

U.S. DEPARTMENT OF
ENERGY

Office of
Electricity



Integrated System Planning

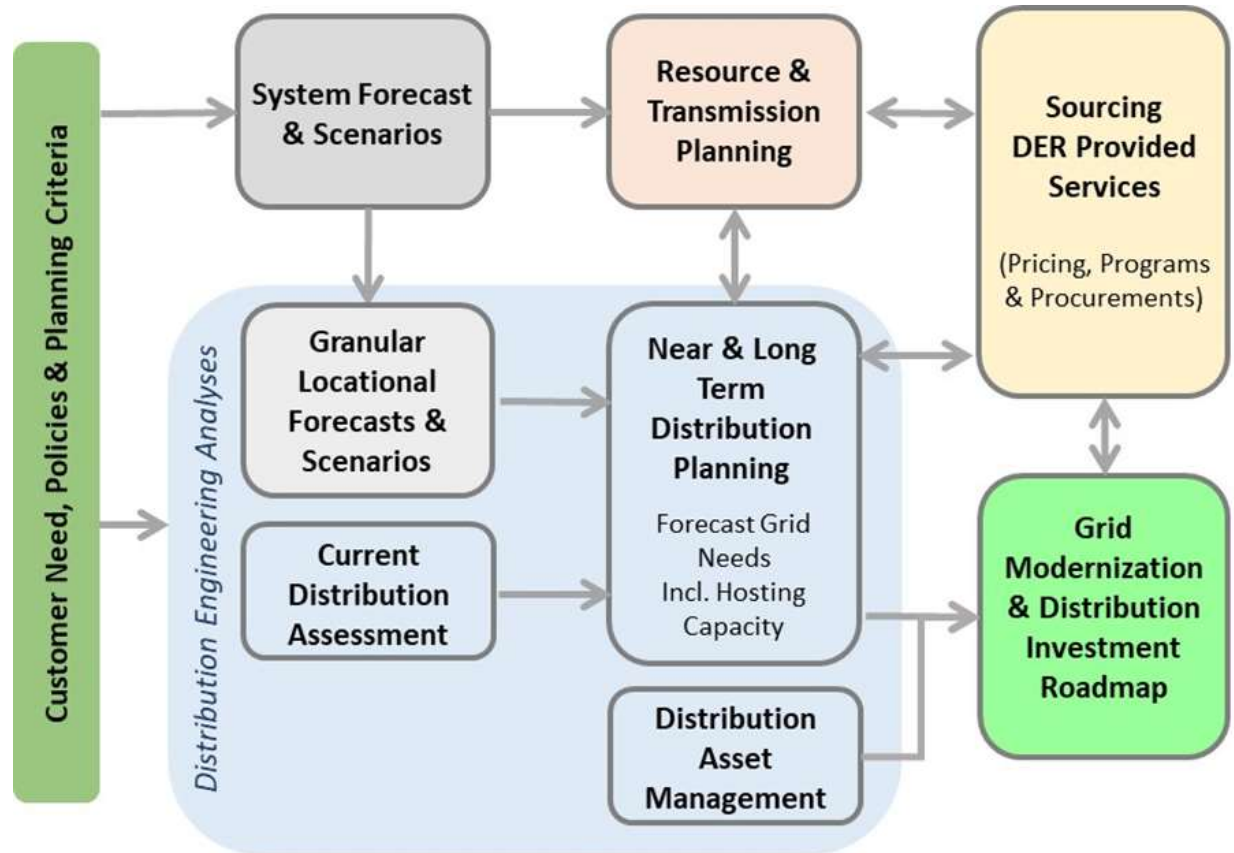
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Integrated Grid Planning Processes

Policy Objectives:

Efficiency
Reliability
Customer enablement
DER integration
Resilience



Adapted from P. De Martini, *Integrated Distribution Planning*, ICF

Task Force on Comprehensive Energy Planning

NASEO-NARUC members from 16 states are on the Task Force



Selected States to Ensure Diversity:

- Geography
- Market models (e.g., retail competition, wholesale market)
- Planning approaches (e.g., state energy office roles, distribution system planning)
- State goals (e.g., grid mod, resilience, climate, clean energy, economic development)



5 Cohorts represent a mix:

- Vertically integrated vs restructured
- Inside or outside of organized markets

Task Force Process

2 years | 4 workshops

We are here



Identify key trends, articulate guiding principles, map status quo planning processes, begin identifying alignment needs

Refine opportunities for planning process alignment with support from stakeholders and subject matter experts
"Process Maps"

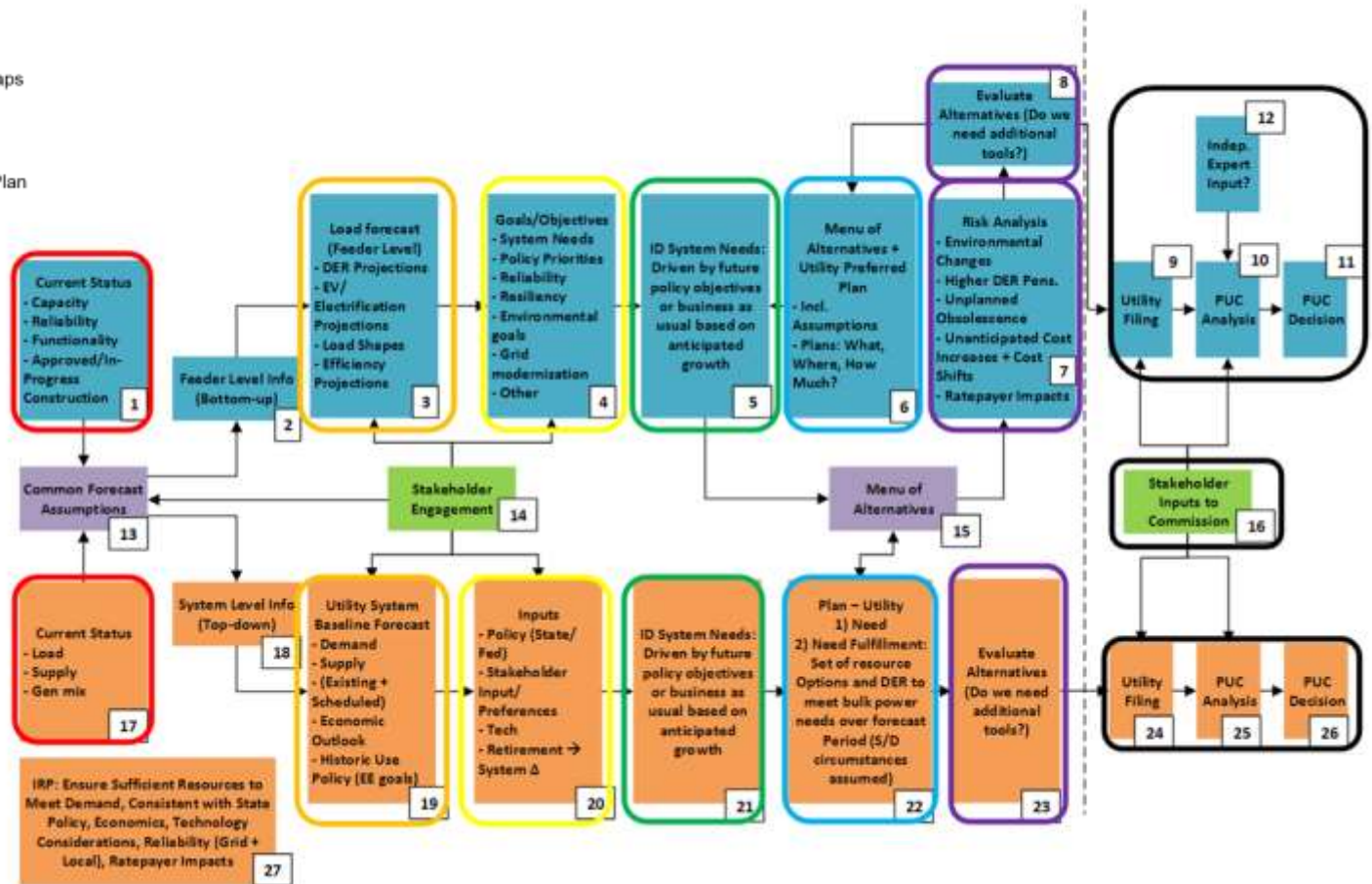
Consider what it takes to operationalize idealized aligned planning processes
"Roadmaps"

Develop State Action Plans to build on the work of the Task Force

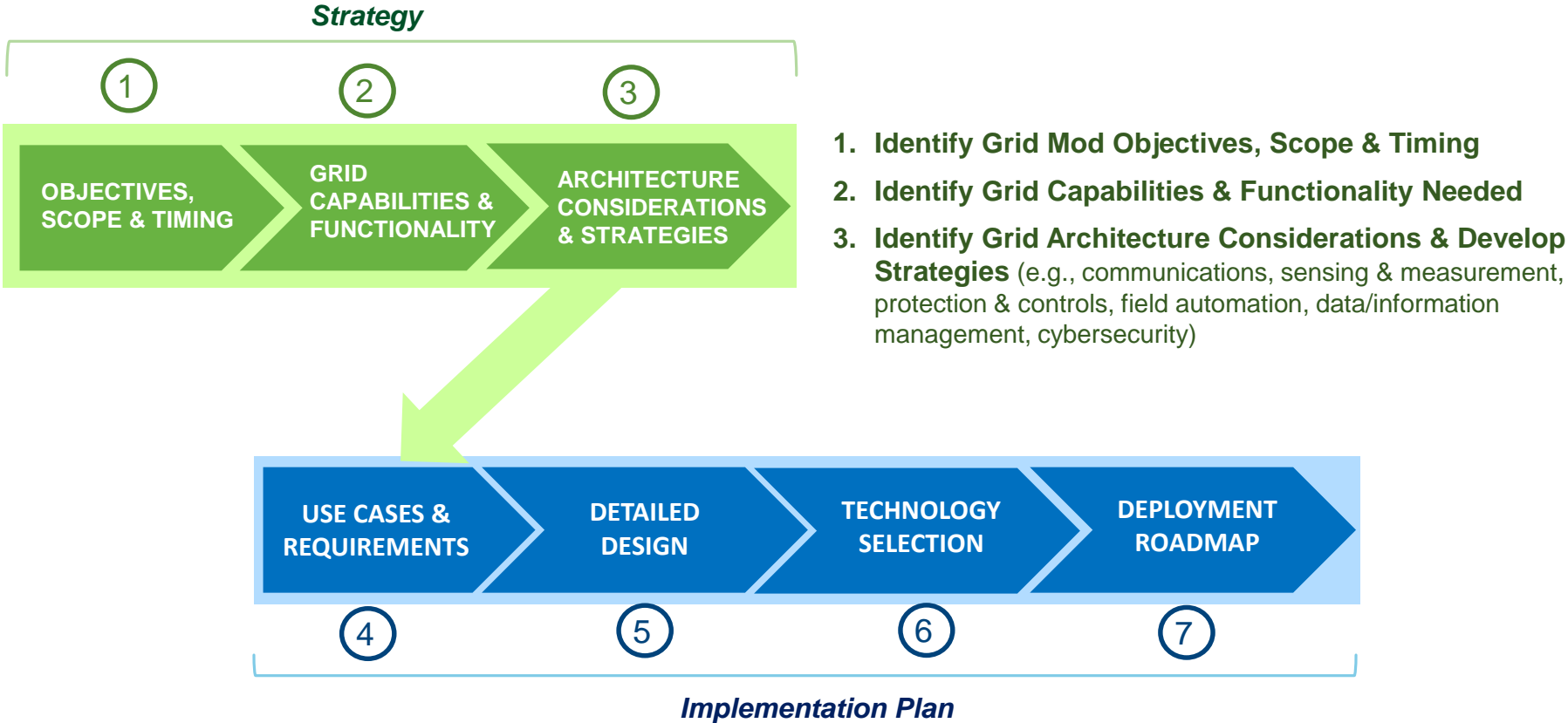
Illustrative Example of a Cohort Process Map

Building Blocks of Planning

- Establish Planning Assumptions
- Develop Load Forecasts
- Describe the Future Trajectory
- Identify System Needs
- Explore Solutions to Address Gaps
- Evaluate and Apply Criteria to Determine Preferred Solutions
- Finalize Solutions and Publish Plan
- Implement Solutions



Grid Modernization Planning



- 1. Identify Grid Mod Objectives, Scope & Timing
- 2. Identify Grid Capabilities & Functionality Needed
- 3. Identify Grid Architecture Considerations & Develop **Strategies** (e.g., communications, sensing & measurement, protection & controls, field automation, data/information management, cybersecurity)

- 4. Develop Functional Use Cases to Identify Detailed Business & Technical Requirements
- 5. Develop Detailed Architecture & Design
- 6. Technology Assessment & Selection
- 7. Develop Deployment Roadmap & Cost Effectiveness Assessment

Electricity System Resilience Framework for States

Logical Consistency

State Policy Makers

Legislatures and Governors

- **Develop policy goals and objectives** (e.g., wildfire mitigation)
- **Require plans** (ex: CA utility wildfire mitigation plans)
- **Fund improvements** (ex: CA utility cost recovery standards & practices)
- **Require utility coordination and oversight** (ex: coordination & data-sharing among state agencies, eg, sharing cybersecurity information and practices, and conducting independent evaluations)
- **Facilitate specific risk mitigation strategies** (ex: defense and civilian critical infrastructure protection)
- **Develop further recommendations** (ex: establishing commissions, boards and state offices with specific charges)

State Policy Implementers

Utility Commissions

- **Set substantive and procedural requirements for plans, including**
 - **Setting objectives**, based on state policy goals and customer expectations
 - Establishing **scope and timing requirements** based on priorities
 - Establishing **metrics** to measure performance
 - Determining **cost recovery** mechanisms
- **Approve or accept plans**
- **Fund improvements** (cost recovery approval through and/or outside General Rate Case)

Distribution System Owners & Operators

Utilities

- **Develop plans**
 - **Align objectives**
 - Develop **long-term strategy** and **short-term implementation plans** integrated with current planning processes
 - **Prioritize** short-term vs long-term needs through **risk assessments**
 - **Coordinate** planning and operations
 - Re-design **business practices**
 - Establish staged, **technology deployment plans and cost estimates**
- **Implement approved plans**

Stakeholder Input Processes

Thank You

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