



UTAH OFFICE OF
ENERGY DEVELOPMENT

Strategic Nuclear Energy Pathway Project

Establishing Utah as a Nuclear Powerhouse





Overview

Developing Nuclear Energy the Utah Way

Policy Development & Research Team

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Emerging Technology
Specialist

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Energy Economist

Why Nuclear

- Demand
 - Population
 - Technology
- New era in nuclear energy
- Regional powerhouse potential

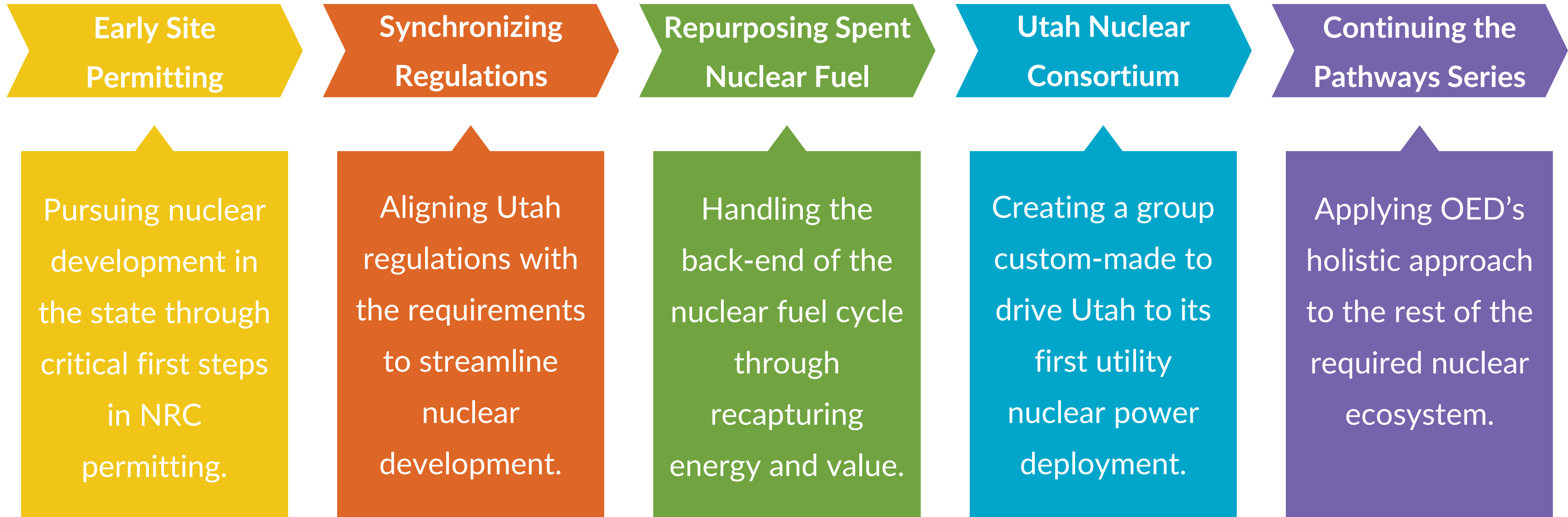
Outcomes

- Four documents
- Legislative framework
- Accelerated deployment timeframe
- Our work puts us ahead of the other states



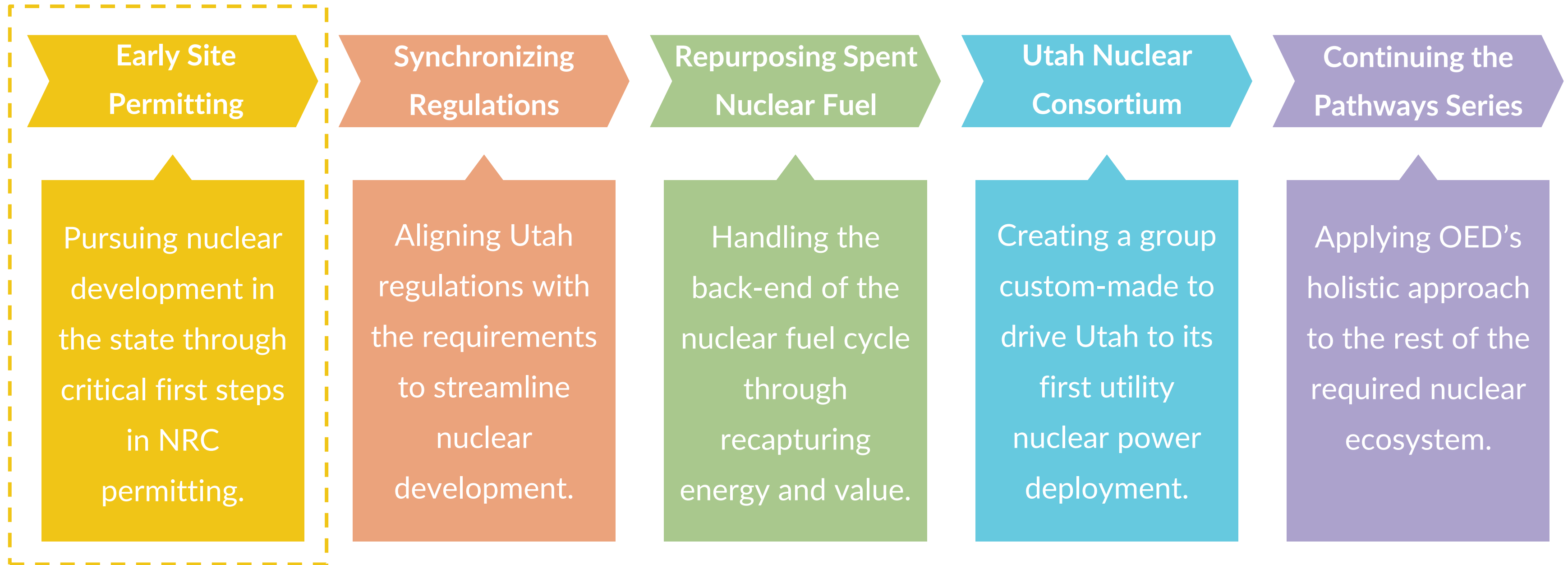
Nuclear Energy Pathway Series

Developing Nuclear Energy the Utah Way



Early Site Permitting

Nuclear Pathways Series Document 1



Pre-Application and Early Site Permits (ESP)

Establishes a line of sight from current nuclear discussions in the state to the deployment of an operational nuclear power plant.

- Outlines the first steps necessary to begin down that pathway

Legislative Frameworks are expanded upon in the second document.

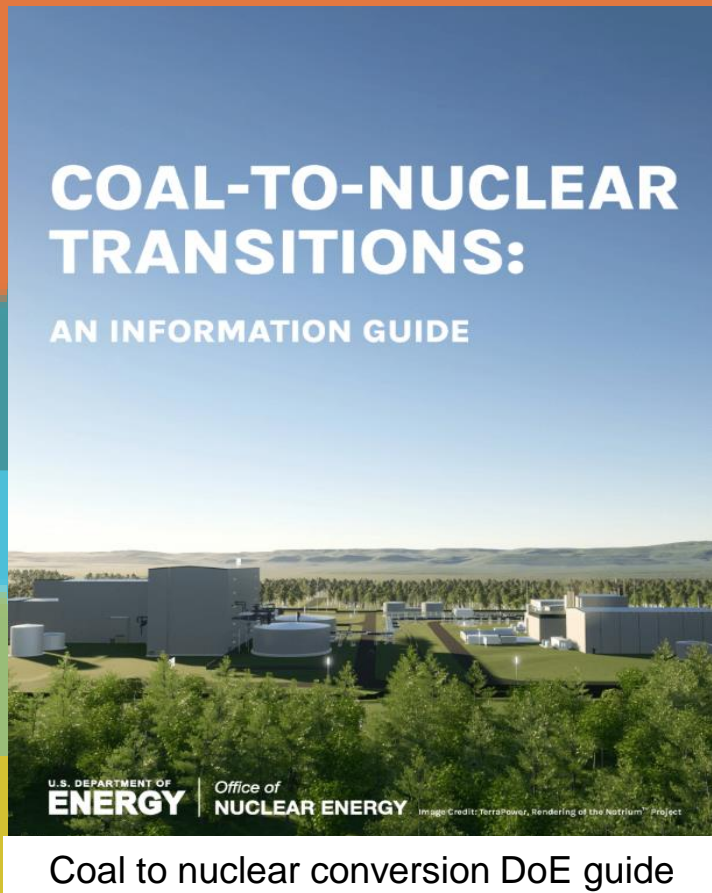
- Significant need to develop policies for the entire nuclear ecosystem
- Reduce political uncertainty by creating guardrails, not roadblocks

Site selection is a critical first step in the permitting process.

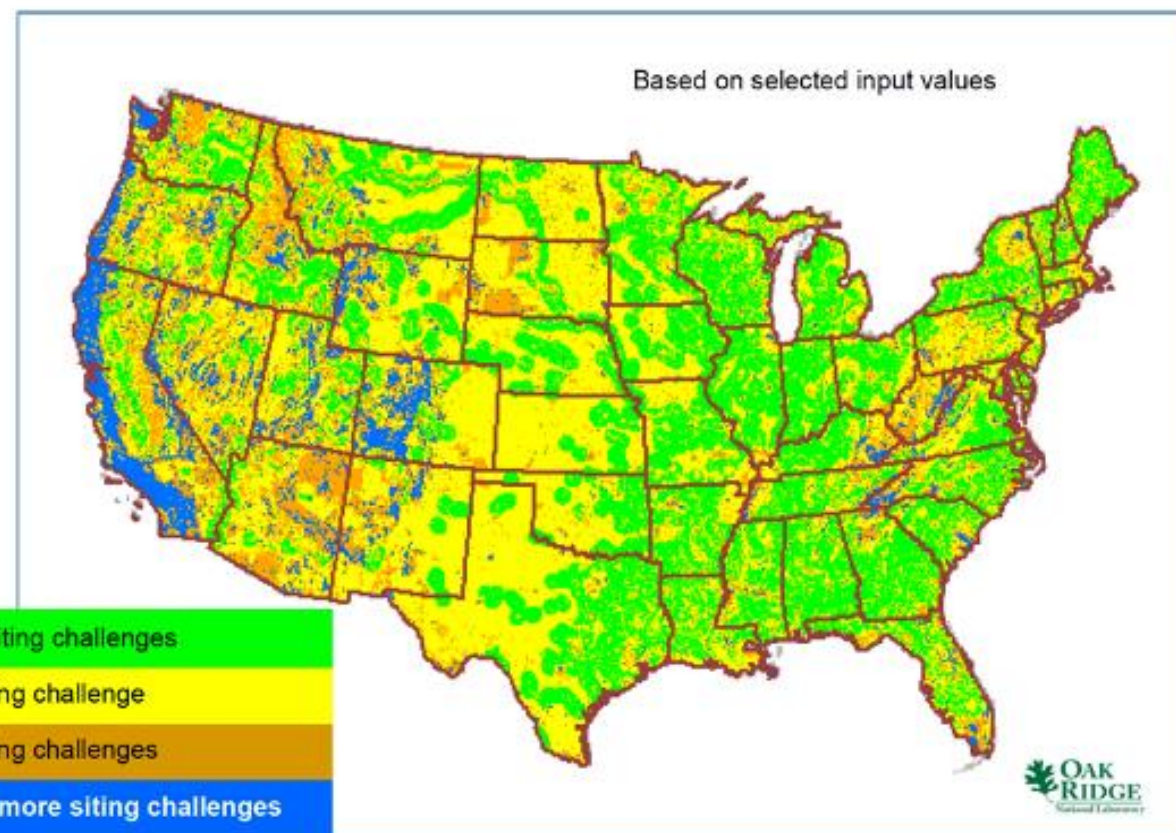
- Greenfield and Coal to Nuclear conversion are both viable options
- OR-Sage Model developed by Oak Ridge National Laboratory evaluates the viability of potential sites within the state
 - Viable sites experience a 15-35% reduction in costs

Once a site is selected, we can move forward to the Early Site Permit process through the Nuclear Regulatory Commission

- This process takes approximately 3 years and \$52.2 Million
- Environmental review, site safety analysis, emergency plan
 - Does not require the selection of a reactor design



Coal to nuclear conversion DoE guide

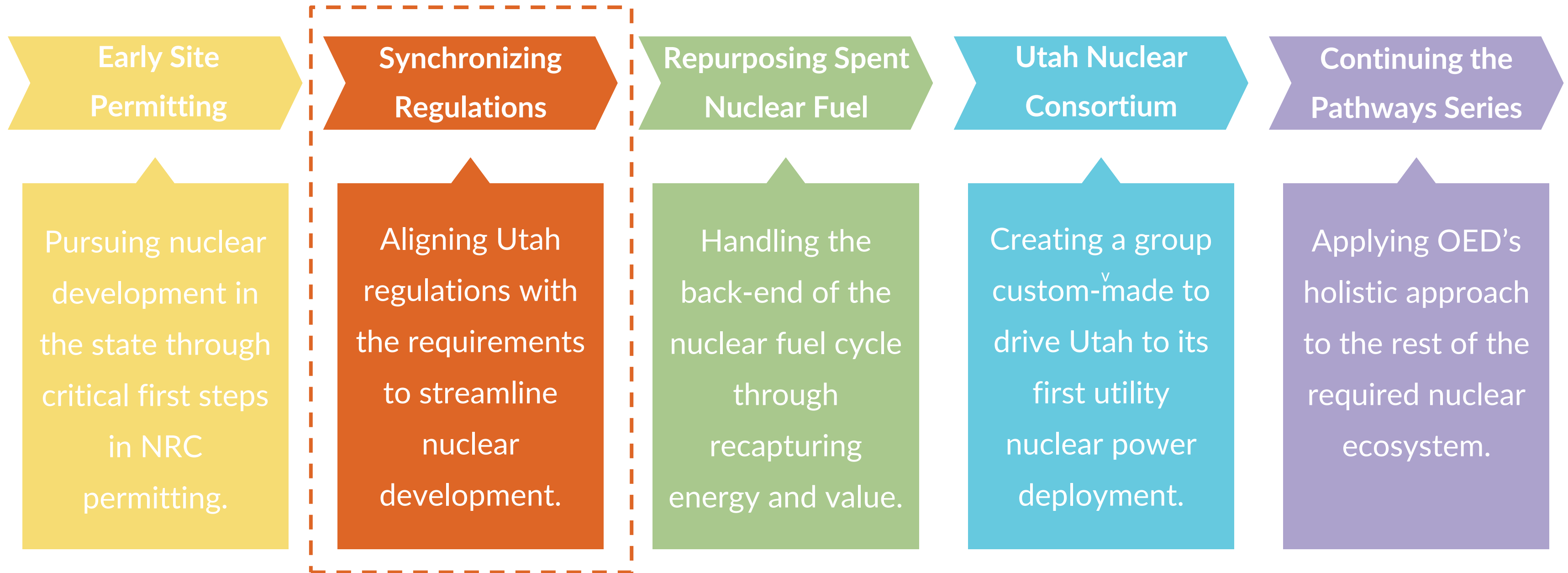


OR-SAGE coal to nuclear conversion siting map



Synchronizing Regulatory Frameworks

Nuclear Pathways Series Document 2



Synchronizing Regulatory Frameworks

Efficient regulatory frameworks are necessary to reduce political uncertainty and foster the development of nuclear energy.

- Review of current Utah code which applies to nuclear energy
 - Addresses areas that will need consideration
- Ensure regulations are guard rails, not roadblocks

Synchronize regulations with the NRC and Idaho National Laboratory

- County level zoning and construction laws have significant influence over the sites within their jurisdiction
- Reduce time and costs with efficient policies

Incentivize nuclear development within the state

- Seed funding to pursue federal funding opportunities
- Ensure existing state opportunities apply to nuclear
- Provide grants, tax credits, low-interest loans, etc.
- Signal to industry that Utah supports nuclear energy

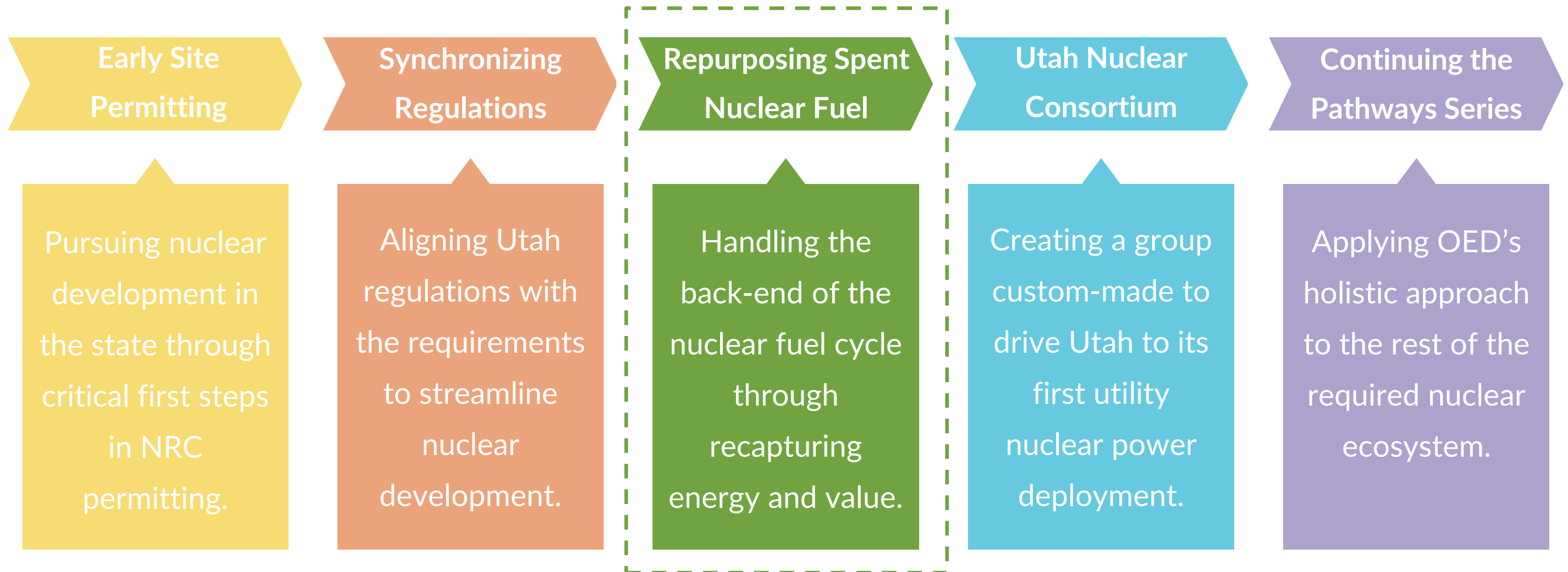
Local communities crucial to project development

- Influence the siting, zoning, and planning processes



Nuclear Spent Fuel Recovery and Recycling

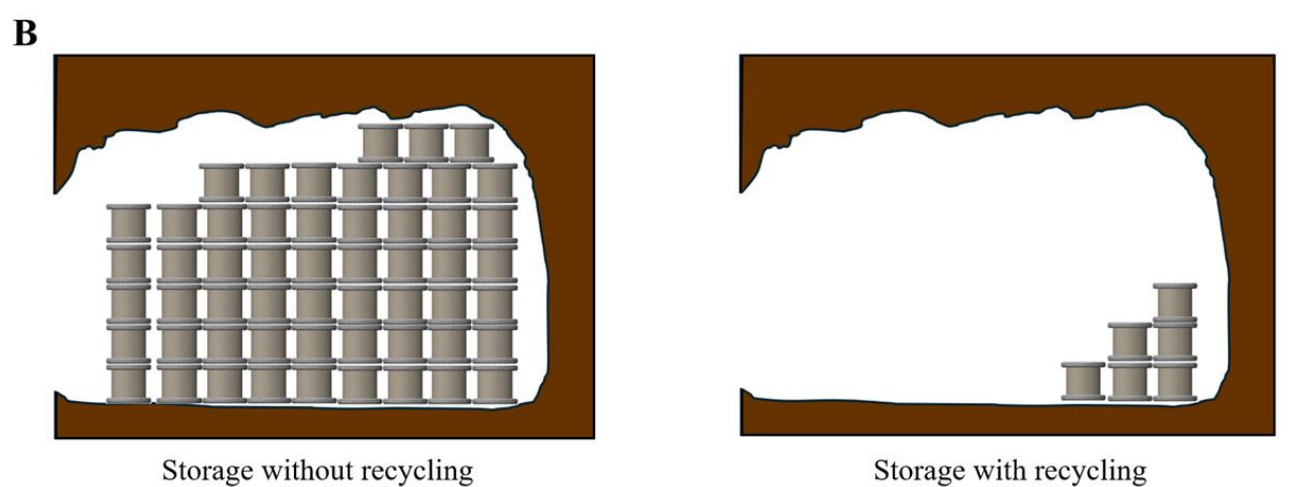
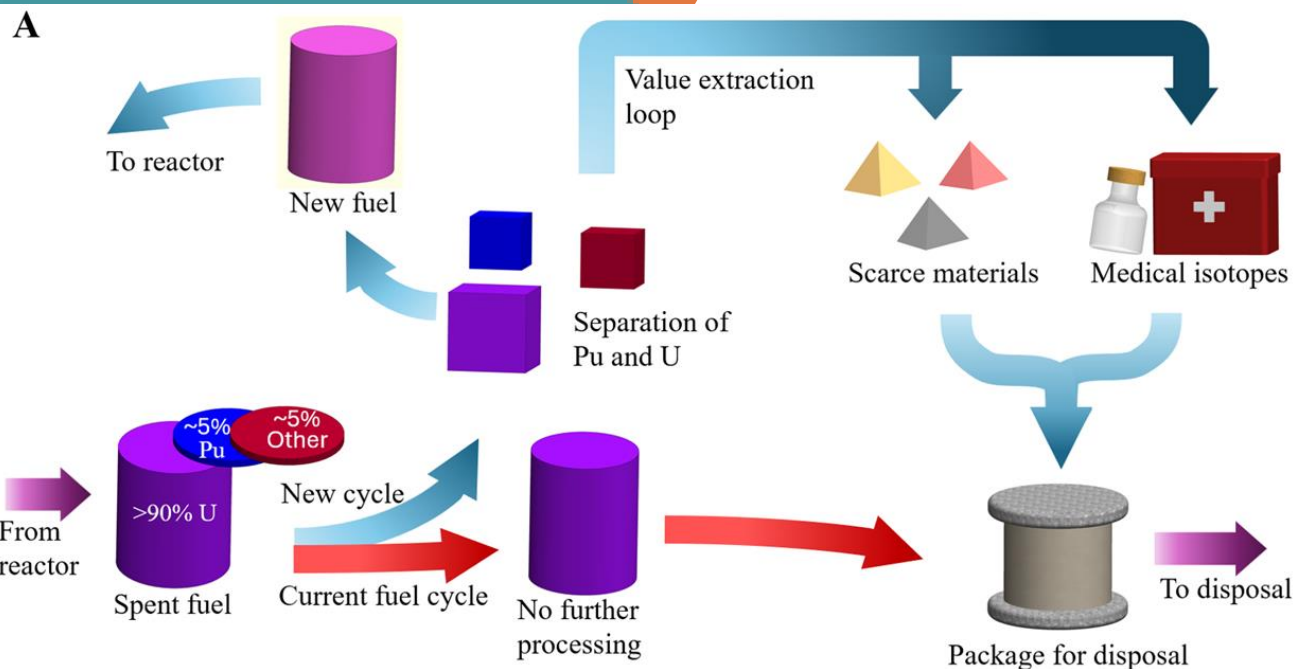
Nuclear Pathways Series Document 3



Nuclear Spent Fuel Recovery and Recycling

Spent nuclear fuel contains immense value

- 95%+ of the original energy
- Scarce materials critical to industry
- Medical isotopes



Nuclear fuel end-cycle with and without recycling and recovery

Nuclear spent fuel recovery and recycling captures that value

- Recover fuel for current and advanced reactors
- Recycle remnants to extract valuable materials

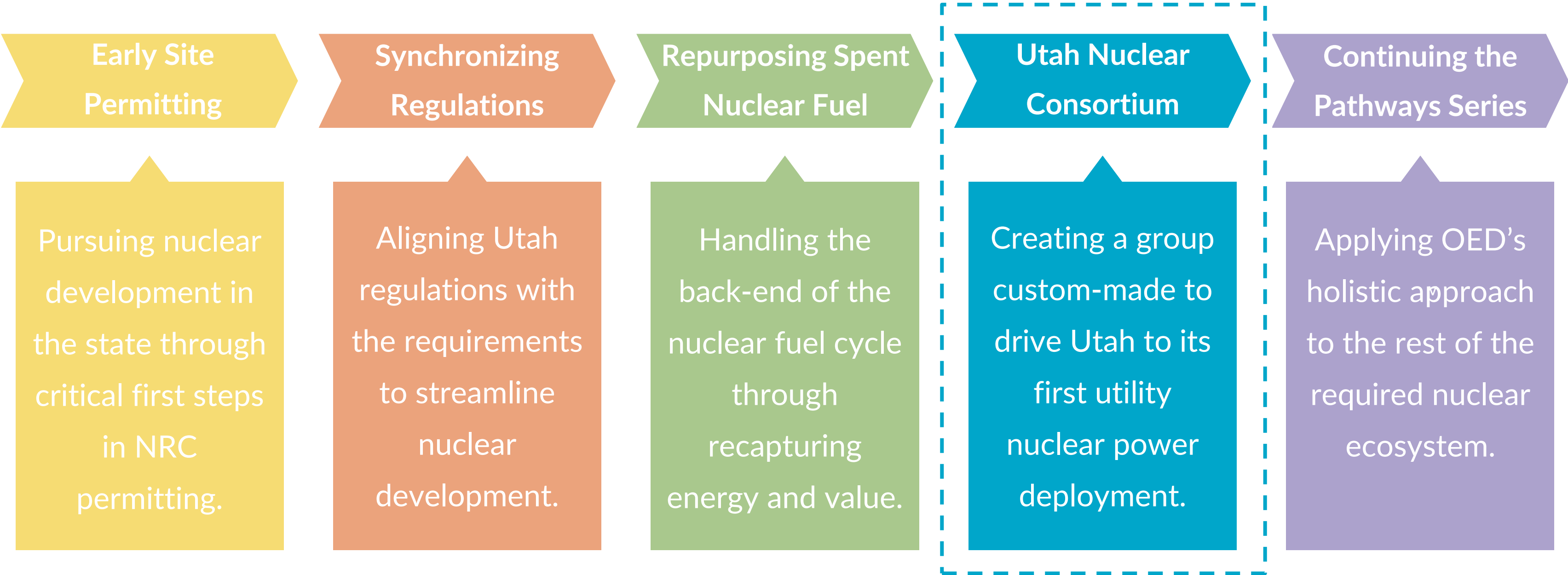
Seven conclusions from analyzing this technology for its ability to meet state energy objectives

- Feasibility – Already feasible with existing technology
- Low Risk – All technical risks can and already are being navigated safely
- Regulation – Possible, regulatory gap that the NRC needs to fill
- Environmental – Can be leveraged to cut necessary storage by 90%
- Energy Security – Promotes energy independence and reduces imports
- Efficiency – Multiplies effectiveness of other nuclear technologies
- Economic – Multiple value streams: thousands of workers, materials, fuel for reactors, storage reduction



Utah Nuclear Consortium

Nuclear Pathways Series Document 2.5



Utah Nuclear Consortium

Proposed group driving Utah to its first nuclear deployment

- Umbrella organization of resources and targeted strike teams
- Attract private and public stakeholders to the state

Three primary objectives of the Consortium

- Identification of site(s) for a nuclear project in Utah
- Full deployment of an operational nuclear power plant(s)
- Development of the nuclear economic ecosystem

Consortium made of three main components

- Administration and facilitators
- Expert resources and partners
- Small strike teams

Strike teams formed with a charter aimed at a crucial component of development

- Reactor operations, finance, regional strategy, etc.

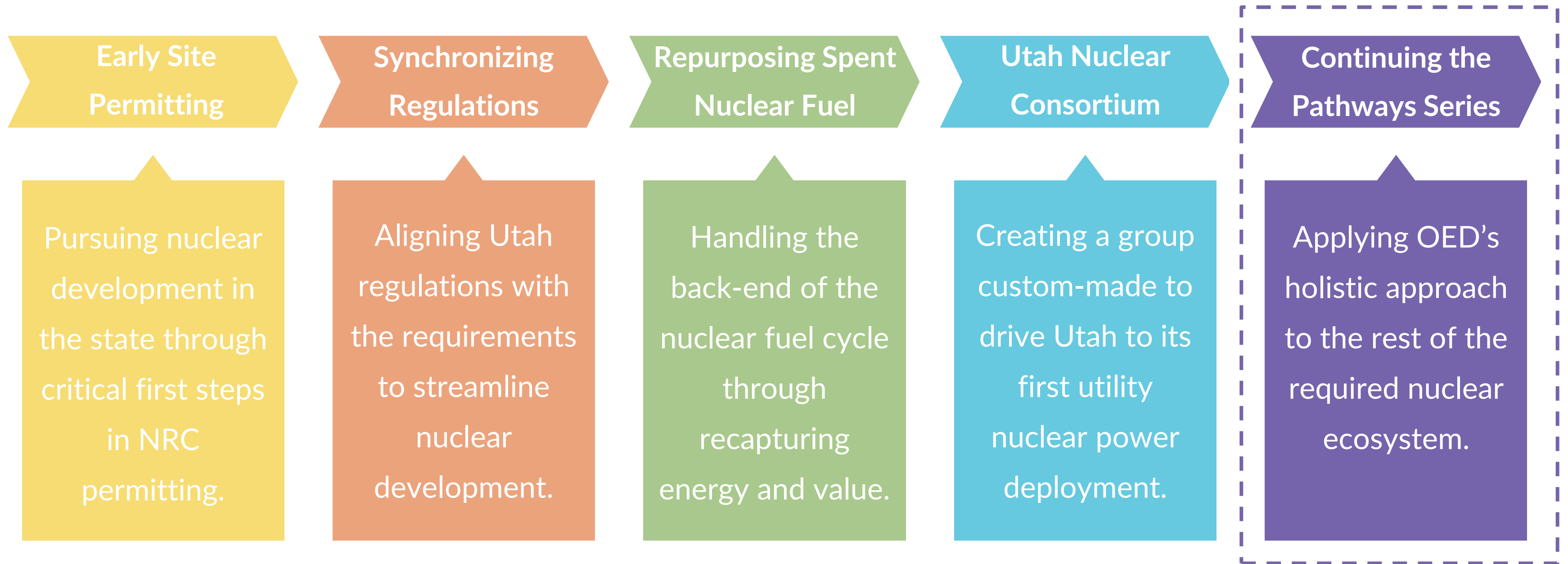
Expert resources provide insight and guidance to strike teams

Administration and facilitators keep focus on the goal



Ongoing Work in the Nuclear Pathways Series

Forthcoming documents on critical topics



Ongoing Work in the Nuclear Pathways Series

Many other areas need exploring to build a cohesive nuclear ecosystem

- Planning for the long-term success of nuclear industry in the state

Evaluate recent legislative changes around the U.S. in nuclear

- Much attention on nuclear energy recently, other states shifting legislation
- Lay groundwork for future policy efforts

Public outreach program and nuclear sentiment survey

- Propose education campaigns throughout the state
- Survey communities for political and public appetite for nuclear development

Nuclear workforce development and education

- Quantify needs for future nuclear industry within the state
- Suggest K-12, university, and trade school programs to develop workforce
- Energy sector worker retraining options



Thank you!



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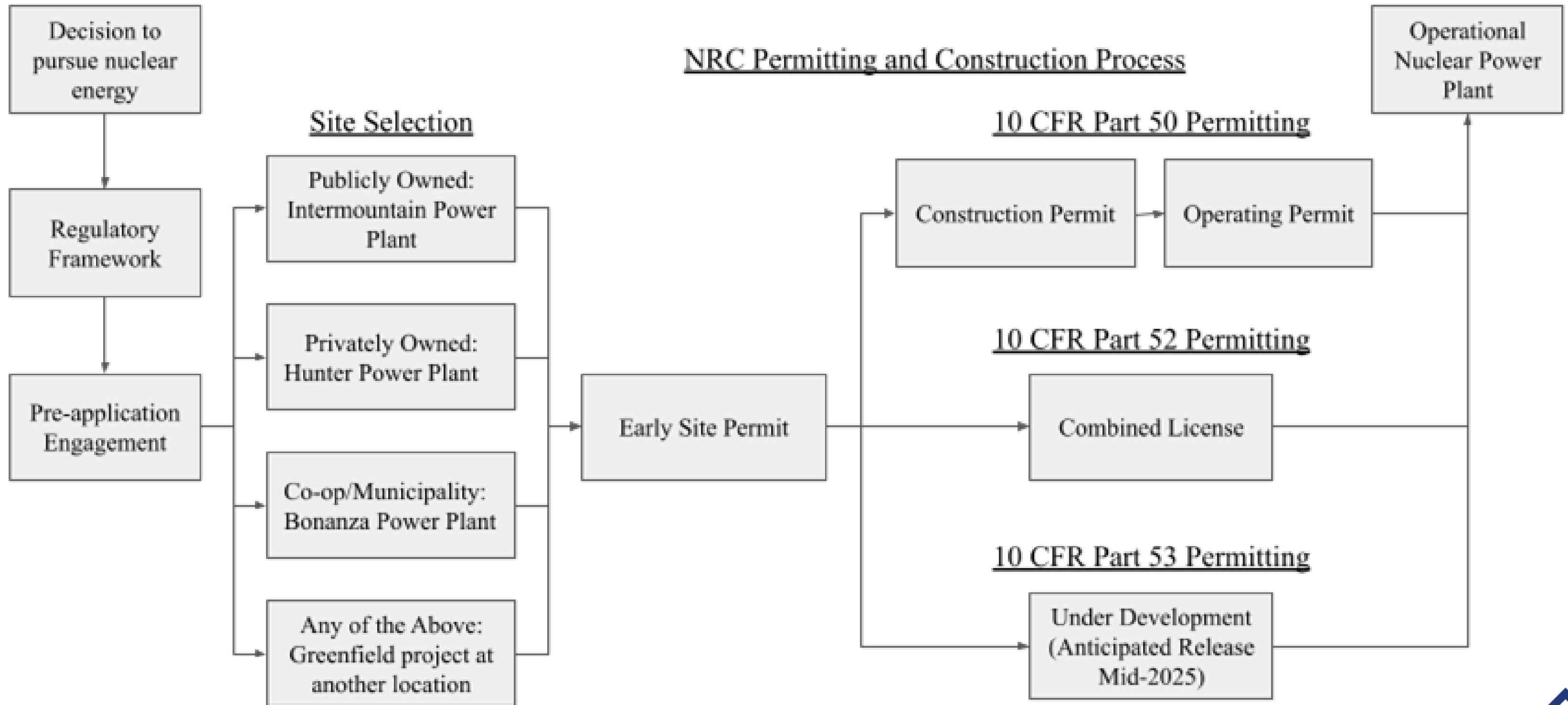
Extra Slides



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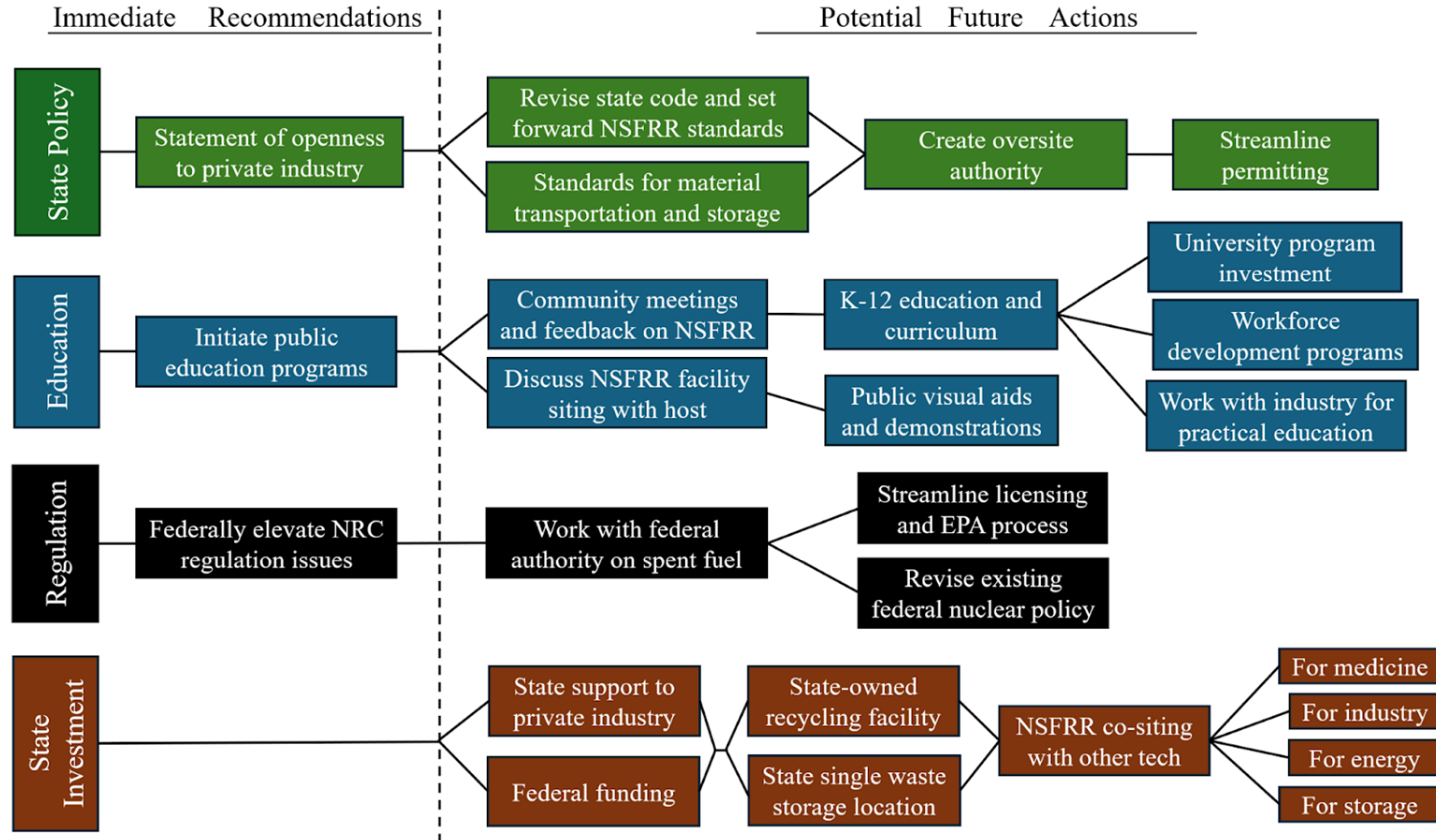
Roadmap for Early Site Permitting

Pre-application Decisions



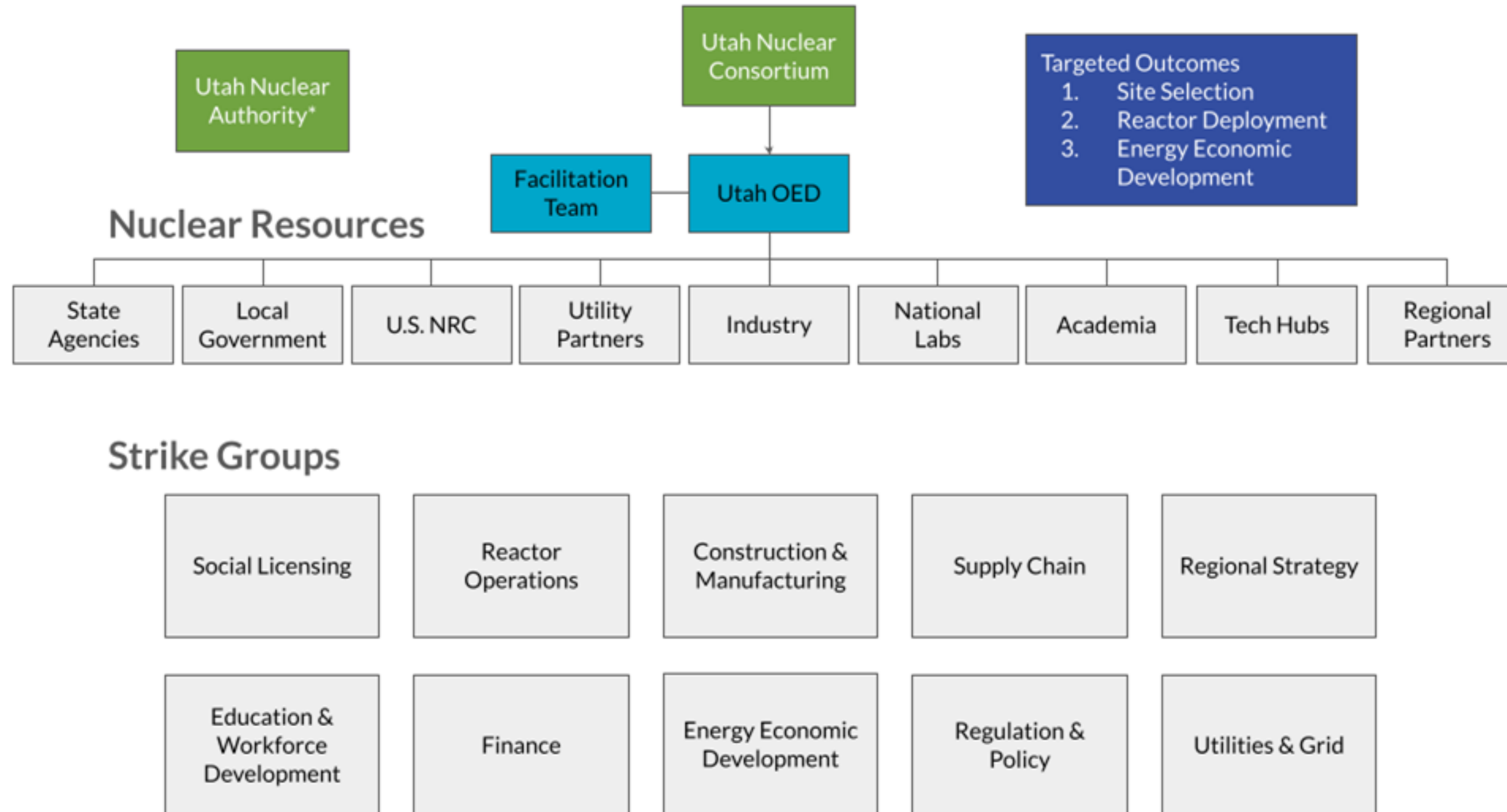


Roadmap for Spent Fuel Recycling



Structure of the Nuclear Energy Consortium

Utah Nuclear Consortium's Organization of Resources



*The Nuclear Authority is a separate legislative entity that is advised by these strike groups but not a part of the Consortium

