



UTAH OFFICE OF  
**ENERGY DEVELOPMENT**

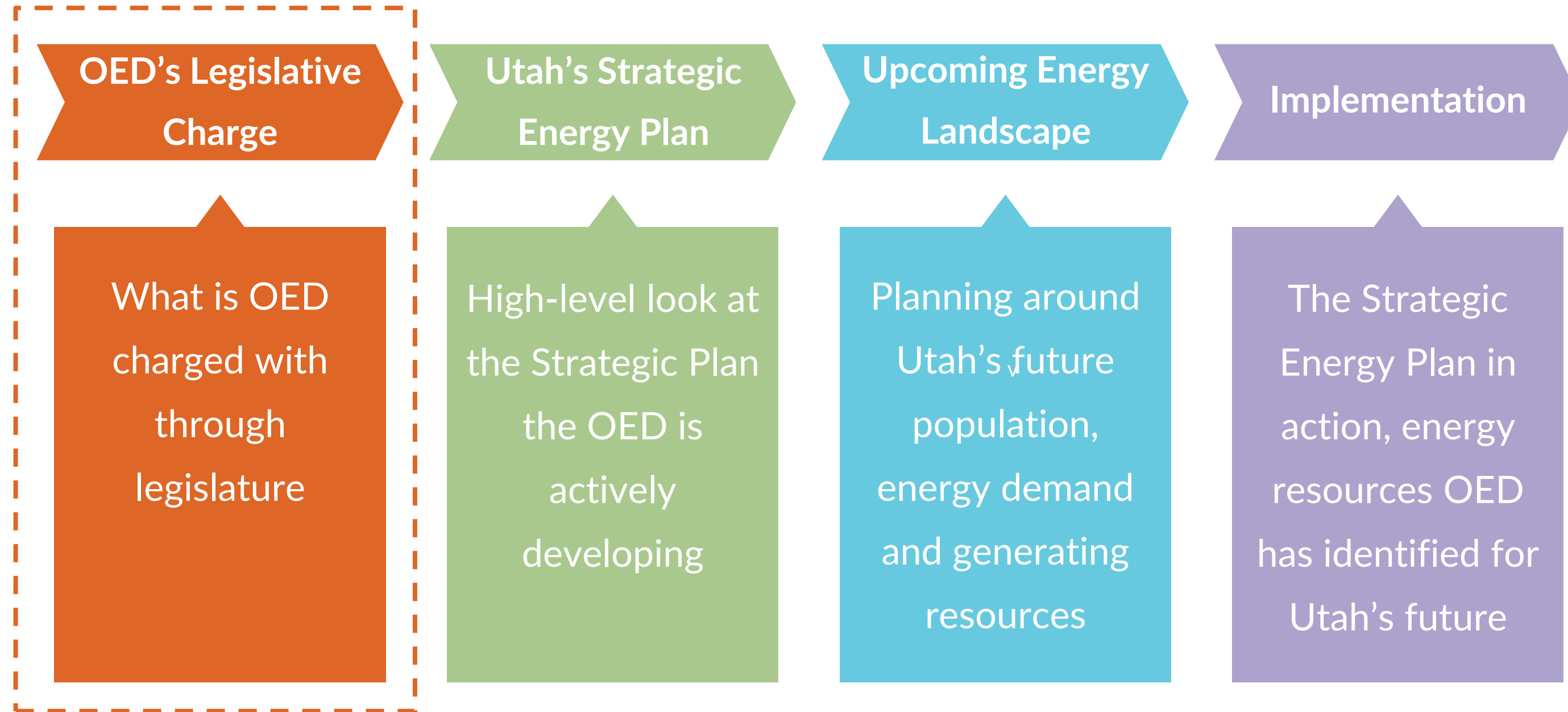
# Utah's Strategic Energy Plan





# Office of Energy Development “Shall’s”

Utah Code Directing the OED



# Office of Energy Development “Shall’s”



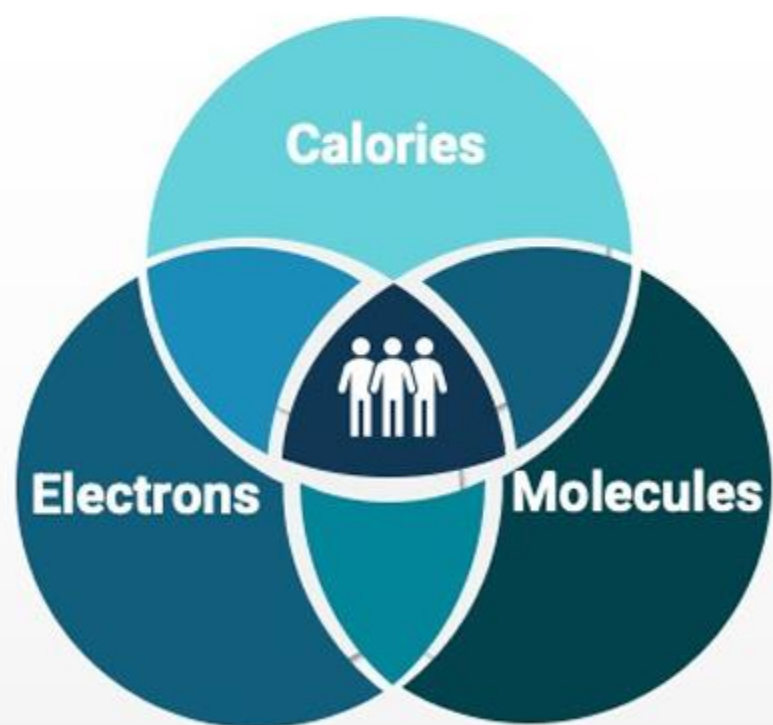
## 79-6-401 - The Office of Energy Development

- Primary resource for advancing energy and mineral development in the state
- Implement the state energy policy and the governor’s energy/mineral goals
- Charged with preparing the states strategic energy plan
  - Pursue innovative technologies
  - Promote efficient use and development of resources
  - Consulting with stakeholders and data-driven decision making





# HUMAN-CENTRIC ENERGY POLICY FRAMEWORK



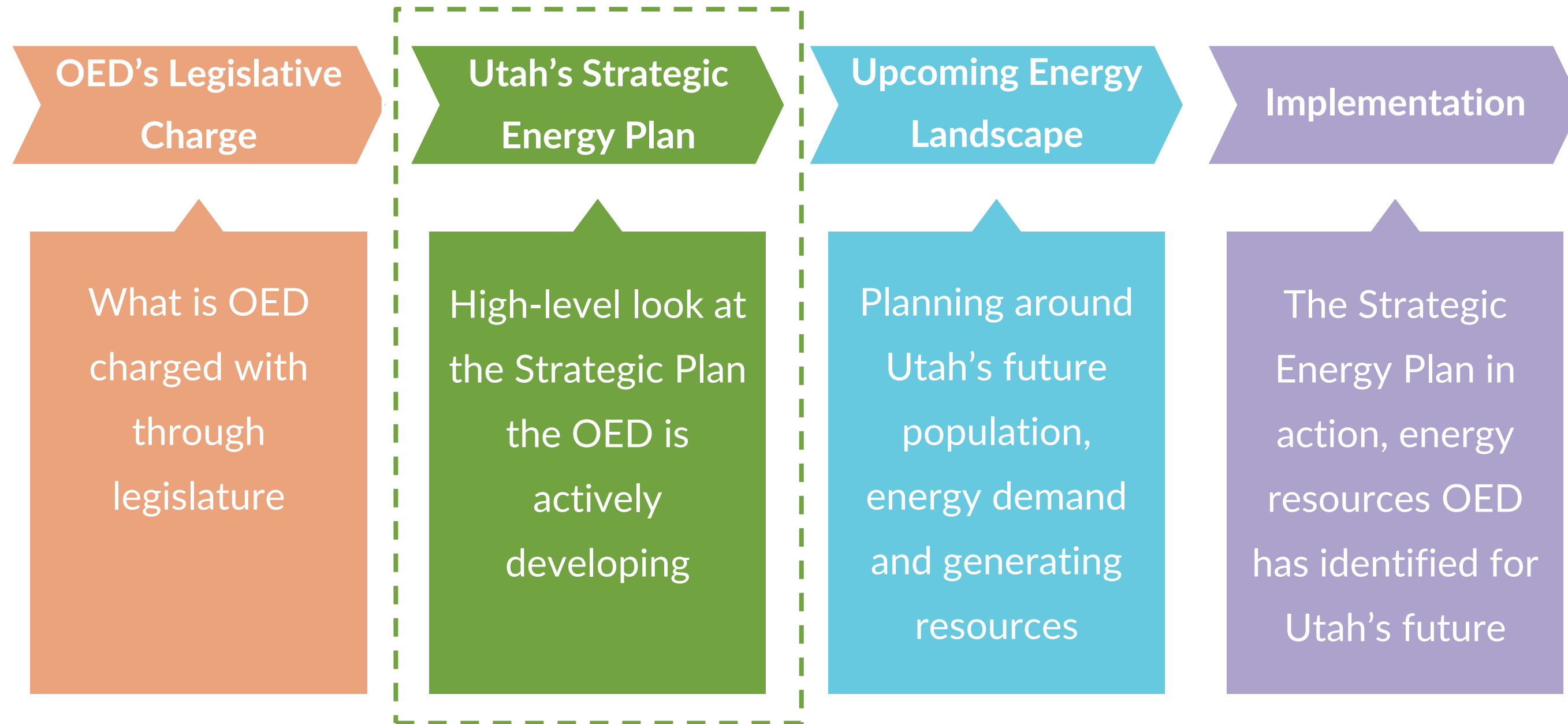
# PRINCIPLE-BASED STRATEGIC FRAMEWORK



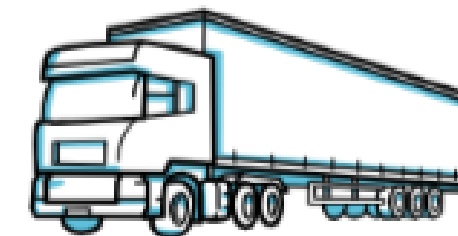
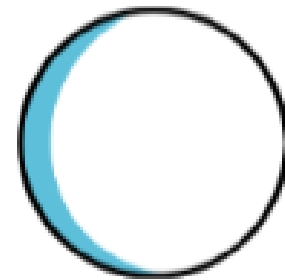
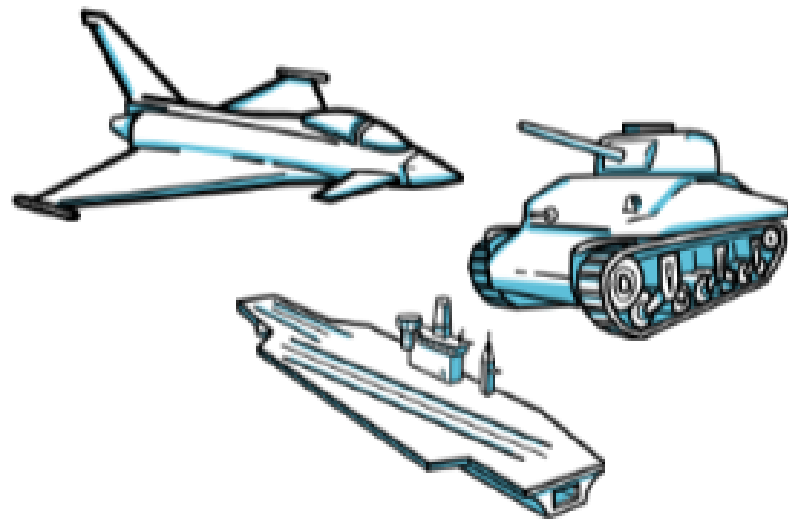
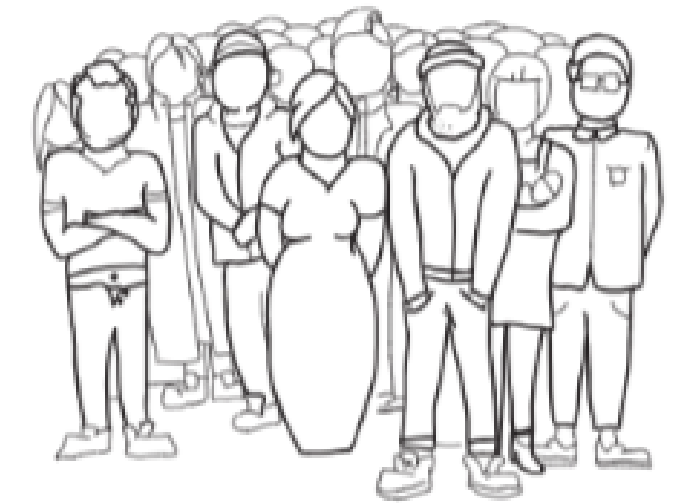
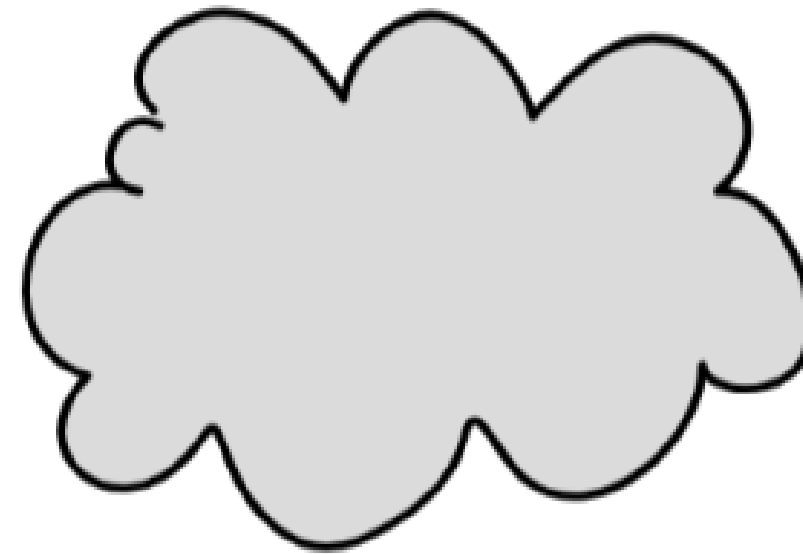
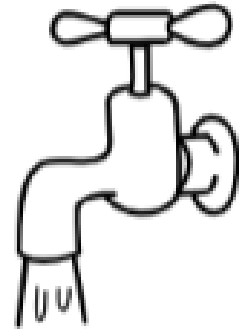
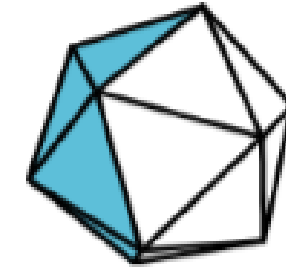


# The Strategic Energy Plan

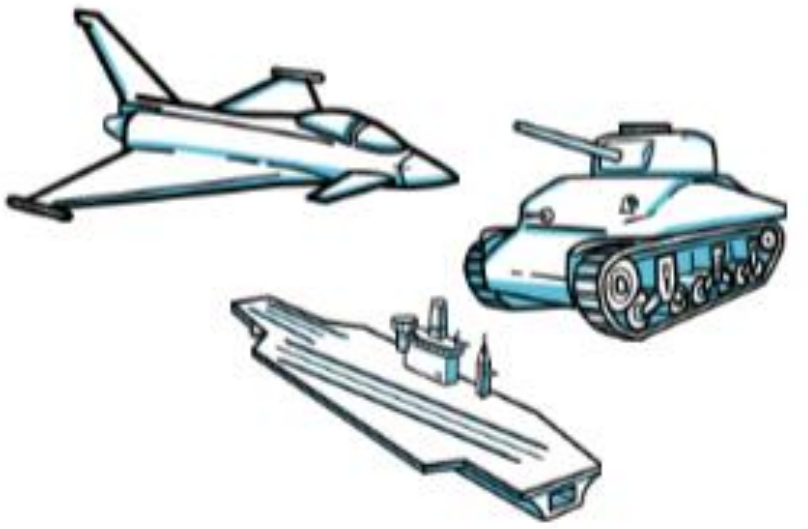
What is OED Building Towards



The Heart of Other  
State and Federal  
Strategies



The Heart of Utah's Strategy



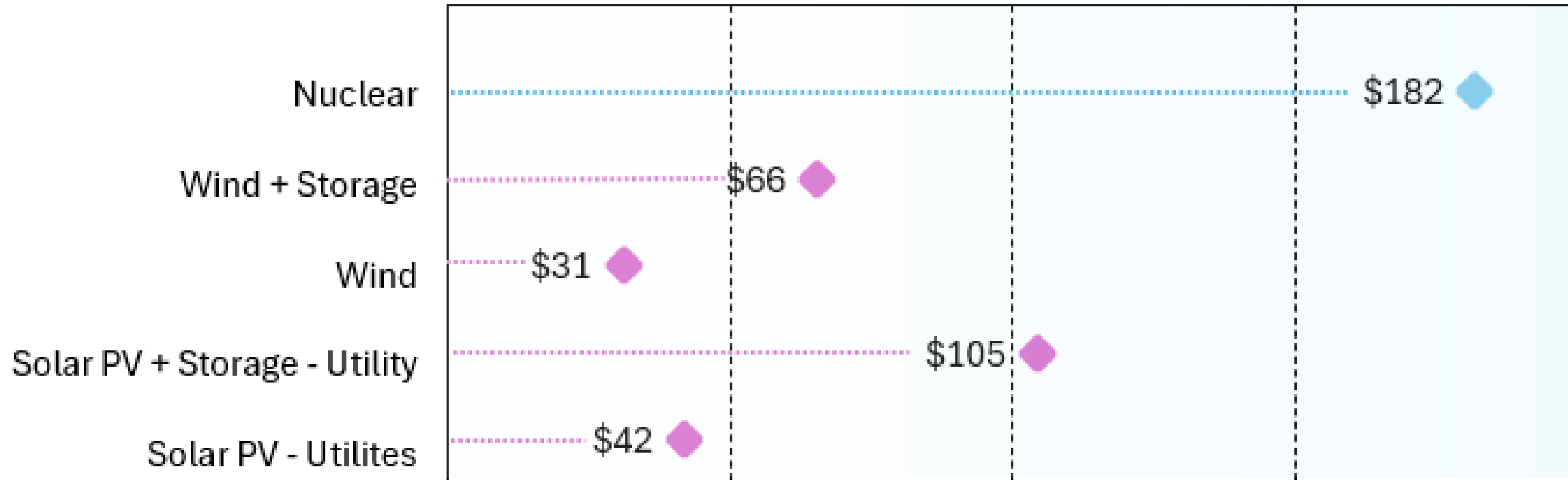
Foundation





## Energy Cost/MWh vs Systemic Costs

Levelized Costs (Lazard)





# Energy Cost/MWh vs Systemic Costs



# The Strategic Energy Plan

## Focused around 7 attributes

- Adequate - ability to continuously meet demand
- Reliable - ability to supply energy and withstand disturbances
- Dispatchable - available for use on demand
- Affordable - priced without compromising need and quality of life
- Sustainable - provide energy for current and future generations
- Secure - protected against disruption and tampering
- Clean - minimized adverse environmental impact

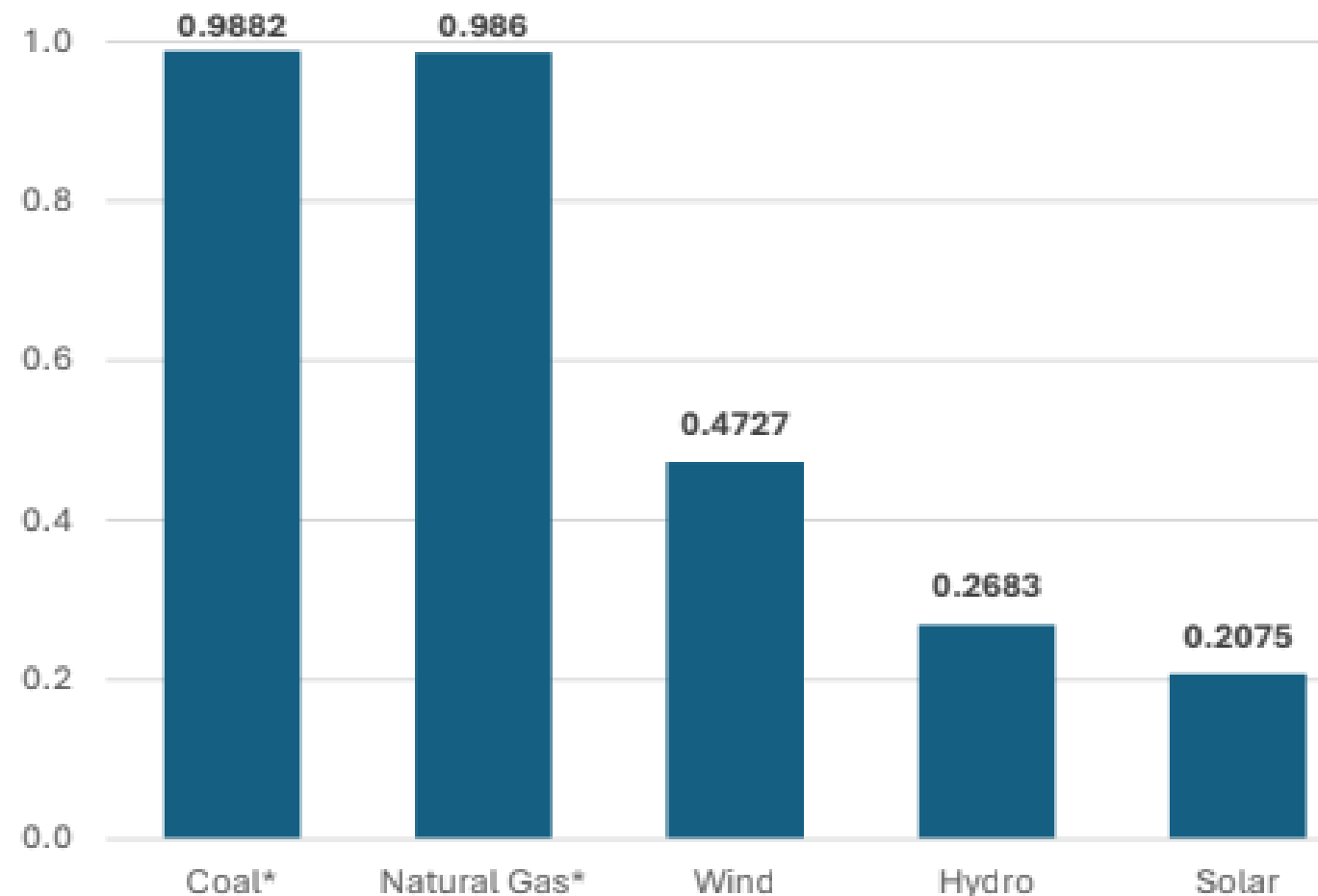


Figure 5: Adequacy Scores by Energy Source

\* Adjusted values. Scores are bound between 0.01 and 0.99.

## OED developing metrics for each attribute

- Adequacy - score based on ability for generation to match demand
- Developed a methodology to match generation to demand
- Currently out for expert review

## Metrics will allow scoring of varying resources

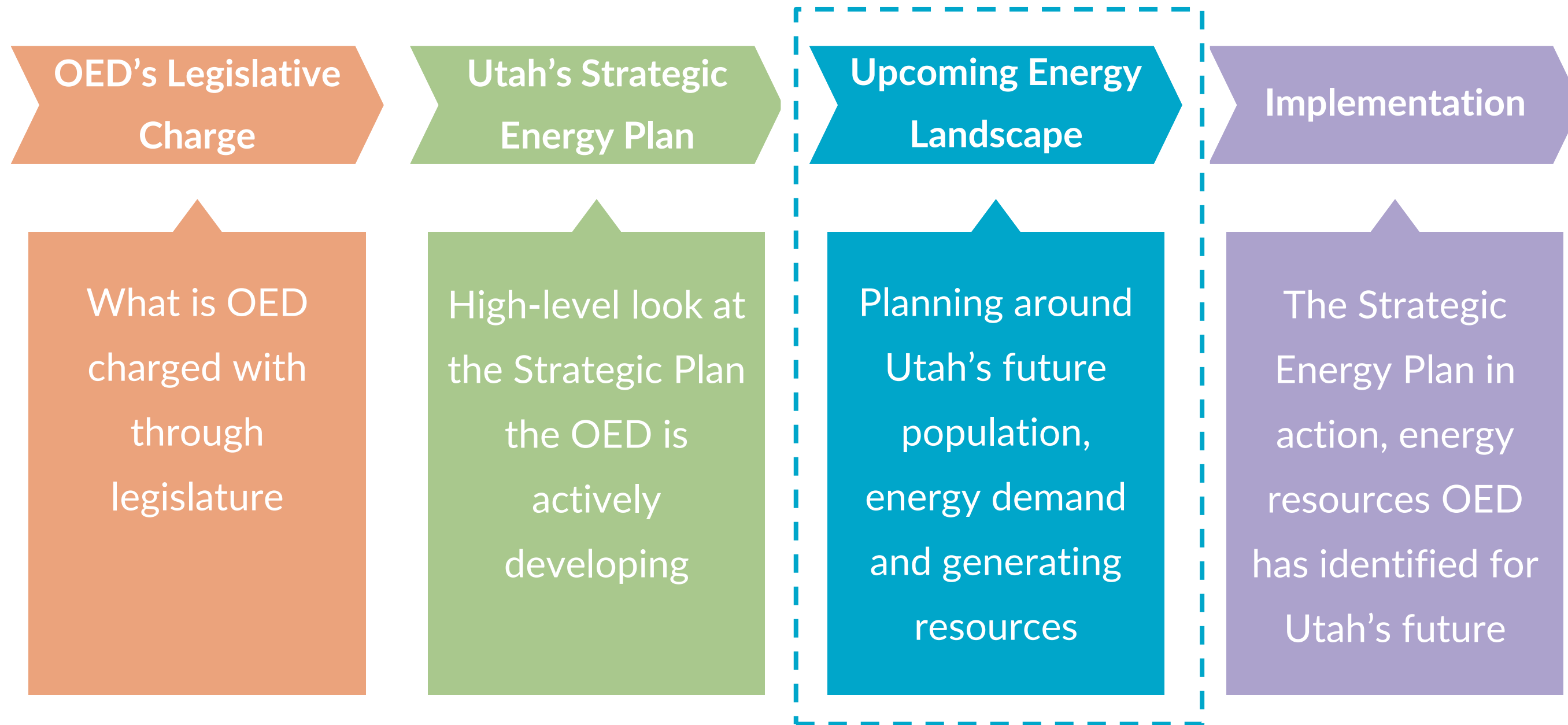
- Compare each to its value within the state energy plan
- State supports options that best fit the attributes





# The Coming Energy Landscape

What Utah Energy is Facing in the Coming Decades



01

## Preserve Existing Supply

- Defending Utah's Energy Security
- Technological Improvements
- Improving Political Certainty

02

## Develop New Supply

- Targeting Proven Technologies
- Enabling Infrastructure Development
- Evaluate & Streamlining Regulatory Process

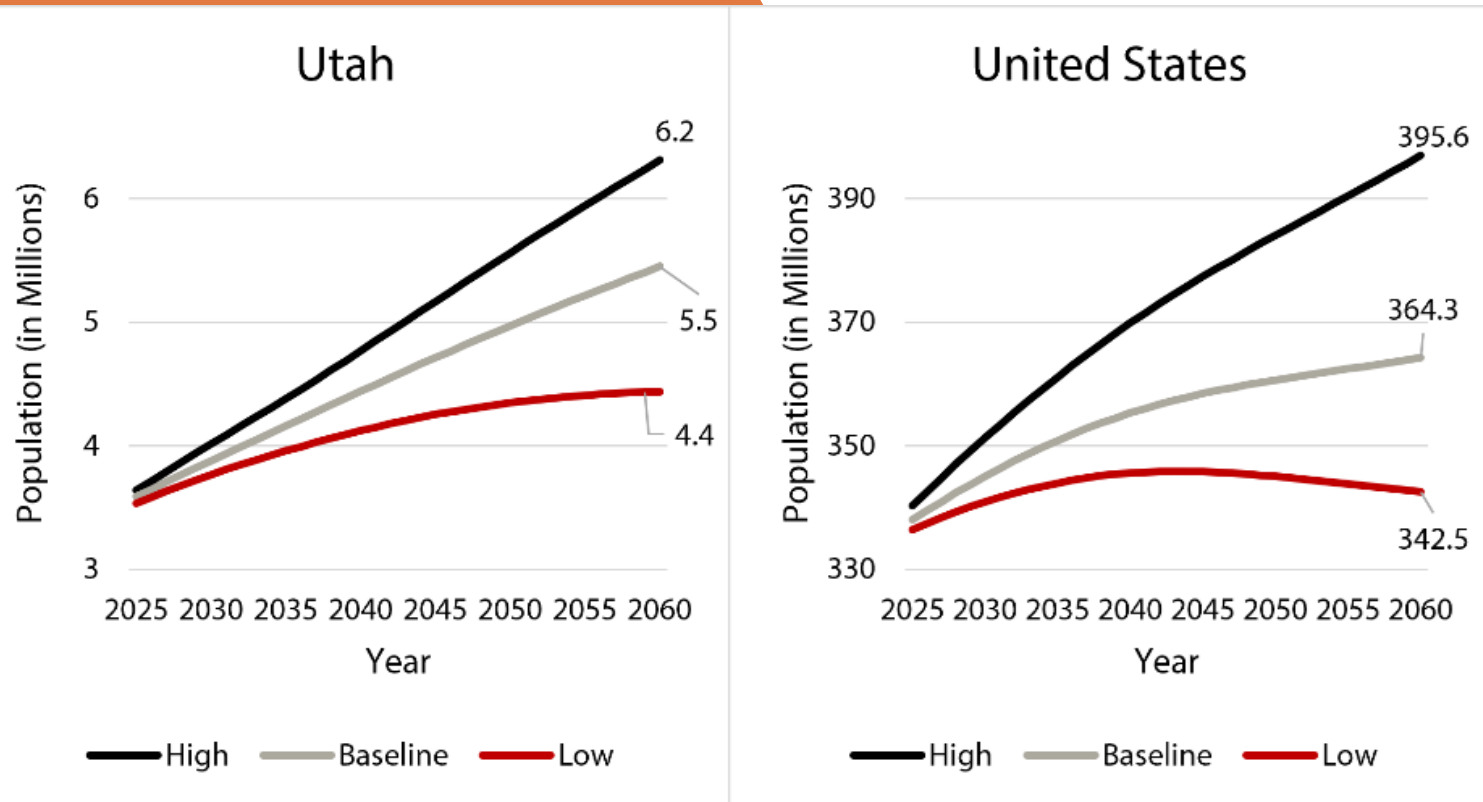
03

## Adopt Emerging Technologies

- Data Driven, Policy Considerations
- Targeted Development Process
- Utah Competitiveness



# The Coming Energy Landscape



## Utah will see mass population growth

- Per the Gardner institute, in low growth Utah see's half a million additional residents by 2035
- By 2060, projected to grow by 2.2 million people

## Electrification is increasing

- EV's, charging infrastructure, smart appliances
- Public transportation; electric buses and trains
- Moves energy demand from fossil fuels onto the grid

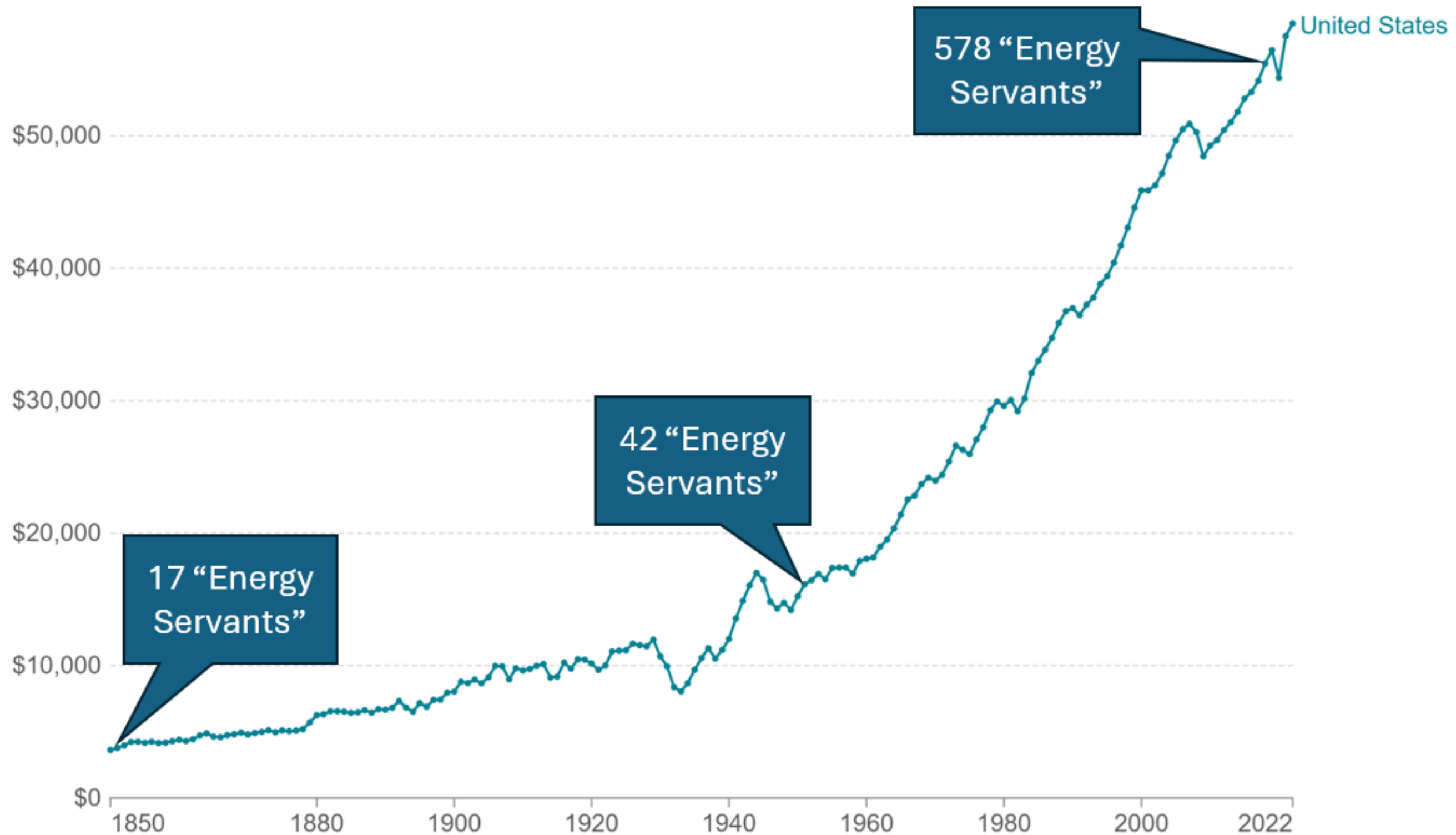
## Energy-intensive users demanding enormous energy

- A data-center can demand an entire Gigawatt of electricity  
Equivalent of powering 609 thousand homes in Utah
- Powering these heavy users is a completely new challenge



# GDP per capita, 1850 to 2022

This data is adjusted for inflation and for differences in the cost of living between countries.



Data source: Bolt and van Zanden - Maddison Project Database 2023

OurWorldinData.org/economic-growth | CC BY

Note: This data is expressed in international-\$<sup>1</sup> at 2011 prices.

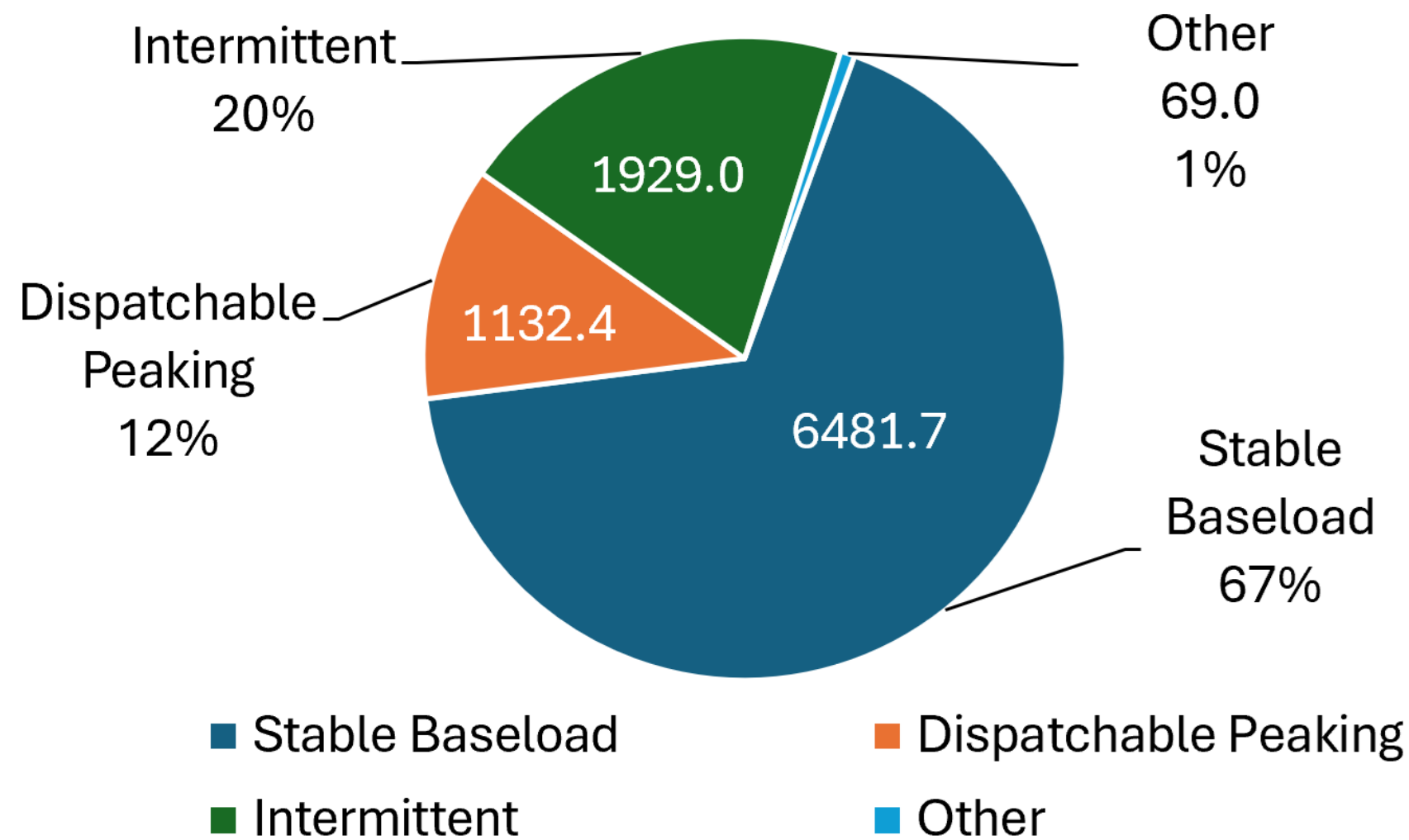


# The Coming Energy Landscape

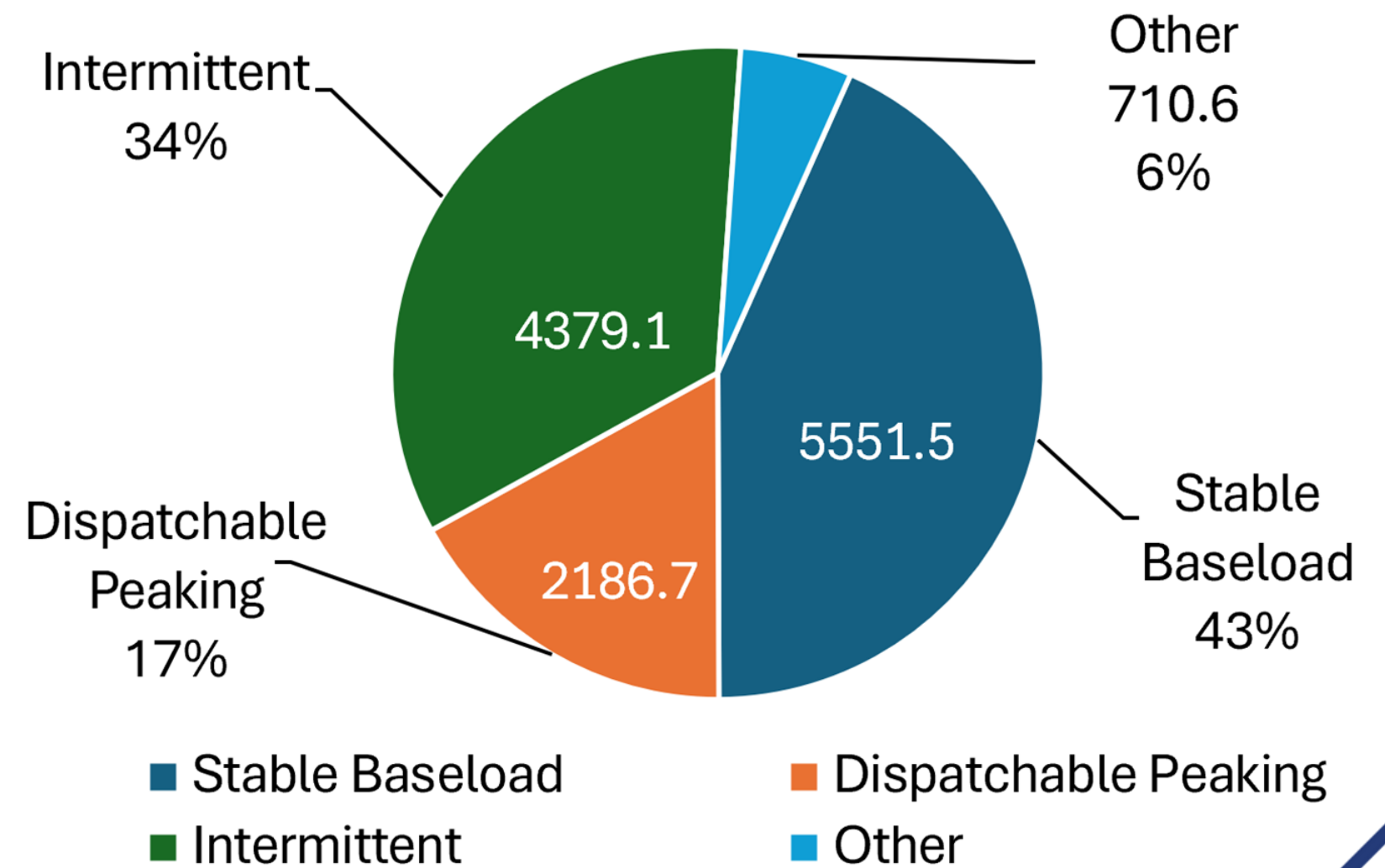
Utah already projected to develop intermittent resources

- Baseload will shrink slightly by 2032, and by 2042 we'll lose 67%
- Intermittent will grow by more than double, primarily solar
- Introduces challenges in operating the grid and transmission
- Threatens the ability of the state to reliably provide affordable energy

EIA 2022 Utah Installed Capacity (MW , %)



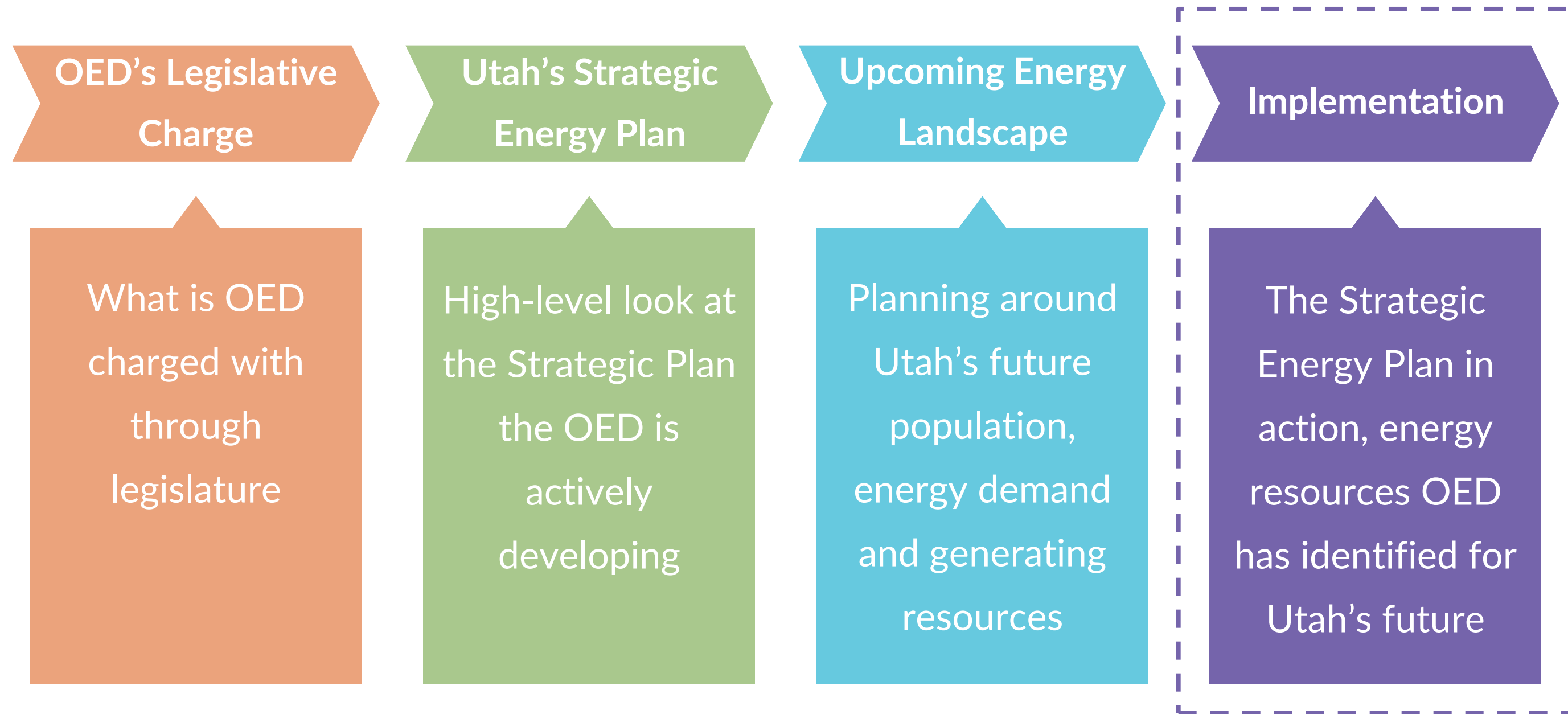
WECC 2032 Predicted Utah Installed Capacity (MW , %)





# Implementation

Energy Resources That Meet State Objectives





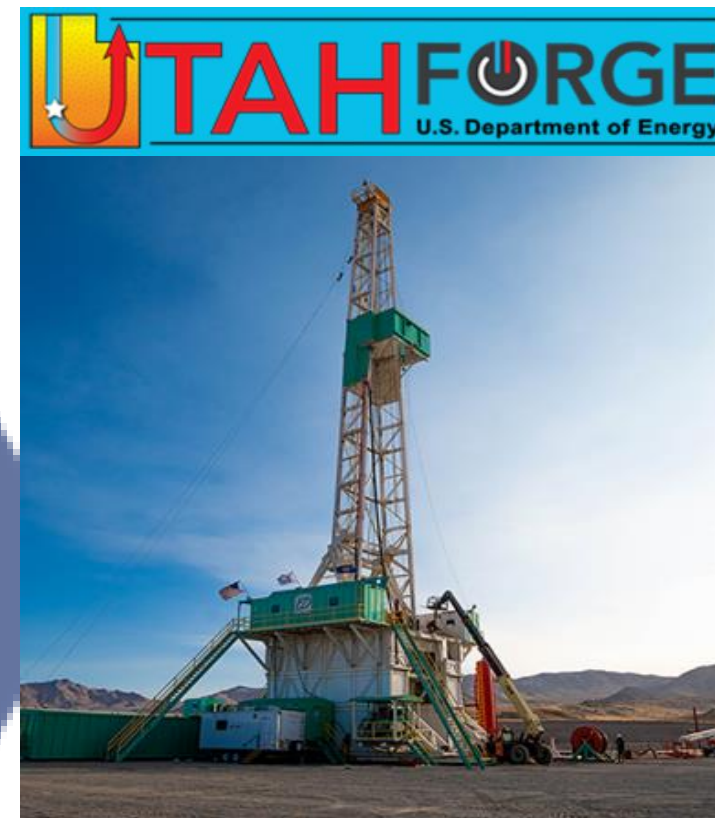
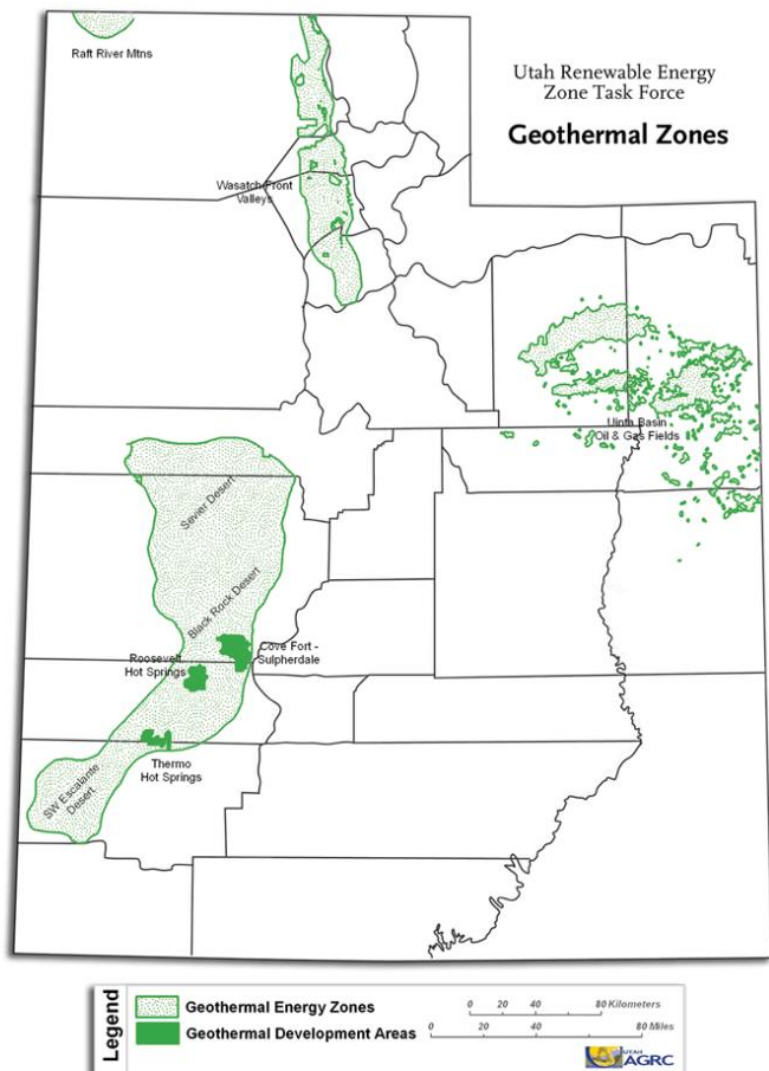
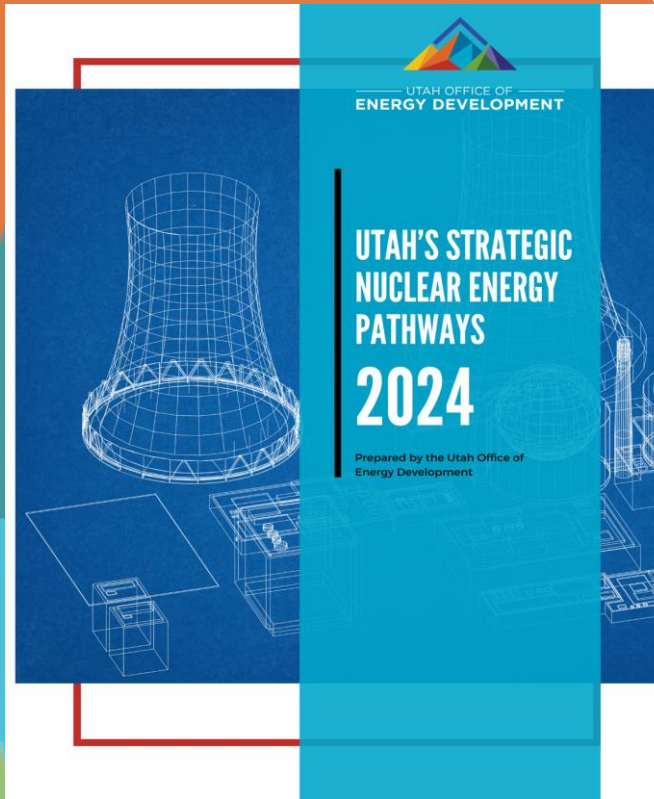
# Implementation

## Nuclear Energy Pathways Series

- Direct result of pursuing solutions that meet the state energy plan
- Seek expert feedback, consult with stakeholders, drive to a utility-scale deployment
- Consider the entire nuclear picture, from siting to legislation to education to waste

## Advanced Geothermal

- Potential to meet every state attribute and be widely deployed
- Technology in the earlier stages of development, more research-focused
  - FORGE and Fervo in southern Utah at the forefront of geothermal
- Working with UGS to quantify geothermal resource across Utah



# Thank you!



—— UTAH OFFICE OF ——  
**ENERGY DEVELOPMENT**