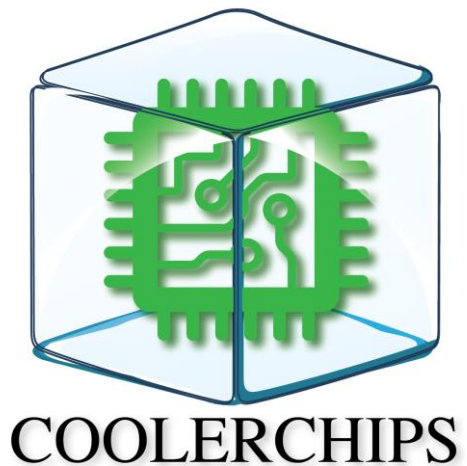# Advanced Research Projects Agency – Energy Introduction
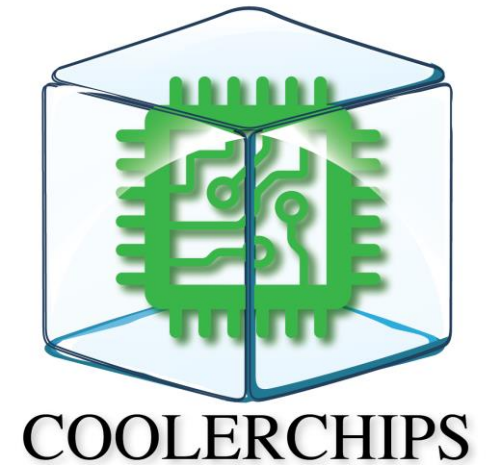
COOLERCHIPS Meeting, 18-19 October 2023, Denver

Dr. Peter de Bock, Program Director ARPA-E

Welcome!

U.S. Department of Energy Announces $40 Million for More Efficient Cooling for Data Centers

15 Projects Will Develop High Performance Cooling Systems to Create More Energy Efficient Data Centers that Reduce Carbon Emissions and Mitigate Climate Change
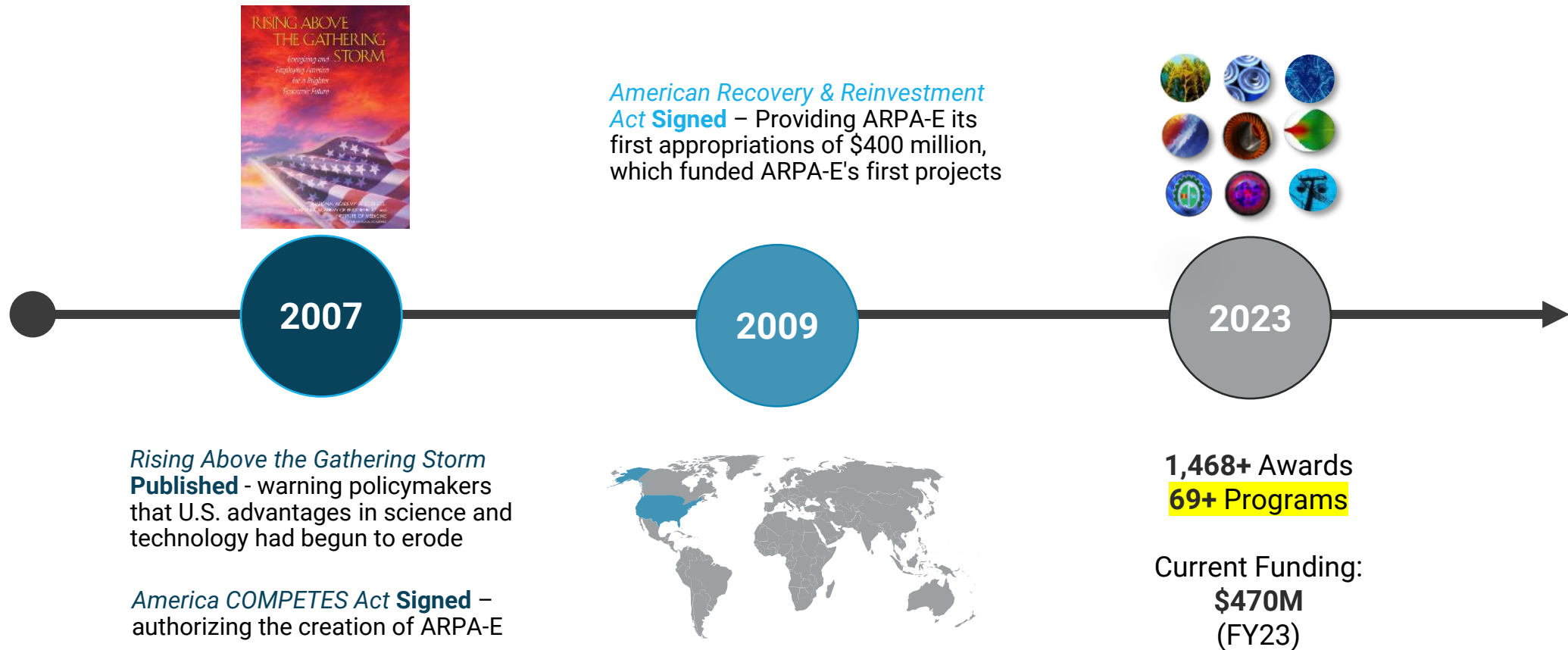
05/09/2023

"Climate change, including severe weather events, threatens the functionality of data centers that are critical to connecting computing and network infrastructure that power our everyday lives," said **U.S. Secretary of Energy Jennifer M. Granholm.** *"DOE is funding projects that will ensure the continued operation of these facilities while reducing the associated carbon emissions to beat climate change and reach our clean energy future."*

History of ARPA-E

In 2007, The National Academies recommended Congress establish an Advanced Research Projects Agency within the U.S. Department of Energy to fund advanced energy R&D.

2007

2009

2023

American Recovery & Reinvestment Act **Signed** – Providing ARPA-E its first appropriations of $400 million, which funded ARPA-E's first projects

Rising Above the Gathering Storm **Published** - warning policymakers that U.S. advantages in science and technology had begun to erode

America COMPETES Act **Signed** – authorizing the creation of ARPA-E

1,468+ Awards
69+ Programs

Current Funding:
$470M
(FY23)

ARPA-E Mission

REDUCE
imports

REDUCE
emissions

IMPROVE
efficiency

IMPROVE
radioactive waste
management

IMPROVE
energy infrastructure
resilience

Built on DARPA foundation, but with key differences…

ARPA-E Impact Indicators 2023

Since 2009 ARPA-E has provided

$3.58 billion

in R&D funding to more than **1,500 projects** **+ 42 selected projects**

212 projects have attracted more than

$11.5 billion

in private-sector follow-on funding

149 companies formed by **ARPA-E projects**

27 exits market valuations worth

$21.8 billion

from mergers, acquisitions, and IPOs

300 projects have **partered with other government agencies** for further development

6,797 peer-reviewed **journal articles** from ARPA-E projects

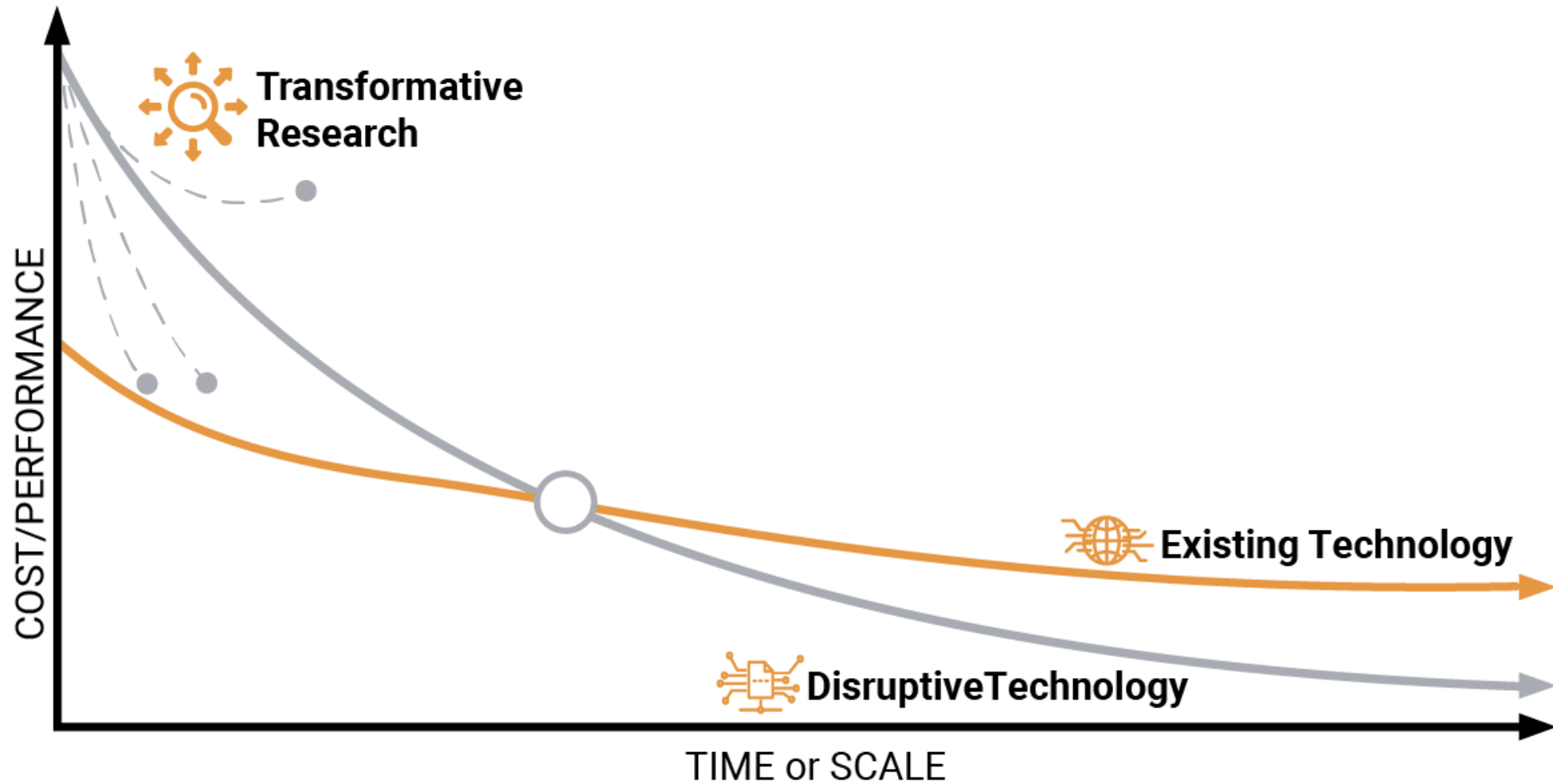**1,039 patents** issued by U.S. Patent and Trademark Office

323 licenses reported from ARPA-E projects

As of July 2023

ARPA-E OPERATIONS

Creating New Learning Curves

What Makes an ARPA-E Project?

|		
IMPACT	‣ High impact on ARPA-E mission areas ‣ Credible path to market ‣ Large commercial application	
TRANSFORM	‣ Challenges what is possible ‣ Disrupts existing learning curves ‣ Leaps beyond today's technologies	
BRIDGE	‣ Translates science into breakthrough technology ‣ Not researched or funded elsewhere ‣ Catalyzes new interest and investment	
TEAM	‣ Comprises best-in-class people ‣ Cross-disciplinary skill sets ‣ Translation oriented	

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CHANGING WHAT'S POSSIBLE

Process
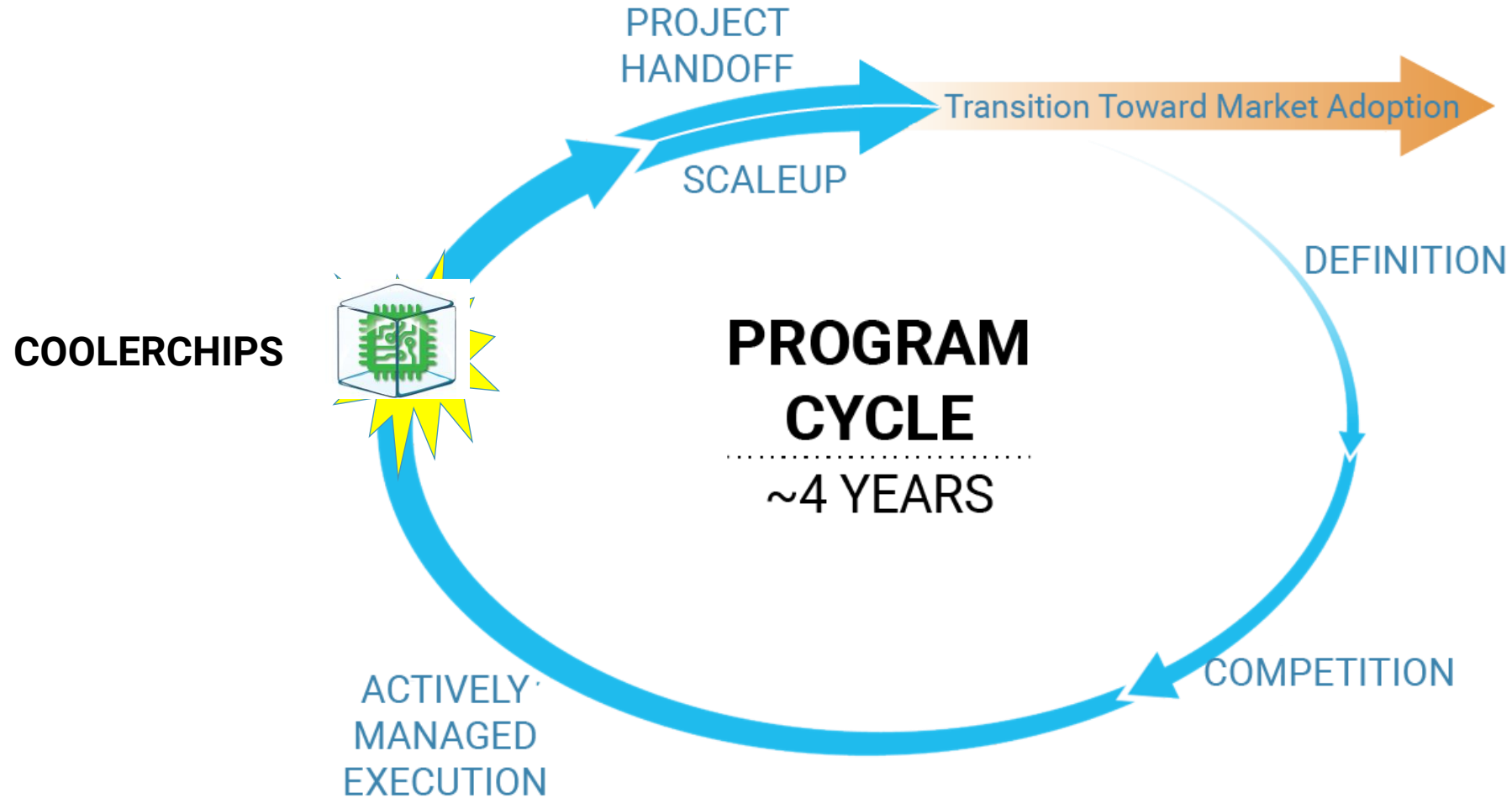
Technology Acceleration Model
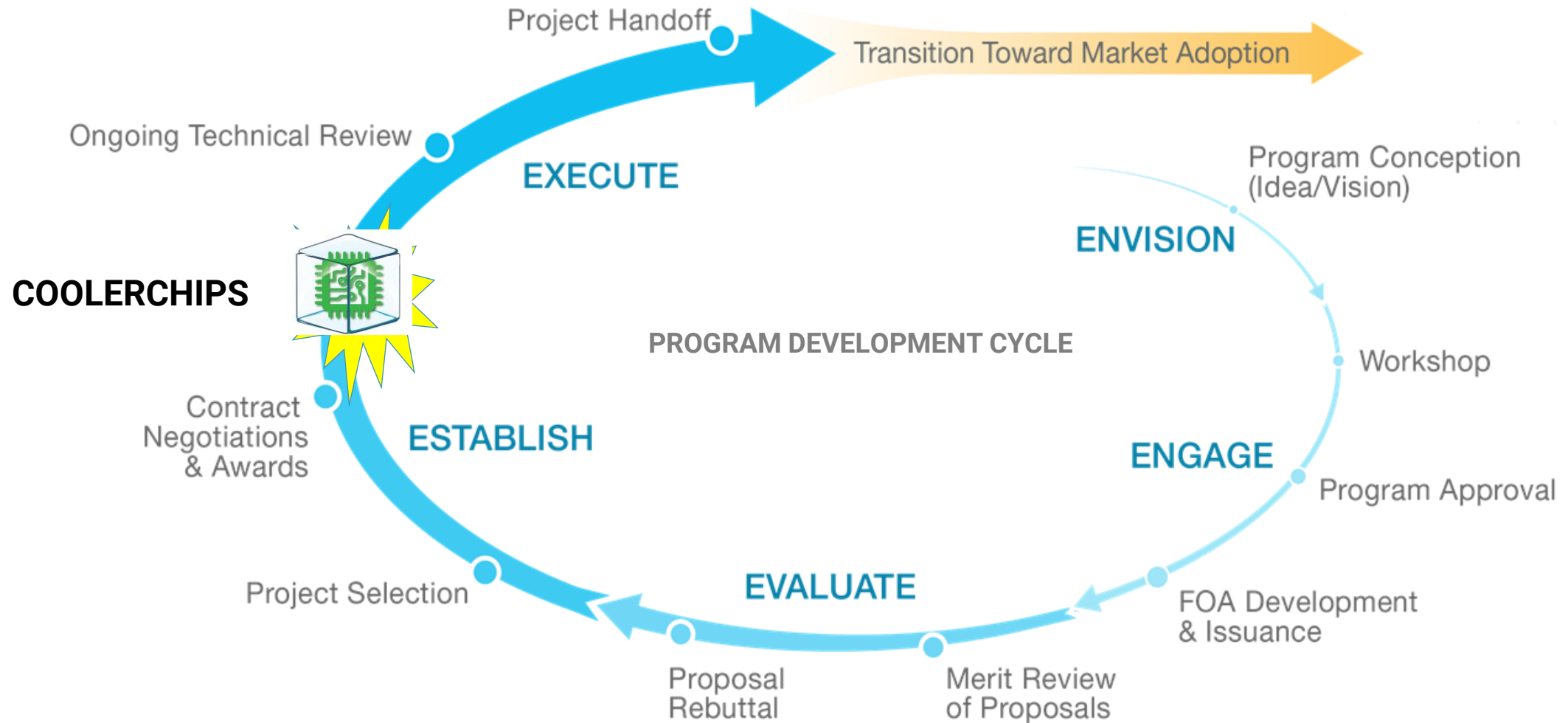
arpa·e energy innovation summit

Highly Selective Technology Showcase

What if your turbines had **brains?**
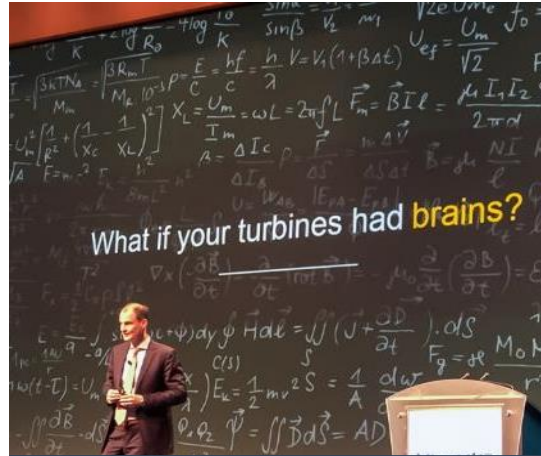
Inspiring Keynotes

Unparalleled Networking

Fast-Paced Technology Pitches

arpae-summit.com

May 22-24, 2024 | **Dallas, Texas**

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CHANGING WHAT'S POSSIBLE

Join the Team that is Transforming the Energy of Tomorrow

PROGRAM DIRECTOR

- Program development
- Active project management
- Thought leadership
- Explore new technical areas

TECHNOLOGY-TO-MARKET ADVISOR

- Business development
- Technical marketing
- Techno-economic analyses
- Stakeholder outreach

FELLOW

- Independent energy technology development
- Program Director support
- Organizational support

Learn more and apply: **www.arpa-e.energy.gov/jobs** or **arpa-e-jobs@hq.doe.gov**.

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Join the Team that is Transforming the Energy of Tomorrow

Program Directors | Technology-to-Market Advisors | Fellows

Learn more and apply: **www.arpa-e.energy.gov/jobs** or **arpa-e-jobs@hq.doe.gov**

If it works...

will it matter?

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