Achieving Higher Savings through Innovative ESPC Projects: Frederick Winchester Service Authority Case Study

3rd Annual Market Transformation Conference
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David Wrightsman, P.E.
Energy Systems Group
Key Ideas to Walk Away With

• Deep financial dive
• Diversify savings streams
• New revenue is good
Frederick-Winchester Service Authority

Winchester, VA
12.6 MGD Opequon Water Pollution Control Facility
Winchester, Virginia
Rising Cost of Operations

Operational Costs FY 2003 to Projected FY 2013

- Landfill
- Electricity
- Chemicals
Formulating a Potential Solution

Driving Force

Reduce Biosolids Production
- Electrical Usage
- Chemicals
- Tipping Fees
FWSA Project Objectives

- **A fully upgraded facility** - with existing capital and compliance needs included – eliminating the need for another large capital investment in the near future.

- **New capabilities to support future community economic development** - increasing the likelihood of securing and increasing jobs and the tax base in Winchester and Frederick County

- **A savings of $20,000,000 for the Community** - when compared to currently planned operating and capital costs.

- **Reduce the need for future rate increases to citizens** – leveraging the project’s cost savings to cover its debt service.
Project Scope

**Treatment Infrastructure Renewal**
- **Anaerobic digestion**: (3) 1.25 million gallon digesters, 13,000 sf control building housing switchgear, lab, boilers, heat exchangers, grinders, pumps, compressors
- **Dewatering**: Gravity belt thickeners, belt filter presses, polymer feed pumps, progressive cavity pumps and associated electrical
- **Controls**: SCADA control system upgrade
- **Electrical**: new primary 12.5 kV switchgear unit, 800 kW emergency power system interconnected to cogeneration, net metering/grid paralleling capability
- **Aeration**: replace (4) 450hp multistage blowers with (4) 200hp turbo blowers, new electrical, fine bubble diffusers, piping and controls.

**Green Energy and Resource Recovery**
- 825 kW electric cogeneration with biogas conditioning system
- High strength food waste and FOG receiving facility with segregated waste storage
- Ostara Pearl® phosphorus nutrient recovery system

**Facility Efficiency Improvements**
- Building energy management control system
- Lighting and mechanical system improvements
- Potable water system upgrade
Opequon Water Reclamation Facility

Liquid Receiving Station

Anaerobic Digesters

848 kw Biogas Generator

Aeration

Dewatering, HVAC, Lighting, Nutrient Recovery

HSW Storage

Green Energy Project
$44.8M total cost
16.6 year payback

Guaranteed Savings

- Energy, $524,500, 20%
- Chemical, $570,000, 21%
- Landfill, $220,000, 8%
- Cost Avoidance, $1,370,000, 51%

Also $630,000 annually in guaranteed tipping fee revenue
Effect on Rates

| Flat costs for 20 years! |

**Effect on Rates**

<table>
<thead>
<tr>
<th>HSW Revenue</th>
<th>Debt Service</th>
<th>Operations Expense</th>
<th>Total Expenses</th>
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**FY 13-14 to FY 32-33:**
- HSW Revenue
- Debt Service
- Operations Expense
- Total Expenses

*Flat costs for 20 years!*
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Questions?

David Wrightsman, P.E.
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dwrightsman@energysystemsgroup.com
317-502-4663