

Working Draft – Energy Efficiency Portfolio Standard (EEPS) – Metrics Suggestions to Support New Policy Goals

This document was prepared by the EEM to summarize preliminary thinking for revised and new metrics. The table below shows proposed EEPS metrics and associations with current PBF metrics and reported outcomes (from Annual Reports). Below the table is a non-exhaustive list of potential PBF portfolio metrics. Some of these support reporting on EEPS metrics and others generally support policy objectives. A revised version of this draft document, approved by the Commission, will be posted to the www.HawaiiEEPS.org website on 3/18/19 to support TWG discussion on March 25th.

| Outcome | Metric | Units | Description | Data Sources | Questions and data challenges | Related Current PBF metrics/ outputs |
|--|---|----------------|--|--|--|---|
| Progress toward EEPS energy savings targets | Cumulative persisting kWh achieved to date (and as forecasted through 2030) | kWh | For use of this metric for resource planning purposes, we recommend adding program-attributed market effects to savings impacts. | PBF Verification Report; Potential Study forecast for C&S savings; and other Contributing Entities data collected. Market effects multiplier to be developed by EM&V consultant. | Data from PBFA is sufficient for Hawaii Energy contribution, but not all substantive Contributing Entities' data includes sufficient information for calculation of persisting kWh impacts. | PBF 1st year and lifetime energy savings to date (kWh) from PBF verification report |
| Peak Demand Reductions | Cumulative persisting peak demand reduction | kW | Current Peak period is 5PM-9PM, but this may be updated over time and/or differentiated by Island to reflect changing peak demand periods. | PBF Verification Report. Information provided by other Contributing Entities or estimated from what information they provide. | If trending this metric forward to 2030, need to determine how to handle future reporting, with the expectation that peak periods for each Island are expected to change over time. (Possibly adjusted to the then current peak period each time it is reported/forecasted.) | PBF 1st year peak demand reduction (kW) from PBF verification report |
| Reduced imported fossil fuels | Avoided consumption of fuel oil for electricity generation | Barrels of oil | Barrels of imported fossil fuel avoided as a result of reduced electricity use. | PBF Verification Report and other Contributing Entities for energy savings (annual → hourly as possible). HECO for oil information. | Default approach: Total kWh savings * annual average barrels/kWh. Better (data permitting): hourly kWh savings * hourly oil intensity (barrels/kWh) of generation. Unclear how difficult hourly oil figures will be to collect or estimate. | Estimates of avoided barrels of oil provided in Hawaii Energy Annual Reports |

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|--|---|--------------|---|---|--|---|
| Reduce greenhouse gas emissions | Reduction of CO2 equivalent emissions from both avoided generation and other programmatic impacts | Tons of CO2e | CO2e savings from avoided/shifted generation, electrification (i.e., fuel switching to electric), and other end use CO2e emission reduction strategies. | Hawaii Energy (Verification Report) and other contributing entities | Periodic (eventually hourly) grid carbon intensity values needed from HECO. Some elements of this data may be challenging to get from other contributing entities (e.g., without hourly load shapes or at least clear statement of end use contributions to their savings, carbon intensity calculations will be very uncertain) | Estimates of avoided CO2 provided in Hawaii Energy Annual Reports |

DRAFT

Possible PBF Portfolio metrics – many already being considered by Hawai'i Energy as part of Triennial Plan development

Basic EE Metrics

- 1st Year energy efficiency savings (kWh) - existing
- Lifetime energy efficiency savings (kWh) - existing
- Cumulative persisting energy efficiency impacts (kWh) w/o attributable market affects – new
- Persisting peak demand reduction impacts (kW) w/o attributable market affects – new

Time and Location-Dependent Energy Savings Metrics –

- Time and location-weighted cumulative persisting energy savings¹ - new, phased-in²

Total Resource Benefits

- Hawaii Energy Program TRB - existing metric
- Hawaii Energy Program TRB by location (county) – new
- Hawaii Energy Program TRB based on time value of kWh delivered based on hourly load shapes and hourly avoided costs (circa PY2021) - new

Grid Flexible Building/DER-Ready Equipment

- Phase 1: Completion of planned, grid flexible building or DER-ready equipment pilot projects (i.e., start with milestone-based metrics) -- new
- Phase 2: Persisting demand reduction- and load shifting-ready capacity at specified time intervals and/or % of building stock with DR ready resources that could be engaged by HECO or aggregators -- new

Serve Hard To Reach and Income-Constrained Communities

- Participation rates and annual kWh impacts by small business and HTR customers in targeted programs -- existing
- Percent of total PBF program expenditure serving HTR and ALICE customers (not just HTR and Low-Income program dollars) -- new
- Reduced energy cost burden on HTR and income-constrained customers -- new
- Spending (\$) for HTR and ALICE segments by county and sector level -- new

Market Transformation (and Other Operations-Focused Metrics)

- Various Transformational metrics under development -- updated and new
- Customer satisfaction -- existing

¹ Please note, a time and location-dependent, value-based metric for energy efficiency savings might be considered in the next EEPS Review cycle; integrating such a metric in the EEPS Framework during current review cycle seemed premature

² Possibly start with a handful of time value periods until hourly avoided costs become available in 2021? For location factor, start with Islands and move to subdivisions of Islands as more data becomes available.