Chapter 7. Community benefits indicators and community-based renewable energy

While our Integrated Resource Plan (IRP) has historically focused on least-cost, least-risk modeling as the foundation for providing safe, reliable and affordable power to customers, House Bill (HB) 2021 and OPUC guidelines for utilities' Clean Energy Plans expand the focus of resource planning to be more inclusive of the broader community benefits of resource options and the opportunities for Community-based Renewable Energy resources (CBREs). This chapter describes PGE's approach to the Community Lens topic as outlined in the OPUC's UM 2225, which provided guidance on the development of community benefits indicators (CBIs), the inclusion of a CBRE potential study and the identification of CBRE opportunities.

Chapter highlights

- Portland General Electric's (PGE's) Community Lens Potential study defines our approach to the CBRE forecast and identifies 155 megawatts (MW) of CBRE potential by 2030.
- PGE incorporates CBIs within our IRP using a 10 percent adder for our Resource CBI pathway and a scoring methodology for our Portfolio CBI pathway.
- PGE will continue to evolve our approach to CBIs and CBREs through our Community Learning Labs and by working with our communities to identify future CBRE opportunities through our community Request for Proposals (RFP) and development of non-wires solutions (NWS).

7.1 Community benefits indicators (CBIs)

7.1.1 Defining community benefits indicators

PGE defines a CBI as an equity tool that can be applied to modeling, analysis, scoring metrics, procurement, programs and reporting to inform decisions related to planning activities. CBIs aim to assist in pursuing equitable outcomes and beneficial long-term impacts to environmental justice (EJ) communities, tribes and the most vulnerable communities.

To begin our work, we reviewed OPUC guidance under Order 22-390 regarding CBIs and their application to CBRE analysis and IRP portfolio analysis. Based on the OPUC's guidance in Order 22-390, CBIs are divided into five categories:

- Resilience (customer and system)
- Economic
- Environmental
- Energy equity
- Health and community wellbeing

Additionally, PGE reviewed the OPUC's Attachment A from Order 22-390 (also referred to as "Attachment A").[160] Attachment A was provided by a coalition of Energy Advocates detailing 15 distinct CBIs the Commission and utilities should consider. We reviewed the list of recommended CBIs from our communities within Attachment A and the broader literature around CBIs and the experiences of other utility jurisdictions (e.g., Washington's Clean Energy Transformation Act requirements). Utilizing this information, we worked with communities and stakeholders within our Community Learning Labs to identify additional CBIs and which CBIs are most important to our communities.

[160] See *In the Matter of Portland General Electric Company, House Bill Investigation into Clean Energy Plans*, UM Docket No. 2225, Order No. 22-390 (Oct 25, 2022), Appendix A at 65 (Attachment A Stakeholder CBI Proposal), available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf.

PGE will continue working with our communities and other stakeholders through the Community Learning Labs and other venues to develop more standardized information to guide implementation efforts and accountability around community benefits moving forward. This work includes:

- Developing metrics used to measure these benefits.
- Establishing a baseline of the current state of these benefits, where feasible.
- Determining thresholds/criteria for success.

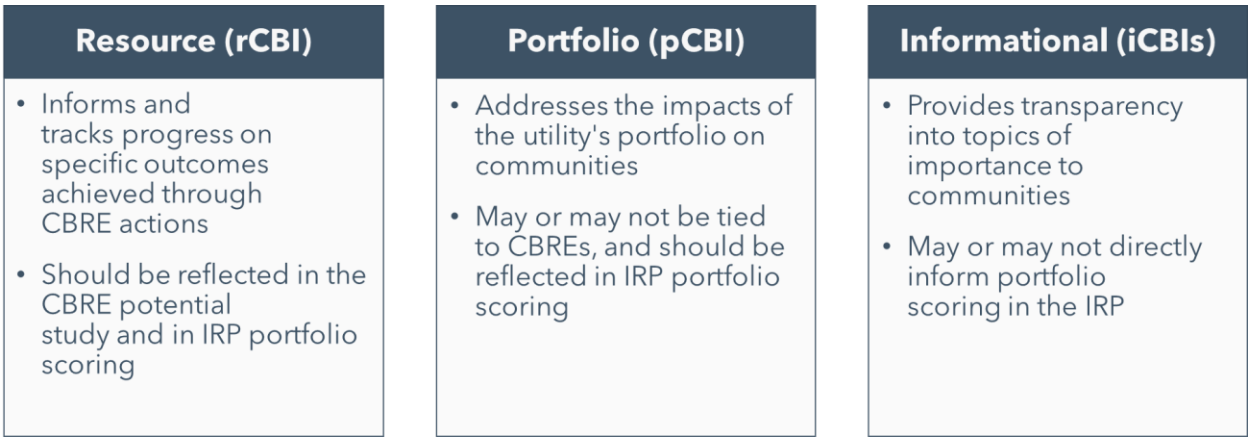
7.1.2 Community benefits indicator pathways

PGE views CBIs as an important component of an inclusive process of the clean energy transition, helping us identify opportunities for communities to benefit from investments to achieve emissions targets. As discussed further in **Chapter 14, Community equity lens and engagement** PGE conducted community engagement within our Community Learning Labs to develop our initial approach to CBIs. Our goals were to identify CBIs of interest to our communities, identify baseline metrics where possible, and share objectives and goals for improving and updating those metrics in subsequent CEP and IRP filings.

PGE heard from our communities and stakeholders that CBIs are important within the planning process because they can influence how utilities make resource investment decisions. We also heard they are important to the implementation of Oregon's HB 2021. Based on this feedback, we developed and categorized CBIs into two groups: quantifiable and qualitative. Quantifiable CBIs refer to benefits that can be measured or expressed as a value. Qualitative CBIs refer to benefits that cannot be expressed as a value but can be described based on quality rather than quantity.

CBIs were then placed into one of three pathways: Resource, Portfolio and Informational, as per OPUC Order 22-390, which states that initial CEPs should include at least one interim CBIs for each pathway. Resource and Portfolio CBIs are considered quantifiable benefits for this CEP and Informational CBIs are qualitative. **Figure 48** illustrates the different pathways related to CBIs as defined by the OPUC's Order 22-390.

Figure 48. OPUC Order 22-390: CBI Pathways



Identifying, measuring and applying CBIs is new to PGE's energy resource planning and resource acquisition process. As described in **Section 7.2.1, Defining CBREs**, for the first step in the IRP portfolio analysis, PGE developed initial CBRE proxy values to reflect a variety of potential CBIs, which allow for distinguishing the energy system benefits of these resources from their relative contribution to community benefits. However, as we move to procure CBREs and initiate program planning and project development, it may be important to develop a set of CBIs that are both quantifiable and measurable.

As a starting point, we apply the Resource and Portfolio pathways to IRP modeling. We use the first pathway, Resource CBIs or rCBIs, to inform and track progress on actions related to CBREs. We use the second pathway, Portfolio CBIs or pCBIs, to address the impacts of the utility's portfolio on communities, which should be reflected in IRP portfolio scoring. For Informational CBIs or iCBIs, we include indicators that may provide transparency into important topics for communities.

7.1.3 Resource community benefits indicators

The OPUC provided guidance within their Community Lens Topics for UM 2225 for Resource CBIs (referred to as CBRE-focused CBIs) that rCBIs are used to "inform and track progress on CBRE actions and should be reflected in the CBRE potential study and in IRP portfolio scoring."[161] When developing rCBIs, PGE evaluated how to incorporate new benefits for the community within portfolio analysis, which is the IRP's process of resource selection. Portfolio analysis is used to understand future long-term resource needs, analyze the expected costs

[161] See *In the Matter of Portland General Electric Company, House Bill Investigation into Clean Energy Plans*, UM Docket No. 2225, Order No. 22-390 (Oct 25, 2022) at 39, available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf

and associated risks of the alternatives to meet those needs, and determine the best set of resources to meet those needs for customers.

To integrate rCBIs into portfolio analysis, PGE used a process similar to the 1980 Northwest Power Act for energy efficiency, which allows the flexibility of choosing an adder from 10 percent to 50 percent.[162] Leveraging that approach, PGE created an rCBI adder that reduces the cost of a CBRE resource by 10 percent. We applied this 10 percent credit to the CBRE fixed cost for each of the three proxy CBRE resources evaluated, making them relatively more competitive compared to other supply-side options. A comparison of this credit relative to the other costs and benefits associated with the proxy CBRE resource value is displayed in **Section 10.9, Resource community benefits indicators**.

7.1.4 Portfolio community benefits indicators

The OPUC provided guidance within their Community Lens Topics for UM 2225 for Portfolio CBIs (pCBI) that pCBIs "address the impacts of the utility's portfolio on communities, may or may not be tied to CBREs and should be reflected in IRP portfolio scoring."[163]

PGE defines a portfolio as a fixed set of resource decisions in all scenarios. Our capacity expansion model, ROSE-E, selects the optimal set of incremental resource additions given the parameters in each scenario. As described in **Section 11.1.1, GHG emissions**, all resource buildouts are designed to meet or exceed the GHG emissions targets established in HB 2021. These resources are selected within the IRP process under consultation with our stakeholders to ensure that the best set of resources are selected. While cost and risk have traditionally been included in portfolio analysis, PGE includes pCBIs in this portfolio analysis to ensure that community benefits are maximized.

Portfolio CBIs are meant to adjust portfolio analysis scoring. PGE introduces pCBIs as a proxy for all supplemental community benefits that may come from the addition of CBREs. Portfolio benefits are 1 MW of CBRE equals 1 unit of community benefit. This metric reflects the unspecified portfolio benefits associated with the CBRE additions.

[162] Northwest Power Act, 16 United States Code Chapter 12H (1994 & Supp. I 1995). Act of Dec. 5, 1980, 94 Stat. 2697. Public Law No. 96-501, S. 885, §839a(4)(D), available at: https://www.congress.gov/96/statute/STATUTE-94/STATUTE-94-Pg2697.pdf.

[163] *In the Matter of Portland General Electric Company, House Bill Investigation into Clean Energy Plans*, UM Docket No. 2225, Order No. 22-390, pg. 39, available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf

7.1.5 DSP community targeting assessment

As part of PGE's DSP Part 2, we developed a Community Targeting Assessment that evaluated locational distributed energy resource (DER) potential with respect to various customer and community metrics.[164] We view this study as foundational to continued development of the CBRE framework for the CEP and IRP moving forward. During its initial development, we worked with our communities to review which variables and data sources were most relevant to developing a DEI lens to apply to distribution planning.[165] We then combined this information with environmental and resiliency variables to develop a final list, which informed a set of categories for ranking and scoring different investments (**Table 25**). PGE continues to evolve our resiliency analysis and variables; we expect the indicators shown in **Table 25** to progress beyond traditional utility reliability metrics to incorporate customer-centric metrics, resilience measures and grid constraints.

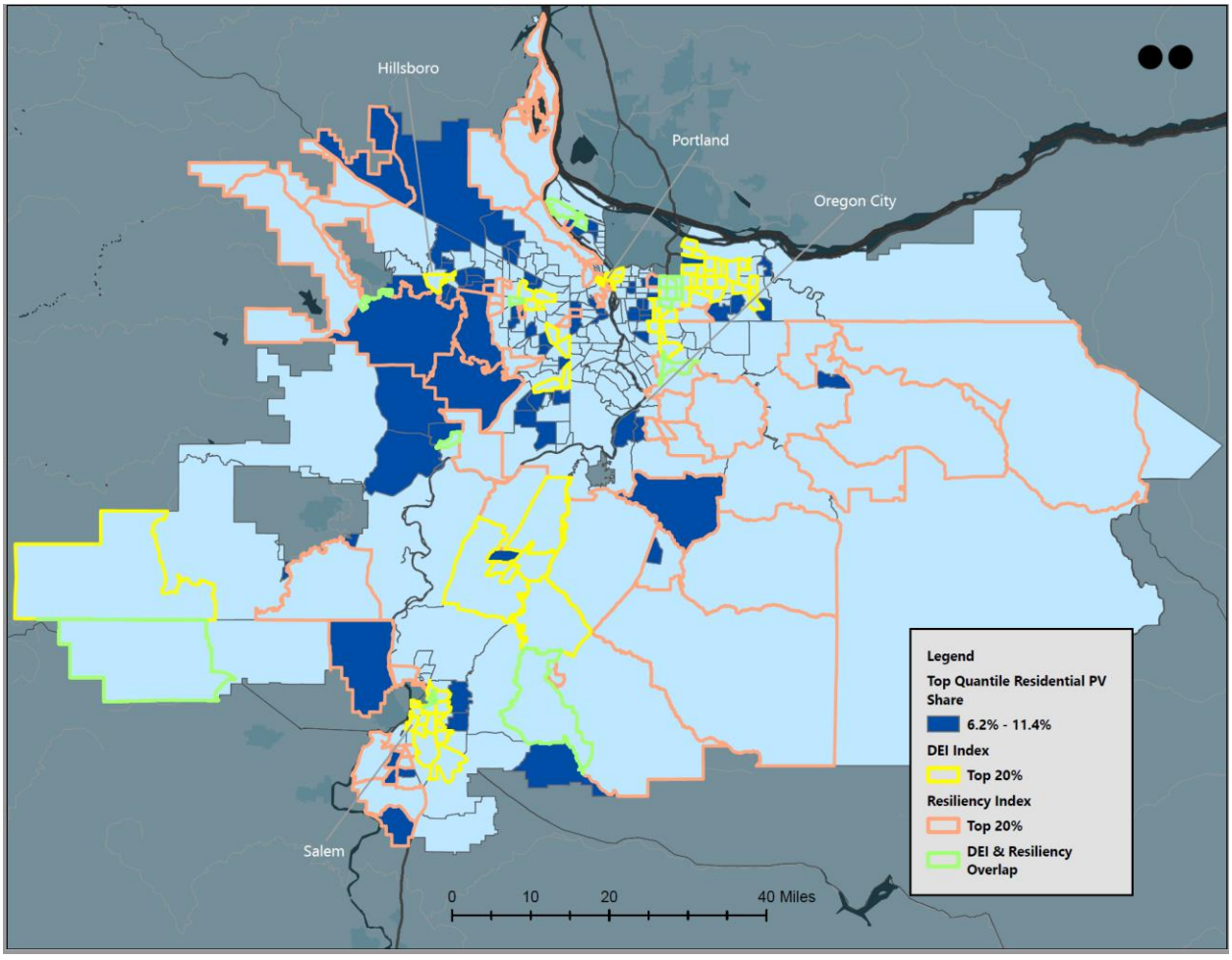
Table 25. DSP variable selection for index development

DEI category	Environmental category	Resilience category
Energy burden	Proximity to environmental hazard waste	Hour-loss power substation
Housing type	Respiratory hazard index	Hour-loss power transmission
Owner/renter	Ozone	System Average Interruption Duration Index (duration of outages)
Race		Seismic risk
Households without internet		
Households with disabilities		

[164] PGE's DSP Part II Appendix N, available at: https://portlandgeneral.com/about/who-we-are/resource-planning/distribution-system-planning/dsp-resources-materials
[165] *Id.* at Chapter 2.

PGE leveraged this work to inform the combined CEP and IRP by assessing baseline metrics for new CBIs and applying these categories to CBREs. For example, **Figure 49** presents a PGE service area map with an overlay of the top quintile of census tracts with the highest scores for DEI and resilience and the top quintile of census tracts with the highest solar photovoltaic (PV) adoption (represented as a percentage of total residential households) by 2030. This work was conducted in 2022 as part of our DSP Part 2. It demonstrates where solar PV adoption may be lower than average and where additional CBREs could add resilience and DEI benefits. Together, these efforts will help to improve the future delivery of community benefits through targeted procurement or program development to identified communities.

Figure 49. PV example strategy Intersection of PV adoption with DEI and resilience by 2030



7.1.6 Informational community benefits indicators

The OPUC provided guidance within their Community Lens Topics for UM 2225 for Informational CBIs (iCBIs) that iCBIs "may or may not directly inform portfolio scoring in the IRP."[166]

PGE described our approach to developing interim rCBI and pCBIs for the purpose of the IRP. This section describes our approach to identifying Informational CBIs, or iCBIs. Informational CBIs will continue to shape our planning activities moving forward. As we continue to iterate with our communities through our Community Learning Labs and develop additional experience designing and implementing CBREs, we will leverage Attachment A and additional CBIs identified through our community engagement efforts. **Table 26** provides an overview of the interim CBIs that have resulted from our work thus far.

PGE intends to further refine and develop quantifiable and measurable CBI metrics where feasible. Our CBI strategy will continue to improve through robust conversations with stakeholders and continued community engagement throughout the CEP and DSP processes.

Table 26. Interim CBI metrics and roadmap for future development

CBI Category	CBI	Metric	Description
Energy Equity, Health & Community Wellbeing	CBI 1: Improve participation in clean energy programs by EJ communities	Metric 1A: DER program participation rates for EJ communities	Rate of improvement in customer participation in customer programs (demand response, solar, storage, energy efficiency) compared to baseline
		Metric 1B: Allocation of budget and/or savings goal within DER programs for EJ communities	Increase in share of budget and/or savings goal in customer programs (demand response, solar, storage, energy

[166] I *In the Matter of Portland General Electric Company, House Bill Investigation into Clean Energy Plans*, UM Docket No. 2225, Order No. 22-390, pg. 39, available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf

CBI Category	CBI	Metric	Description
			efficiency) compared to baseline
Economic	CBI 2: Increase energy affordability for EJ communities	Metric 2A: Customers experiencing electricity bill burden	Reduction in electricity bill burden over time for low-income and EJ communities compared to baseline
		Metric 2B: Customer arrearages for customers in EJ communities	Reduction in the number of customers in arrearages in EJ communities compared to baseline
		Metric 2C: Number of customer disconnections for non-payment in EJ communities	Reduction in the number of customer disconnections for non-payment in EJ communities compared to baseline
Resiliency (Customer and System)	CBI 3: Improved grid resiliency	Metric 3A: % of customers experiencing frequent or long-duration outages	Increase in the percentage of customers in EJ communities with access to resilient power through grid infrastructure, customer infrastructure or emergency backup power.

CBI Category	CBI	Metric	Description
		Metric 3B: % of customers with access to emergency backup power in EJ communities.	
Economic	CBI 4: Increased access to jobs/economic impact	Metric 4A: Number of clean energy jobs related to CBRE goals and % held by members of EJ communities	Increase the number of clean energy jobs through future CBRE program and procurement activities
		Metric 4B: Support workforce training opportunities for EJ communities	Participate in diverse workforce development initiatives
Environmental	CBI 5: Environment	Metric 5A: Reduced GHG emissions	Reductions in annual GHG emissions for retail load

CBI Category	CBI	Metric	Description
Energy Equity, Health & Community Wellbeing	CBI 6: Improve efficiency and housing stock in the utility service area, including low-income housing	Metric 6A: Amount of residential energy efficiency achieved in target communities	Increase efficiency of housing stock in the residential sector, including low-income housing, through increased coordination with ETO and other local and state market actors
		Metric 6B: Work with OHCS, CAAs, ETO and other weatherization/energy efficiency implementors to encourage equitable distribution of benefits from energy efficiency programs in the PGE service area	Participate in working groups to support effective and equitable distribution of weatherization and energy efficiency benefits

7.2 Community-based renewable energy (CBRE)

Through Order 22-390, the OPUC set guidance that utilities' first CEPs should include "a potential study (or studies) that identifies opportunities for CBRE projects developed in coordination with communities that are served by the utility, including EJ communities, and with input from stakeholders and Staff". The potential study should:

- "Inform or directly identify annual acquisition targets (e.g., MW, megawatt hours (MWh)) for CBREs,
- Inform or identify the acquisition targets that appropriately balance cost, risk, the pace of greenhouse gas emissions reductions and community impacts and benefits, and

- Measure community impacts and benefits based on interim CBIs established by the utility."[167]

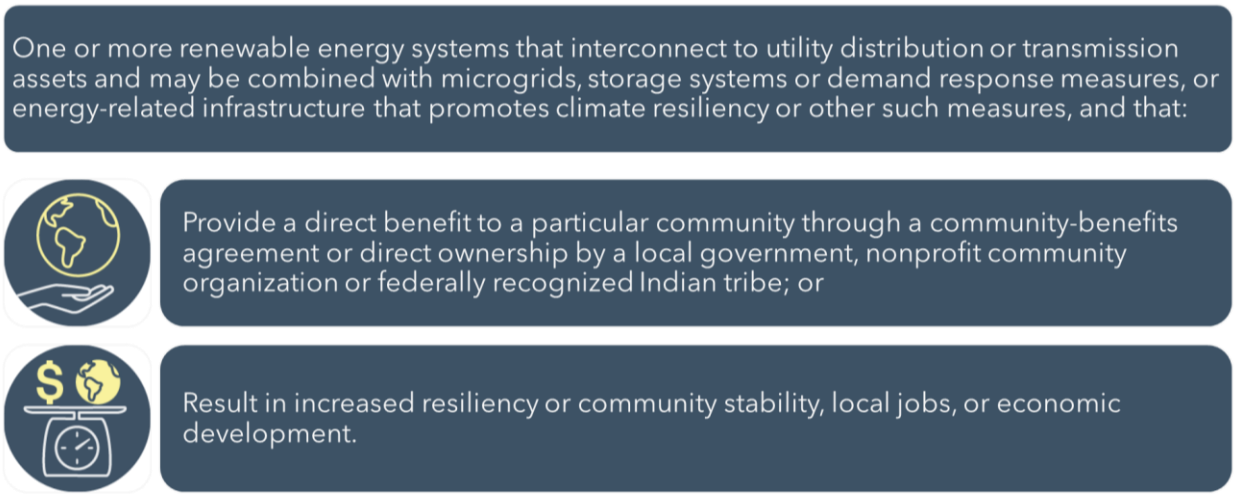
The OPUC also provided guidance that the first CEP should report on the "utility's plan to comply with the state's goal for CBRE projects provided in ORS 469A.210 and explain how the CBRE targets align with this strategy" as well as a "discussion of acquisition targets and actions that the utility will take in the Action Plan window to reach those targets".[168]

7.2.1 Defining CBREs

Oregon has a longstanding public policy interest in promoting small-scale and community-scale renewables.[169] A CBRE is differentiated from other renewable resources, including small-scale renewable energy resources, by the non-energy benefits that it brings to communities. A CBRE results from pairing a range of benefits with a non-emitting generating resource, a storage device, a flexible load program or a combination of investments. HB 2021 builds on that interest while specifically emphasizing resources that provide community benefits and are non-emitting. CBREs are further defined within Section 1(2) of HB 2021 which provides a legal definition for CBREs.[170,171]

[167] *In the Matter of Portland General Electric Company, House Bill Investigation into Clean Energy Plans*, UM Docket No. 2225, Order No. 22-390 (Oct 25, 2022) at 38, available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf
[168] *Id.* at 39, available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf
[169] The term "Community-based renewable energy" was initially added to Oregon statute by Senate Bill (SB) 838 in 2007, which put in place Oregon's Renewable Portfolio Standard. At that time, CBRE was not specifically defined and was indirectly associated with a policy goal of 8 percent for small-scale (20 MW or less) renewables by 2025. This goal was revised into a target by subsequent legislation (SB 1547 in 2016). Only with passage of HB 2021 were the community benefits of CBRE defined in statute and associated with direction for utilities to…"Examine the costs and opportunities of offsetting energy generated from fossil fuels with community-based renewable energy." *See* Section 4(4d) available at: https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2021/Enrolled
[170] *See* HB 2021 (2021), Section 2(2), available at: https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2021/Enrolled
[171] *In the Matter of Small Scale Renewable Energy Projects Rulemaking*, Docket No. AR 622, Order No. 21-464 (Dec 15, 2021), at 6, the Commission stated: "Some participants in the rulemaking process recommended that we define 'community-based renewable energy projects' and limit eligible resources to those that both satisfy the explicit requirements in subsection (2) of the statute *and* meet some definition of 'community-based.' We decline to adopt this recommendation."

Figure 50. HB 2021 definition of CBRE



Additionally, HB 2021's CBRE definition describes resources on both the transmission and distribution system as well as energy-related infrastructure needed to support these investments. To evaluate CBRE potential for inclusion in resource planning, we used the HB 2021 definition as a starting point and sought input from community groups via our community engagement processes. The CBRE definition used in this initial CEP focuses on community-level resource types that offer the potential to align grid value, energy system benefits, community benefits and progress toward our 2030 small-scale renewables target.

For this CEP, we focus our CBRE analysis on small-scale non-emitting resources that also provide community benefits. In **Section 7.2.1.1, Community lens potential study**, we describe our approach to establishing the incremental CBRE technical potential which informed IRP analysis and target setting for CBREs. Our potential study identifies 155 MW of incremental technical potential by 2030. This aligns with CBRE goals found in community climate action plans such as City of Portland and Multnomah County. We then describe our approach to developing proxy CBRE resources that inform IRP portfolio analysis that meet the guidance provided by the OPUC through Order 22-390.

7.2.1.1 Community lens potential study

The transition to a clean energy future provides many opportunities to improve environmental and public health outcomes, spur local economic activity and job creation, and increase community resiliency in the face of growing threats posed by climate change. CBREs may provide some of these benefits while helping to meet our emissions targets.

Along with our communities and stakeholders, we seek to better understand the role these important resources play in ensuring an affordable, reliable, clean electric system.

Commission guidance on implementing initial CEPs outlined key questions and considerations for conducting a "Community Lens" potential study for CBREs.[172] The Community Lens was discussed throughout CEP regulatory proceedings and largely covered questions regarding incorporating community benefits and impacts, addressing resiliency opportunities and the potential role of CBREs in offsetting fossil fuels.

The Commission provided guidance on expectations for the Community Lens potential study, which states the study should either inform or directly identify annual megawatt (MW) or megawatt-hour (MWh) targets related to CBRE, report on the utility's plan to comply with the state's CBRE targets and explain how the CBRE targets align with the broader CBRE acquisition strategy.[173] In this section, PGE details our approach to the first Community Lens potential study, including methodology, community input and results.

7.2.1.2 Community lens potential study methodology

Community needs and interests in clean energy projects were recurring themes in conversations surrounding the development of both DSP and CEP guidelines.[174] Therefore, we began our consideration of CBRE potential by incorporating community and stakeholder feedback received during our DSP process into a revised DER forecast.[175]

Figure 51 depicts our overall process flow to establish CBRE targets, highlighting the places where community and stakeholder input help shape our direction.

[172] *In the Matter of Public Utility Commission of Oregon, House Bill 2021 Investigation into Clean Energy Plans*, Docket No. UM 2225, Order No. 22-390 (Oct 25, 2022), available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf
[173] *Id.*, Appendix A at 38.
[174] For example, see UM Docket No. 2005, Order No. 20-485, Appendix A at 31, available at: https://apps.puc.state.or.us/orders/2020ords/20-485.pdf
[175] For additional information regarding PGE's DER forecasting, see PGE's DSP Part 2, available at: https://downloads.ctfassets.net/416ywc1laqmd/2Fr2nVc4FKONetiVZ8aLWM/b209013acfedf1125ceb7ba2940bac71/DSP_Part_2_-_Full_report.pdf.

Figure 51. Overall CBRE potential methodology process flow

DSP Partner Meeting input and literature review

PGE first considered the feedback we received from our communities and stakeholders during the development of our DSP. Throughout the DSP process, we learned the importance of helping our communities understand and draw connections between utility regulatory processes when they may not have the bandwidth to engage in the many and varied proceedings related to distributed energy resources (DERs) and community benefits. PGE identified three topics from our DSP work as being most relevant for the CBRE discussion:

- Resiliency and reliability planning
- Non-wire solutions (NWS) pilot concept development
- Development of equity indicators

After reviewing DSP partner input, PGE conducted a literature review of relevant documents to supplement our understanding of the different themes identified throughout our planning activities, such as:

- Community comments related to CBRE and CBI were submitted under the DSP, Transportation Electrification Plan and CEP to identify key themes and viewpoints among various stakeholders and community members.
- OPUC Staff's straw proposal under UM 2225.[176]

[176] Docket No. UM 2225, Order No. 22-390, Appendix A, at 23-26, *see especially*, "Topic 1. Community Lens Acquisition Targets", and "Topic 2. Opportunities Considered within Community Lens Potential Studies", *id.* at 27, available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf

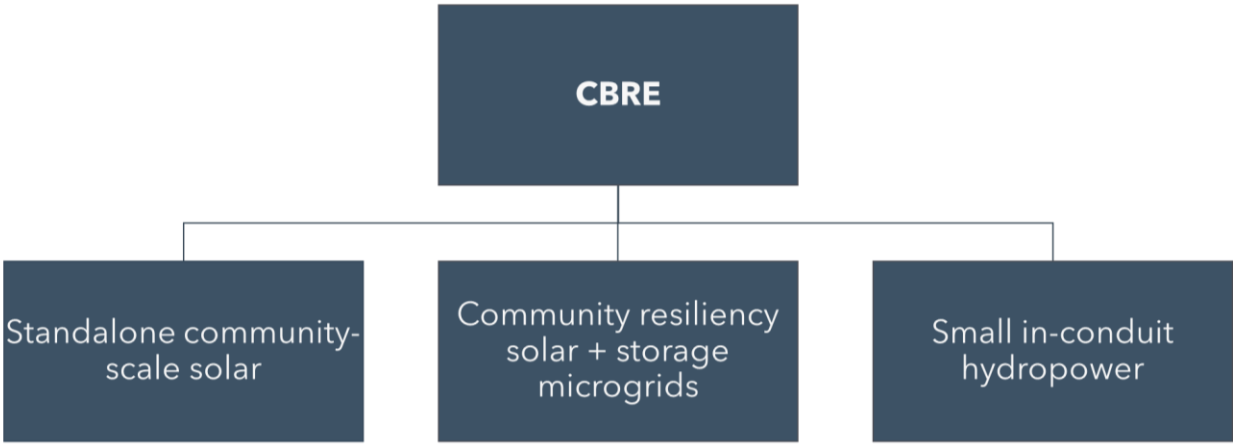
- "Attachment A Stakeholder CBI Proposal" detailing 15 distinct CBIs proposed by a coalition of Energy Advocates.[177]
- Academic journals and industry publications, including The Reliability and Resiliency sections of the Methods, Tools and Resources companion handbook to the National Standard Practice Manual for quantifying the costs and benefits of DERs.[178]
- A recent National Association of Regulatory Utility Commission (NARUC) and National Association of State Energy Officials (NASEO) report on valuing resiliency for microgrids.[179]
- Oregon Department of Energy's (DOE's) CBRE Working Group final report.[180]

Developing CBRE Potential

Based on PGE's review, we initially defined three proxy resources for inclusion in our IRP portfolio analysis, illustrated in **Figure 52**.[181]

[177] *Id.*, Appendix A at 65, The Energy Advocates Attachment A.
[178] Tim Woolf, Courtney Lane, Danielle Goldberg, Erin Camp, Andrew Takasugi, Max Chang and Melissa Whited. "Methods, Tools and Resources: A Handbook for Quantifying Distributed Energy Resource Impacts for Benefit-Cost Analysis" NESP, March 2022, available at: https://www.nationalenergyscreeningproject.org/methods-tools-and-resources/ Also see chapter 8 "Reliability and Resilience", available here: https://www.nationalenergyscreeningproject.org/methods-tools-and-resources/reliability-and-resilience/.
[179] Wilson Rickerson, Kiera Zitelman, Kelsey Jones, "Valuing resilience for Microgrids: Challenges, Innovative Approaches, and State Needs," National Association of Regulatory Utility Commissioners and National Association of State Energy Officials, February 2022, available at: https://www.naseo.org/data/sites/1/documents/publications/NARUC_Resilience_for_Microgrids_INTERACTIVE_021122.pdf
[180] Stephanie Boles, John Cornwell, Rob Del Mar, Jessica Reichers, Adam Schultz, "Study on Small-scale and Community-based Renewable Energy Projects", Oregon Department of Energy, September 2022, available at: https://www.oregon.gov/energy/Data-and-Reports/Documents/2022-Small-Scale-Community-Renewable-Projects-Study.pdf
[181] Due to its associated emissions, biogas was removed from the candidate list, leaving three proxy CBRE resources to be evaluated for potential within our IRP.

Figure 52. Initial CBRE proxy resources identified for IRP portfolio analysis



Many of HB 2021's broadly defined elements of CBREs are captured in IRP analysis via our DER forecast modeling (e.g., rooftop solar, behind-the-meter storage and customer-specific microgrids) and our supply-side proxy resources. Through our assessment, we identified a few characteristics that necessitated additional attention to delineate new proxy CBRE resource types for inclusion into the IRP.

Further informing our potential analysis was the consideration of 2030 targets for small-scale renewable energy projects.[182] As detailed below, our potential study identifies 155 MW of incremental technical CBRE potential by 2030. The IRP models this CBRE potential as additional to the customer-sited resource potential already accounted for within the corporate load forecast and traditional IRP modeling. This customer-sited technical potential, which comes from the DSP, is an additional 377 MW of solar and 61 MW of energy storage by 2030.[183] However, this customer-sited potential cannot be counted toward our small-scale renewable requirement because much of these customer-sited resources would likely be net-

[182] Changes to the small-scale renewables targets established by HB 2021 are codified in law through ORS 469A.210, available at: https://www.oregonlegislature.gov/bills_laws/ors/ors469a.html. The target of 10 percent of "aggregate electrical capacity" may be met through small-scale (20 MW or less) renewable energy projects or certain biomass projects. Community benefits are not an explicit condition of the small-scale renewables definition, while resource size and RPS eligibility are not explicit conditions of the HB 2021 CBRE definition.

[183] For more information on PGE's customer-sited resources please refer to our DSP Part 2 at https://assets.ctfassets.net/416ywc1laqmd/46I2n65SyTv3TUMMdq1l55/a993aebb7b7a84ebd3209d798454a33a/DSP_Part_2_-_Chapter03.pdf#page=22.

energy metered. Net-energy metered resources cannot currently count toward our small-scale renewable requirement imposed by ORS 469A.210. [184]

Through the CBRE potential analysis, PGE considered the extent to which CBRE resources could contribute to the 10 percent small-scale renewables target. We found that in addition to providing benefits to communities, most resources that comprise the 155 MW incremental CBRE potential described in this IRP satisfy the conditions for the small-scale renewables target.

Our CBRE potential study focuses on resources that have the following characteristics:

- Medium- to large-size installations ~ 1-20 MW
- Distribution-connected
- Community-scale (as opposed to behind single customer meter)

To identify the potential for each CBRE included in PGE's IRP portfolio analysis, we relied on the following sources to estimate potential that could inform target setting.

- PGE's AdopDER model (our enterprise DER forecasting model) and community resiliency microgrid technical potential estimates
- Published municipal climate action targets with local resource goals and feedback gathered during product design work with our municipal customers
- ETO small renewable project lists and emerging community resiliency project pipeline
- Oregon Community Solar Program project data[185]
- US DOE National Lab potential studies such as the Oak Ridge National Lab in-conduit hydropower potential study

The following sub-sections provide greater detail about PGE's approach to estimating the potential for each CBRE proxy resource type within our IRP analysis.

[184] Through Order 21-464, the PUC adopted guidance and rules for utility compliance with the small-scale renewables requirement, including the finding that since "net-metered resources are generally viewed as customer-owned resources, reducing the utility's capacity needs, rather than a utility's resource for meeting load," their capacity does not contribute to the target. However, the Commission recognized that approaches toward customer-sited resources are evolving and expressed willingness to "revisit this determination upon a demonstration that this paradigm has changed in ways that make customer-owned resources part of a utility's supply portfolio." See https://apps.puc.state.or.us/orders/2021ords/21-464.pdf.
[185] See *In the Matter of Public Utility Commission of Oregon, Community Solar Program Implementation*, Docket No. UM 1930, Staff Report (September 15, 2021), available at: https://edocs.puc.state.or.us/efdocs/HAU/um1930hau175534.pdf

7.2.2 CBRE resources modeled[186]

Standalone community-scale solar

The definition of a CBRE under HB 2021 includes renewable energy systems that provide community benefits through a community benefits agreement or direct ownership.[187] This desire for local benefits is reflected in different ordinances and climate action plans by local governments and municipal entities. For example, the City of Portland and Multnomah County have both stated goals in their Climate Action Plans that call for 2 percent of their 2030 clean energy targets to be met with community-based renewables and related infrastructure.[188]

To inform PGE's potential estimate for community-scale solar,[189] we first translated those local commitments (i.e., 2 percent of load) into solar nameplate capacity requirements and then scaled these up to reflect what level of resource would be needed to meet a similar local resource goal applied to our entire service area. Finally, we compared this result to the solar components of our microgrid assessment (see **Community resiliency microgrid**) to cross-check this bottom-up method with our established potential estimate.

The community-scale solar proxy used in this IRP is a modified version of a standalone utility-scale solar resource. The modeled CBRE resource for this IRP is responsive to community feedback regarding appropriate size or placement within the community. By using the supply side solar resource as a proxy for a CBRE, modifying for community interest, IRP analysis was explicitly able to include CBRE.

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[186] Additional details regarding the incorporation of CBREs into the IRP analysis can be found in **Section 7.2, Community-based renewable energy (CBRE), Section 7.1.3, Resource community benefits indicators,** and **Section 11.4.3, Community-based renewable energy (CBRE) portfolios.**

[187] ORS 469A.400(2)(a) available at: https://www.oregonlegislature.gov/bills_laws/ors/ors469a.html.

[188] See Multnomah County Resolution No. 2017-046, dated June 1, 2017, available at: https://multco-web7-psh-files-usw2.s3-us-west-2.amazonaws.com/s3fs-public/2017-046.pdf and See City of Portland's 2022-2025 Climate Emergency Workplan, Exhibit A, pg. 4. Available at: https://www.portland.gov/bps/climate-action/documents/climate-emergency-workplan-2022-2025/download.

[189] PGE uses "community-scale solar" here and throughout this document to refer to the proxy CBRE resource type developed for inclusion in IRP analysis. Though similar in name, the resource characterization differs from Oregon's Community Solar Program, which under OAR 860-088-0070 requires projects to be three MW or less.

Community resiliency microgrid

The DOE CBRE working group report states that local resiliency is the primary benefit of CBRE and is also directly distinguishing it from other resource types.[190] This aligns with what PGE has heard during our community engagement process through our DSP Partner Workshops and Community Learning Labs. In addition, resiliency is identified by OPUC Staff in Order 22-390 as being among the highest priorities for the initial CEP.[191] PGE finds community resilience microgrids an intriguing opportunity as they provide significant potential to partner with the utility for funding to meet a variety of community, customer and grid benefits.

Given this focus on resiliency, PGE investigated the potential for community-resiliency microgrids, defined as solar and storage configurations with islanding controls capable of providing continuous power supply during a grid outage. A key distinguishing feature of a microgrid versus other hybrid solar + storage plants modeled in the IRP is the inclusion of advanced communications and controls to coordinate diverse DERs that operate behind the microgrid.[192]

To assess the potential for these resources, we used our AdopDER model, which provides locational DER forecasting.[193] AdopDER contains individual site-level characteristics of all customers and pertinent data about distribution-system factors like frequency and duration of past outages. AdopDER also includes DEI data based on a range of demographic and socioeconomic factors, environmental data including air quality and other EJ criteria and resilience data based on environmental risk factors, such as fire or flood vulnerability areas and grid/system needs, such as long-term outage locations.[194]

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[190] Stephanie Boles, John Cornwell, Rob Del Mar, Jessica Reichers, Adam Schultz, "Study on Small-scale and Community-based Renewable Energy Projects", Oregon Department of Energy, September 2022, at 19, available at: https://www.oregon.gov/energy/Data-and-Reports/Documents/2022-Small-Scale-Community-Renewable-Projects-Study.pdf

[191] See *In the Matter of Public Utility Commission of Oregon, House Bill 2021 Investigation into Clean Energy Plans,* Docket No. UM 2225, Order No. 22-390 (Oct 25, 2022) at 12, available at: https://apps.puc.state.or.us/orders/2022ords/22-390.pdf

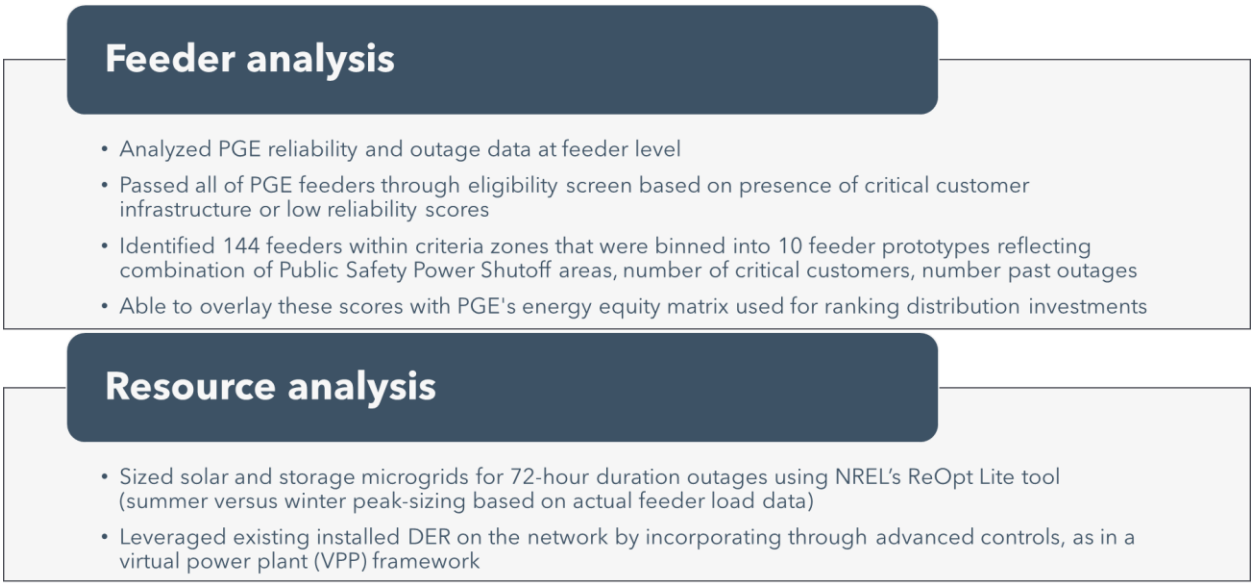
[192] While we distinguish the community-resiliency microgrid as serving multiple customers, it may also aggregate, and control loads behind a single customer meter. In this case, some of the solar PV and storage adoption from our AdopDER model is factored into the MW potential reflected here.

[193] PGE's methodology for locational forecasting can be found in its DSP Part 2, available at: https://assets.ctfassets.net/416ywc1laqmd/4CQCpp0ZlmbQMGDANJKUqN/d2088ce3be4ddc2bc3d0eeab99e7695e/DSP_Part_2_-_AppendixM.pdf.

[194] Additional information regarding PGE's evaluation of DEI, environmental and resiliency variables and data, available at: https://assets.ctfassets.net/416ywc1laqmd/2TbidNAlU4Z5ZsShRrhhb7/d5dcd1cd853d451eb91cdfbec4eeeefe/DSP_Part_2_-_AppendixD.pdf.

Figure 53 highlights the steps to identify community resiliency microgrid potential in the PGE service area using AdopDER.

Figure 53. Community resiliency microgrid potential modeling in AdopDER



The process outlined in the previous figure results in nameplate capacity and energy potential for each resource type within the community resiliency microgrid (i.e., solar nameplate, storage and backup generation). PGE ramped the technical potential based on the "low scenario" annual adoption rate for distributed solar as a proxy to reflect the achievable potential for community resiliency microgrids.

Small in-conduit hydropower

In-conduit hydropower is a low-impact hydropower that places a turbine inside a pressurized water supply or wastewater system. PGE discussed past example projects and potential future leads with ETO staff in assessing the potential for in-conduit hydropower. In addition, we analyzed technical potential data for Oregon taken from a recent Oak Ridge National Lab national potential study for in-conduit hydropower.[195]

Most of Oregon's in-conduit hydropower technical potential comes from irrigation modernization, of which PGE has relatively little in our service area. Therefore, we limited our

[195] Shih-Chieh Kao, Lindsay George, Carly Hansen, *et al.* "An Assessment of Hydropower Potential at National Conduits" Oak Ridge National Lab, ORNL.TM-2022/2431, October 2022, available at: https://info.ornl.gov/sites/publications/Files/Pub176069.pdf

assessment to municipal water supply systems.[196] Overall, the Oak Ridge study found that Oregon has 77 MW of technical potential for in-conduit hydro, of which 12.4 MW is associated with municipal supply systems. We applied an allocation factor of 40 percent of the statewide total to reflect the available potential within our service area. Finally, we increased this potential slowly over time based partly on conversations with ETO staff familiar with past in-conduit projects, the complexities therein, and the relative timescale and cost to complete these projects. Our cost data for this study comes from a companion paper from the Oak Ridge team and the historical cost data provided by ETO.[197]

7.2.2.1 CBRE potential study results

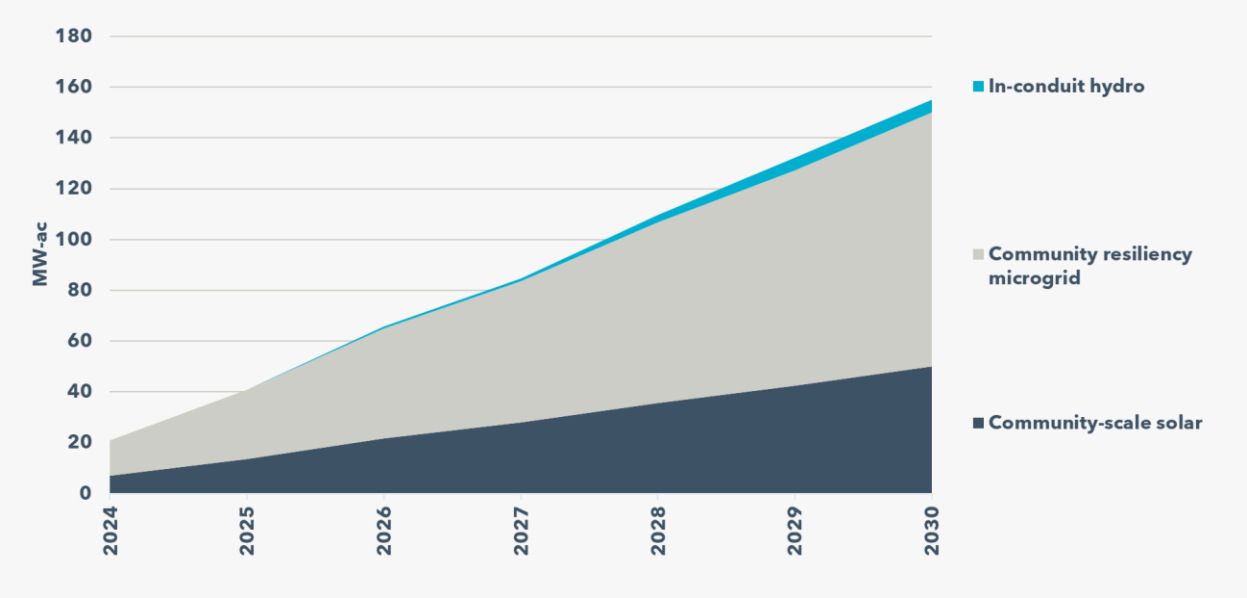
PGE identified 155 MW of nameplate CBRE resource potential by 2030 (**Figure 54**).[198] This potential is increased over time to reflect the time required to develop new delivery channels as may be necessary for these new resource types. We then applied the cost and proxy performance features (e.g., capacity factors) for the three identified proxy CBRE resources to IRP portfolio analysis, described in **Section 11.4.3, Community-based renewable energy (CBRE) portfolios**.

[196] Note that the decision to limit to municipal water supply systems is a modeling choice and helps provide boundaries to the analysis in question. In practice, we expect that some CBRE proposed to meet our Action Plan will include small irrigation modernization projects. In fact, PGE has received interest from one small irrigation district as part of the outreach conducted for this study.

[197] Shih-Chieh Kao, Kurt Johnson, "An Assessment of Energy Potential at Public Drinking Water Systems: Initial Report on Methodology" Oak Ridge National Lab, ORNL/TM-2018/869, CRADA/NFE-17-06776, July 2018. Available at: https://www.ornl.gov/file/assessment-energy-potential-public-drinking-water-systems-initial-report-methodology/display

[198] These totals do not include rooftop solar, which is separately modeled in our 2023 IRP. We have included 377 MW-dc by 2030 in the IRP's reference-need future and 458 MW-dc in the low-need future (the low-need future corresponds to the high distributed solar PV adoption scenario). This delineation was done for the first analysis of CBRE potential within the IRP Portfolio Analysis to avoid double-counting, but in practice we expect rooftop solar to be included in certain program development efforts and procurement activities.

Figure 54. CBRE potential results (cumulative MW)



7.2.2.2 CBRE potential

This section presents the annual potential for CBRE based on PGE's AdopDER modeling and analysis of these proxy resources using the interim approach described previously. We identified the annual megawatt potential shown in **Table 27**.

Table 27. CBRE annual MW potential (cumulative installed nameplate MW-ac capacity)

Resource	2026	2027	2028	2029	2030
Community-scale solar	22	28	36	42	50
Community resiliency microgrid	43	56	71	85	100
In-conduit hydro	1	1	3	5	5
Total	66	85	110	132	155

While we present the detailed CBRE potential here, in alignment with the three CBRE proxy resources included in our initial Community Lens Analysis, this MW potential will be included in the Action Plan at an aggregate level (see **Chapter 12, Action Plan**). As we add CBREs to our system, we expect the actual CBRE resource mix may vary depending on cost, technology evolution and maturation, and market development.

Further discussion of how these targets for CBRE affect the Preferred Portfolio and our Action Plan is included in **Chapter 12, Action Plan**.[199]

7.2.3 Near-term approach within PGE's IRP

PGE incorporated the results of our CBRE potential study described in **Section 7.2.1.1, Community lens potential study,** into portfolio analysis to assess the contributions of these resources toward meeting the system requirements and providing community benefits. Incorporating CBIs and CBREs into PGE's overall portfolio planning process is described in **Chapter 11, Portfolio analysis**.

We include CBRE resource potential and associated CBIs in portfolio analysis to understand the implications that their relative costs, system benefits and CBIs have on various metrics considered within the planning framework and across various portfolio options. To better understand how the inclusion of CBIs in portfolio analysis impacts CBRE resource performance, we developed the following interim approach to applying CBIs in portfolio analysis:

- Include resource-CBI (rCBI) in portfolio optimization as a dollar per megawatt ($/MW) value assigned to each CBRE. The rCBI approach is described more fully in **Section 7.1.3, Resource community benefits indicators**.
- Include portfolio-CBI (pCBI) into portfolio scoring to reflect the increased value of portfolios with CBRE compared to those without. Including pCBIs enables portfolio analysis to evaluate any trade-offs between cost, risk and community benefits. A more detailed overview of how pCBIs influence CBRE selection across portfolios is presented in **Section 11.2, Portfolio scoring**.

Our approach to CBI development, including informational CBIs not included in IRP portfolio analysis, is described further in **Section 7.1, Community benefits indicators.**

[199] In particular, see **Chapter 12, Action Plan** for a summary of actions related to all DER types, including CBRE but also energy efficiency, demand response and rooftop solar. As the most consistently high-ranked CBIs from our communities and stakeholders are related to increasing efficiency in the building stock (through weatherization and targeted energy efficiency programs), we include a separate discussion in the Action Plan related to how our goals for procuring these other, stand-alone DERs may interact with those described in this section to help meet our CBRE goals and provide community benefits.

7.2.4 Refining the market characterization of CBRE

PGE may continue to refine CBRE resource categorization, such as adding different resource types, as we build on our experiences procuring CBREs through the steps outlined in our Action Plan (see **Chapter 12, Action Plan**). Responses to a community RFP, as well as continued developer outreach and engagement, will provide important feedback. We plan to include relevant information in future CBRE potential modeling, including more refined cost data, technology parameters, collaboration opportunities and opportunities for external funding sources.

Another important element of PGE's plan is to continue integrating new CBRE resource characterization into AdopDER. We expect to learn more about the most significant features of CBRE project types to better inform how we characterize CBRE potential in future study rounds. This will better align our CBRE potential methodology with the IRP's well-established demand-side resource forecasting practices. For instance, we will assess opportunities to leverage additional energy efficiency potential estimates from ETO into our CBRE modeling to allow greater assessment of the relative costs and benefits of different combined or hybrid CBRE project types.[200]

7.2.5 CBRE resource procurement activities

7.2.5.1 CBRE RFP

As shared in **Chapter 12, Action Plan**, the Action Plan calls for PGE to conduct an RFP for CBRE resources. The Community RFP will target 66 MW of CBREs to come online by 2026. This initial action will be in service of achieving the 155 MW technical potential of CBREs by 2030. Given the uncertainty described in the eventual composition of the CBRE resource mix that meets the targets outlined in the Action Plan, PGE anticipates a resource acquisition process that prioritizes flexibility and community engagement through an RFP and potential grant funding and program mechanisms.

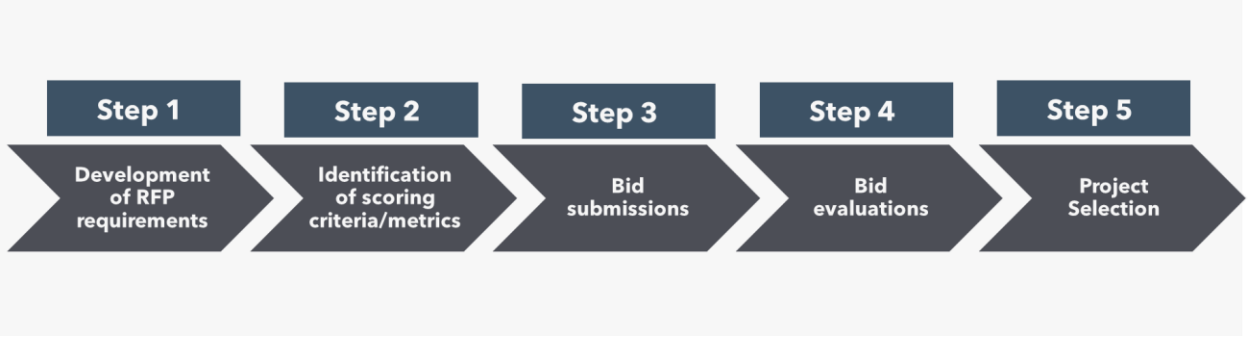
The RFP is intended to be a flexible procurement vehicle that leverages the market resources that align with community preferences. Our goal is to create a collaborative process that results in a co-developed RFP between PGE and the communities we serve. Under this approach, we will aim to design scoring metrics reflective of quantifiable and measurable CBIs through community feedback. The project evaluation and scoring will be guided by

[200] Our treatment of additional non-cost-effective energy efficiency opportunities are described in **Section 8.2.1, Additional energy efficiency**. What we mean here is that in future CEP rounds, we hope to be able to partner with ETO to develop energy efficiency inputs to our CBRE potential modeling from the outset.

community feedback received. The scoring process can also include analysis from the DSP to identify differences in the locational grid value of proposed CBRE projects.

PGE looks forward to future discussions with communities on the timing, technology, location and project selection criteria for CBREs. Additionally, PGE will explore opportunities for federal, state and local grants, as well as the development of future programs to add more CBREs to our system. **Figure 55** illustrates the steps PGE will take starting in 2023 to co-develop the Community RFP with communities and stakeholders.

Figure 55. Community RFP



7.2.5.2 Non-wire Solutions

Moving forward, PGE will engage communities, including EJ communities, to identify other CBRE resource types of interest that may provide meaningful community benefits. Our DSP community engagement opportunities present an excellent chance to continue to refine the definitions and shared understanding around CBREs and identify which CBIs are most meaningful to different communities. Non-wire solutions (NWS) are a particularly robust area of overlap, as a CBRE may end up providing both CBIs (e.g., by reducing bills for low-income customers on a given feeder through targeted program deployment) and achieving incremental locational grid value (e.g., by deferring traditional asset investment needs).

In 2023, we have committed to working with ETO to study NWS opportunities for targeting energy efficiency, customer-sited renewables and battery storage in areas with high grid needs and DEI scores.[201] Given the type of projects for CBRE development that are most meaningful to our communities (e.g., resiliency projects, community gathering places like schools or community centers, or energy efficiency and renewables for low-income multifamily buildings), we expect the NWS planning prioritization with ETO to be a fruitful

[201] See discussion related to how PGE plans to use our DEI index for scoring and ranking grid needs and NWS opportunities in PGE's DSP Part II Chapter 2, available at: https://downloads.ctfassets.net/416ywc1laqmd/2Fr2nVc4FKONetiVZ8aLWM/b209013acfedf1125ceb7ba2940bac71/DSP_Part_2_-_Full_report.pdf.

venue to socialize further CBRE concepts, as well as gather more information about ideal project locations or potential partners for executing CBRE development.

7.2.5.3 Community resiliency hubs

Another customer-facing avenue is our expected continued work to investigate the creation of Community Resiliency Hubs. Community Resiliency Hubs are defined by the US DOE & Environment (DOEE) as "public-serving facilities that provide information and services to build resilient communities before, during and after emergency events."[202] US DOEE further states that Community Resilience Hubs should complement existing emergency response services and "serve communities year-round by promoting health, providing meeting spaces, educating the community about risks and emergency preparedness, and supporting workforce development."

As part of our continued engagement, we will continue to explore Community Resiliency Hubs within our Community Learning Labs that:

- Provide resilience to the community and critical facilities serving that community center's community voices in decisions regarding placement and use of CBREs.
- Create a high-value product that serves the public interest and serves many customers or targets to serve the most vulnerable customers.
- Design accessible and equitable solutions ensuring any solution considers a project's impacts on all customers.

Through PGE's next CBRE potential study, we have an opportunity to learn more from our communities about which projects and programs are most meaningful to them. In addition to the Community Learning Labs, PGE will leverage other stakeholder engagement channels (e.g., DSP and MYP) to socialize and refine our approach for the next CEP. We will work with our communities and community representatives to assess the need for more education and learning regarding CBRE and solicit ideas and input about a suggested direction for future study efforts.

[202] More information on US DOEE's Community Resilience Hubs, available at: https://doee.dc.gov/service/community-resilience-hubs.

7.2.6 CBREs and Oregon's 10 percent small-scale renewable requirement

PGE's support of CBREs is both established and evolving. We see significant potential to widen our CBRE near-term approach to include more community-scale and customer-sited generation paired with energy storage, flexible loads and energy-related infrastructure. As required by ORS 469A.210, PGE has a 10 percent small-scale renewable requirement.[203] We expect the CBRE potential PGE has identified to contribute to that requirement. That requirement uses only one metric (i.e., 20MW or less in size) and does not incorporate community benefits or non-emitting resources. In the past, wholesale projects typically contributed to the goal, which was then 8 percent. Moving forward, we expect the following activities will inform and contribute to the requirement:

- Continued engagement with communities
- Existing programs and procurement strategies such as:
    - Wholesale projects smaller than 20 MW, including PURPA, bilateral contracts and CBREs
    - Oregon Community Solar Program (projects are capped at 3 MW)
- New resources, programs and strategies such as:
    - Community Request for Proposals (RFP), described later in **Section 7.2.10, Further actions and considerations**
    - Virtual power plant (VPP)
    - Federal/local incentives

7.2.7 Continued engagement with communities

PGE's community engagement strategies will provide a forum to discuss CBRE acquisition strategies with communities, stakeholders and OPUC Staff. Key areas of engagement will include the timing, technology, location and project selection criteria for CBREs. We will co-develop the Community RFP with communities and stakeholders beginning in 2023.

[203] Oregon ORS 469A.210 can be found at https://www.oregonlegislature.gov/bills_laws/ors/ors469a.html.

7.2.8 Existing programs and procurement strategies

In recent years we have seen rapid expansion of customer-sited solar that both offsets load and delivers energy to the grid. We anticipate continued and significant expansion of customer-sited solar, especially given the new federal incentives described in **Chapter 2, Accessing support for energy transition**. Many of the existing resources and programs that fall within the CBRE definition also participate in PGE's evolving VPP. Current CBRE investments and programs on PGE's grid that are broadly understood to bring community benefits, include:

- Rooftop solar (residential, commercial, non-profit)
- PGE's residential battery pilot
- Flexible load programs: Energy Partner, Peak Time Rebates, Smart Thermostats, water heaters
- Oregon Community Solar Program
- Resiliency investments in critical facilities such as the Beaverton Public Safety Center

7.2.9 New resources, programs and strategies

PGE's efforts to scale and leverage CBREs underscores the importance of our efforts to expand our Virtual Power Plant (VPP). Enhancing our ability to utilize CBRE investments to support the larger grid's functioning, through incorporation into the VPP, is critical to our decarbonization goals, as described in **Section 8.4, Virtual Power Plant (VPP)**. This will be enabled via monitoring behind-the-meter generation (e.g., smart inverters). Once solar (and other) customer-sited resources are connected, visible and actionable to system operators, they can increasingly be considered supply-side resources for purposes such as resource adequacy, procurement, operations and the small-scale renewables goal.

Section 7.2.4, Refining the market characterization of CBRE describes our near-term acquisition approach. We have an initial target of 66 MW of incremental CBREs by 2026 that we will pursue through both a Community RFP and/or other programmatic approaches. However, even procurement of the entire CBRE potential will still require additional new small-scale renewables to meet the 10 percent small-scale renewables requirement of ORS 469A.210.

PGE will continue to explore opportunities for federal, state and local grants and incentives to improve and offer opportunities that create local jobs, save on energy bills and cost-effectively reduce greenhouse gas emissions and other harmful pollutants. Having access to additional financing opportunities will support and accelerate the development of future

programs and provide unique financial advantages for customers and communities. Federal, state and local grants and incentives are a key ingredient of a socially inclusive, cost-effective energy transition.

7.2.10 Further actions and considerations

Our portfolio analysis finds that CBREs, as considered in the potential study, provide system benefits. Because of the transmission constraints PGE is facing, they compare favorably to larger scale renewable resources in portfolio analysis and comprise an important role in our Action Plan.

Broadly, our Action Plan and related acquisition actions seek to prioritize CBREs that provide community benefits, alongside grid services such as resilience. Today, large-scale CBREs (3 MW and above), can help us meet our CBRE target. These resources could provide benefits to nearby communities through community benefit agreements, as well as on-site renewables deployed at the individual customer-level.[204] However, as we improve on our ability to utilize smaller-scale CBREs at the individual neighborhood level (3 MW and below), CBREs will become an integral part of our VPP. As residential and small commercial renewables become an important part of our capacity planning, this will require changes to the regulatory framework. [205] These changes are needed to accelerate small-scale renewable projects that affordably support decarbonization of the grid. For example, this may require changes to the regulatory framework including net-energy metering and inclusion of net-energy metering as a resource needed to accelerate small scale renewable adoption. To the extent practicable, these resources and changes should provide additional direct benefits to Oregon communities in the forms of creating and sustaining meaningful living wage jobs, promoting workforce equity and increasing energy security and resiliency.

There are also uncertainties and potential risks of CBREs and CBIs to be explored further with our communities, OPUC Staff and other stakeholders. For example, there are many unknowns regarding resources that are not owned and operated by PGE such as how

[204] The US Office of Economic Impact and Diversity defines community benefit agreements as an "agreement signed by community benefit groups and a developer, identifying the community benefits a developer agrees to deliver, in return for community support of the project. Community benefit groups are coalitions comprised of neighborhood associations, faith-based organizations, unions, environmental groups and other stakeholders. Community Benefit Agreement (CBA) Toolkit | Department of Energy.

[205] PGE's DSP Part 1 and Part 2, discusses regulatory evolution and long-term actions within the regulatory framework could accelerate projects that ready the grid for decarbonization, which can be respectively found at: https://assets.ctfassets.net/416ywc1laqmd/7vUdTxBF2cElhG276mH0UZ/2b5ad6bff08b334b101f566c7dfd957a/DSP_2021_Report_Chapter7.pdf and https://assets.ctfassets.net/416ywc1laqmd/5GRLxNj644P2Ty82WkLM5F/dfd5e8376a4eac9d1bf8bc65ec7dbf74/DSP_Part_2_-_Chapter07.pdf#page=5.

community ownership could work or whether third parties would be open to community benefit agreements. Additionally, there are issues regarding third party operations and maintenance standards to address. It will also be important to understand how third-party resources will be integrated into the grid in partnership with utilities and how to protect the security of these resources and facilities. These important topics will need to be considered so that CBREs can be developed to benefit the communities they are intended to serve and serve as grid assets that can benefit all PGE customers.