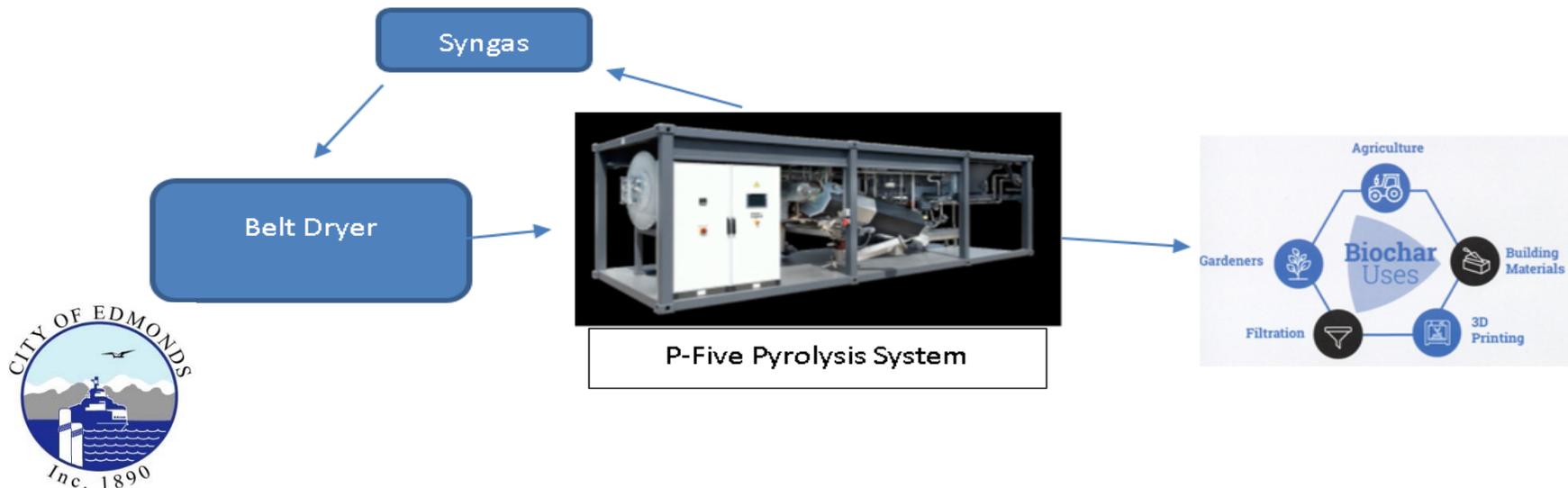


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Benefits of a two step solution Belt Drying and Pyrolysis

- Scalable, efficient, affordable to implement and low cost to operate.
- Produces environmentally –friendly end product (biochar) while generating its own operating power. *This will move the City closer to achieving the goals established in Resolution 1389.*
- No acidic side stream or hazardous waste is produced.
- Redundancy – *reducing the potential for offsite hauling of biosolids.*
- The technology has been approved by EPA as a non-incineration process and meets the emission requirements for EPA and California.



Phase 6 Energy – Carbon Recovery Predesign Effort

Energy Audit:	\$61,600
Identifies the cost effective energy conservation measures, determines the maximum allowable project cost in detail, establishes baseline for monitoring.	
Preliminary Design:	\$174,400
Engineering required to provide sufficient detail to obtain contractor cost estimates and technology review. Regulatory research and coordination to ensure EPA, DOE and PSCAA permitting compliance.	
Total Predesign effort:	<u>\$236,000</u>



Next Steps

Request that the City Council approve the following:

- Authorize Mayor Earling to sign Phase 6 Energy Project – Carbon Recovery contract documents with DES for \$236,000.



“In nature nothing is created, nothing is lost, everything changes.”
Antoine Lavoisier



Next Steps

Department of Enterprise Services

- Initiates ESP contract and monitors progress and deliverables

Ameresco

- Continue research, predesign and prepare proposal for developing the Phase 6 Energy Project – Carbon Recovery

City of Edmonds – Plant staff

- Gather and evaluate data, assist in the design effort for the Phase 6 Energy Project – Carbon Recovery, continue with strategic improvements designed to improve plant performance and reliability, reduce cost of operation and reduce our impact on the environment.



