**Early Design Meeting Agenda and Report Template for:** <Project Name>

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|  **Meeting Details** |
| DATE | TIME |
| LOCATION |

|  |  |  |  |
| --- | --- | --- | --- |
|  Attendee | Attendance | Phone Number\* | Email Address\* |
| Owner | Required |  |  |
| Architect | Required |  |  |
| Mechanical Engineer | Required |  |  |
| Energy Trust Program Representative | Required |  |  |
| Meeting Facilitator | Required |  |  |
| Lighting Designer | Recommended. Required for Whole Building. |  |  |
| General Contractor  | Recommended |  |  |
| Building Operator | Recommended |  |  |
| Solar Trade Ally\*\* | Recommended. Required for Solar Bonus incentive. |  |  |
| Commissioning Agent\*\* | Recommended. Required for CX Bonus incentive. |  |  |
| Grid-interactive Efficient Building (GEB) Expert\*\* | Recommended. Required for GEB Bonus incentive. |  |  |
| Energy Modeler | Required for Whole Building |  |  |

*\*Meeting minutes must include phone number and email address for each attendee.*

*\*\* See required agenda topics for each bonus incentive*

Optional bonus incentives are available for qualifying projects. See additional required agenda topics below. Contact your Program representative for more information.

* + Solar Bonus Incentive
	+ GEB Bonus Incentive
	+ Commissioning Bonus Incentive

## General Topics (all projects)

1. Meeting Objective:
	1. Establish project’s energy goals and identify strategies to meet those goals.
2. Meeting Outcome:
	1. Documentation of energy performance goals
		* 1. Estimated baseline (“typical building”) EUI
			2. Proposed building EUI
			3. Proposed renewable EUI
			4. Alignment with Architecture 2030 Challenge targets
	2. Determine strategies to achieve EUI
	3. Prioritized strategies for team to pursue through further analysis/design
	4. Understanding of potential Energy Trust incentives to support achievement of goals
	5. Agreement on energy savings priorities and identification of follow-up questions required to assess feasibility.
	6. Clarity on next steps
3. Discussion Topics:
	1. General Project Information
		1. Overview: shape, orientation, massing, type, usage, occupancy schedule
		2. Results of preliminary energy analysis, if applicable
		3. Results of studies identifying climate conditions and site potential
		4. Example case study or best practices of high-efficiency buildings of the same type
	2. Strategies for achieving EUI target
		1. Reducing envelope loads
			1. Glazing: window-to-wall ratio and glazing performance
			2. External shading
			3. Wall and roof performance
			4. Infiltration
		2. Incorporating passive solutions
			1. Daylighting
			2. Natural ventilation
		3. Designing efficient systems
			1. HVAC system selection
			2. Building-wide systems
			3. IT rooms
			4. Lighting design
			5. Domestic hot water systems
		4. Considering occupant behavior and plug loads
			1. Office equipment: laptop computers, printers, copiers, etc.
			2. Task lighting
			3. Energy Star appliances
			4. Controlled power strips and outlets
		5. Incorporating special measures
			1. Innovative approaches to energy efficiency
			2. Process for Energy Trust incentives for custom measures

vi. Using renewables to meet remaining demand (if applicable)
NOTE: if pursuing Solar Bonus Incentive, see detailed agenda below.

* + - 1. Solar ready
			2. Solar electric and hot water
			3. Solar + storage
			4. Other renewable systems
			5. Offsite renewables
		1. Electric vehicle charging
			1. Types of EV charging stations
			2. Surface parking vs garage settings for EV charging
1. Other considerations for efficient buildings
	1. Resiliency
		1. Emergency situations
		2. Future climate considerations
	2. Grid-interactive efficient buildings (GEB)

NOTE: if pursuing GEB Bonus Incentive, see detailed agenda below.

* + 1. Understanding GEB
		2. Efficiency features ready for grid-interactivity
		3. Options for optimizing demand response
	1. Commissioning

NOTE: if pursuing Commissioning Bonus Incentive, see detailed agenda below.

* + 1. Advantages of commissioning
		2. Role of commissioning agent for design review and functional testing
1. Additional factors impacting EUI goals
	1. Energy and carbon reduction policies
		1. Embodied carbon
		2. Operational carbon
	2. Life-cycle analysis
		1. Definition of life-cycle analysis
		2. Life-cycle costs and efficiency benefits to consider
	3. Operation and maintenance strategies
		1. Ongoing monitoring and commissioning
	4. Unique contract requirements that support integrated delivery
		1. RFP language
		2. Contractor selection
		3. Progressive Design-Build
		4. Value engineering
2. Project logistics:
	1. Utilities
		1. List the energy utilities that serve this project’s site
		2. Natural gas service
			1. Determine the rate schedule
			2. Confirm if planning on firm service
	2. Timeline
		1. Construction Document (CD) estimated completion date
		2. Construction estimated start date
		3. Submittal completion estimated date
		4. Substantial completion estimated date
	3. Applicable energy code
3. Working with the Energy Trust New Buildings Program:
	1. Role of Outreach Manager
	2. Expectations of owner and design team
	3. Path to Net Zero and Whole Building projects permitting under the 2019 and 2021 Oregon Zero Energy Ready Commercial Code
		1. EUI target
		2. 50% Construction Document review
		3. Technical assistance (energy modeling, CFD, daylighting, etc.) – reminder to include all measures in the energy model
		4. Post occupancy (metering and net zero certification)
	4. Marketing and promotional opportunities
		1. Groundbreaking and ribbon-cutting ceremonies
		2. Social media
		3. Case studies
	5. Resources:
		1. [New Buildings forms page](https://www.energytrust.org/commercial/new-buildings-forms-resources/)
		2. [Zero Tool](http://zerotool.org/zerotool/)
		3. Zero Code [Calculator](https://zero-code.org/energy-calculator/)
		(Note: ZERO Code / 2021 IECC Appendix = 2019 OZERCC; ZERO Code 2.0 = 2021 OEESC)
		4. 2021-Code Technical Guidelines
		5. [2019-Code Technical Guidelines](https://energytrust.org/wp-content/uploads/2020/02/NBE_PG_TechGuidelines_2019.pdf)
		6. [LED fixtures - Qualified Products List](https://www.designlights.org/)
		7. [Solar and solar-ready information](https://insider.energytrust.org/programs/solar/forms-and-resources/)
		8. [Solar EDA Template](https://www.energytrust.org/wp-content/uploads/2019/04/NBE_EDA-Solar-Template.docx)
4. Next Steps:
	1. Action Items
	2. Next Meeting

# Solar Bonus Incentive

*The topics below are required for the optional Solar bonus incentive. To qualify for the additional incentive, these discussions must be led by a Solar Trade Ally who attends the meeting. All listed topics must be covered at the meeting and written responses to these Agenda Topics must be submitted as part of the meeting documentation. Contact the Program prior to the Early Design Assistance meeting to confirm eligibility for this bonus incentive.*

1. SOLAR Meeting Objective:
	1. Establish project’s goals for renewable energy including solar installation
2. SOLAR Discussion Topics:
	1. SOLAR: Building Design features to consider for balancing solar production, solar incentive eligibility and other project goals
		1. For reference: [Energy Trust of Oregon Solar Ready Design requirements](https://insider.energytrust.org/wp-content/uploads/nb_solarready_comm_design_construction_req.pdf)
		2. System Layout
			1. Building orientation and roof tilt
			2. Walkways to meet Oregon fire code and provide access for maintenance
			3. Minimize shade and obstructions to maximize solar system performance and customer return on investment
				1. Consider the height and location of HVAC equipment, parapet, elevator shafts, existing and future trees, etc.)
			4. Total Solar Resource Fraction (TSRF): knowing the system layout and location of any obstructions will allow the solar trade ally to calculate how much of the available sun the system will receive
			5. Other considerations
				1. Visible solar elements (solar awning, solar flower, etc.) to be included in addition to the main system on the roof
		3. Structural
			1. Roof structure and engineering needed to meet necessary load requirements to support PV system
			2. Mounting system for solar modules
				1. Types of solar mounts
				2. Type of roof system & required PV attachment and flashing required
		4. Electrical
			1. Designated space near main electrical panel for grid-tied solar
			2. Raceway and/or conduit runs from the roof to the electrical room or other space identified for the solar electrical equipment
			3. Main electrical panel sized with space on the busbar for the solar system to be “plugged in”
			4. Space for inverter and electrical balance of system in electrical room or space identified for the solar electrical equipment
		5. Battery storage
			1. Options for types of battery storage
			2. Space and location considerations
			3. Sizing battery capacity and building electrical loads
			4. Battery maintenance
	2. SOLAR: Financial Considerations & Economics
		1. Financial Analysis
			1. General financial summary based on comparable solar installations
		2. Estimated annual production based on system size, tilt, orientation, and shade
		3. General Cost guideline
		4. Available Grants
			1. Utility, state and federal grants, and other funding sources
		5. Available Incentives – [Energy Trust of Oregon](https://www.energytrust.org/incentives/solar-for-your-business/#tab-two) cash incentive
		6. Tax Benefits - Federal Investment Tax Credit (ITC) and Accelerated Depreciation
	3. SOLAR: Specific local permitting or zoning considerations
	4. SOLAR: Next steps to incorporate solar into the building design & strategies to reduce barriers to future solar installations
		1. Solar Development Assistance – contact program for information
		2. [Solar Installation Incentive Information](https://www.energytrust.org/incentives/solar-for-your-business/) – [Energy Trust Solar for Business Website](https://www.energytrust.org/incentives/solar-for-your-business/)
		3. [Solar Ready Construction Incentives](https://www.energytrust.org/wp-content/uploads/2016/10/NBE_FM0520SR.pdf) – [Solar Ready Incentive Application form](https://www.energytrust.org/wp-content/uploads/2016/10/NBE_FM0520SR.pdf)

# Grid-Interactive Efficient Buildings (GEB) Bonus Incentive

*The topics below are required for the optional Grid-Interactive Efficient Buildings (GEB) bonus incentive. To qualify for the additional incentive, these discussions must be led by one or more team members with expertise in GEB who participate in this meeting. All listed topics must be covered at the meeting and written responses to these Agenda Topics must be submitted as part of the meeting documentation. Contact the Program prior to the Early Design Assistance meeting to confirm eligibility for this bonus incentive.*

Projects proposed for the Early Design GEB bonus incentive must be high performance, energy efficient buildings with a commitment to a low target EUI. Design teams must be capable of recommending specific demand response and/or other GEB measures for integration into the design. Energy efficiency is a key first step in designing for GEB. By integrating efficiency features with demand response, solar PV, and battery storage, a GEB can optimize energy use to avoid high peak load on the grid, often bringing cost savings to a project. For the purpose of this discussion topic, the New Buildings program considers the following to be useful definitions:

* “Grid-interactive efficient buildings (GEBs) are energy efficient buildings with smart technologies characterized by the active use of distributed energy resources (DERs) to optimize energy use for grid services, occupant needs and preferences, and cost reductions in a continuous and integrated way.” From the EERE report *A National Roadmap for Grid-Interactive Efficient Buildings*
* Distributed Energy Resources (DERs) are “resources sited close to customers that can provide all or some of their immediate electric and power needs and can also be used by the system to either reduce demand (as with energy efficiency) or provide supply to satisfy the energy, capacity, or ancillary service needs of the distribution grid.” From the ACEEE Whitepaper *Grid-Interactive Efficient Building Utility Programs: State of the Market*
1. GEB Meeting Objective:
	1. Clarify project’s commitment to GEB and identify strategies to meet those goals.
2. GEB Discussion Topics:
	1. Resiliency
		1. Define resiliency for this project
		2. Identify potential project resilience goals and how they intersect with, and support, GEB strategies
		3. Discuss aspects of resilience such as: grid outage response, local power generation and storage, and community service (e.g., disaster support, communications)
	2. Demand Reduction
		1. Describe how building energy demand will be analyzed during design
		2. Discuss energy modeling approaches including:
			1. Time-of-use considerations
			2. Potential utility rate schedule impacts
			3. Right-sizing equipment, generation, and other relevant aspects of demand.
	3. Distributed Energy Resources (DERs):
		1. Describe potential DERs for this project
		2. Discuss how DERs might be integrated into this project
		3. Discuss specific options such as solar, battery storage, thermal storage, and electric vehicles.
	4. Load Flexibility
		1. Discuss how building design may incorporate aspects of load flexibility such as:
			1. Energy efficiency
			2. Load shed/shift
			3. Modulation (grid quality, frequency/voltage)
			4. Onsite power generation
		2. Discuss potential synergies between building energy efficiency features and demand flexibility options
		3. Highlight specific building systems appropriate for load flexibility options
	5. Control Strategies
		1. Discuss specific building controls strategies and communications protocols (e.g., OpenADR) that benefit the building owners and occupants and support GEB goals
		2. Describe potential beneficial services to the grid from these controls strategies and technologies
		3. Describe potential utility bill savings to the project from these controls strategies and technologies (e.g., time-of-use rates, minimizing peak charges)
	6. Automated Demand Response:
		1. Explore current and future utility demand response and automated demand response considerations to be incorporated into the building design
		2. Discuss aspects of a building's equipment and controls design that may help prepare the building for a future with more intensive building/grid 2-way communication and responsiveness requirements
	7. Any additional features to consider with a Grid-Interactive Efficient Building

Demand Response Programs:

* Pacific Power / [Commercial & Industrial Demand Response](https://www.pacificpower.net/savings-energy-choices/business/wattsmart-efficiency-incentives-oregon/CIDR.html)
* Portland General Electric / [Energy Partner Program](https://portlandgeneral.com/save-money/save-money-business/energy-partner-program)

GEB Resources:

* [*A National Roadmap for Grid-Interactive Efficient Buildings* (USDOE, Office of Energy Efficiency & Renewable Energy, May, 2021)](https://gebroadmap.lbl.gov/)
* [The GridOptimal Buildings Initiative (New Buildings Institute)](https://newbuildings.org/resource/gridoptimal/)
* [*Grid-Interactive Efficient Building Utility Programs: State of the Market* (ACEEE Whitepaper, Oct. 2019)](https://www.aceee.org/sites/default/files/pdfs/gebs-103019.pdf)

# Commissioning Bonus Incentive

*The topics below are required for the optional Commissioning (CX) bonus incentive. To qualify for the additional incentive, these discussions must be led by a commissioning agent who participates in this meeting. All listed topics must be covered at the meeting and written responses to these Agenda Topics must be submitted as part of the meeting documentation. Contact the Program prior to the Early Design Assistance meeting to confirm eligibility for this bonus incentive.*

1. CX: Meeting Objective:
	1. Establish project’s goals for commissioning
2. CX: Discussion Topics:
	1. Strategies for Commissioning
		1. Define Commissioning services to be provided
	2. Design Review Commissioning
		1. Describe Design Review Commissioning
		2. Outline building systems to be reviewed
	3. Commissioning Plan
		1. Describe Commissioning Plan
		2. Outline building systems to be commissioned
	4. Functional Testing Commissioning
		1. Describe Functional Testing Commissioning
	5. Additional strategies for optimizing benefits of commissioning
3. Next Steps:
	1. Action Items
	2. Next Meeting

Template for Action Plan

|  |  |  |
| --- | --- | --- |
| **What** | **Who** | **By When** |
| *e.g., Submit Early Design Assistance meeting notes* | *e.g., Architect or meeting facilitator* | *e.g., Next week* |
| *e.g., Submit Payment Request documents* | *e.g., Owner or Owner’s Representative* | *e.g., in 1 month* |
| *SOLAR: e.g., Provide proposed system sizes & financial analysis to project team* | *e.g., Solar Trade Ally* | *e.g., Next week* |
| *SOLAR: e.g., Explore Solar Development Assistance incentive* | *e.g., Project Team & Solar Trade Ally* | *e.g., in 1 month* |
| *GEB: e.g., Provide proposed DERs to project team* | *e.g., Energy modeler* | *e.g., Next week* |
| *GEB: e.g., Explore specific building systems that support GEB.* | *e.g., MEP* | *e.g., in 1 month* |
| *CX: e.g., Provide Commissioning Plan* | *e.g., CxA* | *e.g., in 1 month* |