

Solutions for Today | Options for Tomorrow

Water Management Program

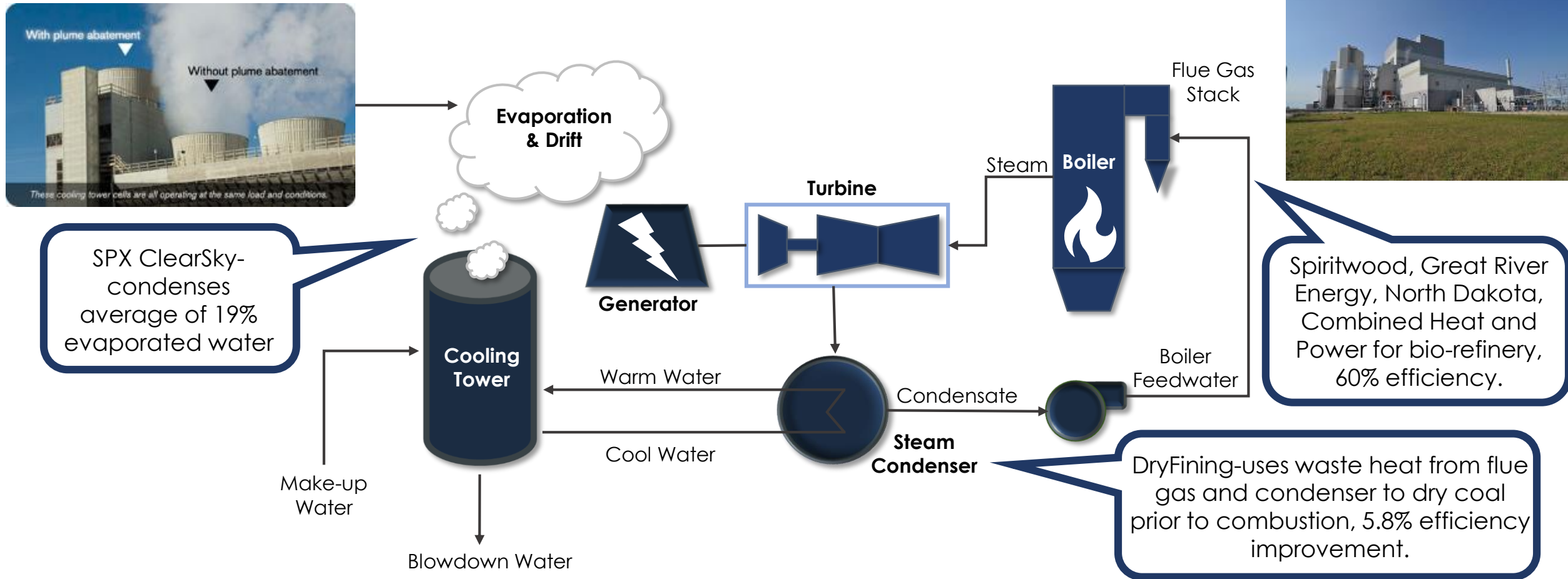
Envirogen Technologies, Inc.

Briggs White | February 10, 2020

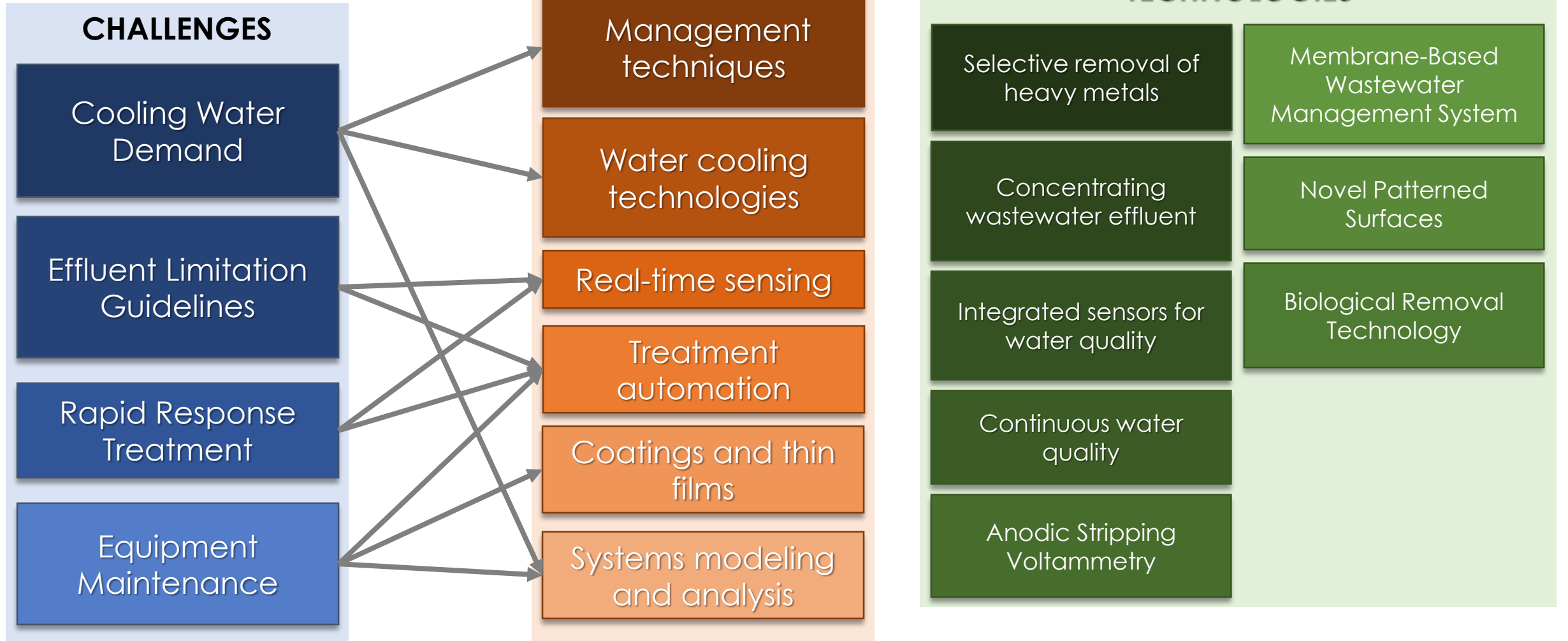


Where we have been: Commercial Successes

A track record of technology maturation in collaboration with industry.



Challenges & Solutions



Energy Water Analysis

- Informing decision-makers
- Prioritizing R&D
- Engaging regional stakeholders
- Utilizing systems analysis and modeling

Increasing Water Efficiency and Reuse

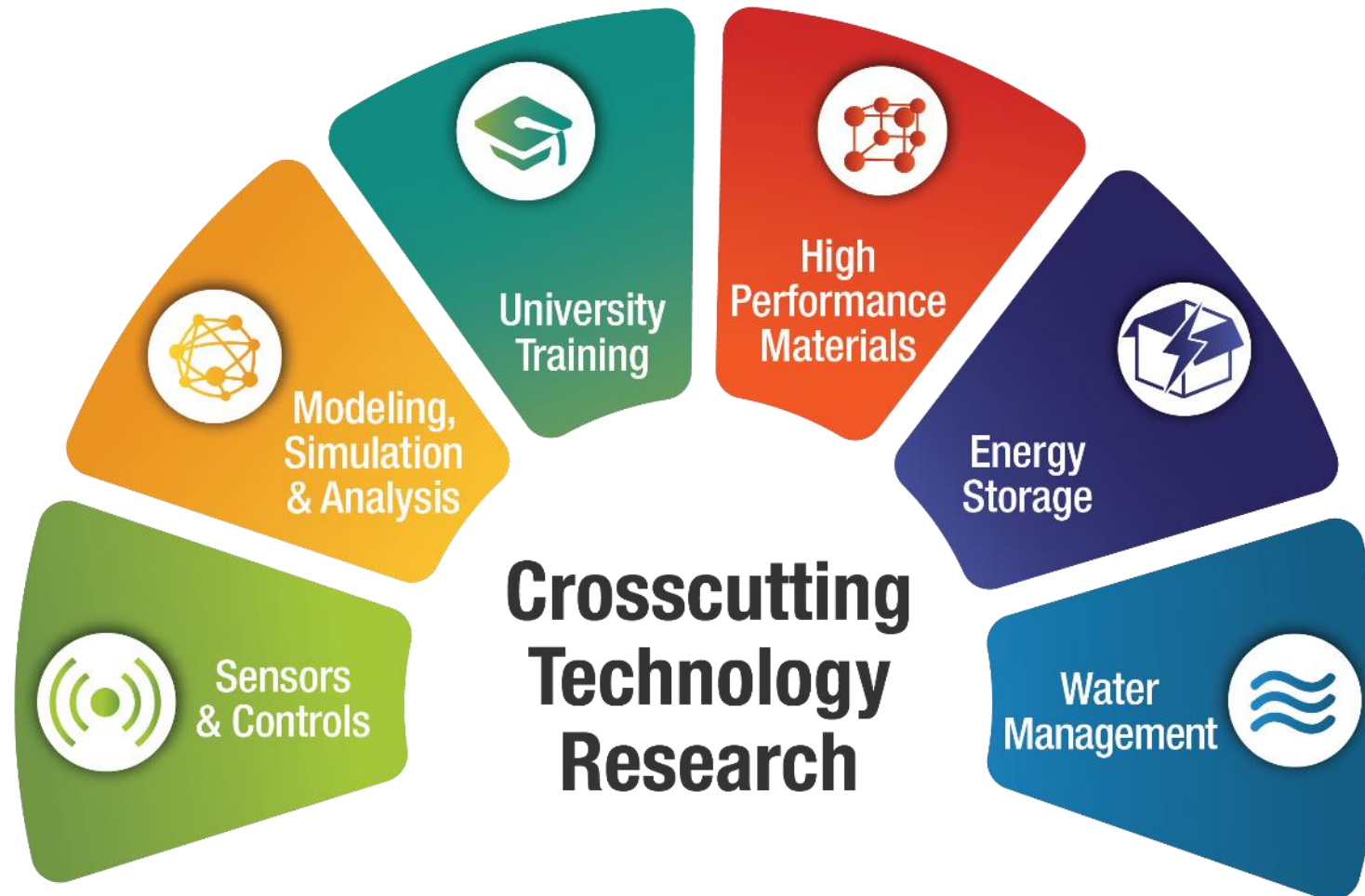
- Cooling systems
- Condenser improvement
- Efficient effluent treatment
- Water quality sensors
- Power plant design and management

Treating Alternative Sources of Water

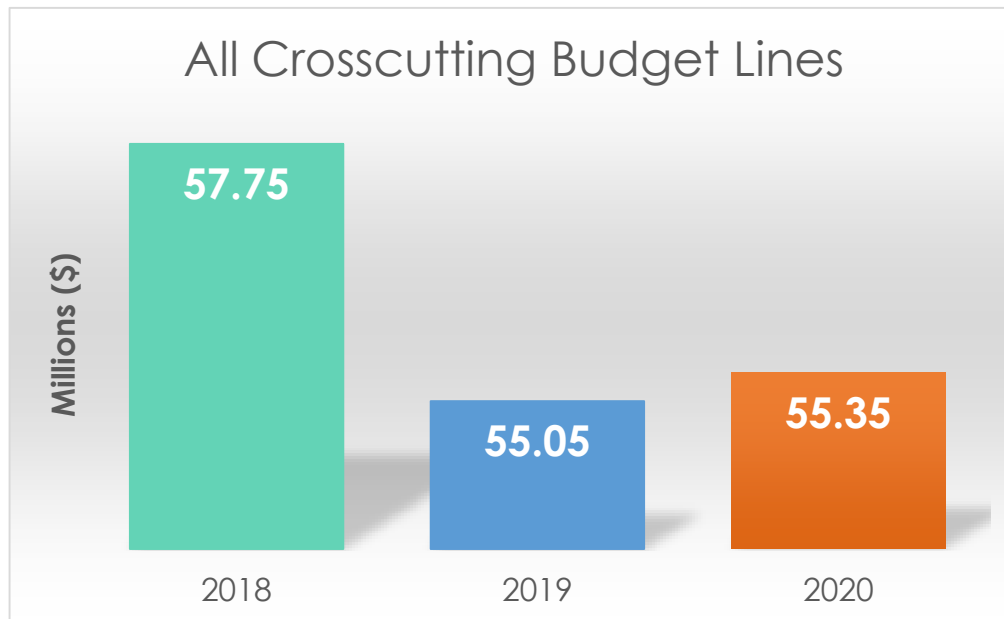
- Separation of effluents for reuse
- Treatment and reuse of co-located impaired water sources (e.g. municipal grey water)

A Portfolio of Programs

Broad Applicability, Multiplier Impact



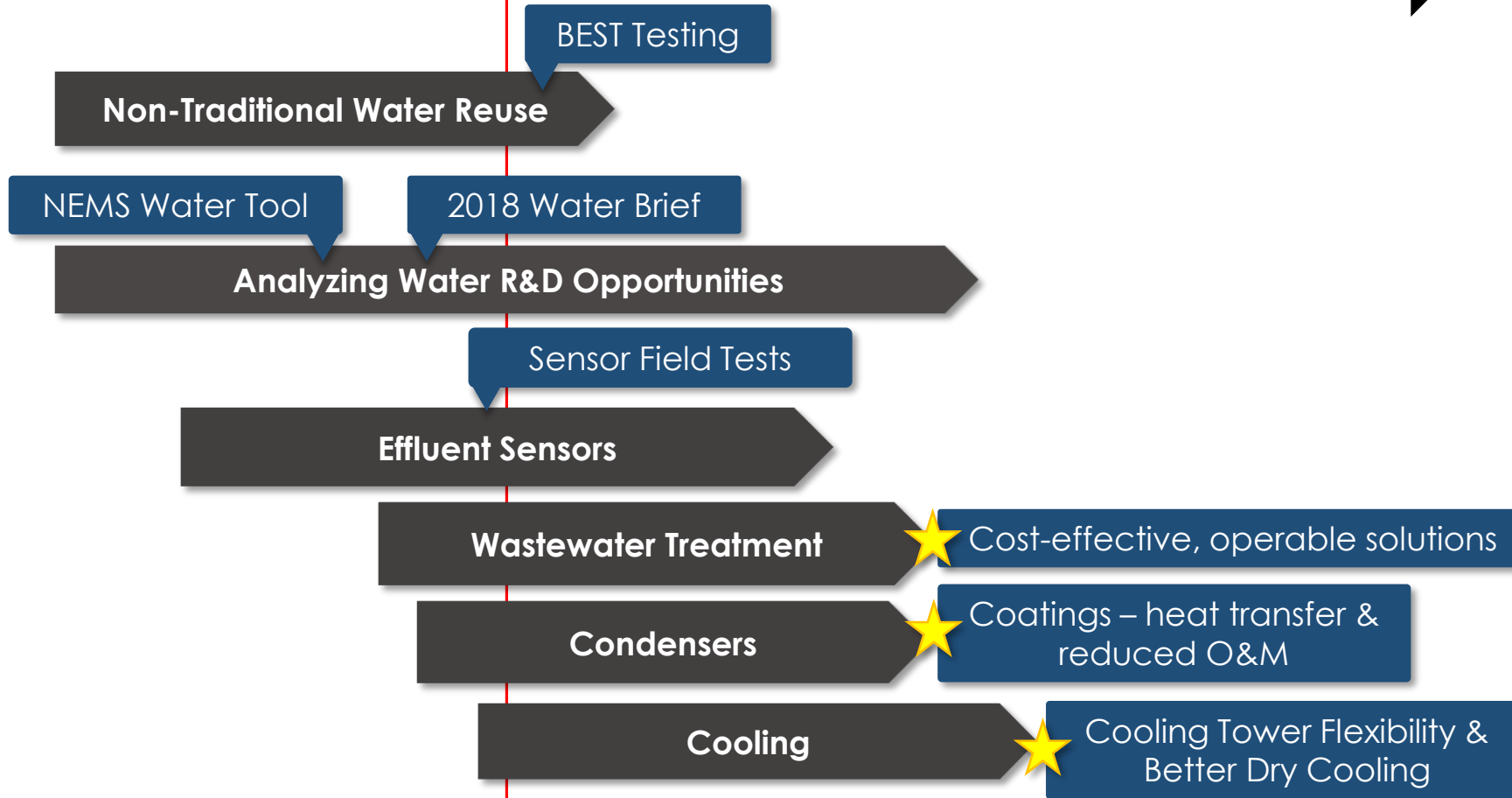
Consistently strong budget for Water Management



Budget Lines	FY18	FY19	FY20
Sensors & Controls	\$7.5M	\$8M	\$9M
Modeling	\$20M	\$14M	\$6.8
HBCU	\$1M	\$2.05M	\$2.05
UCR	\$2.25M	\$3M	\$3M
Materials	\$20M	\$20M	\$21
Energy Storage	NA	NA	\$4.5
Water Management	\$7M	\$8M	\$9M
Total	\$57.75M	55.05M	55.35

Technology Development Schedule

Water Management



Minimize water use and effluent generation

Enable flexible operation with reduced O&M

Advance water treatment technologies

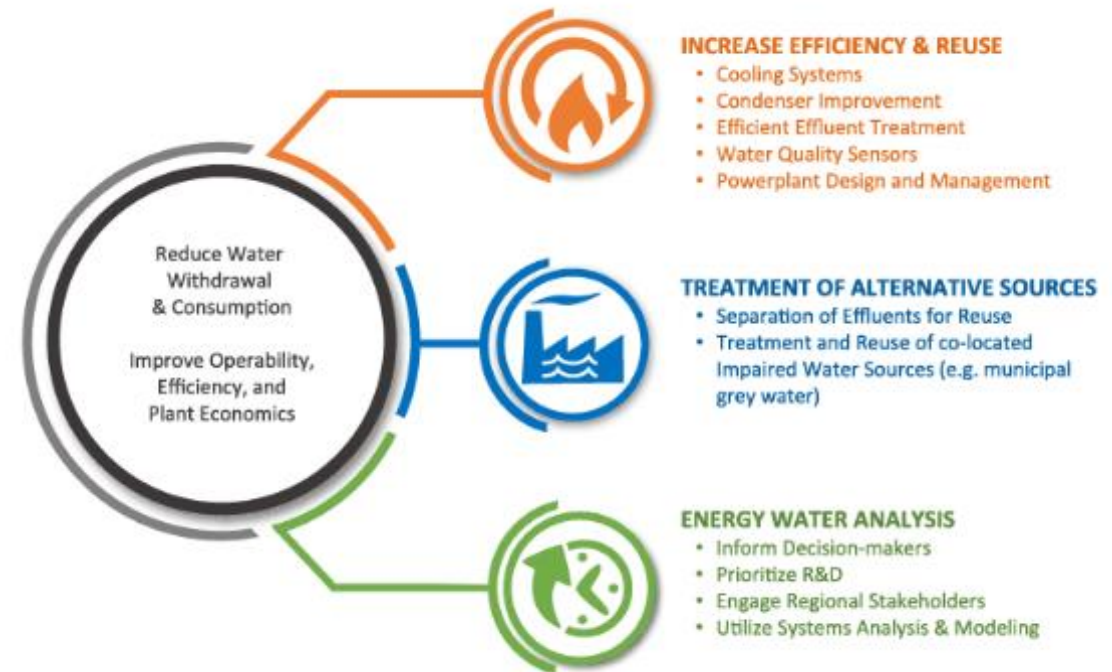
Increase plant efficiency

Objective:

- Drive consistency in techno-economic analysis of baseline and novel technology development

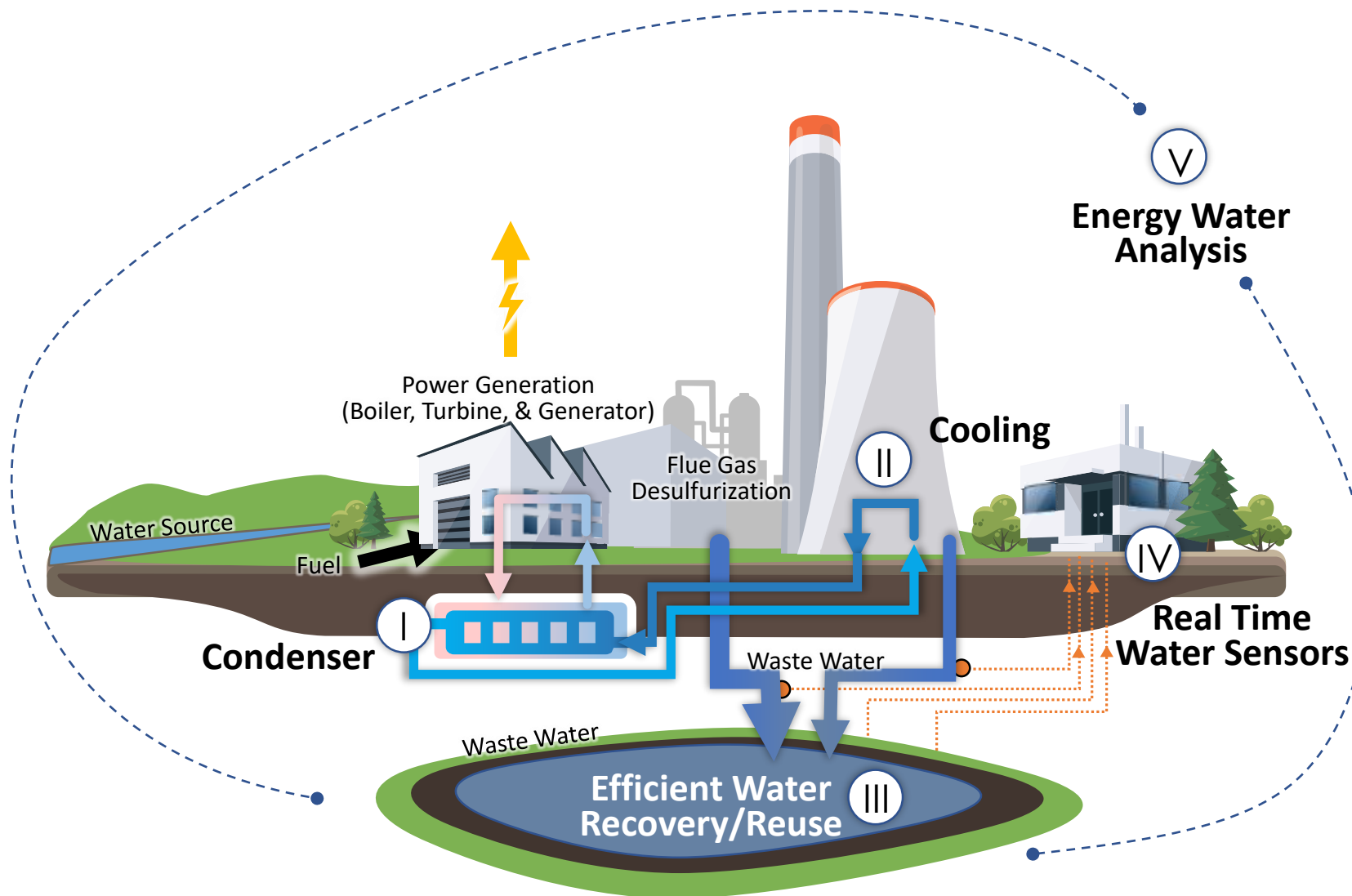
Scope:

- Condensers
- Wastewater Treatment
- Cooling



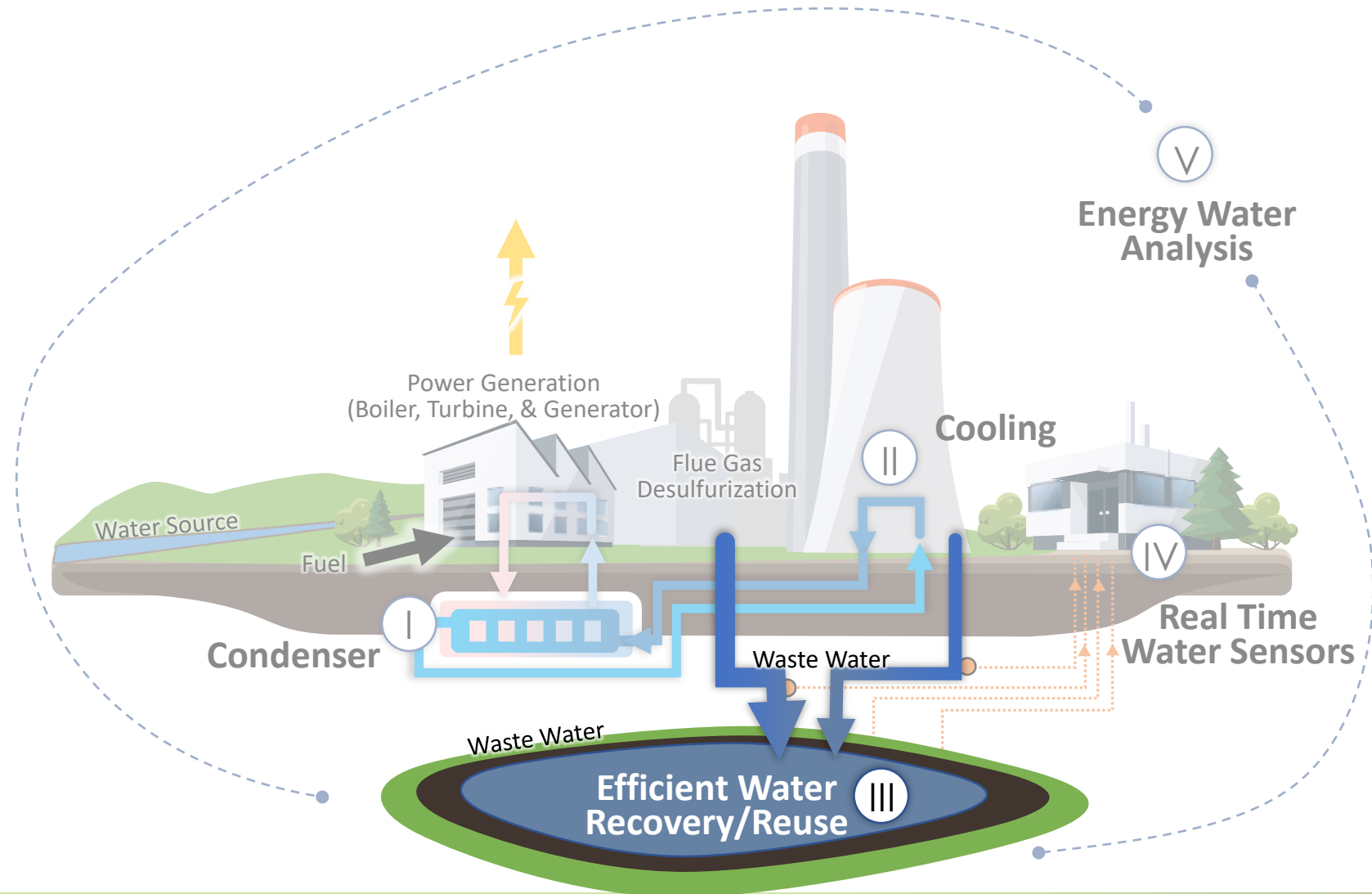
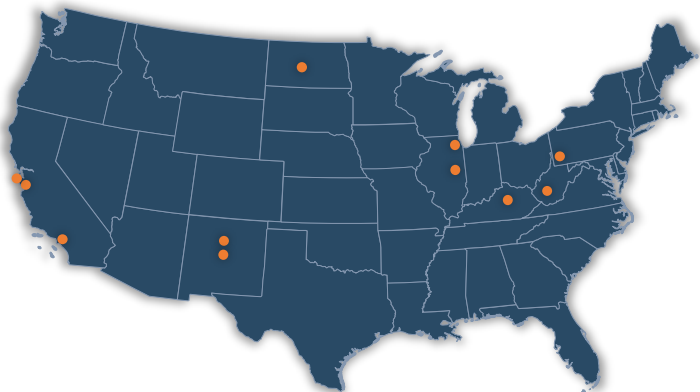
Source: NETL

Locations of Projects within a power plant



Developing technologies that treat, clean, and/or reuse effluent streams.

Developing novel sorbents, separation membranes, process designs, and pilot-scale testing.



Government & Regulatory

Using computational models to better predict water usage and demand in extreme scenarios.

- DOE
 - National Laboratories
- USGS
- EPA
- EIA

Technology Developers & Utilities

Improving water consumption and increasing efficiency using novel R&D.

- Power Plant Utilities
 - Longview
 - Southern Company
 - EPRI
- Industry
 - Interphase
 - GE
 - Siemens
 - Suez

Academia & NGOs

Investigating novel R&D opportunities and developing computational tools.

- Universities
 - West Virginia University
 - University of Kentucky
 - University of Illinois
 - University of New Mexico
- NGOs & Research Institutes
 - GTI
 - EPRI
 - EERC
 - NETL
 - SNL
 - LANL
 - ANL

Annual Project Review

April 21-23

Omni-William Penn Hotel, Pittsburgh

- **Many ways to partner**
 - Directly with lab
 - Through funded competitions
- **Engage with RFI, Workshops**
- **Attend Project Review Meeting**
 - Learn about program
 - Network to propose ideas in response to FOAs
 - Provide feedback



Water Management Program Contacts

<https://www.netl.doe.gov/research/coal/crosscutting>



Briggs White
Technology Manager
412-386-7546
Briggs.White@NETL.DOE.GOV



Robie Lewis
Program Manager
Robie.Lewis@HQ.DOE.GOV

Patricia Rawls
Team Supervisor
Patricia.Rawls@NETL.DOE.GOV

