



Community/Customer Engagement

Bruce Bartel, Treatment Manager

NEW Water, Green Bay, WI



US DOE Better Plants Summit

Community / Customer Engagement

August 23, 2018

Bruce Bartel – NEW Water
Treatment Manager





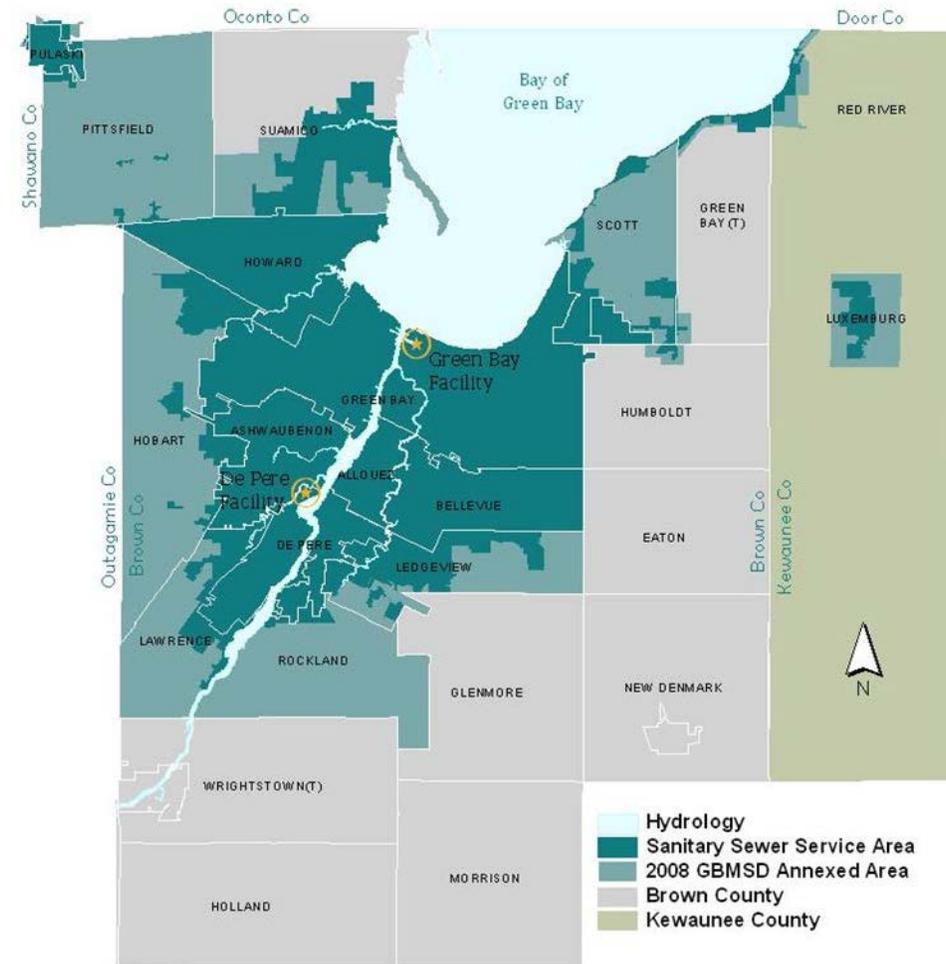
Who or What is NEW Water?



- Brand of Green Bay Metropolitan Sewerage District (GBMSD)
- Two treatment facilities serving NE Wisconsin 24/7/365
- Governed by five member Commission

About NEW Water

- Wholesale provider of wastewater conveyance and treatment services
- 18 municipal customers (217,000 people) and two direct industrial customer
- Service area of 285 square miles
- Third largest wastewater treatment plant in Wisconsin
- Treats 38 million gallons of wastewater per day on average



A satellite-style aerial photograph of the Great Lakes basin in North America. The five Great Lakes (Superior, Michigan, Huron, Erie, and Ontario) are visible as dark blue-green bodies of water, surrounded by green and brown landmasses. The image is oriented vertically, with the top of the page showing the northern part of the basin and the bottom showing the southern part.

NEW Water
The brand of the Green Bay
Metropolitan Sewerage District

*Protecting our
most valuable
resource,
water*

Green Bay Facility

32 mgd





De Pere Facility
8 mgd

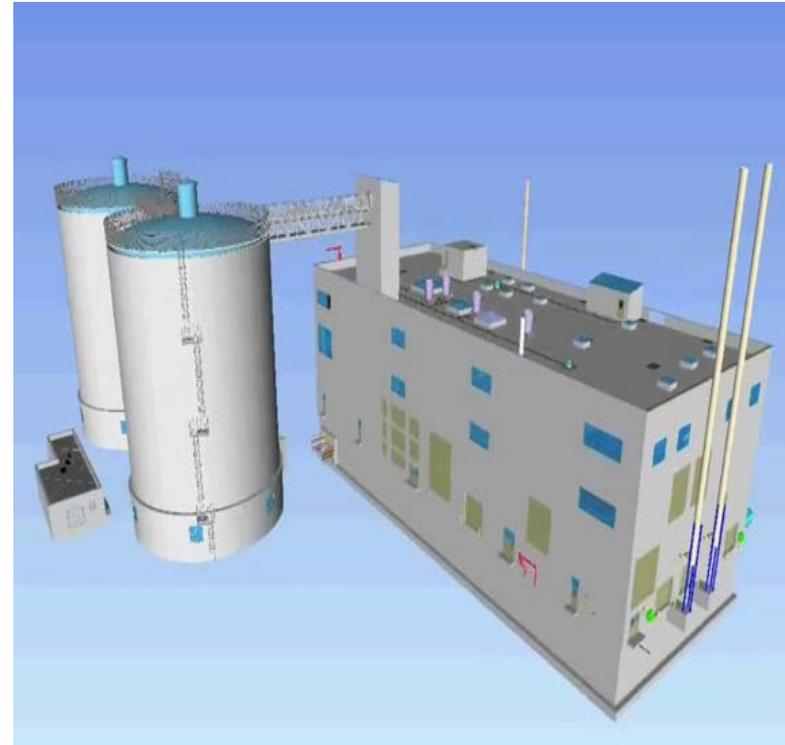


R2E2

Resource Recovery Electrical Energy Project

Most cost-effective solution to replace
solids handling at the Green Bay
Facility

Tools to treat wastewater as a resource





Collaborative Approach

- Used three advisory committees – external, internal, and Commission
 - External Committee: Tom Collins, Sanimax; Kevin Erb, UW-Extension; Jodi Arndt, Isaac Walton League; Jeff DeLaune, Johnson Controls; Michael Finney, Oneida Nation; John Katers, UWGB; Rich Jones, Georgia-Pacific; Trisha Cooper, citizen; Joshua Smith, Village of Howard; Karen Heyrman, City of De Pere; and Matt Heckenlaible, City of Green Bay
- Meeting objectives:
 - A list of attributes and weighting to decide alternative
 - Input on strengths and weaknesses of the selected alternative





Collaborative Approach

Municipal and industrial customer working group

Communities: Allouez, Ashwaubenon, Bellevue, De Pere, Green Bay, Hobart, Howard, Lawrence, Ledgeview, and Suamico

Industries: Fox River Fiber, Georgia-Pacific, JBS, Pioneer Metal, Thilmany, US Paper Mills, Procter & Gamble, and Sanimax

Civic Group: Green Bay Area Chamber of Commerce





Solids Management Plan Alternatives

- Alternative 2: Incineration with Energy Recovery
- Alternative 3A: Digestion with Thermal Processing
- **Alternative 3B: Digestion with Thermal Processing and Electrical Generation (known as R2E2 Project)**
- Alternative 11: Composting
- Alternative 14: Incineration and Drying
- Alternative 16: Rehabilitate Existing Solids Handling System





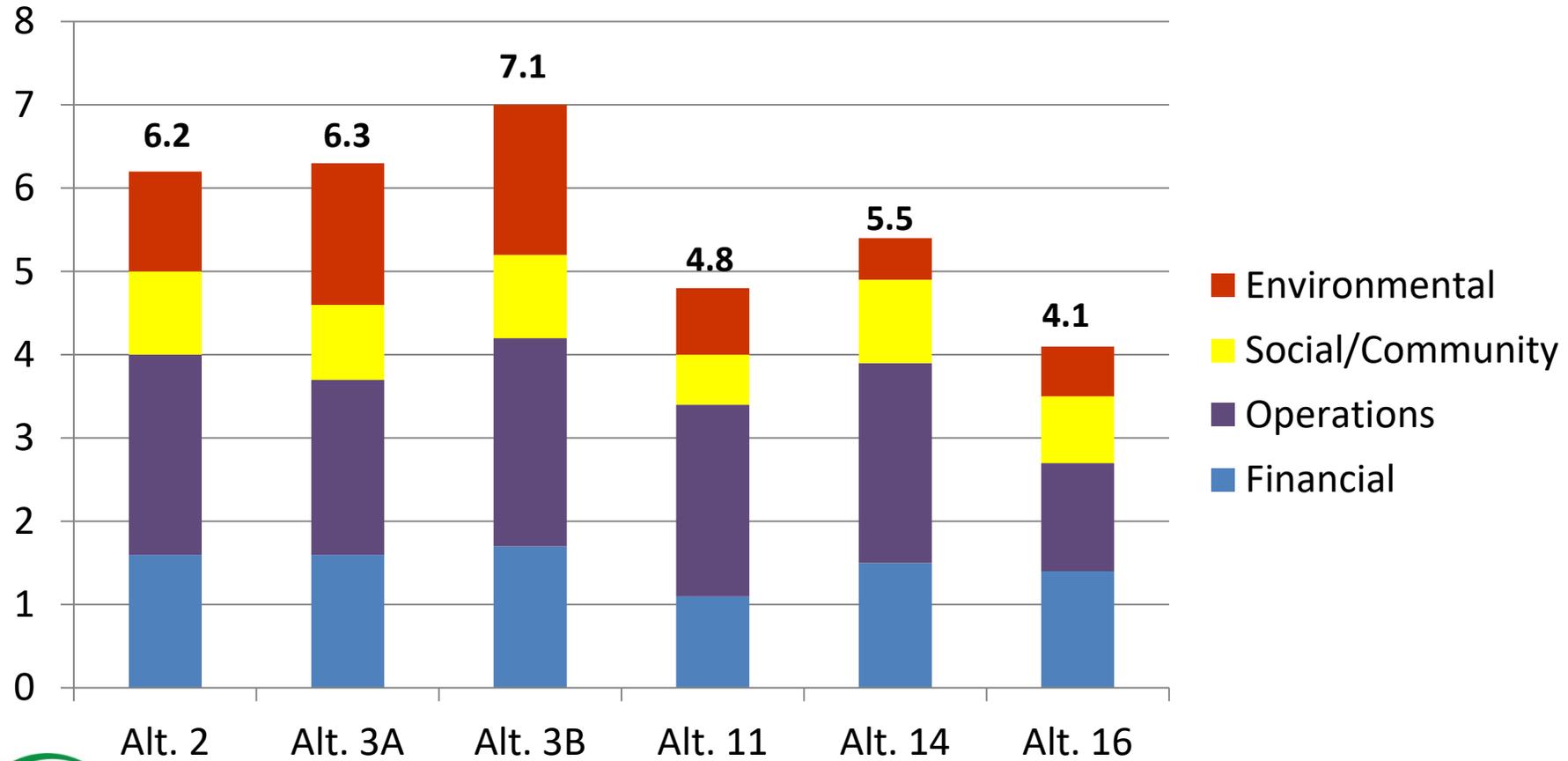
Alternative Analysis: Process and Criteria

- Employed structured, rigorous analysis framework to consider monetary and non-monetary factors
- Defined criteria for weighting, scoring, and ranking across alternatives
 - Criteria and criteria weights based on advisory committee input and consistent with Commission values
- Criteria employed:
 - Financial impact (30%)
 - Operational flexibility (35%)
 - Social/community acceptance (15%)
 - Environmental impact (20%)





Alternative Scoring





Alternative Costs

	Alt. 2	Alt. 3A	Alt. 3B	Alt. 11	Alt. 14	Alt. 16
Capital Cost	\$112.7 M	\$154.9 M	\$146.9 M	\$80.6 M	\$109.1 M	\$88.4 M
Total Present Worth*	\$121.5 M	\$121.6 M	\$112.6 M	\$143.4 M	\$123.5 M	\$130.3 M

- Project capital cost: **\$147** million
 - 9% per year wholesale rate increase through 2016





Public Information Meeting (PIM)

- Commission Approval
- Total 5 PIMs held throughout service area
 - 1 – Village of Ashwaubenon
 - 2 & 3 – Village of Allouez
 - 4 – GBMSD
 - 5 – Brown County Library Weyers-Hilliard Branch





Additional Outreach Efforts

- Comprehensive Outreach Plan
 - 54 Tasks
- Mayor's Corner
- City Council Meetings
- Village Board Meetings
- Project Fact Sheets
- FAQ Sheets
- Quarterly Customer Meetings
 - Continues today





Project Support

- Met with Green Bay Press Gazette Editorial Board
 - Article in paper
 - Some incorrect facts, overall very supportive
- Municipal Support
 - Village of Allouez – Craig Berndt Public Works Director
- Not all on board with project





Background Information

Three main drivers:

- Aging infrastructure
- Environmental regulations
- Increased capacity needs





R2E2

- R2E2: Solids & Digestion Facilities
 - Includes:
 - Anaerobic Digestion
 - New Solids Building
 - Centrifuge Dewatering
 - Dryer
 - Biogas Storage
 - Electrical Energy Generation
 - Nutrient Recovery
 - Ash Dewatering and Storage
 - Installation of Fluid Bed Incinerator Equipment





R2E2

- R2E2: Solids & Digestion Facilities
 - Energy Recovery:
 - Biogas to run two – 2.2 MGW I.C. Engines
 - Heat from the I.C. engines to heat the anaerobic digesters
 - Heat recovery from the fluid bed incinerator to run dryer
 - Autogenous incinerator operation
 - Nutrient harvesting to produce fertilizer product





R2E2 Benefits

- Addresses the original project drivers:
 - Aging infrastructure
 - Environmental regulations
 - Increased capacity needs
- Lowest cost plan over a 20-year planning period
- Generate about 50% of NEW Water's energy needs





R2E2 Costs

Project Phase	Approximate Costs
Engineering Services	\$25,000,000
Fluidized Bed Incinerator Equipment	\$21,200,000
Construction Project #1	\$6,300,000
Construction Project #2	\$114,000,000
Construction Project #3	\$2,500,000
Total	\$169,000,000



\$147M?



Thank You!

Questions / Comments?

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For more information please
visit:
www.newwater.us

Stay connected with us:

