




Key Lessons to Draw from the Development of the Prince William Energy Park



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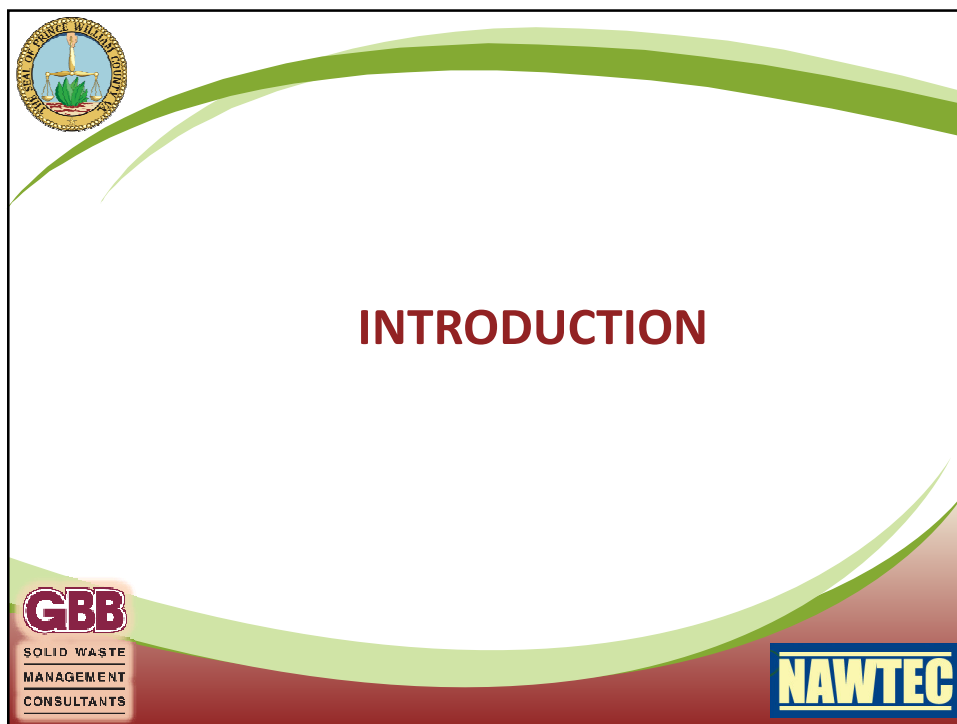
April 23, 2013



Presentation Outline

- Introduction
- Prince William County and GBB Approach
- Program Status
- Key Lessons
- Questions and Discussions
- Thank You and Acknowledgments






The slide features a decorative background with green and red curved lines. In the top left corner is the Prince William County seal. The title "GBB Overview" is centered in a large, bold, red font. Below the title, on the left, is a photograph of two men in business attire looking at a laptop. Below the photograph is a map of the Washington, D.C. area, with a red pin indicating the location of GBB. To the right of the photograph and map is a list of bullet points. In the bottom left corner is the GBB logo, which includes the text "SOLID WASTE MANAGEMENT CONSULTANTS". In the bottom right corner is the NAWTEC logo.

GBB Overview


Quality – Value – Ethics – Results



- Established in 1980
- Solid Waste Management and Technology Consultants
- Helping Clients Turn Problems into Opportunities




Prince William County Overview

- Prince William County is less than 30 miles from the nation's capital
- Current Population is approximately 430,000








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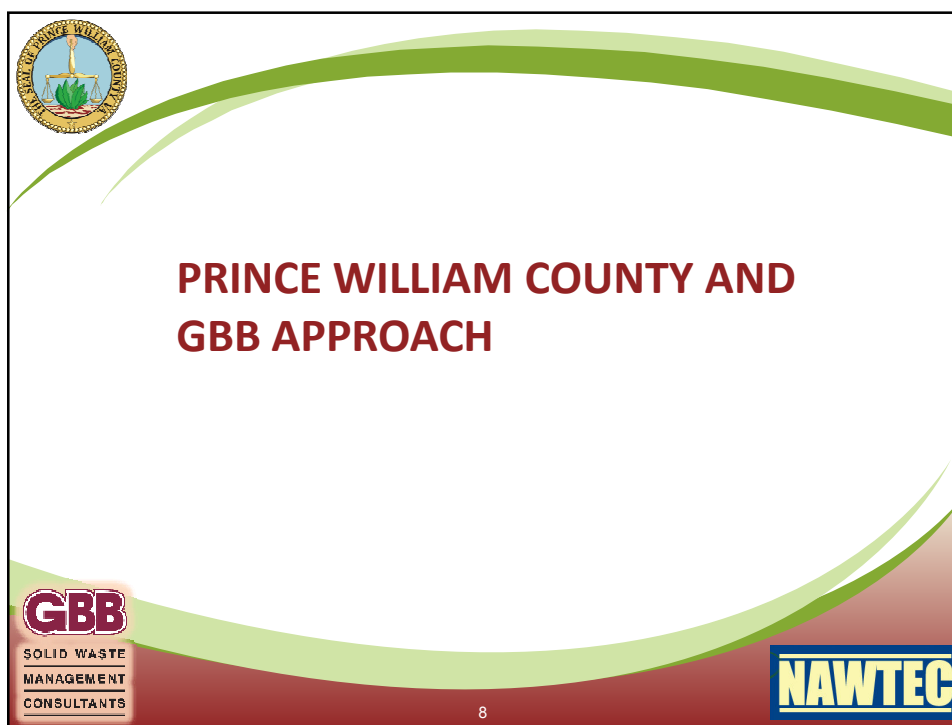
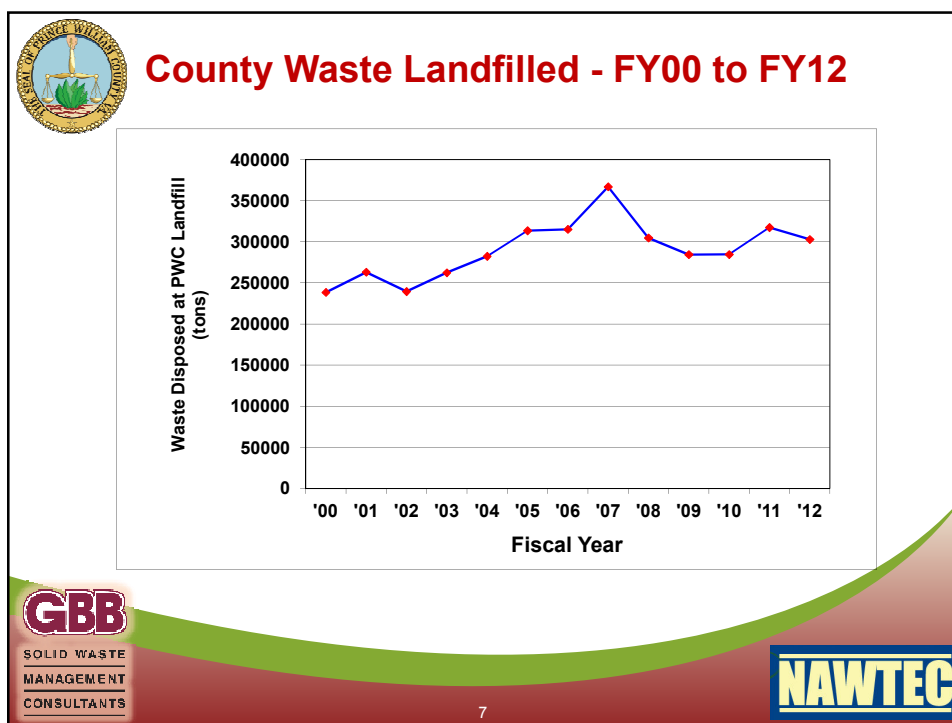


County Landfill

- Consists of approximately 1000 acres
- Approximately 96 acres are closed
- 350 acres of buffer, mostly forested with a number of species of plants, trees and wildlife
- Surrounded by potential users such as
- Currently captures LF gas and produces approximately 2 MW of electricity

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Project Initiation

- Retained GBB in 2009 to manage the park development and
 - Assist County with Unsolicited proposals
 - Review Feasibility of Alternative Technologies
 - Develop Request for Proposals for alternative disposal technologies
 - Assist with Board and Citizen group presentation



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GBB Approach

- Two Phase Approach
 - PWREP Technical and Economic Feasibility and Project Plan
 - Plan Objective – Identify potential renewable energy opportunities such as
 - Solar and/or wind applications
 - Alternative Landfill gas usage
 - Conceptual Development Plan
 - Plan Objective – Identify renewable technology projects, development partners and potential off take users





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Technical and Economic Feasibility Study

- The site can support solar PV, wind, and LFG projects
- Public-sponsored projects may not “pencil out” but public-private partnership may make them feasible
- The County should issue Request for Proposals (RFP’s) inviting energy project developers to propose projects similar to those explored in the study
- The County should pursue negotiations with Fortistar for LFG for use in CHP project



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Conceptual Development Plan

Prince William County Renewable Energy Park


- Project Background & Objectives
 - Prince William County landfill as an underused resource.
 - Potential for creating a Prince William Renewable Energy Park (PWREP) as part of Landfill Eco-Park.
 - Decrease fossil fuel dependence.
 - Decrease greenhouse gases.
 - Generate revenues.
 - Identify applicable technologies, e.g. solar, wind, landfill gas (LFG).
 - Identify potential projects.
 - Determine technical and economic feasibility of potential projects.






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Prince William County Renewable Energy Park Feasibility and Plan









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Landfill Energy Opportunities

- Landfill Energy Park Concepts
 - Continued use of landfill gas for power and heat
 - Conversion of landfill gas to vehicle fuel
 - Wind power placed adjacent to or on top of the landfill
 - Flexible solar panels as part of landfill cap installation.
 - Use of alternative disposal technologies to convert waste to energy







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Landfill Energy Opportunities

- Potential Energy Use for High School
 - Heating and Cooling
 - Boiler Running on Landfill Gas
 - Electrical Power
 - Educational Opportunities
 - Conservation and Renewable Energy
 - Environmental Studies
- School Bus Facility and County Maintenance Facility adjacent to landfill.



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PROGRAM STATUS






Request for Proposals

- Request for Proposals issued
 - Municipal Solid Waste Conversion Demonstration Project
 - Issued June 2012
 - Proposal Received October 2012
 - Solar Energy/Wind project
 - Issued March 2013
 - Proposals Due July 2013




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Waste Conversion RFP

- Host a demonstration project of an innovative municipal solid waste (MSW) conversion technology
 - On the landfill site or, as an alternative,
 - At the County's existing Balls Ford Road yard waste composting facility
- Identify qualified technology companies to design, build, finance, own and operate the demonstration plant
- Select the one with the best proposal to provide and operate such a facility



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Eligible Technologies

- Technologies on the verge of commercialization
- Pyrolysis, gasification, anaerobic digestion, plasma torch or other conversion method producing a fuel or energy product
- Preference given to technologies whose primary output is not electricity



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Ineligible Technologies

- Traditional Mass Burn, Modular Mass Burn, Refuse Derived Fuel Technologies including two-stage starved-air
- Mixed-waste composting technologies that use open-air curing processes



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Landfill Surrounding Facilities

- To the south of the landfill: (east to west)
 - Juvenile detention center
 - Environmental Services Building
 - Mosquito Control Building
 - County Schools Vehicle maintenance facility and bus parking lot
 - Public Works fleet maintenance facilities,
 - Athletic fields, and the site of a future church
- Adjacent to the western edge of the landfill
 - A new high school
- Across Route 234 to the south:
 - Animal shelter
 - Administrative offices of the Prince William County Schools



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Landfill Demonstration Sites

County Landfill Site

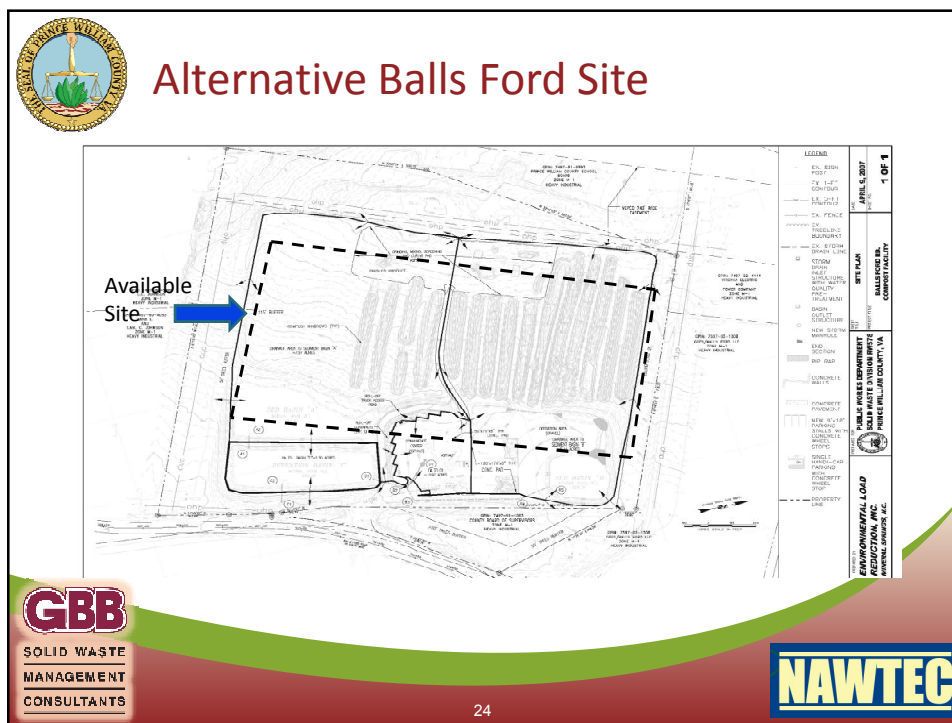
- Approximately 5 to 8 acres
- Access to:
 - Circumferential access road
 - Electricity
 - Sanitary sewer
 - Water
 - Leachate lagoons (if permitted)
 - Landfill Scale House and gas pipeline
- Electrical Interconnection Limited
- Additional areas north and east of the site may be available for expansion or use by ancillary facilities, such as greenhouses

Balls Ford Site

- 5 to 10 acres in the western portion of the site
- Access to:
 - Truck scale
 - Water
 - Sewerage
 - Electricity
- Two electrical substations are located adjacent to the property



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Conversion Technology Offeror Undertakings

- Design, financing, construction, ownership, operation and maintenance of the facility
- Applying for and securing all required permits, approvals and permissions
- The construction and operation of the demonstration facility must not in any way interfere with the operations of the landfill
- A site restoration bond is required
- The Offeror is solely responsible for the financial arrangements of the demonstration, including the sale of all of the offtake products






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County Undertakings

- Site at nominal rent and site access/easements
- 50-200 TPD of “as-received MSW” as requested by the Offeror
- Easements for the export of the energy products at no cost to the Offeror
- Disposal of process residue, non-hazardous bypass waste and unacceptable waste at no cost to the Offeror
- Use of the County’s scale facilities at no cost to the Offeror
- Cooperation in obtaining permits, approvals and permissions
- Assistance with grant applications or financial incentive programs
- Potential purchase of project outputs, as negotiated



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Pricing Proposal Outline

Pricing Proposal to include:

- Proposed Tipping Fee, if any
- Pricing of energy product(s)
- Disposition of recycling revenues
- Allocation of energy/carbon credits





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Conversion Technology Proposal Status

- Proposals Received and being evaluated
 - Technologies
 - Mixed Waste Processing with Anaerobic Digestion and BCNG production
 - Mixed Waste Processing with renewable product production and Anaerobic Digestion with BCNG production
 - Anaerobic Digestion of Source Separated Feedstock with compost production and electricity or BCNG production



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Solar Wind Project RFP

- March 2013 Request for Proposals were issued
- Energy Project Proposals
 - Must be compatible with the landfill's leachate control and landfill gas systems
 - Sizing, location and phasing of the solar field(s) and turbines TBD
- Offeror Requirements
 - Must have designed, built and operated at least one project with a minimum capacity of one (1) megawatt using its proposed (or similar) technology that has been in operation for at least one year



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Program Status Summary

- Prince William Renewable Energy Park
 - RFPs issued for solid Waste Conversion Demonstration and Solar/Wind Development projects
 - Working with school district to develop sustainability program for new high school
 - Working with NOVEC on electrical interconnection/net metering issues
 - Developing relationships with George Mason University as potential program partner



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