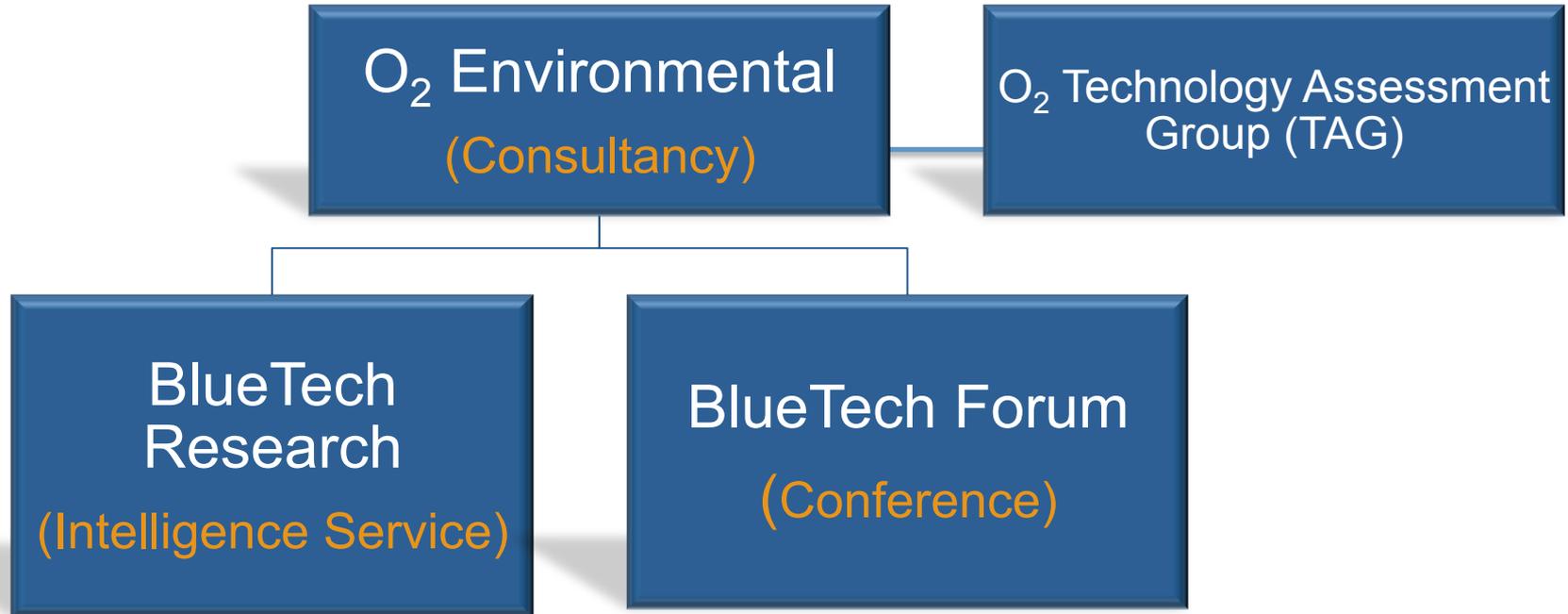


Water Clusters Meeting

March 25th 2014

Paul O'Callaghan,
CEO, BlueTech Research
www.bluetechresearch.com

O₂ Environmental Corporate Overview



What we do

Actionable Water Market Intelligence & Strategic Support

BlueTech Research

- BlueTech Innovation Tracker
- Company Reports
- Monthly Intelligence Briefings
- Insight Reports on Markets & Technologies
- Webinars on Hot Topics
- Analyst Access

O2 & TAG

- Strategic Support
- Commercialization Support
- Acquisitions Pipeline Support
- Investment Due Diligence
- Business Development
- Custom Research
- Market Intelligence

BlueTech Research Offerings



Insight Reports

Company Reports



Webinars

BluePrints



Company Tracker

Licensing Tracker



Intelligence Briefings

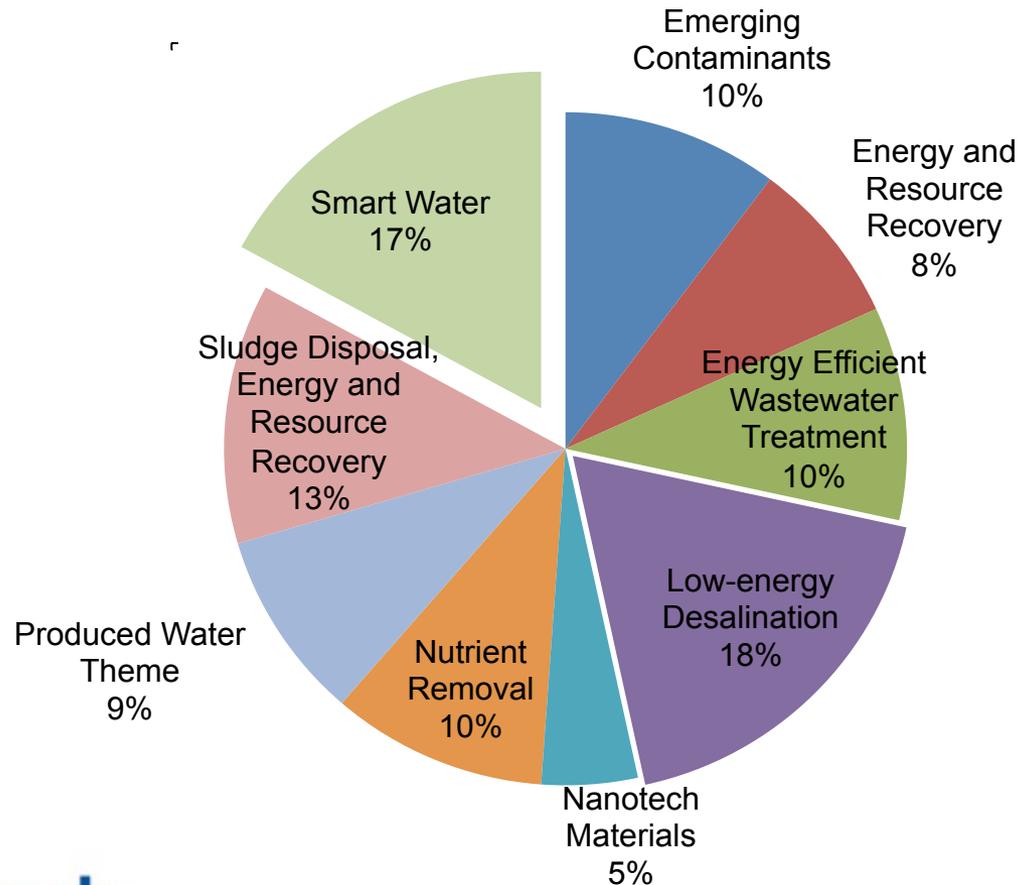
Patent Tracker



Disrupt-o-meter®

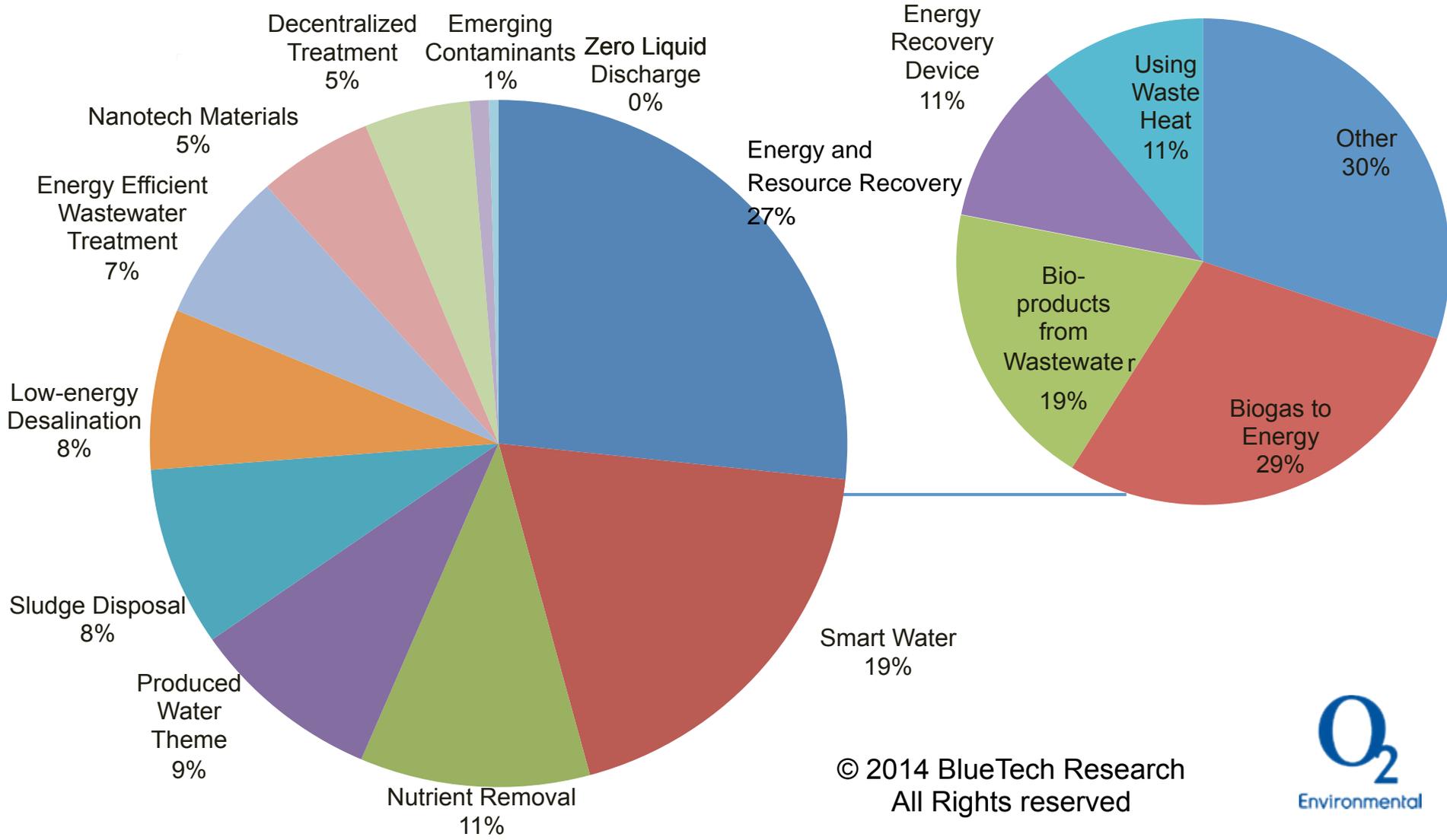
BlueTech
RESEARCH

Disrupt-o-Meter™



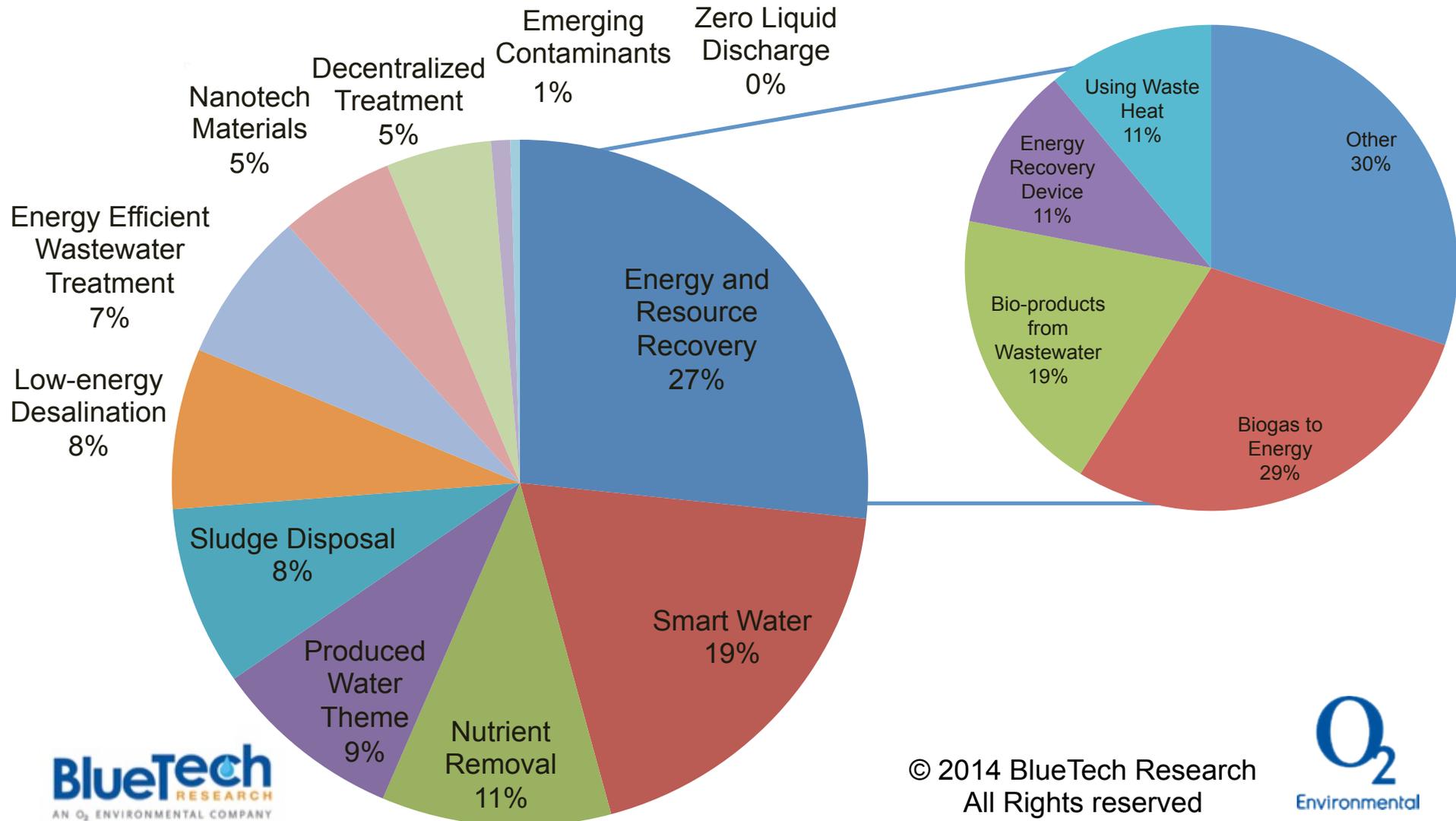
Investment Themes

Please consult author for complete description.



Investment in Water Technology by Themes

Please consult author for complete description.



Overall Objectives of Technology Verification

- Accelerate Adoption of Solutions which Meets a clients need: Win-Win
 - Empower Decision making
 - Increase buyer confidence
 - Reduce Risk

A compelling value proposition

- *Innovation Should Deliver its own value*
- *The raison d'être of the water industry, is not to deliver double digit returns to investors!*
- *Innovation is only innovation... if it meets a customers needs*

MBR - An overnight success story... *after 20 years!...*

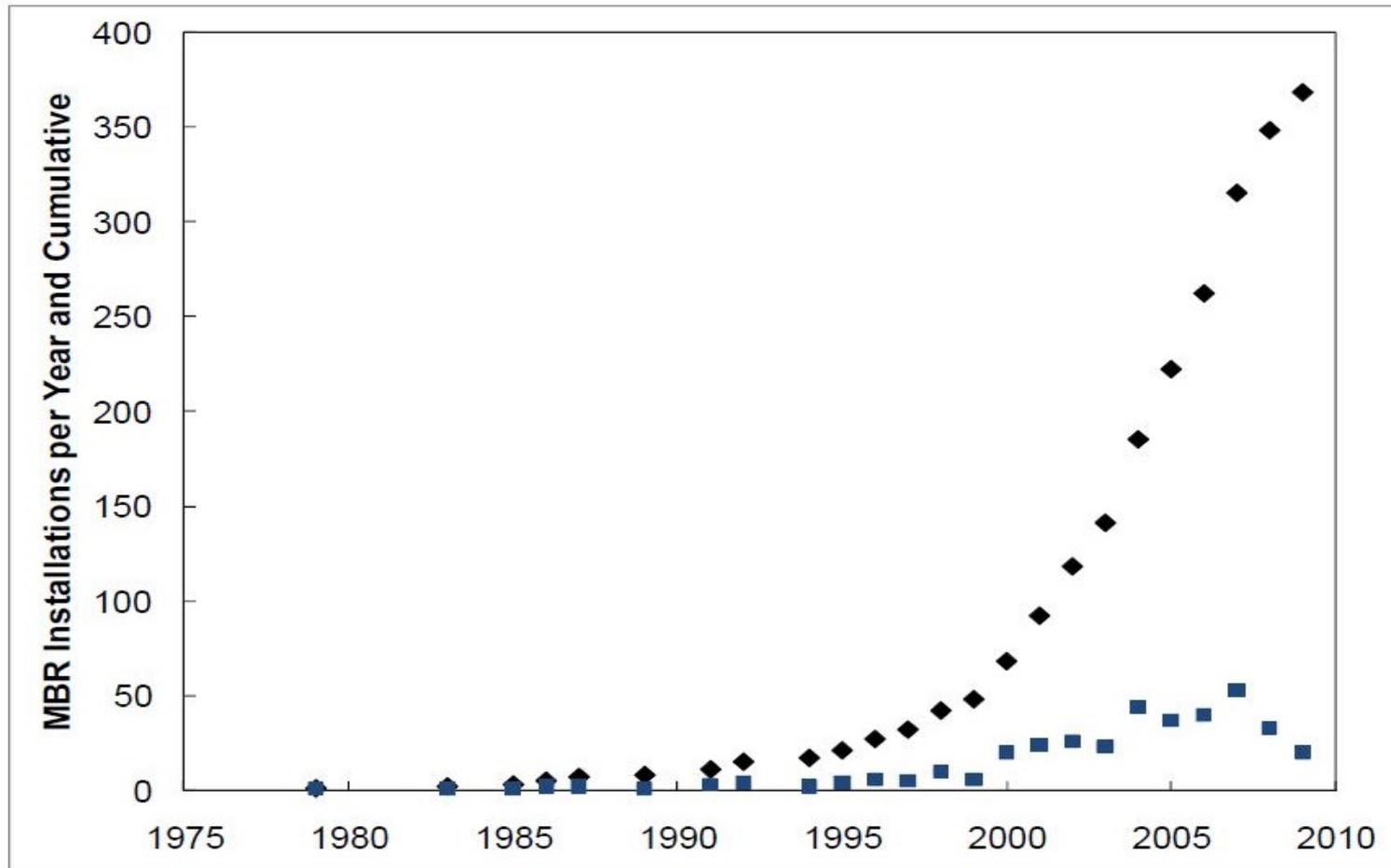
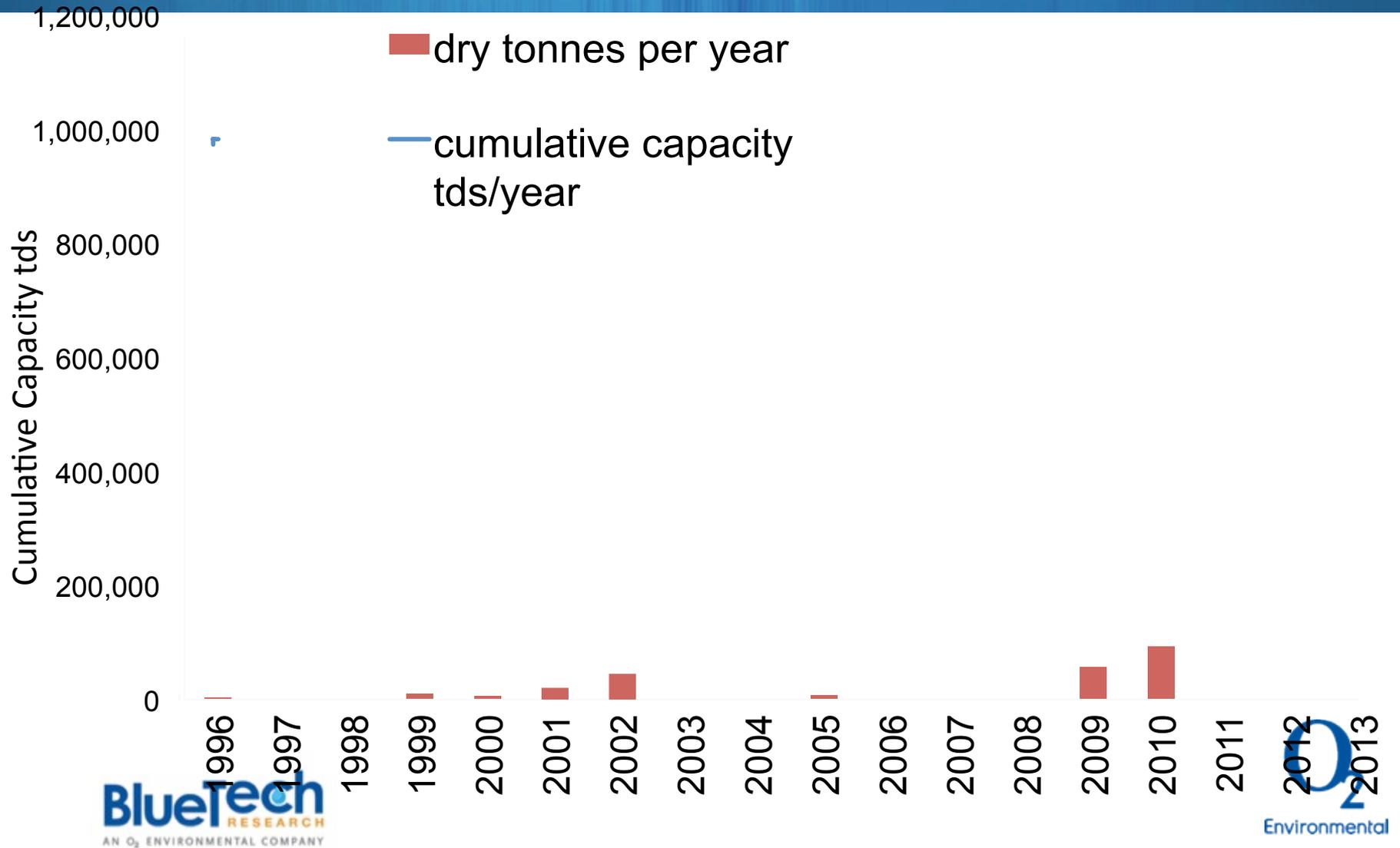


Figure 13. S curve for numbers of North American MBR plants put into service by Zenon. Blue squares show installations per year, while black diamonds show cumulative installations.

Cambi S curve

- Another overnight success story
..... *after 20 years?*



Water Technology Innovation Food Chain

–Revenue stages of Innovation Tracker Companies

Percentage of BlueTech Innovation Tracker Companies



Valley of Death



Pre-Revenue

\$0 - \$500K

\$500K - \$1M

\$1M - \$10M

\$10M - \$100M

> \$100M

Company Revenue Bracket

Avoid death by Pilotitis

- Many companies die the Valley of Death from Pilotitis
- Successful piloting
 - Need to gather the right data
 - Test on the right waste stream / feedstock
 - Independent third party validation
 - Link piloting to next steps in commercial process



Keys to Successful Demonstration

- Best use of Seed funding is to fund a demonstration facility
- Needs to be at, or close to, full-scale
- Ideally with a Flag Ship client within 50km of your Head Office

Key Ingredients

- The Early Adopter – a rare species
- Exhibit A: Rob Baur, Clean Water Services



Our Experience

- No two sites are the exactly the same
 - So verification is good, but performance is highly dependent on test conditions
- What do we look for when vetting a technology:
 - Does it defy the laws of Thermodynamics?
 - Has it been proven, at what scale, under what conditions.
 - Review available data

Observations on Technology Verification

- Fragmentation plays out in testing and validation, just as it does across the entire water industry, as a result of:
 - Different technologies
 - Different Applications
 - Different Scale
 - Different clients

Ideas to facilitate buyer confidence

- Peer to Peer
 - WEF Discussions Forums – are great!
 - Conference Papers – great resource, often underutilized.
 - Crowd sourcing & Social media?

Other Approaches

- ETV in Europe
 - 10 Accredited bodies
 - 3 Areas covered: Water, Waste, Energy
- SDTC in Canada
 - Very successful demonstration support initiative www.sdtc.ca

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SPARE SLIDES

**Paul O'Callaghan,
CEO, BlueTech Research
www.bluetechresearch.com**

Licensing Opportunities

Lignin Based Ion Exchangers

Research Institute: Lawrence Livermore National Laboratory

Technology Offering: Lignin polymer material combined with ion exchange and chelate functional groups.

Technology Concept: Ion exchange sorbent formed from lignin. Lignin is lower cost and poses a lower environmental risk than conventional functionalized polymers. The sorbents can be functionalized to remove target contaminants and have been successfully demonstrated for the removal of rhenium, gold, platinum and a range of organic compounds.

Uniqueness/Novelty: 

Unmet Need in the Market: 

Size of Market Opportunity: 

Website: <https://ipo.llnl.gov>

Application: Industrial Wastewater Treatment, Environmental Remediation

Country: USA

Contact: Annemarie Meike (Business Development Executive)

Email: melke1@llnl.gov

Telephone: +1.925.422.6416

Purification Reactor

Research Institute: Innovate Calgary

Technology Offering: Two-Stage Purification Reactor for Large Scale Wastewater

Technology Concept: Photocatalysis of wastewater. Organics are adsorbed on the surface of a solid catalyst. UV is applied which leads to organic matter destruction through advanced oxidation and microbiological deactivation

Uniqueness/Novelty: 

Unmet Need in the Market: 

Size of Market Opportunity: 

Website: www.innovatecalgary.com

Theme: Wastewater Treatment

Application: Municipal, Industrial Water Treatment

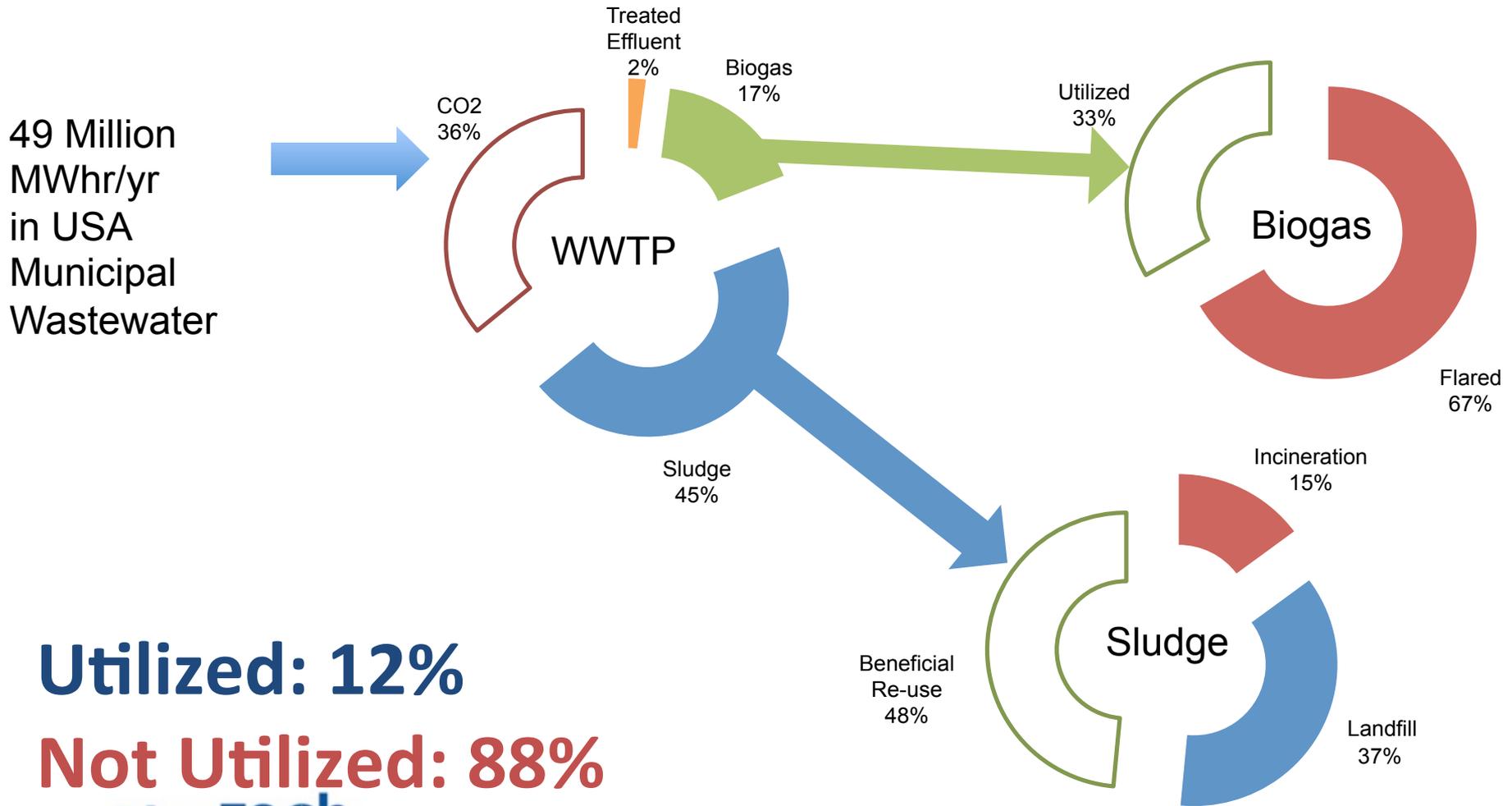
Country: Canada

Contact: Heather Phillips

Email: hphillips@innovatecalgary.com

Telephone: +1.403.270.2435

Total USA Municipal WWT Wastewater Energy Input



Utilized: 12%

Not Utilized: 88%

Disruptive Water Technologies - mapped by Application Area

