



MAINE DEPARTMENT OF
Energy Resources

Front of the Meter Distributed Energy Resources Program Design Webinar

Pursuant to P.L. 2025 Ch. 430

June 25, 2026 | 11am - 12:30pm

Agenda

- Welcome and background
- Project overview and context
- Proposed framework
 - *Participant discussion*
- Feasibility and benefit-cost analysis (BCA) framework
 - *Participant discussion*
- Next steps and wrap up



MAINE DEPARTMENT OF
Energy Resources

Maine Department of Energy Resources (DOER)

DOER is Maine's cabinet-level state energy department tasked with activities relating to state energy policies, planning, and development.

maine.gov/energy



Project Overview

DNV & Current Energy Group (CEG) Introductions



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Senior Consultant,
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Energy Strategy

Assignment | LD.1777 assigns DOER to design a front-of-meter DER program & submit to MPUC by 9/30/2026

Summary of Statutory Assignment

The Governor's Energy Office (now DOER) shall design a program or programs to encourage the development of front of the meter distributed energy resources in the State[...]. If the [Public Utilities Commission] finds that the proposal provides **benefits to ratepayers in the State in excess of the costs to ratepayers**, the commission shall by rule implement the program or programs.*

The proposed program would “**succeed the net energy billing program.**”

* Source: Maine Statute 35-A M.R.S. [§3209-I \(2\)](#)

Front of Meter Definition

Electric generating facility that uses a renewable fuel or technology (...) is located in the service territory of a transmission and distribution utility in the State and is **interconnected to the distribution grid on the utility side of a customer's utility meter.***

Eligible renewables resources+

- Fuel cells
- Tidal power
- Geothermal installations
- Hydroelectric
- Biomass generators
- Anaerobic digestion
- Solar installations
- Wind installations

+ Source: Maine Statute 35-A M.R.S. [§3210 \(2\)](#), paragraph B-3

Assignment | LD.1777 assigns DOER to design a front-of-meter DER program & submit to MPUC by 9/30/2026

“In designing the program or programs, the office shall consider:

- 1 The marginal benefit to ratepayers in the State of the time value of generation & the location of generation;
- 2 Reasonable compensation rates specific to a distributed energy resource's size and generation type;
- 3 The development & use of a compensation model based on the value of distributed energy resources;
- 4 Opportunities for a load reducer program for commercial customers;
- 5 Incentivizing energy storage that provides benefits to ratepayers in the State; and
- 6 Necessary changes to utility rate structure, billing systems, data collection or metering to implement the program.

The office may consider other factors the office determines appropriate and shall solicit public input prior to the submission of a program design to the commission.”

* Source” Maine P.L. 2025 [Ch. 430 §14](#)

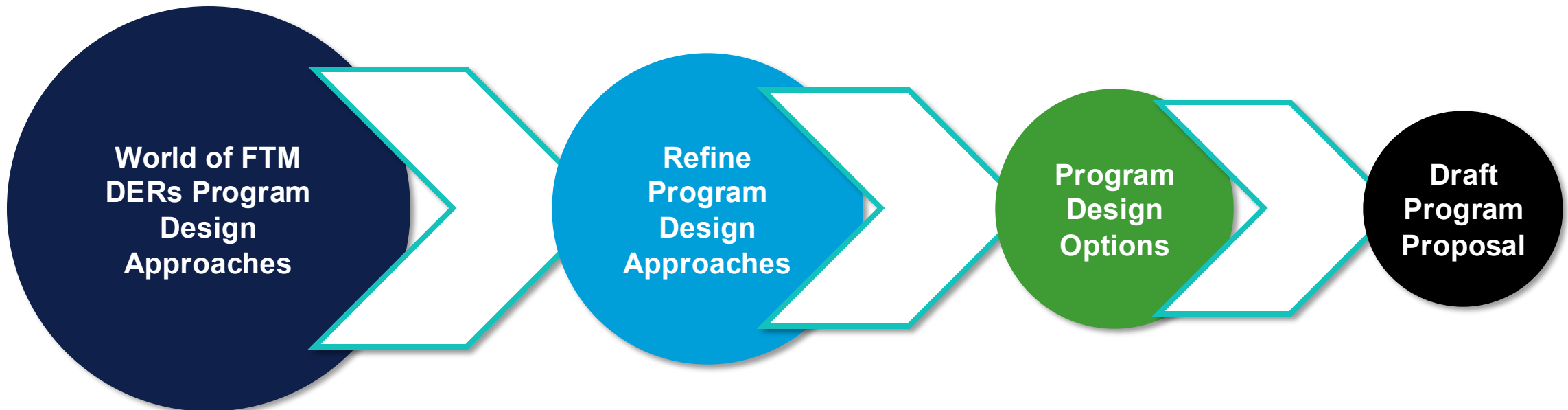
Project Timeline

Milestone	May	Jun	Jul	Aug	Sep
Regulatory Review & Framework					
Program Design & Development					
<i>Public Pre-Read: Project Background Deep Dive</i>					
<i>Public Webinar #1: Project Background, Framework Options, BCA Methods & Evaluation Scenarios</i>					
Draft Program Proposal & Report Released					
<i>30-day Public Comment Period</i>					
<i>Public Webinar #2: Review of Draft Program Proposal & Report</i>					
Final Program Proposal & Report due to PUC					

Process | Approach to program design and development

Objective

Develop a front-of-the-meter (FTM) distributed energy resource (DER) program that delivers benefits that exceed costs to Maine ratepayers while meeting requirements of 35-A M.R.S. §3209-I.



Project Objectives | Design an FTM DER program that benefits ratepayers, advances state energy goals, and meets §3209-I requirements

Maine law requires any program proposed must provide benefits to Maine ratepayers greater than any costs.

A successful program design would also support most or all the following aims:

Attractive market for developers

Incentives for developers are strong and durable for long-term market health, and key stakeholders trust that Maine is a good place to do business.

Recognized value streams

Energy services from DER resources are identifiable and compensated fairly.

Reliable and resilient grid

Program impacts strengthen Maine's grid, protect it against changing conditions, and ensure reliable service.

Integrated with grid operations

FTM resources are integrated into planning and operations to provide enhanced services for balanced grid management.

Community benefits

Mainers and host communities see material benefits from clean energy investments.

Durable, sustainable market design

Program design is flexible to adapt for new technologies, market changes, and political or policy changes.

Maine Context

Policy Context | State, federal, and regional goals, regulations & programs will inform framework design

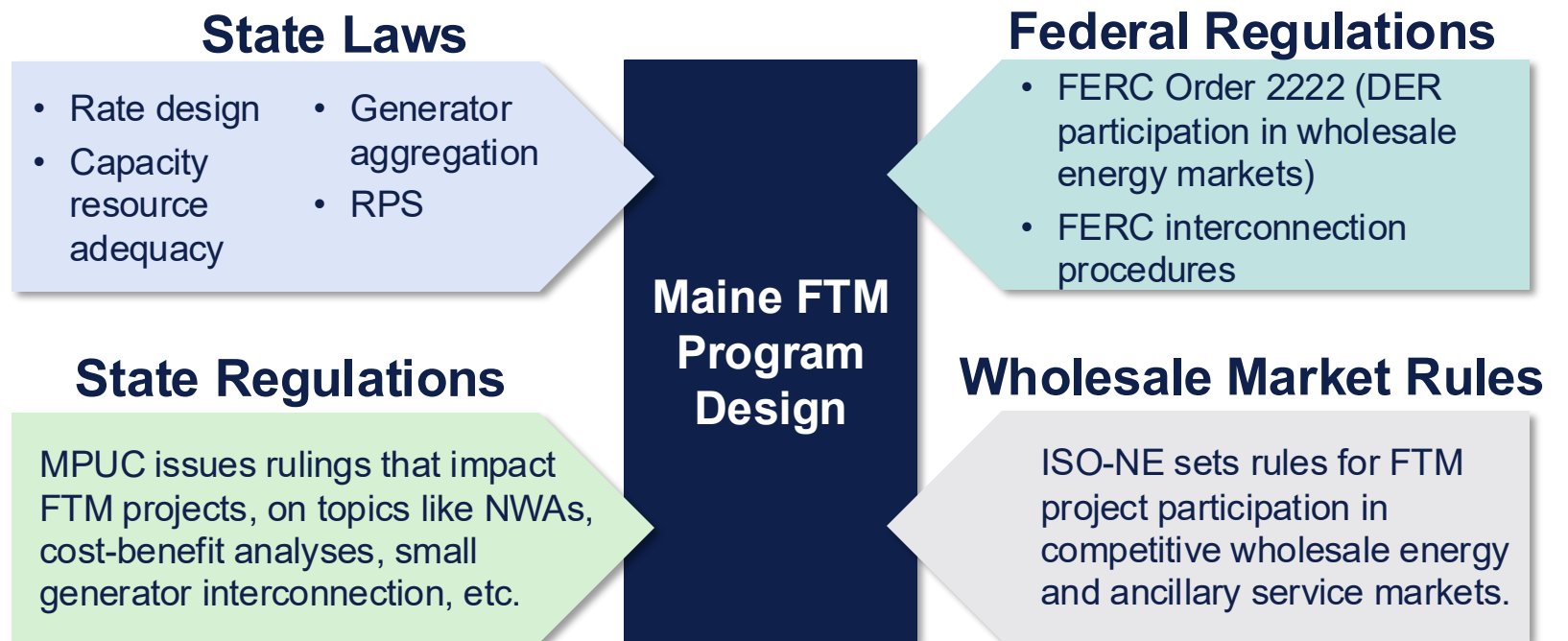
Rules and requirements across various jurisdictions (MPUC regulations and orders, FERC, State of Maine legislation, and ISO-NE) provide critical context for the program framework.

Relevant Maine Energy Goals

- ✓ Bring down ratepayer electricity expenses & energy burden. Reduce utility bills and energy costs for Mainers.*+
- ✓ Grow Maine's economy via clean energy jobs. Create 30,000 good quality clean energy jobs by 2030.*+

Sources:

- * Maine Climate Action Plan
- + Maine Energy Plan
- ^ Renewable Resource Portfolio Requirements
- ~ Public Law 2021 Chapter 298 (LD 528)



DERs in Maine | Opportunity to provide considerable value to ratepayers and the grid

Policy Landscape

DOER's Maine Energy Plan outlines priorities for DERs to advance affordability, reliability, and clean energy.

- **Key State Legislation:**
 - **2019 & 2020** → State community solar ("Net Energy Billing"), storage programs established
 - **2023** → Governor's Energy Office working group conducted initial evaluation of Maine community solar, proposals for alternative FTM programs
 - **2025** → Sunset community solar program for new installations

By the Numbers:

Current landscape

Existing DER installations:

- **1,000+ MW-AC** community solar capacity
- **250+** total MW energy storage

Projects seeking interconnection:

- **> 460 MW** of DERs seek interconnection to CMP & Versant distribution grids

Potential growth

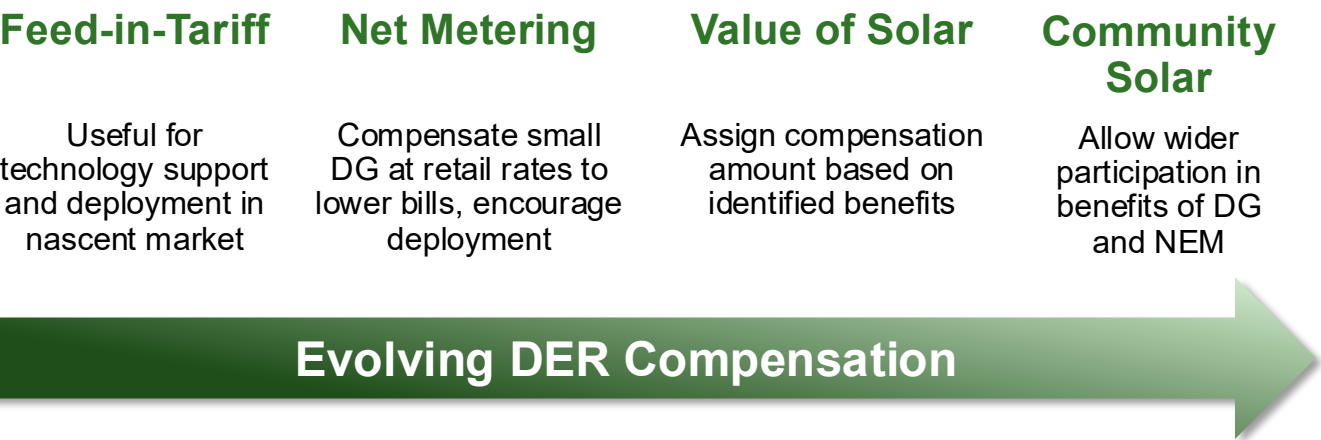
Long-term DER capacity estimates:

- **Versant:** nearly 1 GW
- **CMP:** 1.6 GW

Sources: [Maine DOER: Solar](#); [Maine DOER: Energy Storage](#); [Maine DOER: 2025 Maine Energy Plan](#); [Versant Power IGP Report](#); [CMP Integrated Grid Plan](#)

Program Framework

Framework Design | Consider evolution of DER compensation structures in US, abroad to meet new opportunities



Framework Design | Consider evolution of DER compensation structures in US, abroad to meet new opportunities

Feed-in-Tariff

Useful for technology support and deployment in nascent market

Net Metering

Compensate small DG at retail rates to lower bills, encourage deployment

Value of Solar

Assign compensation amount based on identified benefits

Community Solar

Allow wider participation in benefits of DG and NEM

Evolving DER Compensation

Increasing Performance and Capabilities

- *Advanced metering*
- *Smart inverters*
- *Increasing PV efficiency*
- *Storage technology improvements*
- *DERMS deployment*
- *New tariff designs or contract requirements*

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Opportunities for Enhanced Service & Value

Value of DER

Unleash additional services and value streams from DERs.

Wholesale Market Participation

Align DER compensation and services with bulk system markets.

Virtual Power Plants

Aggregate DERs to provide services comparable to conventional power plants.

Non-Wire Alternatives

Tap DER programs and alternative investments to defer costs of grid expansion.

The next evolution in DER compensation structures must assign more accurate prices and in a manner that connects resource performance to grid value.

Framework Design | Two guiding questions inform program design and research efforts

What?

What grid services and value streams should be recognized?

Illustrative Grid Services & Values:

Bulk System	Energy
	Capacity
	Ancillary Services
	Transmission Avoidance
Distribution System	Flexible Export
	Distribution Capacity
	Avoided Line Losses
	Voltage Management

How?

How will the services be compensated, and how will costs be recovered?

Questions (design features) include:

1. What is the procurement mechanism?
2. How is price determined?
3. Are ratepayers (subscribers) eligible to participate?
4. How are grid costs accounted for and recovered?
5. What are the technology or performance requirements for participating resources?

Framework Design | Understand, categorize scope of *grid services* provided by DERs

US DOE's Grid Modernization Laboratory Consortium (GMLC) provides a reference architecture for DER grid services. GMLC identifies **six primary grid services** to build out operations and compensation structures that can evolve with power system needs and market opportunities.

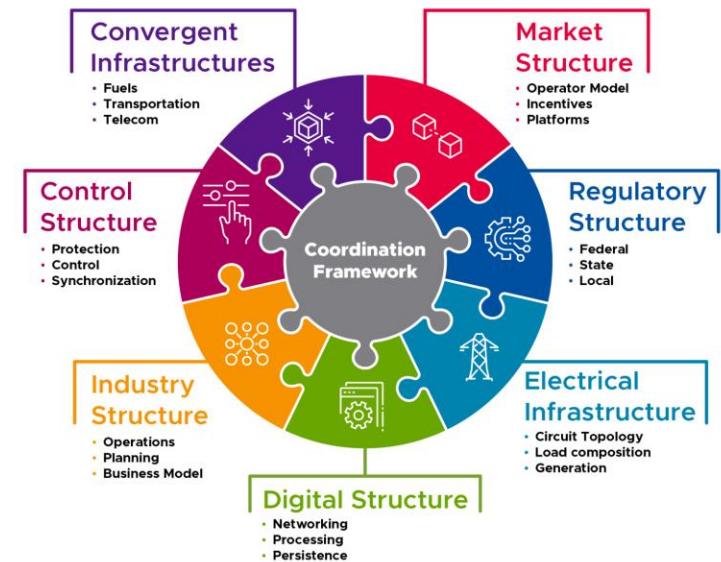
– PNNL Reference Coordination Architecture report, June 2025

Six Categories of Grid Services



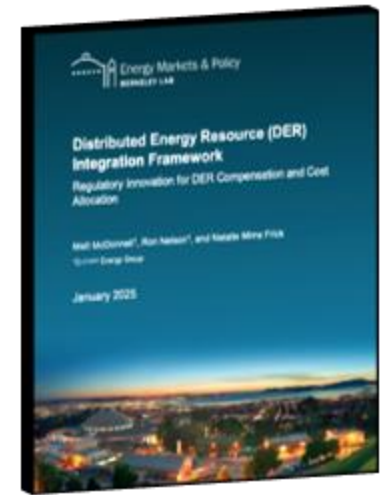
GMLC Terms and Definitions Report, July 2023

Related grid structures provide a connected architecture for co-evolution of the grid



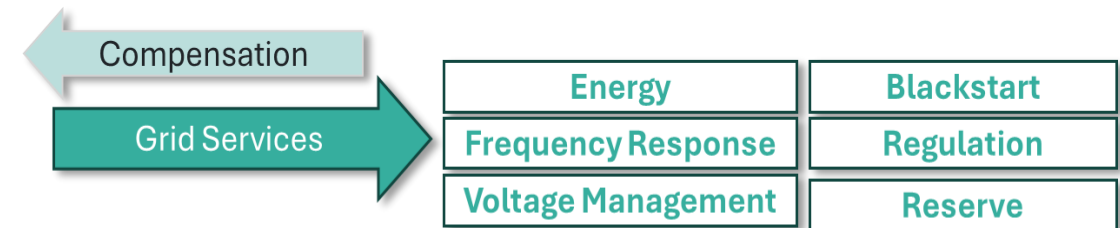
Framework Design | Categorize structures to manage *compensation* and *cost allocation*

Lawrence Berkley National Lab (LBNL)'s *Distributed Energy Resource Integration Framework* provides architecture for financial incentives, considerations.



1. Compensation for grid services

- Compensation for an expanded set of grid services which can evolve over time
- Encourages value stacking while avoiding for double-payment, tier bypassing, other risks.



2. Allocation and recovery of costs

- Improved methods to evaluate and assign costs for grid upgrades and use.
- Promotes contract rules for flexible, right-sized, and sped-up interconnection



Source: "[Distributed Energy Resource \(DER\) Integration Framework: Regulatory Innovation for DER Compensation and Cost Allocation](#)." Lawrence Berkley National Laboratory. January 2025.

Market Review | Example DER programs to review

Evaluating program structures in peer jurisdictions, including the following:

Northeast State Program Designs

Maine | Non-Wires Alternative (NWA) Authority

Massachusetts | MA Clean Peak Standard

Massachusetts | Solar MA Renewable Target (SMART) Program

New York | Retail Energy Storage Incentives

Rhode Island | Distribution-Connected Energy Storage Tariff

Other State and International Designs

Australia | DER Integration Model

California | Wholesale Distribution Access

Hawaii | Renewable Dispatchable Generation

Maryland | Proposed FTM Distribution-Connected Storage

Minnesota | Xcel Energy's Capacity*Connect

Texas | Oncor Wholesale Distribution Service

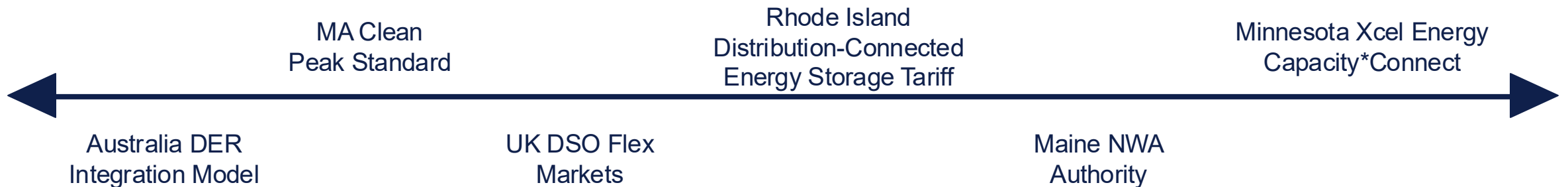
United Kingdom | DSO Flex Markets

Framework design | Standalone or planning-driven

Underlying program frameworks in peer jurisdictions exist on a spectrum of integration with existing planning and tariff-based structures.

A **standalone program** provides a rule-based structure (i.e., tariffs) with defined specifications for qualifying projects and targeted deployment.

A **planning-driven program** identifies grid needs based on resource planning (e.g., IGPs) to target solutions for network optimization.



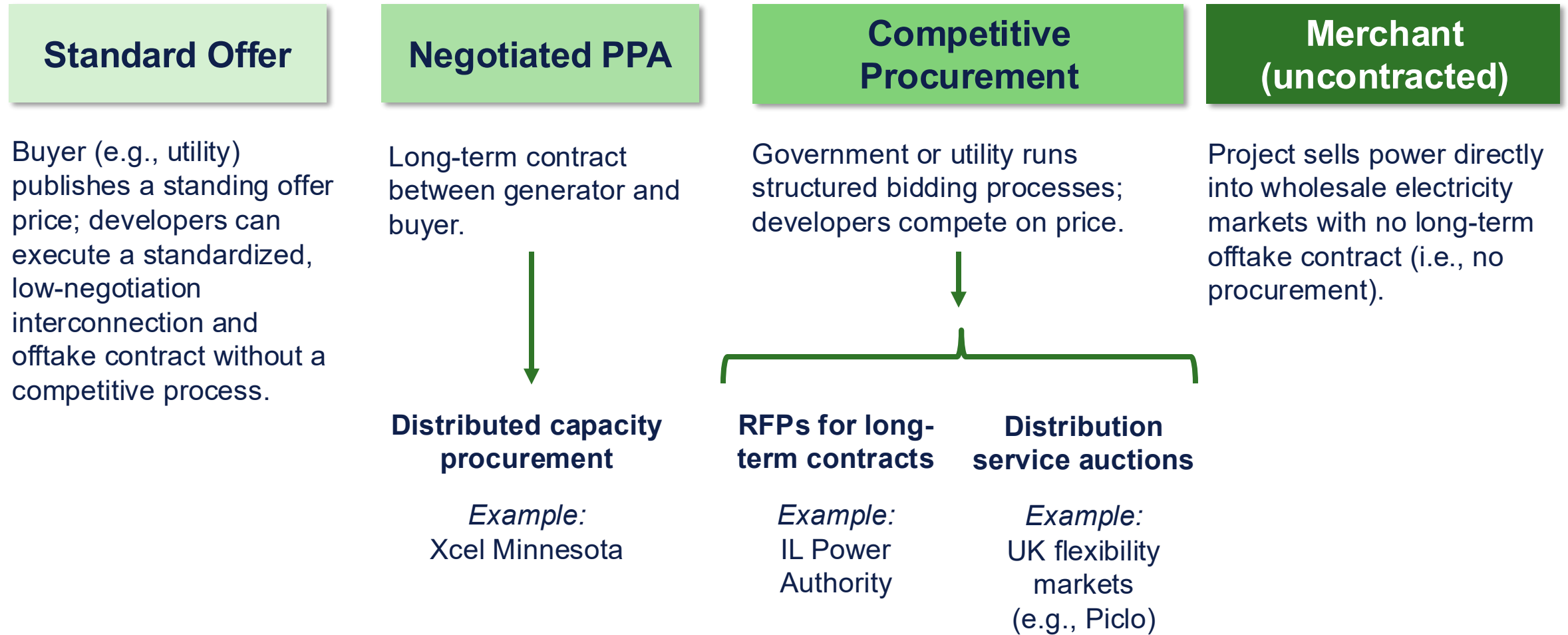
A **hybrid approach** can incorporate utility-identified grid needs as a planning input or preferred attribute to a standardized program structure.

Framework Development | Design features explored

Design features provide the “building blocks” for program structure, which can be assembled in various combinations to create a market for DER deployment.

	<i>Design Feature</i>	<i>Feature Definition</i>
Grid Services	1 Interconnection & Technology Requirements	Requirements or guidance for interconnection and technology
	2 Asset Management	How, and by who, are resources dispatched or controlled?
Compensation & Cost Recovery	3 Compensation Models	Approaches to price determination and the flow of money—both how and among which parties
	4 Procurement Mechanism	Approaches to select or procure DERs
	5 Contracting Vehicle(s)	The structure and applicable authorities that set contract terms (including applicable risk and responsibilities of each party)
	6 Cost Allocation	Approaches to allocating cost recovery for grid costs, including interconnection, system upgrades, and program administration

Example feature | Procurement mechanism types

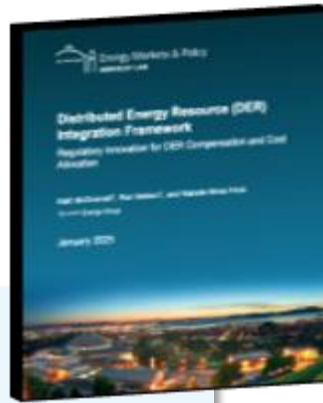


Example feature | Asset management types



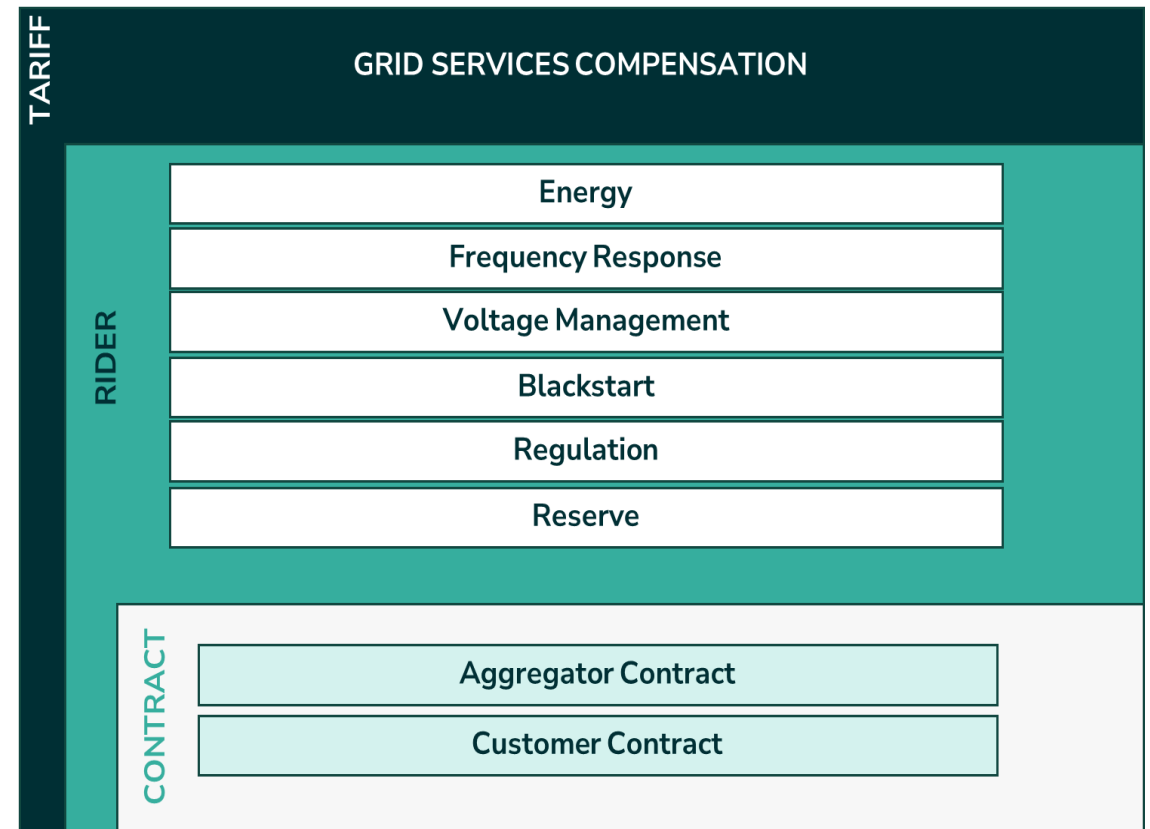
Framework Development | “DER Integration Framework” could compile features & variants from multiple structures

Utilize existing utility tariff structures and PUC rules framework to create contracts, performance requirements, and accountability.



- **Tariffs** provide the overarching contract and regulatory structure that governs the program. *Established at program start; infrequent revisions.*
- **Riders** define individual services, technology or performance requirements, and pricing. *Limited updates can be made periodically (e.g., for price changes to some fixed-price services).*
- **Contracts** define the terms by which individual customers (or project owners) participate in the program or, alternatively, for an aggregator to serve as an intermediary.* Contracts (governed by tariffs, in many cases) *would define either prices or price determination for the term of the contract.*

* For FTM program design, aggregation model may or may not be applicable.

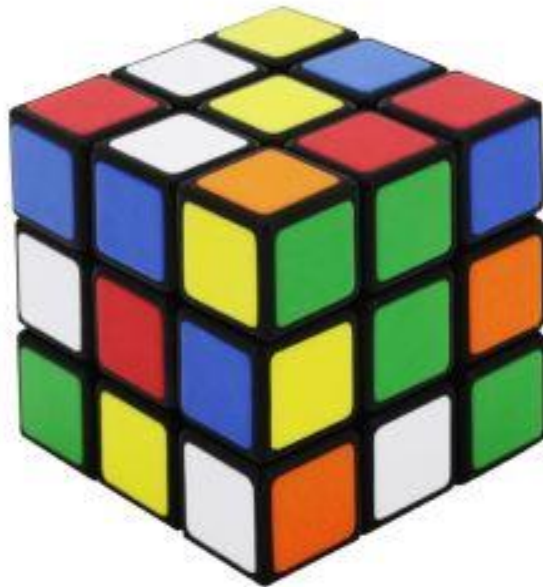


Program Framework | Design features will be stacked and combined to evaluate in next phase

Project team will build 3 to 4 models from a menu of design features (as described above) into a limited set of combinations for ultimate program design.

Example:

Competitive procurement
+
Third-party owned with
dispatch signals



These designs will be tested within:

1. A cost-benefit analysis model
2. A feasibility evaluation process

Participant Discussion

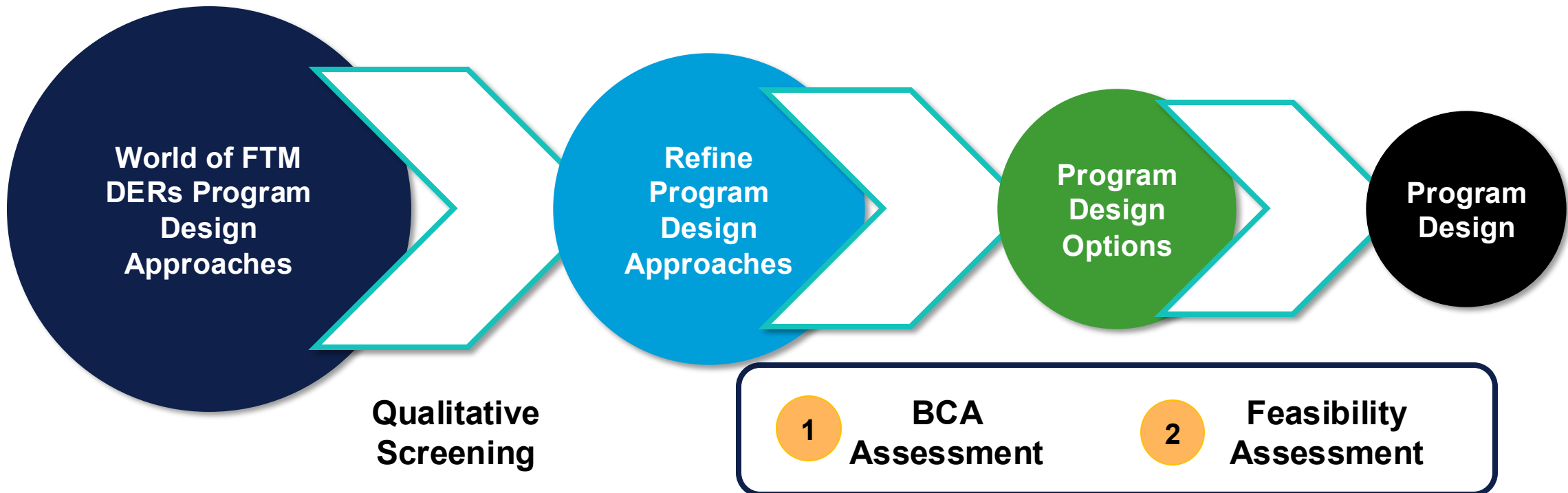
1. What features or capabilities should the framework reflect (to ensure that it can help provide a fair, accurate, and sustainable structure)?
2. What is success for a DER front-of-the-meter framework design in Maine?
3. What peer state programs could be applicable for Maine and why? Are any notable program designs missing from the previewed set?

Evaluating Economic Impacts: Benefit Cost Analysis (BCA) and Implementation Risks

Process | BCA and Feasibility Assessment

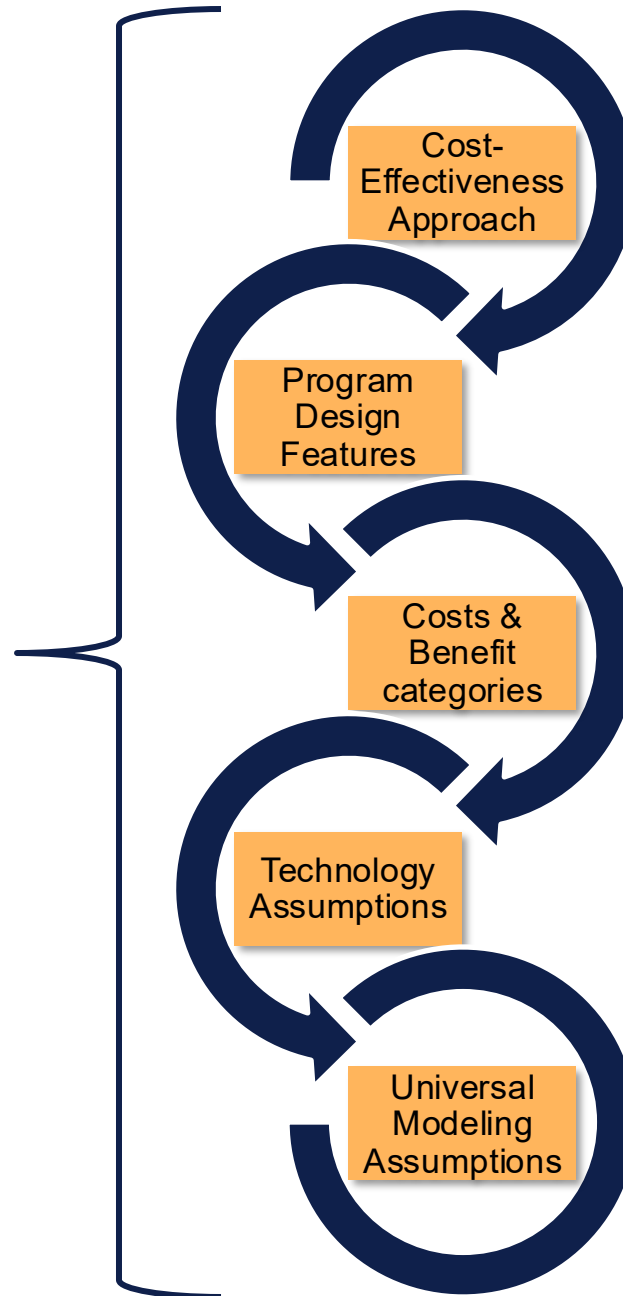
Why a benefit-cost analysis?

Deliver a comprehensive, optimized program that fully complies with §3209-I by clearly demonstrating cost-effectiveness and net benefits to ratepayers—enabling informed decisions and supporting successful program approval.



BCA Development Process For FTM DERs Program

The
**Instruction
Manual** for
economic
analysis



Determine the most appropriate **Cost-Effectiveness (CE) test(s)** for this effort.

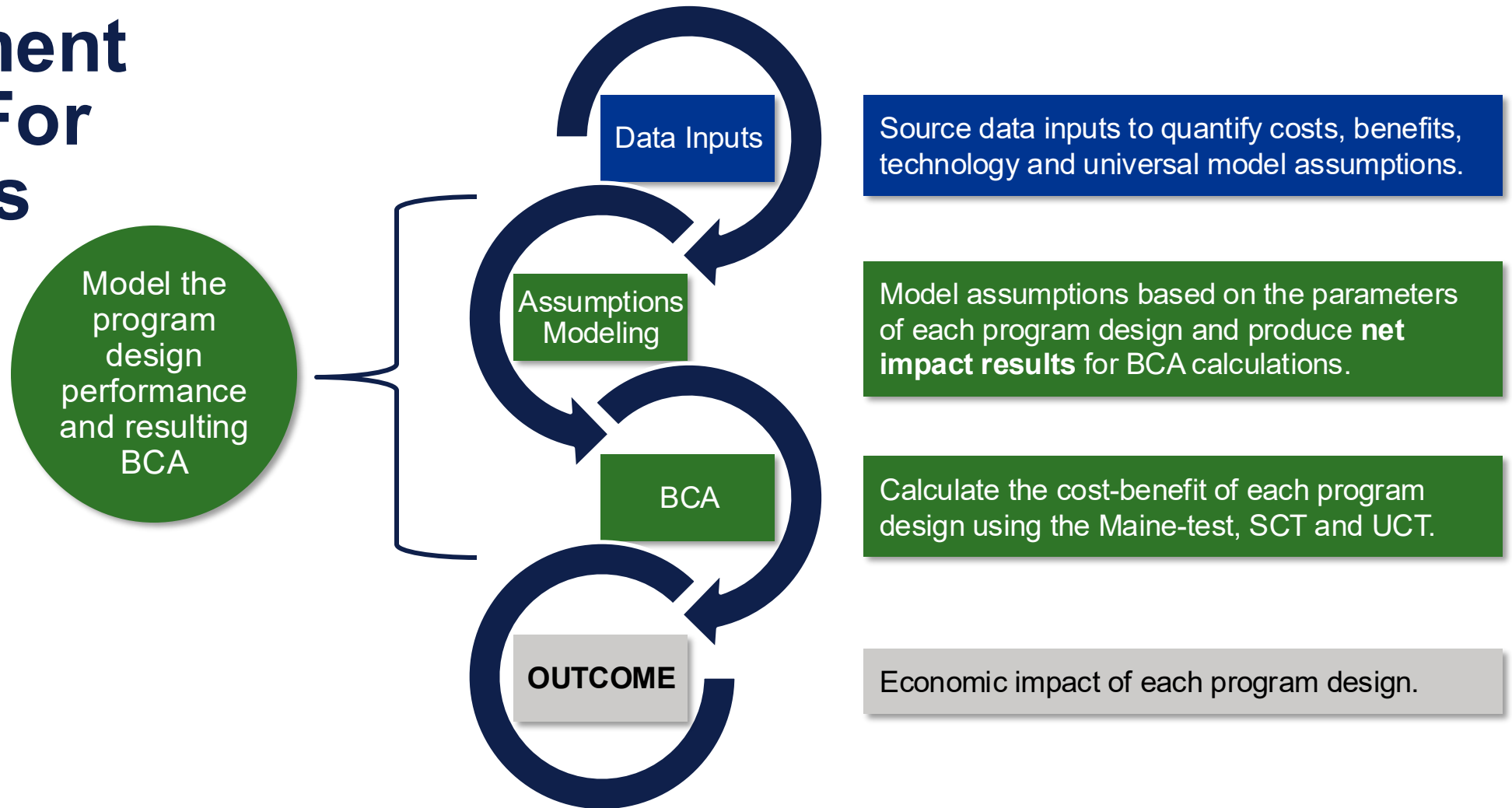
Define the **design features and potential variants** that will determine the modeling assumptions and inputs selected for each program design.

Determine the **costs and benefits** contained within each design feature.
Identify the appropriate modeling approach.

Define **technology assumptions** such as the number and capacity of resources, associated technology costs, dispatch and system performance assumptions, etc.
Map to each design feature.

Define and integrate the **universal model assumptions** like discount rate, inflation rate, load growth rate, peak hour assumptions, etc.
Provide alternatives for sensitivity testing.

BCA Development Process For FTM DERs Program



Relevant and Parallel Efforts in Maine

	DG Working Group (2023)	Maine Solar BCA (2025)	Storage Procurement BCA (2025)
State Effort	In 2021, Maine’s Governor’s Energy Office (GEO), in collaboration with the PUC, convened a stakeholder group to “consider various distributed generation project programs to be implemented between 2024 and 2028 and the need for improved grid planning.” (35-A MRS §3482)	Statutory requirement under Maine’s 2023 law (L.D. 327) directs the Maine Public Utilities Commission to annually evaluate solar development, market trends, and the costs and benefits of distributed generation relative to state energy goals.	2023 state law directs the Maine Governor’s Energy Office (GEO) to evaluate design options for a program to procure up to 200 megawatts (MW) of commercially-available, utility-scale energy storage connected to Maine’s transmission and distribution systems.
Cost-Effectiveness Test Utilized	This group adapted the “ Maine Test ” from National Energy Screening Project’s National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resource (NESP), adapted to Maine’s policy context.	Primary analysis was Societal Cost Test (SCT) , which includes benefits like greenhouse gas reductions and regional effects beyond Maine ratepayers. Maine-specific cost-effectiveness and a ratepayer impact analysis were also performed.	Based on stakeholder feedback in the RFI, legislative criteria, and guidance from the NSPM, the project team selected the UCT and a jurisdictional SCT for its assessment of storage.

Recommended Cost-Effectiveness Tests

*Will the program
produce net benefits
on the utility electric
system?*

Utility Cost Test (UCT) will indicate how DERs can be used as resources to meet grid needs.

This test is the **primary test** for determining if the program design(s) is ratepayer beneficial.

*Will the program
produce net benefits
to Maine?*

The “**Maine**” **Test** is a customized view of the Societal Cost Test (SCT). Unlike the SCT, the Maine Test benefits are limited to utility system impacts and primary societal benefits of distributed generation such as CO2 and NOx.

This test provides a state perspective vs a ratepayer-only perspective.

*Will the program
deliver net benefits
to society?*

Societal Cost Test (SCT) includes benefits outside of Maine and additional categories of benefits like developer market revenues.

This test provides a broader perspective than a Maine-only perspective.

Benefits and Costs Considered

The cost-effectiveness tests will analyze the benefits and costs of each program design on the electric utility system, incorporate policy objectives in Maine, and consider broader program impacts. Utility-specific distribution project costs (where possible) will be analyzed to capture localized benefits and costs of the program.

Category	Cost or Benefit	Type
Electricity System & Non-energy Avoided Costs	Benefit	Avoided Energy Costs
		Avoided Capacity Costs
		Avoided Distribution Costs
		Avoided PTF and Non-PTF Costs
Market Revenues	Benefit	Wholesale Revenue
		Spinning Reserve Revenue
		Frequency Regulation Revenue
DER System Costs	Cost	CapEx Costs
		OpEx Costs
		Interconnection Costs
Program Costs	Cost	Program administration costs
Incentives	Benefit	Federal and State Incentives
	Cost	Utility Incentives

Implementation Feasibility Assessment

Objective

Understand the **implementation risks** and associated considerations for the selected program design(s).

Approach

1. Identify critical feasibility factors through a collaborative approach.
2. Define high-level implementation requirements for the program design(s).
3. Qualitatively evaluate the implementation risk of feasibility factors; documenting key considerations.
4. Determine if (1) mitigation strategies are appropriate, (2) the program design needs to be adjusted, and/or (3) dialogue is needed with key parties to consider implications or opportunities to address challenges.

Implementation Feasibility Assessment

Qualitative Evaluation Matrix

Likelihood	Severity			
	Insignificant	Minor	Moderate	Major
Almost Certain	Low	Medium	High	Very High
Likely	Low	Medium	Medium	High
Possible	Negligible	Low	Medium	Medium
Unlikely	Negligible	Low	Low	Medium
Rare	Negligible	Negligible	Negligible	Medium

Negligible	Desirable
Low	Acceptable: monitor and review periodically
Medium	Review program design and determine if changes can be made
High	Not acceptable: address challenges
Very High	Not acceptable: address challenges

Illustrative Feasibility Factor Examples

Programmatic
Utilities, 3rd parties, or state agencies may need to invest resources into developing new or enhanced capabilities that could delay program launch and/or create unreasonable financial burden.

Regulatory
Planned or future ISO-NE market reforms may not resolve uncertainty for DERs to monetize participation in the wholesale market or be able to participate in multiple markets.

Technical
Uncertain hosting capacity assumptions for circuits where projects are proposed can create delays in project timelines or unexpected project costs.

Participant Discussion

1. What do you see as top challenges to program implementation?
2. What specific risks should we be considering?

Participant Q&A

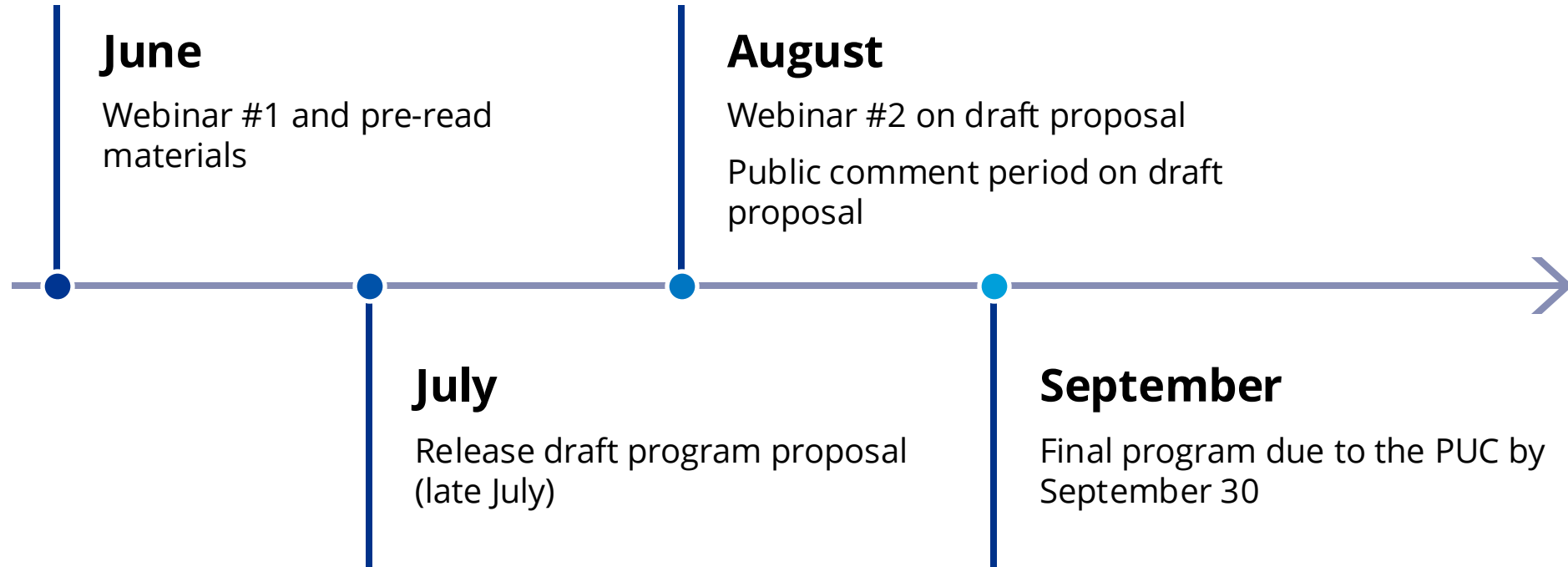


Next Steps and Wrap Up



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Next Steps



Help Shape the Next Energy Plan



maine.gov/energy/plan

- [Request a meeting](#) or a presentation with DOER staff
- [Sign up for email updates](#) to stay informed about the 2027 Energy Plan
- [Share your feedback](#) using the [online survey](#) →



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Thank You

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