



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

**3rd Annual Market Transformation Conference  
July 29-30, 2014 St. Paul, MN**

**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



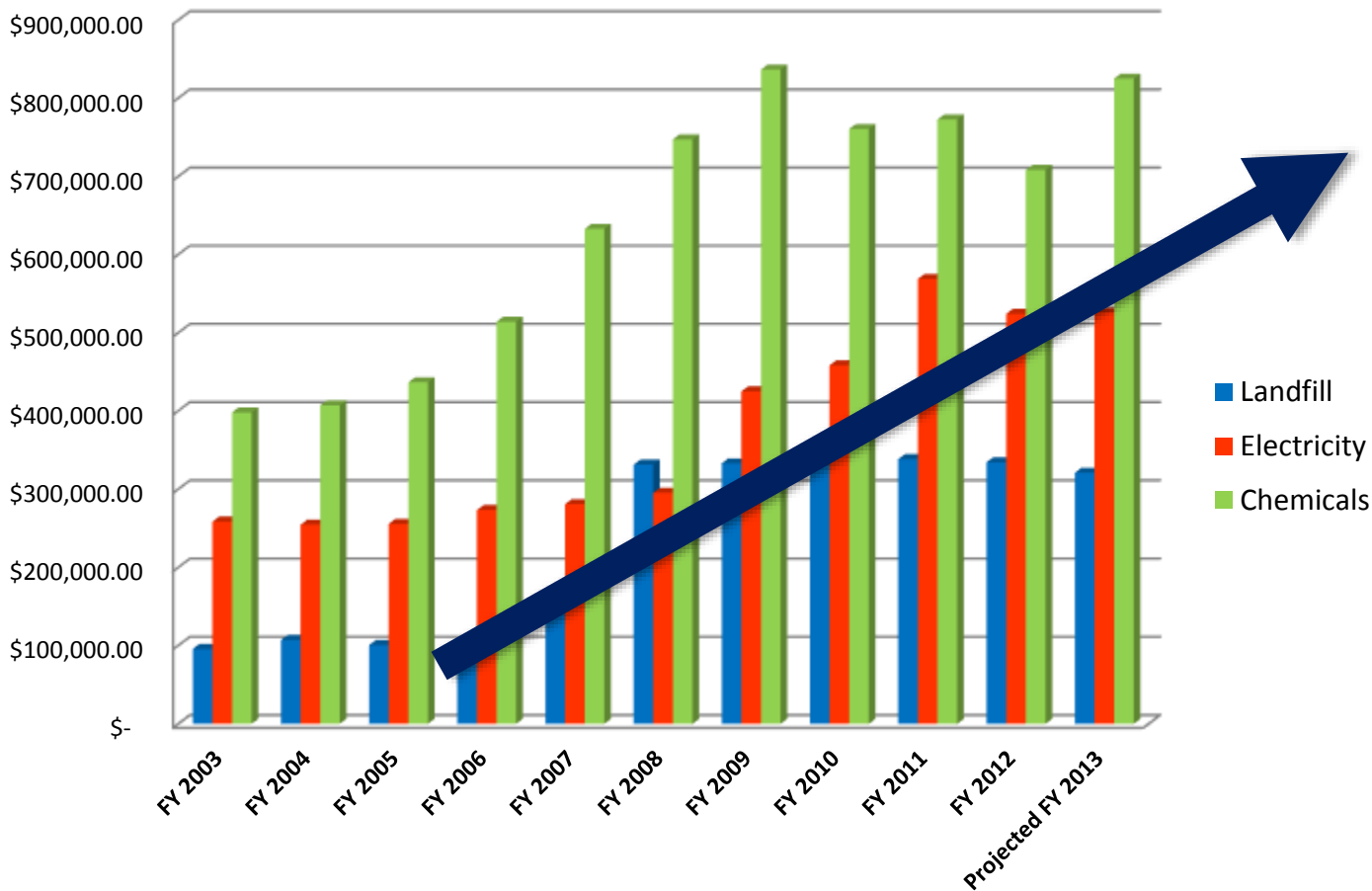


## 12.6 MGD Opequon Water Pollution Control Facility Winchester, Virginia



# Rising Cost of Operations

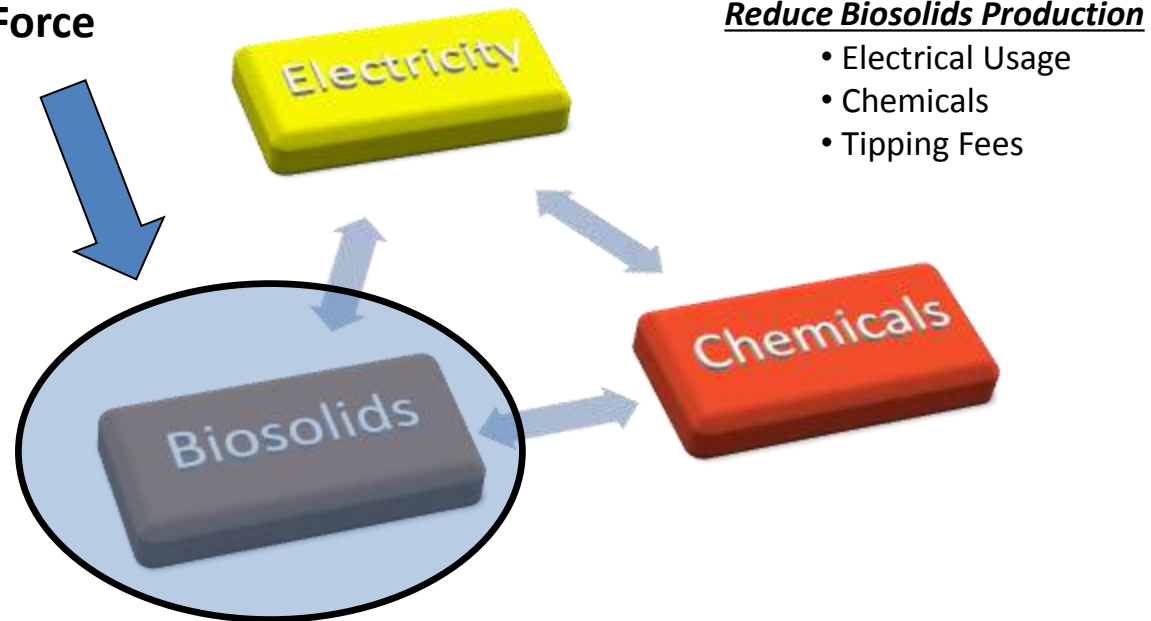
## Operational Costs FY 2003 to Projected FY 2013



# Energy Savings Performance Contract

## *Formulating a Potential Solution*

Driving Force



# 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.

## 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

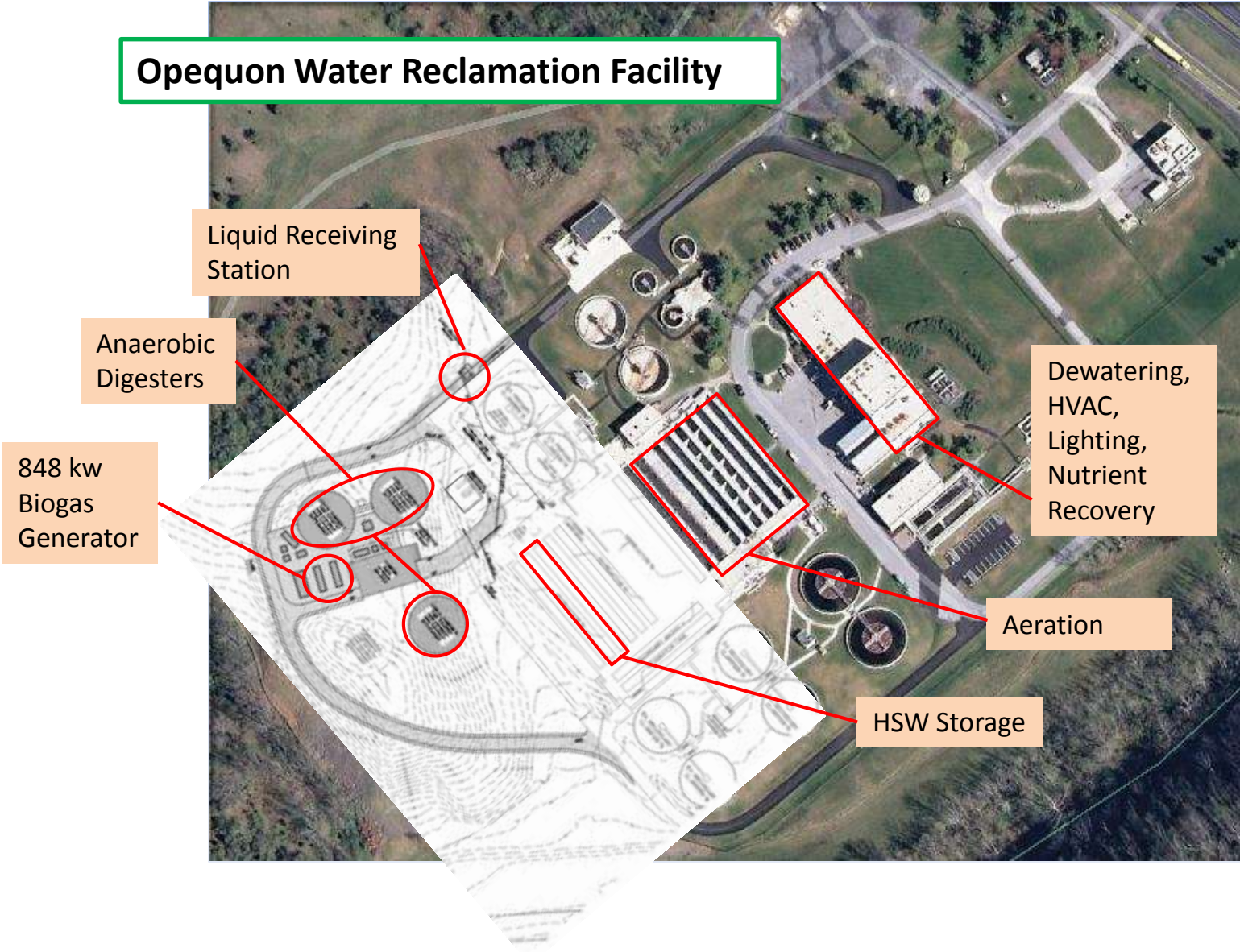
- 825 kW electric cogeneration with biogas conditioning system
- High strength food waste and FOG receiving facility with segregated waste storage
- Ostara Pearl® phosphorus nutrient recovery system

## Facility Efficiency Improvements

- Building energy management control system
- Lighting and mechanical system improvements
- Potable water system upgrade



## Opequon Water Reclamation Facility



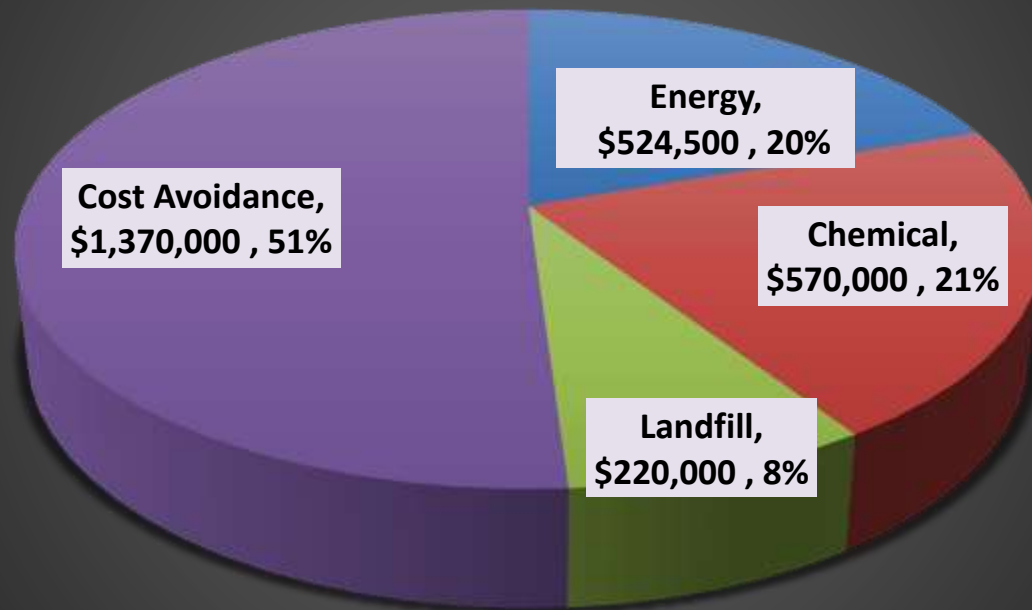
# Frederick Winchester Service Authority



# Financial Performance

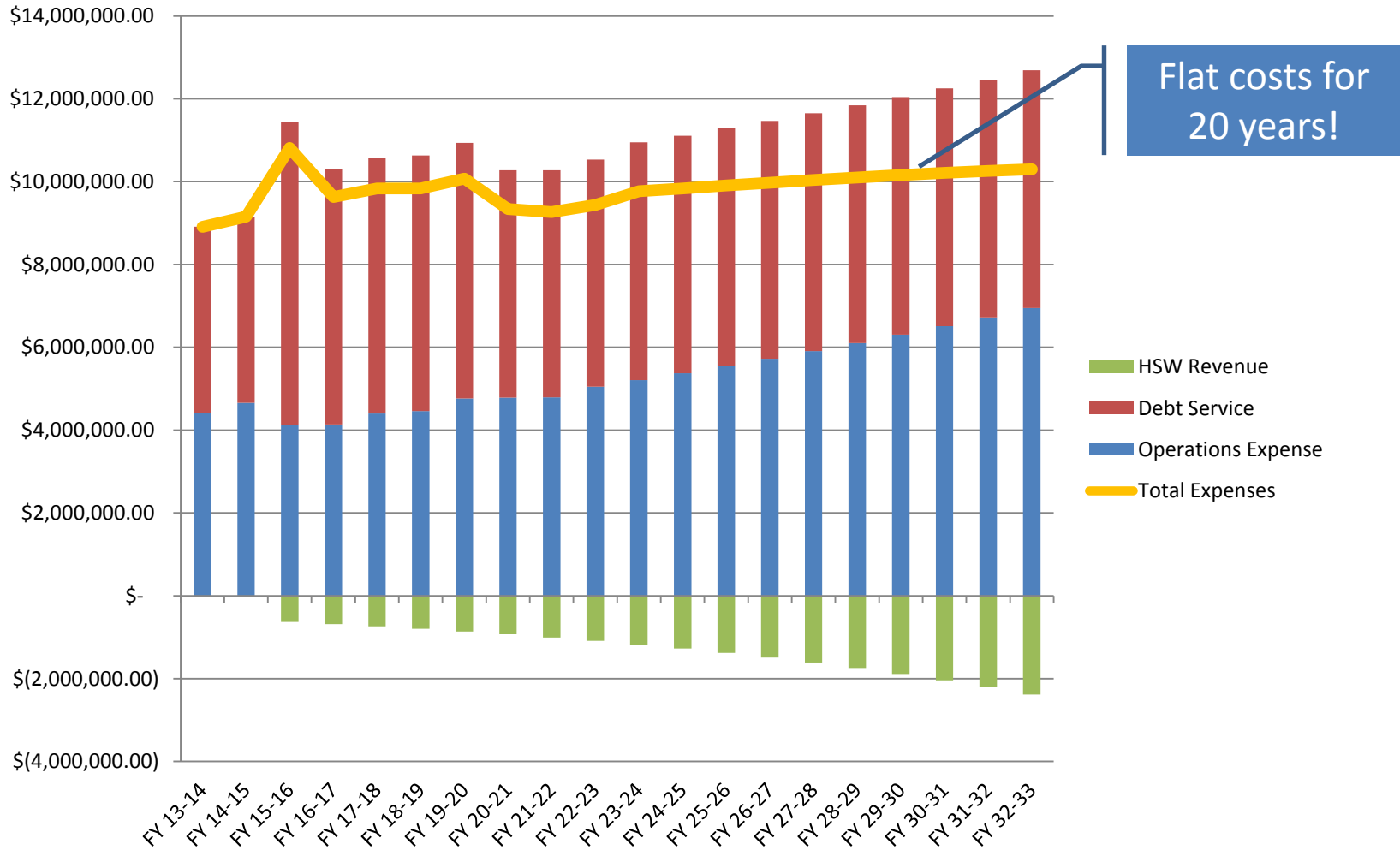
**\$44.8M total cost**  
**16.6 year payback**

## Guaranteed Savings



*Also \$630,000 annually in guaranteed tipping fee revenue*

# Effect on Rates



# Key Ideas to Walk Away With

- Deep financial dive
- Diversify savings streams
- New revenue is good



# Questions?

**David Wrightsman, P.E.**

**Energy Systems Group**

**[dwrightsman@energysystemsgroup.com](mailto:dwrightsman@energysystemsgroup.com)**

**317-502-4663**