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PGE Community Benefit Indicator Research – CBIAG Discussion p.1

STUDY OVERVIEW AND CBI CATALOG

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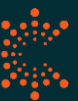
outline

1. What are Community Benefits
2. What is PGE's Community Benefit Indicator (CBI) Study
3. CBI Catalog
4. Discussion / Next Steps





**what are
community
benefits?**





what are community benefits?



where do community benefits come from?

- 1 federal government
- 2 state agencies/funding
- 3 local CBOs/partners
- 4 grassroots/volunteers
- 5 family/friends/neighbors
- 6 **OTHER?**

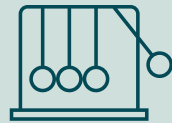


community benefit study for PGE



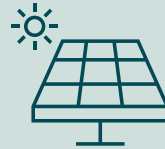
energy efficiency

Installing equipment or adopting behaviors that reduce the total amount of energy use



demand response

Reducing / shifting electric usage during peak times



solar power

Rooftop (or community) solar projects providing on-site / local energy generation and reduced utility bills



battery storage

Customer-sited batteries that can be used during outages or controlled by utilities



time of use rates

Time-varying energy rates that reflect higher on-peak pricing and lower off-peak pricing

CASE STUDY

what happens when you weatherize a home and replace with energy efficient equipment?

energy savings

bill reduction

increased comfort

improved health and safety

reduced hardship / economic well-being

avoided greenhouse gas emissions

increased resiliency



types of energy resources

From customers + buildings

Demand
Response

EV
Managed
Charging

Energy
Efficiency

Community
Based
Renewable
Projects

Time of Use
Rates

From utilities + power grid

Solar Power

Wind Power

Battery
Storage

Gas or
Coal-Fired
Power Plans

Hydro
Power

Solar /
Storage
Combos
(Microgrids)



back to this
community
benefit study...
**what are we
doing and
why are we
doing it?**

1) identifying

a list of community benefits

2) categorizing

those that can be
monetized

3) pulling

specific benefits into the
resource planning process

4) tracking

certain non-monetized
metrics/indicators to help
improve equitable access to
clean energy programs and
improved health,
environmental, and
resilience outcomes in
priority communities

where we are in the project





**community
benefits as they
relate to you and
your communities**



CHARACTERIZING CBIS BY CATEGORY

● Economic Impacts
● Energy Equity

● Health + Community Wellbeing
● Resilience/Reliability

● Environmental

1 ● Economic development impact	7 ● Ancillary services	13 ● Increased availability of electricity storage in Tribal and non-Tribal communities	19 ● Increased satisfaction and pride	25 ● Improved grid resiliency
2 ● Increased access to jobs	8 ● Reduction in GHG Emissions	14 ● Increased number of clean energy generation that powers Tribal communities	20 ● Improved comfort in home	26 ● Increased resilience/reliability in targeted communities
3 ● Increased property or asset values	9 ● Improved access to reliable clean energy	15 ● Improve efficiency and housing stock in utility service territory, including LI housing	21 ● Improved public health outcomes	27 ● Reduction in recovery time and increase in survivability from outages
4 ● Economic well-being	10 ● Improved participation in clean energy programs by EJ communities	16 ● Increased energy affordability/reduction in energy burden for EJ communities	22 ● Improved community health outcomes in targeted communities	28 ● Reduction in frequency and duration of black/brownouts in target communities
5 ● Increased productivity	11 ● Increased awareness of utility programs for EJ communities	17 ● Reduced arrearages/late payments	23 ● Reduced local emissions (pollution burden, pollution exposure)	29 ● Reduced risk to targeted communities from outages
6 ● Energy security	12 ● Meaningful bilateral engagement between utilities and tribes on siting	18 ● Reduced residential disconnections and collections	24 ● Improved household health and safety outcomes in targeted communities	30 ● Increased neighborhood safety from natural disasters



next steps for the CBIAG meeting in October

- 1 review list of CBIs
- 2 consider if there are any questions/gaps
- 3 come to next meeting with any feedback/questions for discussion





thank you!

Contact



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Appendix



CHARACTERIZING CBIS BY CATEGORY



















































 Economic Impacts

 Energy Equity

 Health + Community Wellbeing

 Resilience/Reliability

 Environmental

1  Economic development impact	7  Ancillary services	13   Increased availability of electricity storage in Tribal and non-Tribal communities	19  Increased satisfaction and pride	25   Improved grid resiliency
2  Increased access to jobs	8   Reduction in GHG Emissions	14   Increased number of clean energy generation that powers Tribal communities	20   Improved comfort in home	26   Increased resilience/reliability in targeted communities
3   Increased property or asset values	9  Improved access to reliable clean energy	15   Improve efficiency and housing stock in utility service territory, including LI housing	21  Improved public health outcomes	27   Reduction in recovery time and increase in survivability from outages
4   Economic well-being	10  Improved participation in clean energy programs by EJ communities	16   Increased energy affordability/reduction in energy burden for EJ communities	22   Improved community health outcomes in targeted communities	28   Reduction in frequency and duration of black/brownouts in target communities
5   Increased productivity	11  Increased awareness of utility programs for EJ communities	17   Reduced arrearages/late payments	23   Reduced local emissions (pollution burden, pollution exposure)	29   Reduced risk to targeted communities from outages
6   Energy security	12  Meaningful bilateral engagement between utilities and tribes on siting	18   Reduced residential disconnections and collections	24  Improved household health and safety outcomes in targeted communities	30   Increased neighborhood safety from natural disasters



Definitions

Resource: Any sources contributing usable power to the electric grid, including CBREs, utility-scale generators and renewable energy plants, and demand-side energy efficiency and demand response measures.

CBI: Community Benefit Indicator – a positive effect/outcome attributed to a given energy resource that accrues back to targeted communities.

CBI Category: As directed by OPUC, CBIs must cover one of the five categories (and often more than one in practice):

- resilience/reliability (system and community)
- health and community well-being
- environmental impacts
- energy equity
- economic impacts

Benefit/Metric: Defines whether a given CBI is monetizable as a benefit (\$) or quantifiable as a tracking metric, such as a count or percentage.



Acronyms

- › **BTMS** – Behind-the-Meter Storage
- › **CBI** – Community Benefit Indicator
- › **CBRE** – Community-Based Renewable Energy projects
- › **CBRE HY** – CBRE Small In-Conduit Hydropower projects (low-impact hydropower placing turbines within water supply or wastewater systems)
- › **CBRE MG** – CBRE Microgrid projects (combination of solar and storage with islanding control capability)
- › **CBRE PV** – CBRE PV/solar projects (e.g., community-scale solar)
- › **DR** – Demand Response (including direct load control, curtailment, peak time rebates, EV managed charging, battery DR, and dynamic or time-varying rates)
- › **EE** – Energy Efficiency
- › **PV** – Photovoltaic power (e.g., rooftop solar)
- › **TE** – Transportation Electrification (including public, private, and residential applications)
- › **TOU** – Time-of-Use or time-varying rates



CHARACTERIZING CBIS BY CATEGORY/RESOURCE APPLICABILITY:

ECONOMIC

ENVIRONMENTAL

No	CBI	Description	Resource Applicability
1	Economic development impact	Value of any incremental economic development provided by DERs (direct, indirect, induced effects)	All: EE, DR, TE, BTMS, CBREs - more pronounced with higher bill savings (EE, TOU, PV/CBRE PV)
2	Increased access to jobs	Number of jobs created through deployment/operation of DERs (direct, indirect) and derived from induced effects (spending of increased revenue on other goods/services)	All: EE, DR, TE, BTMS, CBREs
3	Increased property or asset values	Value of incremental increase in property value for buildings or equipment as a result of DER installation	EE, PV, BTMS, TE, and CBRE MG or PV (no DR)
4	Economic well-being	Customer impacts beyond bill savings (including reduced stress of associated with financial instability/hardship; reduced complaint calls, disconnections / reconnections, foreclosures)	Associated with high bill reduction: EE, TOU, PV, CBRE PV/MG
5	Increased productivity	Changes in productivity for individuals or businesses, including increased operational flexibility and reduced maintenance costs; reduced food/medicine waste and spoilage; reduced days of missed work / school due to avoided outage.	BTMS, PV, CBRE PV/MG, and EE
6	Energy security	Reduced dependency of energy from external markets (volatile prices) or other resources not under contract	EE, DR, PV, BTMS, CBRE PV/MG
7	Ancillary services	Services provided to ensure reliable operation of the electric grid (regulation, spinning and non-spinning reserves, etc.)	DR, BTMS, TE, PV, CBRE PV/MG
8	Reduction in GHG Emissions*	Reduction in fossil fuel emissions from power generation	* Any dispatchable resources offsetting power purchases associated with emitting resources (e.g., DR, BTMS, CBRE MG)



CHARACTERIZING CBIS BY CATEGORY/RESOURCE APPLICABILITY:

EQUITY

No	CBI	Description	Resource Applicability
9	Improved access to reliable clean energy	Metric tracking progress toward increased accessibility of reliable clean energy	All: EE, DR, TE, PV, BTMS, CBRE PV/MG
10	Improved participation in clean energy programs by EJ communities	Metric tracking progress toward increased adoption, participation, and benefit attribution for EJ communities associated with energy investments.	All: EE, DR, TE, PV, BTMS, CBRE PV/MG
11	Increased awareness of utility programs for EJ communities	Metric tracking progress toward increased awareness of energy programs for customers within EJ communities; related to improved access and participation.	All: EE, DR, TE, PV, BTMS, CBRE PV/MG
12	Meaningful bilateral engagement between utilities and tribes on siting	Metric tracking progress toward increased adoption and benefit attribution for tribal communities associated with these investments.	All: EE, DR, TE, PV, BTMS, CBRE PV/MG
13	Increased availability of electricity storage in Tribal and non-Tribal communities	Metric tracking progress toward increased adoption and benefit attribution associated with these investments.	BTMS, CBRE MG
14	Increased number of clean energy generation that powers Tribal communities	Metric tracking progress toward increased adoption and benefit attribution associated with these investments.	PV, CBRE PV/MG, CBRE Hy
15	Improve efficiency and housing stock in utility service territory, including LI housing	Metric reflecting improvements in housing and equipment including bill savings, health and safety outcomes, and repairs via energy investments for a given community (related to several other CBIs)	EE (potentially TE, PV, BTMS if including electrical repairs/upgrades)
16	Increased energy affordability/reduction in energy burden for EJ communities	Metric tracking increased affordability primarily through bill reduction of energy investments; related to economic well-being.	Associated with high bill reduction: EE, TOU, PV, CBRE PV/MG
17	Reduced arrearages/late payments	Metric tracking reduced arrearages achieved primarily through bill reduction of energy investments; related to economic well-being and affordability.	Associated with high bill reduction: EE, TOU, PV, CBRE PV/MG
18	Reduced residential disconnections and collections	Metric tracking reduced disconnections/reconnections and other related financial penalties achieved primarily through bill reduction of energy investments; related to economic well-being and affordability.	Associated with high bill reduction: EE, TOU, PV, CBRE PV/MG

CHARACTERIZING CBIS BY CATEGORY/RESOURCE APPLICABILITY:

HEALTH/COMMUNITY WELLBEING

No	CBI	Description	Resource Applicability
19	Increased satisfaction and pride	Increased satisfaction or pride in energy investments related to reduced environmental impacts and to aspects of perceived empowerment and energy independence.	EE, DR, TE, PV, BTMS, CBRE PV/MG
20	Improved comfort in home	Improved comfort either involving thermal comfort (e.g., ability to maintain comfortable home heating/cooling) or noise reduction (e.g., reduced noise from windows, insulation, infiltration controls).	EE
21	Improved public health outcomes	Changes in societal health outcomes related to DER adoption, including changes in productivity affected by health (lost workdays) and in medical costs associated with reduced health incidents (mortality, hospital/emergency room visits, chronic/acute illnesses)	EE, TE, BTMS, CBRE MG
22	Improved community health outcomes in targeted communities	Metric tracking progress toward societal public health outcomes related to energy investments occurring in target communities	EE, TE, BTMS, CBRE MG
23	Reduced local emissions (pollution burden, pollution exposure)	Changes in local emissions created by increased investment in energy resources displacing those that require fossil fuel combustion. This is an input into health outcomes	TE, BTMS, CBRE MG
24	Improved household health and safety outcomes in targeted communities	Impacts related to health, safety, and repair work completed as part of energy resource investment, improving housing conditions and yielding health/safety outcomes. This may include outcomes related to health (remediation of mold, asbestos, lead, ventilation/HVAC, appliance safety), safety (lighting/doors/windows improving home security, repairs allowing for aging in place), and general repairs driving costs/hardship (e.g., roof repair or other that reduces exposure, improves comfort, reduces heating/cooling costs).	EE (potentially TE, PV, BTMS if including electrical and home repairs/upgrades)



CHARACTERIZING CBIS BY CATEGORY/RESOURCE APPLICABILITY:

RESILIENCE

No	CBI	Description	Resource Applicability
25	Improved grid resiliency	Resilience (and reliability) have potential impacts at societal, host customer, and utility system levels, involving anticipation preparation, and recovery of disruptions, reducing duration and associated outages impacts. At a societal level, this goes beyond host and utility system such as maintaining critical facilities yielding health/safety benefits.	EE, DR, PV, BTMS, CBRE PV/MG
26	Increased resilience/reliability in targeted communities	Metric tracking resilience outcomes related to siting DERs or infrastructure upgrades occurring in target communities; related to societal resilience.	EE, DR, PV, BTMS, CBRE PV/MG
27	Reduction in recovery time and increase in survivability from outages	Metric tracking improvements in recovery time associated with energy investments; related to societal resilience.	EE, BTMS, CBRE MG
28	Reduction in frequency and duration of black/brownouts in target communities	Frequency and duration are metrics to track outage characteristics that can be used to identify patterns and to target deployment of DERs and/or grid infrastructure upgrades to minimize impacts in target communities; related to societal resilience.	EE, DR, PV, BTMS, CBRE PV/MG
29	Reduced risk to targeted communities from outages	The concept of risk relates to a variety of impacts related to outages, including hardship, mobility, adverse health impacts, food spoilage; this metric is applicable to how these risk outcomes are minimized withing target communities relative to energy investments; related to societal resilience.	EE, PV, BTMS, CBRE PV/MG
30	Increased neighborhood safety from natural disasters	Metric tracks progress toward increased safety outcomes associated with energy investments, such as preservation of critical facilities, indirect benefits on health and safety, and latency of response/recovery in the event of disruption; related to societal resilience.	EE, PV, BTMS, CBRE PV/MG

