

Minimization of Fresh Water Usage at Coal-Fired Power Plants

Non-traditional Sources of Process and Cooling Water



Technology to Facilitate the Use of Impaired Waters in Cooling Towers

3-year \$2MM Program
DE-NT0005961

Donald Whisenhunt, GE Global Research
Jeff Melzer and Ashok Shetty, GE Water and Process Technologies

This is GE

GE ... a heritage of innovation

Founded in 1892

\$173 billion in annual revenues

Only company in Dow Jones index
originally listed in 1896

330,000 employees worldwide



Four segments aligned for growth

Infrastructure - Technology



Infrastructure - Energy



GE Capital



NBC Universal



hulu

GE Power and Water

The world today...

Global trends ...

Population



Consumption



Energy Security



Environment

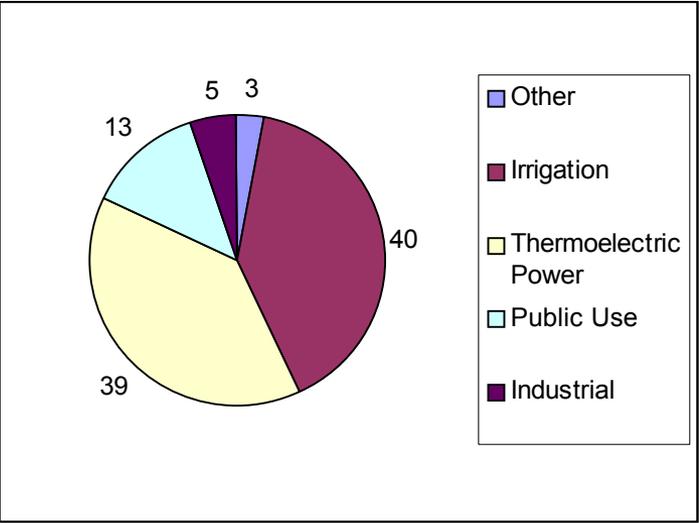


... create big challenges

Fresh Water Minimization at Coal Fired Power Plants

Short Term DOE Goal:

By 2015
50% Reduction
\$3.90/kgal

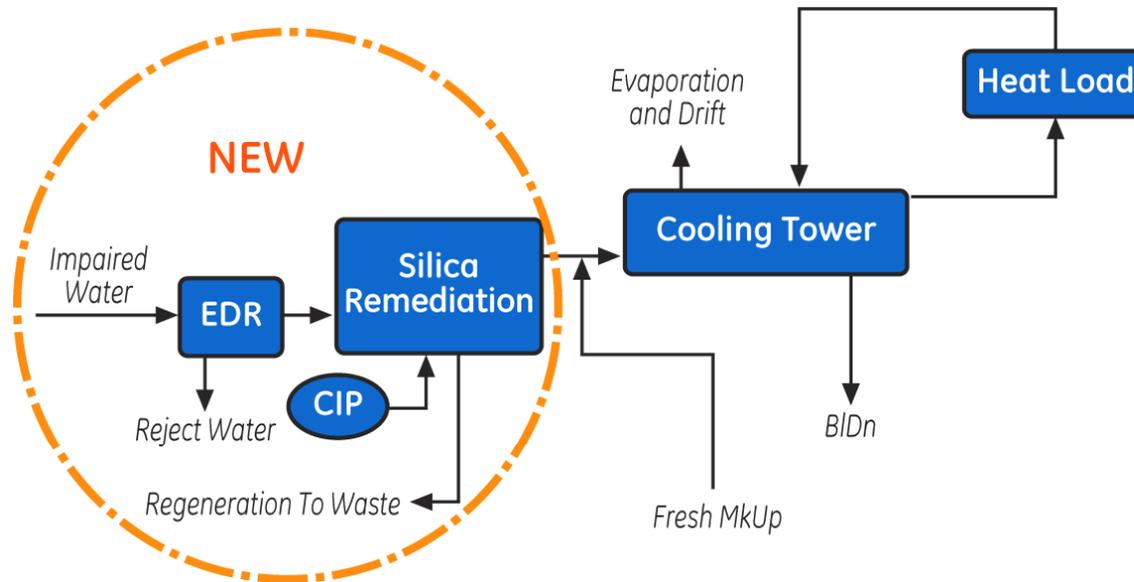


Per-day water use in
The U.S. = 345 billion gal

From C&EN Oct 6, 2008



GE Approach



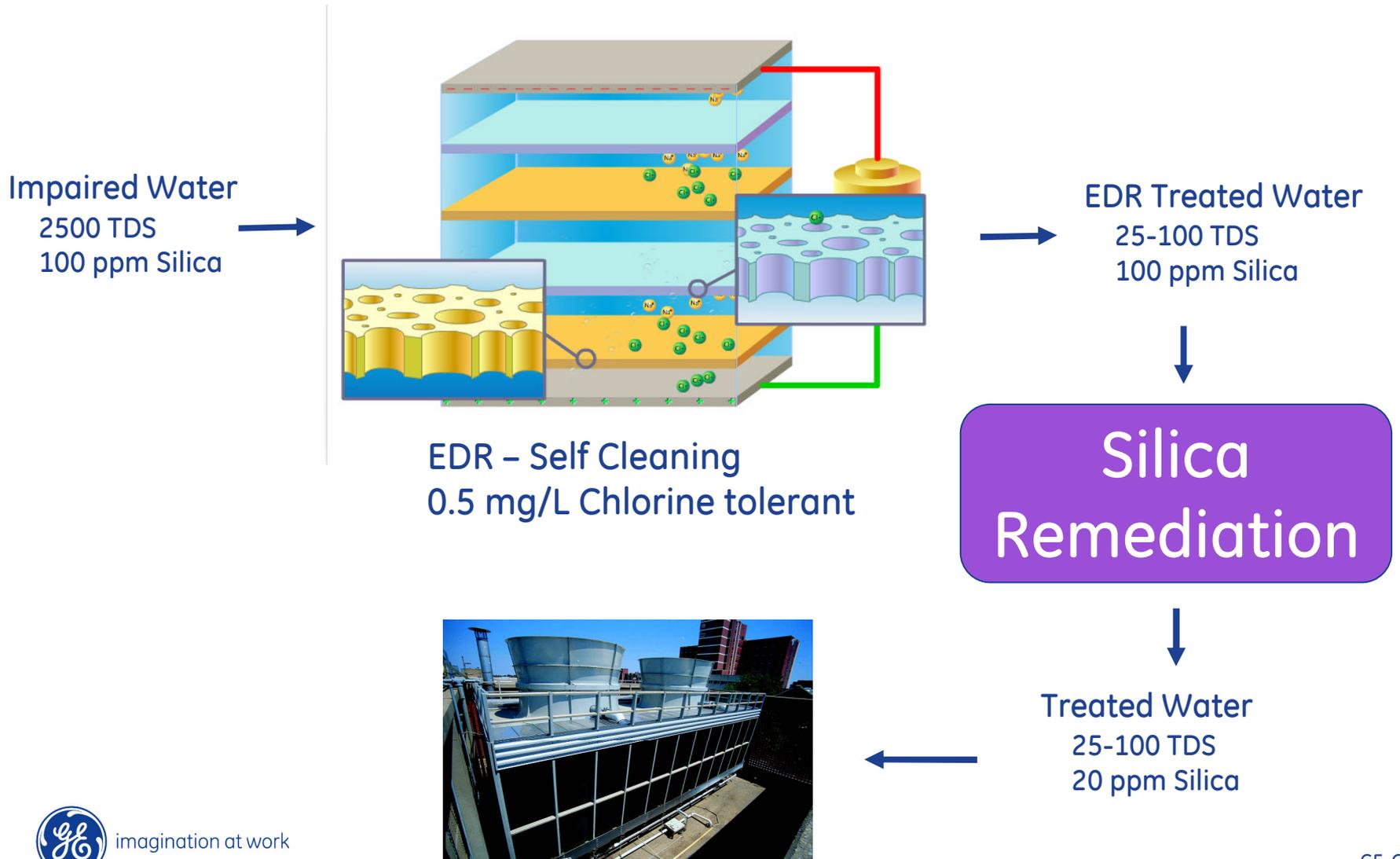
No Change Other Than Use of Impaired Water

State	Fresh MkUp	BLDn	Impaired	EDR BLDn	Regen BLDn	Evaporation	% Savings of Fresh Water
Current	11,194	2,239	0	0	0	8,955	0
New	5,547	2,239	6,101	-554	-?	8,955	50

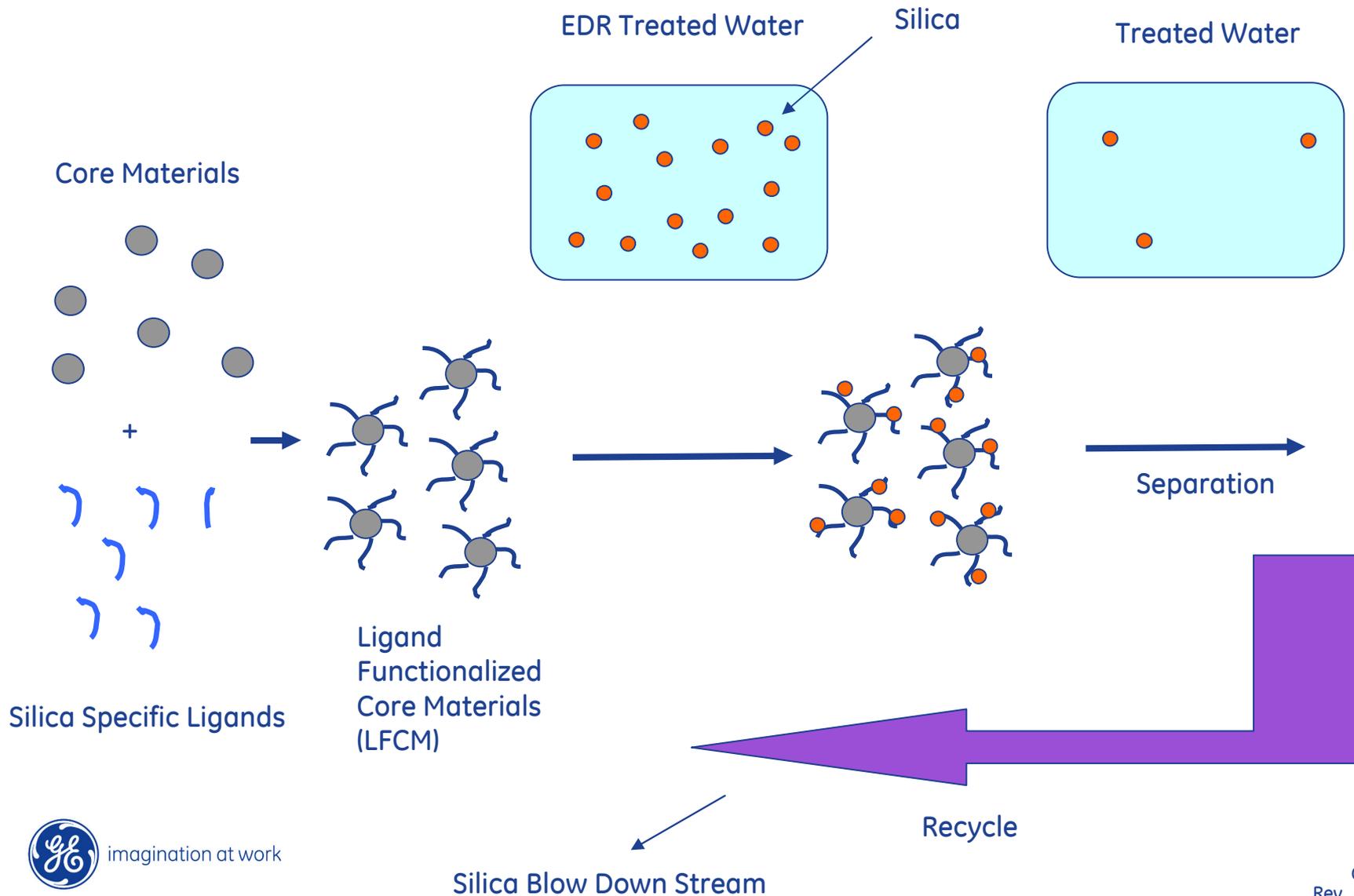
Recirculation Rate = 430,000 gpm Current Cycles = 5

Novel Silica Remediation Technology Coupled to EDR Solution

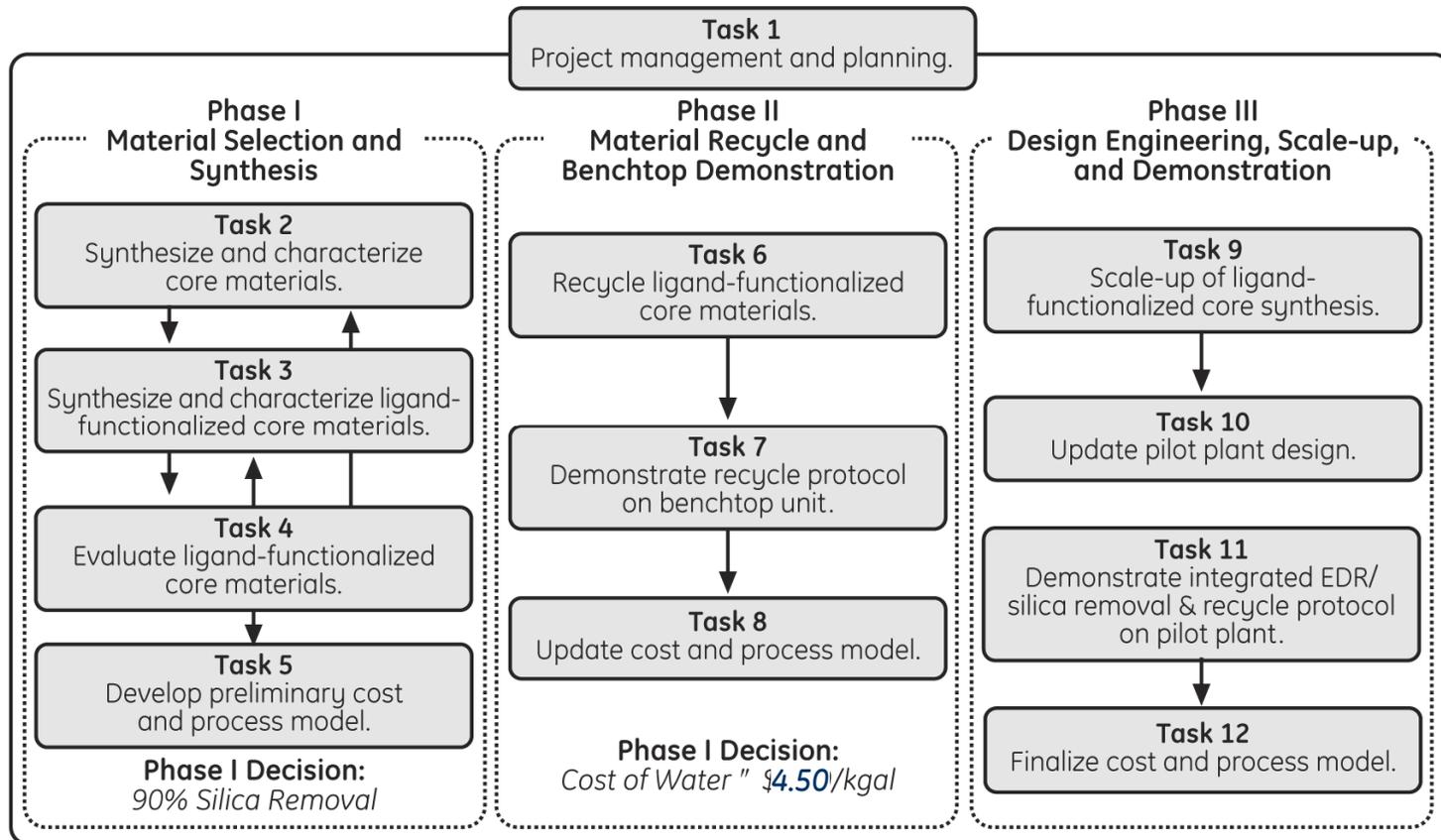
GE Approach



Silica Remediation Technology

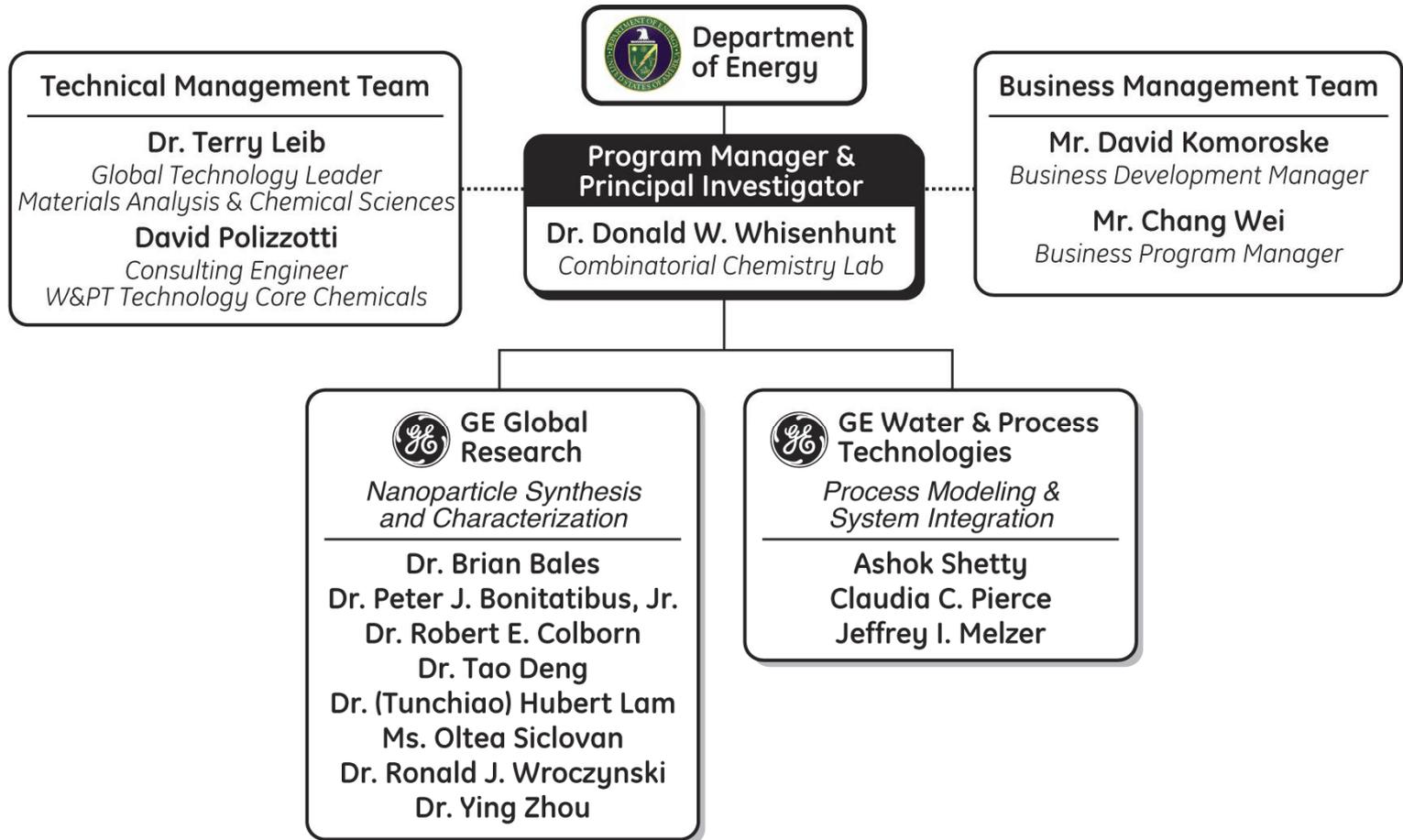


Project Plan



Unique Capabilities in High Throughput Synthesis and Screening

Project Team





imagination at work