The Grand River Dam Authority and Pumped Storage Hydropower

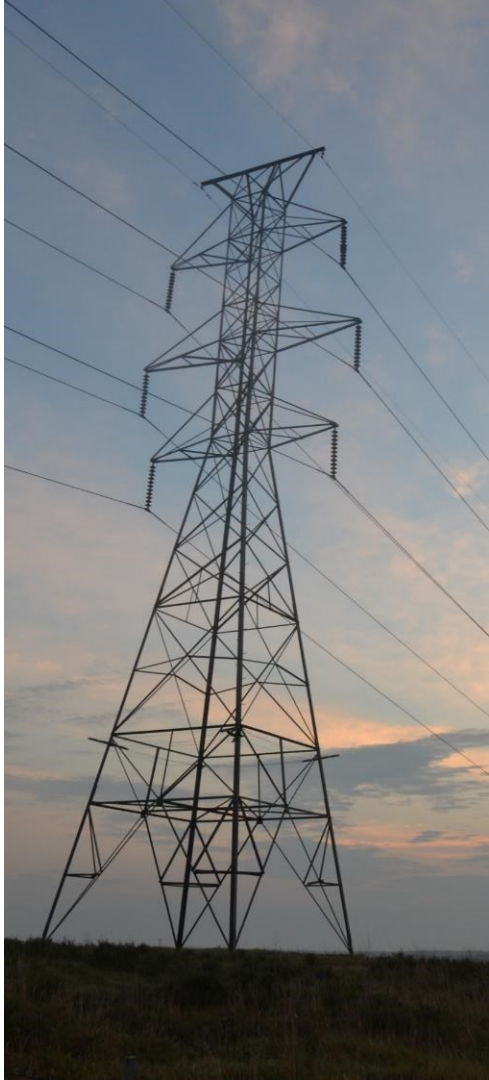
Presented to:

The Energy Council

September 14, 2024

GRDA At A Glance

- Created by the 15th Oklahoma legislature in April 1935.
- Legislation defines GRDA as a "**conservation and reclamation district for the waters of the Grand River**" authorized to build dams for the purposes of hydroelectricity and flood control.
- Responsibilities outlined in Oklahoma Statute Title 82:
  - *"(a) To control, store and preserve, within the 24 county boundaries of the District, the water of the Grand River and its tributaries for any useful purpose and to use, distribute and sell the same within the boundaries of the District."*
  - *"(b) To develop and generate **waterpower and electric energy** within the boundaries of the District."*
- Utilizes a divers generation portfolio of gas, coal, water and wind generation resources to meet customer electricity demands



Electricity | Economic Development | Environmental Stewardship | Employees | Efficiency

The GRDA Mission

We deliver affordable, reliable ELECTRICITY, with a focus on EFFICIENCY and a commitment to ENVIRONMENTAL STEWARDSHIP.

We are dedicated to ECONOMIC DEVELOPMENT, providing resources and supporting economic growth.

Our EMPLOYEES are our greatest asset in meeting our mission to be an Oklahoma Agency of Excellence.

Diverse Generation Portfolio

Combined cycle gas 495MW, Coal 492MW,

Grand River Energy Center

126MW Hydro, Pensacola Dam

Grand Lake

128MW Hydro, Robert S. Kerr Dam

Lake Hudson

260MW Salina Pumped Storage Project

W.R. Holway Reservoir

457MW Winter/435MW Summer

Redbud Power Plant

385MW Wind

Across four projects

New generation

- New technology: Large advanced class simple cycle turbine, Mitsubishi 501JAC
- First M501JAC turbine in United States to operate in simple cycle
- Online April 2026

Unit 4 construction at Grand River Energy Center

Salina Pumped Storage Project Overview

- Constructed to meet generation needs, after all traditional hydro sites were utilized
- Completed in two stages: 1968 & 1971
- Oklahoma's first pumped storage project
- Considered by many to be "experimental" at the time of construction

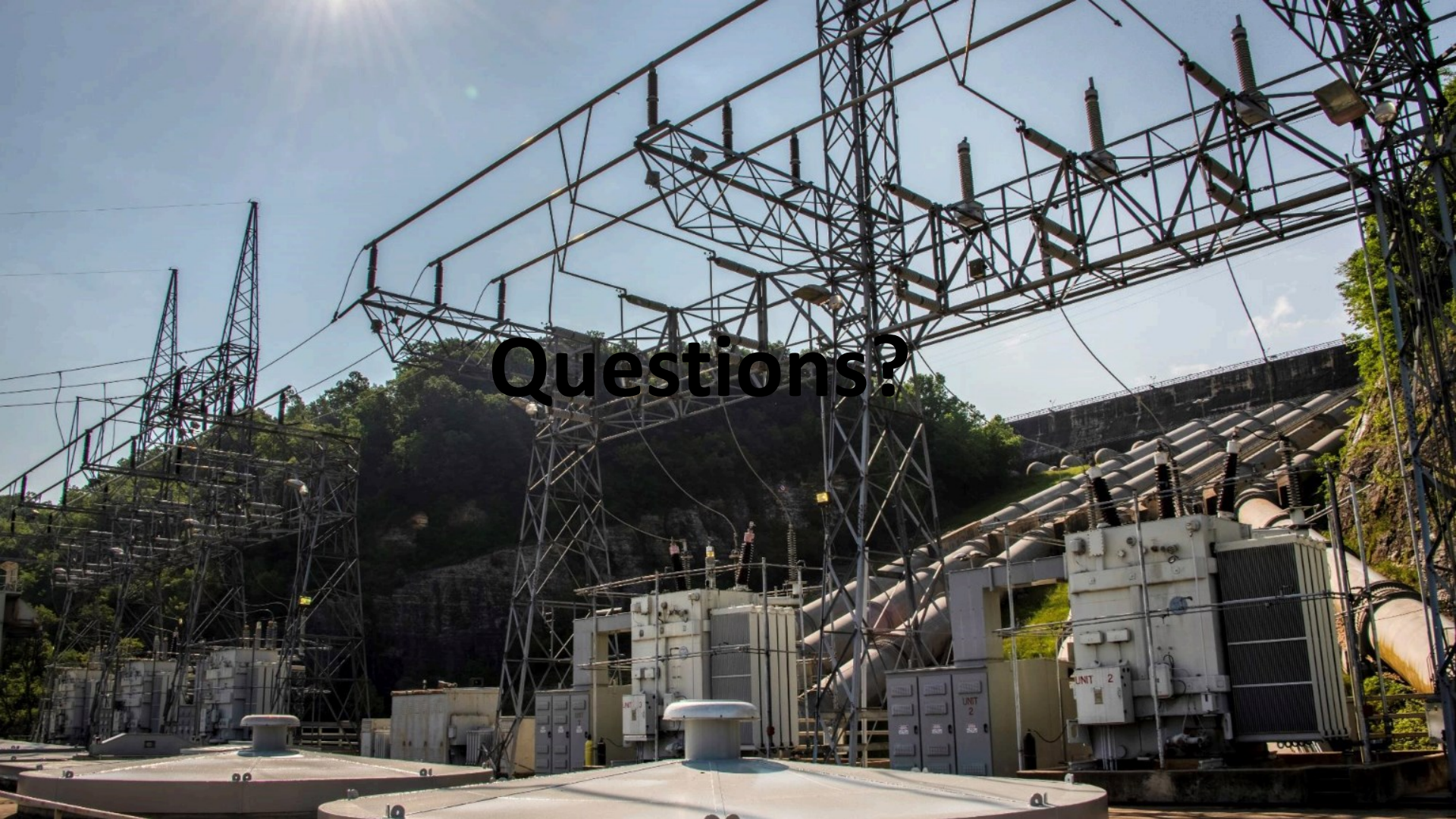
Stage 1 construction, late 1960s

Salina Pumped Storage Project Overview

- 260-megawatt capacity
- Six hydroelectric pump/turbines
- 700-acre upper reservoir, located 250 feet above powerhouse
- 185-feet tall earth and rock dam in Chimney Rock Hollow
- 1,850-feet canal from reservoir to forebay structure

Benefits of pumped storage

- Energy storage
- Energy balancing and grid stability
- Rapid peaking power
- Return of stored surplus energy to the grid
- Firming capacity and reserves


Questions?