

Repurposing Fossil-Fueled Assets for Energy Storage



• **DE-FE0032004**



Malta Inc.



PI: Benjamin R. Bollinger, Ph.D.



Sub-Recipients: Duke Energy Corporation



**Location: Cambridge, MA
(TBD project site within Duke territory)**

DOE: \$250,000

Non-DOE: \$62,500

Total: \$312,500

Objectives

- This project evaluates how a Malta Pumped Heat Energy Storage (PHES) plant can be integrated with a retiring coal plant to achieve benefits to the plant owner and local community.
- Metrics include
 - Local economic benefit, including jobs saved, local taxes, secondary economic activity preserved
 - Improved economics & reduced emissions of remaining fossil thermal units via improved dispatching with PHES
 - Improved PHES economics via possible re-use of certain retiring fossil-unit equipment

Relevance and Outcomes/Impact

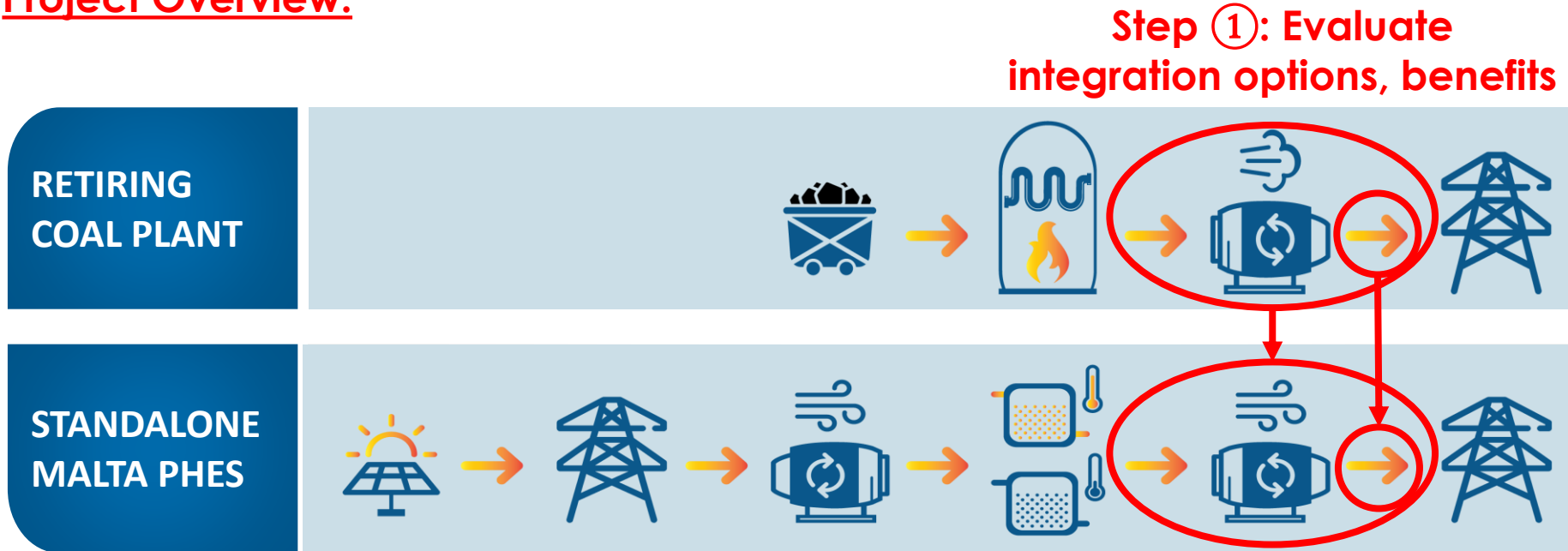
Repurposing retiring coal plants into Pumped Heat Energy Storage plants allows thermal power plant technologies and communities to be active participants in the current and coming energy transition.

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Project Overview:



Step ③: Outline any remaining technology or execution gaps

In a nutshell:



Long-Duration

8 - 24+ Hours



Grid-Scale

10 - 100 MW+



Low-Cost

<\$100/kWh

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1) How can NETL help **transition coal assets** as they retire over the next 10-15 years?

NETL Support

Coal-unit retirements driven by changing economics leaves potential value on the table

- Skilled workforce
- Community relationships
- T&D infrastructure and electrical interconnect
- Equipment value
- Site & permitting value



Projects like this that transition coal assets to energy storage plants have multiple benefits

- Uses same skilled workforce
- Keeps sites economically active
- Leverages value of infrastructure
- Provides same grid stability benefits (e.g. rotational inertia) as the retiring traditional thermal generation

2) What does NETL need to consider in regard to a **low-carbon future**?

- Energy storage technologies that provide the same grid reliability features (e.g. rotational inertia) as retiring steam plants will enable firm/ load-following renewables & greater renewables penetration

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Thank You



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Contact Information:

Benjamin R. Bollinger, Ph.D.

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benjamin.bollinger@maltainc.com