



APPALACHIAN STORAGE HUB
(ASH) PROJECT

BACKGROUND

- **Liquids-rich Marcellus and Utica Shale** production in the tri-state area of OH, PA and WV
- Desire to **move natural gas liquids (NGLs)** from wet gas areas to industrial sites throughout the greater Appalachian region
- A proposed **"6-pack" pipeline** from Monaca, PA to northeastern KY and Charleston, WV along the Ohio & Kanawha rivers
- **Subsurface storage** will be a necessary component along the pipeline route

PREFEASIBILITY STUDY: THREE OPTIONS FOR NGL STORAGE

- **Solution-mined salt caverns** (with/without brine takeaway)
- **Mined-rock caverns** (carbonate rock)
- **Gas reservoirs** (siliciclastic rock)

A GEOLOGIC STUDY OF THE POTENTIAL TO BUILD AN APPALACHIAN STORAGE HUB

1. Data collection and project database development
2. Stratigraphic correlation of key units
3. Mapping thickness and structure of key units
4. Studies of reservoir character
5. Develop ranking criteria
6. Recommendations
7. Project Management and Technology Transfer

GEOLOGIC INTERVALS OF INTEREST

Mined-rock caverns

- **Greenbrier Limestone** (>40 ft thick at depths in excess of 1,800 ft; suitable for mining)

Salt caverns

- **Salina Group salts** (>100-ft thick preferred; suitable for solution mining)

Gas reservoirs

- **Keener sandstone to Berea Sandstone**
- **Upper Devonian sandstones**
- **Oriskany Sandstone**
- **Clinton-Medina Group through Tuscarora Sandstone**
- **Rose Run and Upper Sandy Member of the Gatesburg Formation**

POINTS TO CONSIDER

- Storage capacity and deliverability will ultimately depend on the NGL product(s)
- Storage capacity and deliverability may require more than one field and/or more than one geologic reservoir per field
- Examine all three categories of storage options, ranking sites in each
- Rank the top options across categories, offering recommendations for follow-on engineering assessments

INTRODUCING THE RESEARCH TEAM

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