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

Objectives

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.
Repurposing Fossil-Fueled Assets for Energy Storage

• DE-FE0032004

In a nutshell:

- **Long-Duration**: 8 - 24+ Hours
- **Grid-Scale**: 10 - 100 MW+
- **Low-Cost**: <$100/kWh

Project Overview:

**Step ①**: Evaluate integration options, benefits

**Step ②**: Advance design of integration

**Step ③**: Outline any remaining technology or execution gaps
Repurposing Fossil-Fueled Assets for Energy Storage

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

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

NETL Support

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
Repurposing Fossil-Fueled Assets for Energy Storage

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Thank You

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