



MN Water Commission

GE Water & Process Technologies Overview

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Imagination at work

Today's agenda (10 min)

- Global Water Challenges
- About Our Business
- Our Technology in Minnesota
- Challenges and Policy
- Background
 - Key Industry Examples
 - Case Studies from across the world



Global water challenges

Availability

- Growing population and industrial use
- Climate change and drought

Quality

- Increased industrial pollution
- Deteriorating water quality

Productivity

- Pressure to improve operational efficiency
- Managing downtime and aging assets

Policy

- Stricter regulation on discharge/withdrawal
- Water reuse incentives and policy mandates



Our Business: Water & Process Technologies



Power & Water Water & Process Technologies

Aligning the best people with the most advanced technology, products and services to solve any water or process challenge our customers may have

Quick Facts

- Headquartered in Trevose, PA, USA
- 8,000 employees globally
- 50,000 customers in 130 countries
- 45 global manufacturing sites



Manufacturing Plant Overview

5951 Clearwater Drive, Minnetonka, MN 55343

361,200 Square Feet



Microsoft Maps

Products

Filters (Depth and Pleated)
Membranes (RO, NF, UF, MF)
Components (Pumps, Housings)
Equipment (Skids, Containers)

People

Employees (500+)
Business, Engineering, R&D
Logistics (Warehouse/Shipping)



Expertise and innovation

Acquisition

- **1999:** Glegg Water Conditioning
- **2002:** BetzDearborn
- **2003:** Osmonics, Inc.
- **2005:** Ionics
- **2006:** ZENON Environmental

Innovation

- **2007:** GE launches TrueSense
- **2008:** GE launches GenGard
- **2009:** GE launches the Muni.Z depth filter using Z.Plex technology, PROPAK system, and ZeeWeed 1500
- **2010:** GE launches Mobile Evaporator, Mobile M-PAK, HERO and ZCore
- **2011:** GE launches LEAPmbr and SeaPAK
- **2012:** GE launches AquaSel and IPER

Expansion

- **2009:** The GE/NUS Singapore Technology Center opens
- **2009:** GE opens Water & Process Technology Center in Saudi Arabia
- **2011:** Wuxi plant expansion doubles capacity of water technology manufacturing in China
- **2011-12:** Tripled capacity at Oroszlány, Hungary production site
- **2012:** Opening of new laboratory in Cotia, Brazil

Built on more than 85 years of domain expertise and innovation



Global presence and reach



Global leadership position

Our leadership in equipment solutions:

- Advanced ultrafiltration, membrane bioreactor, reverse osmosis membranes and membrane chemistries
- Industry leading thermal products, such as crystallizers, brine concentrators, and mobile evaporators
- Mobile fleet and water outsourcing capabilities
- Tough-to-treat applications, such as unconventional fuels, steam-assisted gravity drainage (SAGD) and mining
- Packaged water treatment equipment
- Analytical instruments for measuring water quality



Our leadership in chemical and knowledge management solutions:

- Cooling and boiler water technologies that enable customers to protect their assets
- Chemical treatment for ethylene, styrene and elastomer production facilities
- Refinery treatment solutions focused on tough-to-treat crudes
- Remote monitoring and diagnostic solutions



Broad product and solutions portfolio



Chemical & Monitoring Solutions

- Cooling Chemistries
- Boiler Chemistries
- Wastewater Chemistries
- Fuel Oil Treatment
- Hydrocarbon Process Chemistries
- Industrial Process Chemistries
- Knowledge Management & Monitoring Solutions

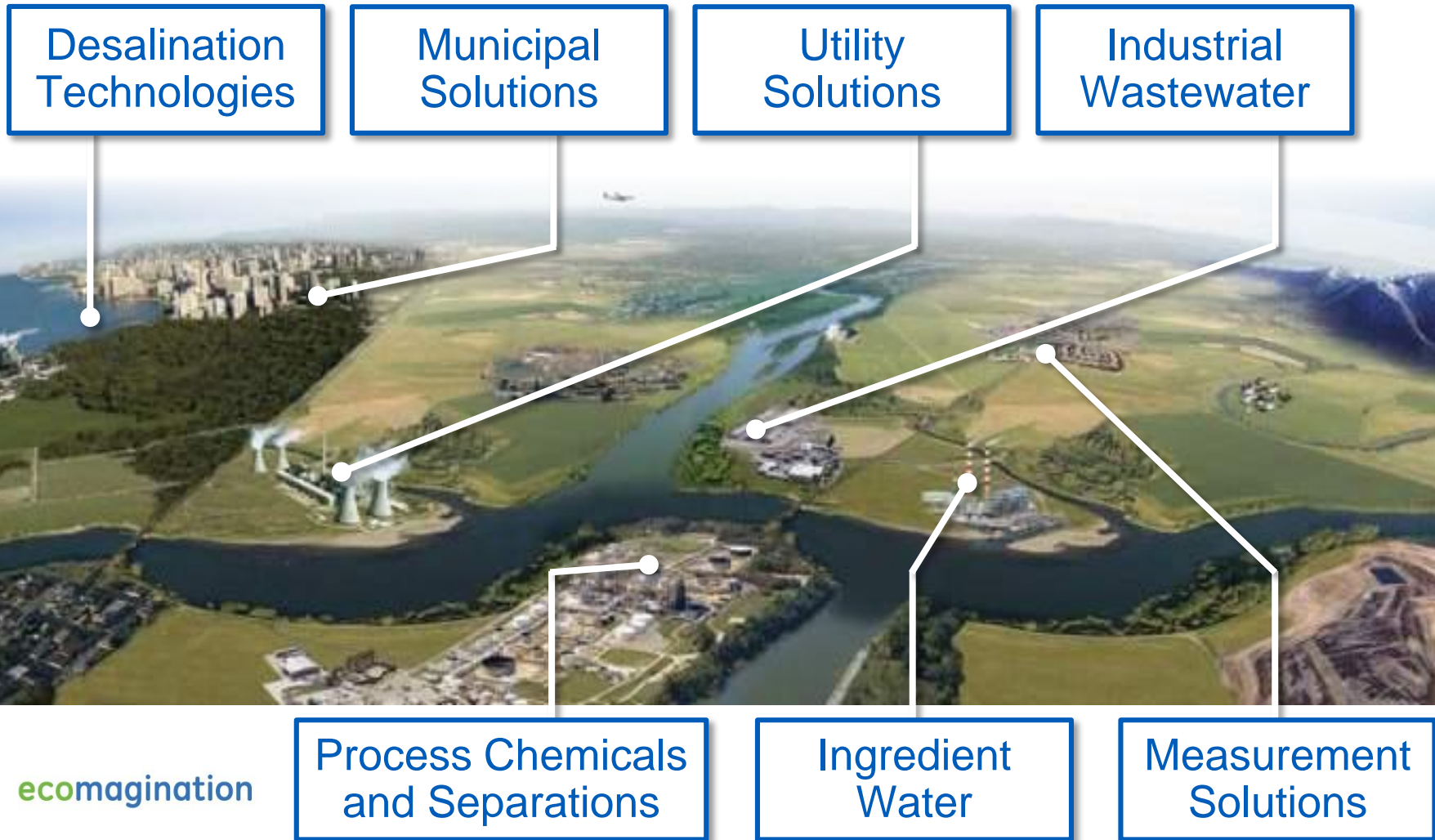


Engineered Systems

- Ultrafiltration/Membrane Bioreactor
- Mobile Water Solutions
- Water Outsourcing
- Thermal/Zero Liquid Discharge
- Reverse Osmosis/Electrolytic Systems
- Filters & Membranes
- Advanced Biological Metals Removal (ABMet)
- Analytical Instruments



Comprehensive solutions



ecomagination



Water Technology already in a Wide Variety of Applications

Drinking Water

Boiler Feed Water

Beverage Products

Process Water

Wastewater Discharge

Wastewater Reuse



Addressing water challenges and scarcity through Technology

Energy : Lower energy membrane systems & Waste-to-Energy

Robustness : Lower fouling; higher temperatures; oil tolerance

Recovery : Higher percentage and concentrate disposal

Asset Protection : ability to use impaired waters

Green chemistries : support application flexibility

Collaboration : university, consultants, engineers, distributors

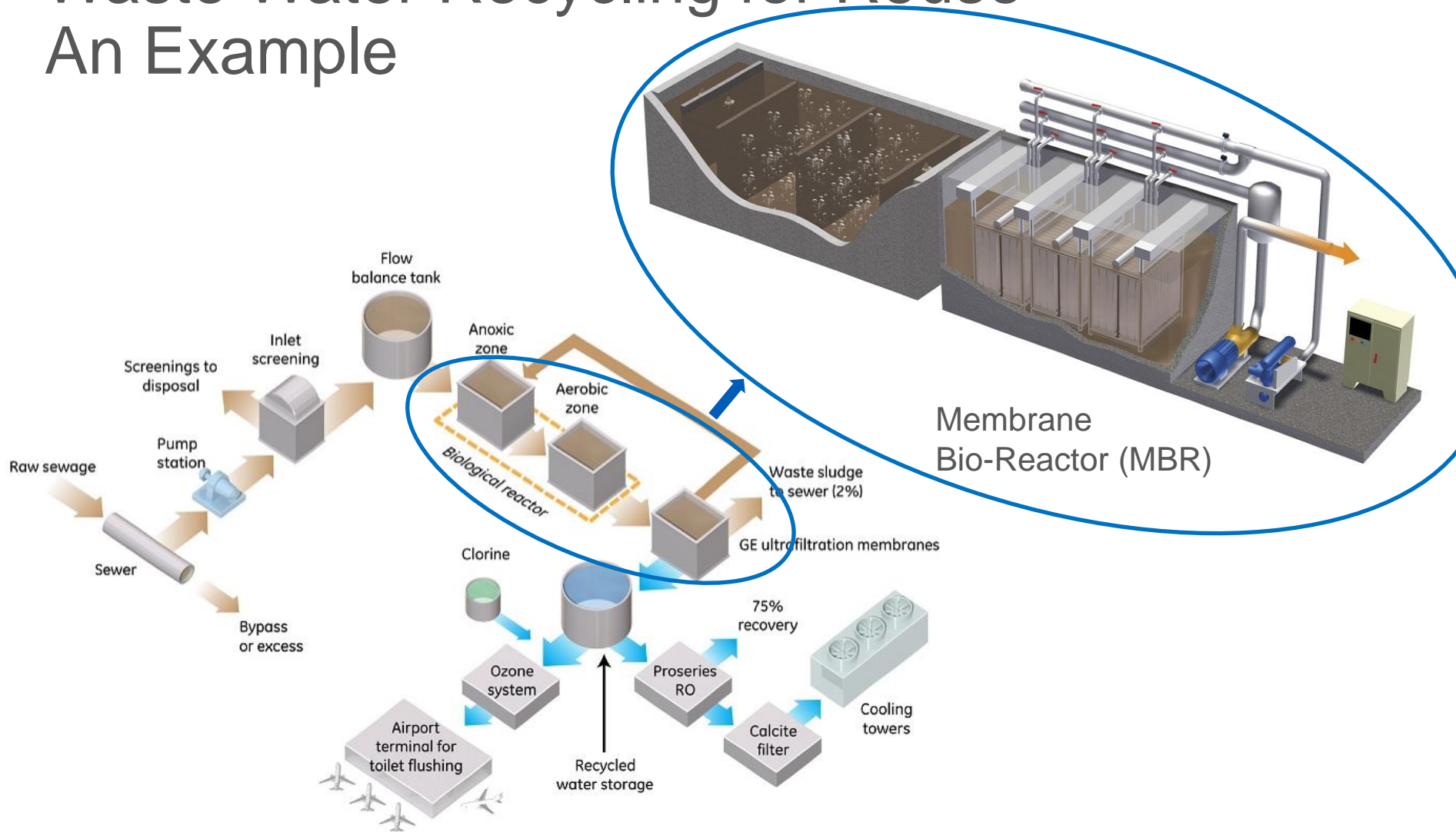
Real time Data : continuous collection and monitoring



Technology Examples



Waste Water Recycling for Reuse An Example



Addressing water scarcity through recycling and reuse - a menu for policymakers

Education and outreach: raise awareness and to help overcome any public concerns about the safety and quality of recycled water

Removing barriers: develop a water code that recognizes the use of recycled water

Incentives: make recycled water cheaper than potable water

Mandates and regulations: requiring the use of recycled water

[Link: Recycle Reuse White Paper](#)



