Attachment:
Staff Proposal on Filing Requirements for the 2019-2020 IRP Cycle

Contents

List of Acronyms

BAA	Balancing Authority Area
C&I	Commercial and Industrial
CEC	California Energy Commission
CHP	Combined Heat and Power
COD	Commercial Operation Date
CSP	Clean System Power
ELCC	Expected Load Carrying Capability
GHG	Greenhouse Gas
I&A	Inputs and Assumptions
IEPR	Integrated Energy Policy Report
IRP	Integrated Resources Planning
LOLE	Loss of Load Expectation
LSE	Load Serving Entity
MJU	Multi-Jurisdictional Utility
NDA	Non-Disclosure Agreement
NQC	Net Qualifying Capacity
O&M	Operations and Maintenance
PD	Proposed Decision
PRM	Planning Resource Margin
SB	Senate Bill
TPP	Transmission Planning Process

Terms and Definitions

Approve (an IOU, ESP or CCA Plan): the CPUC's obligation to approve an LSE's integrated resource plan derives from Public Utilities Code Section 454.52(b)(2) and the procurement planning process described in Public Utilities Code Section 454.5, in addition to the CPUC obligation to ensure safe and reliable service at just and reasonable rates under Public Utilities Code Section 451.

Balancing Authority Area (CAISO): The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.

Baseline resources: those resources assumed to be fixed as a capacity expansion model input, as opposed to Candidate resources, which are selected by the model and are incremental to the Baseline. Baseline resources are existing (already online) or owned or contracted to come online within the planning horizon. Existing resources with announced retirements are excluded from the Baseline for the applicable years. Being "contracted" refers to a resource holding signed contract/s with an LSE/s for much of its energy and capacity, as applicable, for a significant portion of its useful life. The contracts refer to those approved by the CPUC and/or the LSE's governing board, as applicable. These criteria indicate the resource is relatively certain to come online. Baseline resources that are not online at the time of modeling may have a failure rate applied to their nameplate capacity to allow for the risk of them failing to come online.

Candidate resource: those resources, such as renewables, energy storage, natural gas generation, and demand response, available for selection in IRP capacity expansion modeling, incremental to the Baseline resources.

Capacity Expansion Model: A capacity expansion model is a computer model that simulates generation and transmission investment to meet forecast electric load over many years, usually with the objective of minimizing the total cost of owning and operating the electrical system. Capacity expansion models can also be configured to only allow solutions that meet specific requirements, such as providing a minimum amount of capacity to ensure the reliability of the system or maintaining greenhouse gas emissions below an established level.

Certify (a Community Choice Aggregator Plan): Public Utilities Code 454.52(b)(3) requires the CPUC to certify the integrated resource plans of CCAs. "Certify" requires a formal act of the Commission to determine that the CCA's Plan complies with the requirements of the statute and the process established via Public Utilities Code 454.51(a). In addition, the Commission must review the CCA Plans to determine any potential impacts on public utility bundled customers under Public Utilities Code Sections 451 and 454, among others.

Clean System Power (CSP), formerly known as Clean Net Short: the methodology used to estimate GHG emissions associated with an LSE's Portfolio based on how the LSE will expect to rely on system power on an hourly basis.

Community Choice Aggregator: a governmental entity formed by a city or county to procure electricity for its residents, businesses, and municipal facilities.

Conforming Portfolio: the LSE portfolio that conforms to IRP Planning Standards, the 2030 LSE-specific GHG Emissions Benchmark, use of the LSE's assigned load forecast, use of inputs and assumptions matching those used in developing the Reference System Portfolio, as well as other IRP requirements.

Effective Load Carrying Capacity: a percentage that expresses how well a resource is able avoid loss-of-load events (considering availability and use limitations). The percentage is relative to a reference resource, for example a resource that is always available with no use limitations. It is calculated via probabilistic reliability modeling, and yields a single percentage value for a given resource or grouping of resources.

Electric Service Provider: an entity that offers electric service to a retail or end-use customer, but which does not fall within the definition of an electrical corporation under Public Utilities Code Section 218.

Filing Entity: an entity required by statute to file an integrated resource plan with CPUC.

Future: a set of assumptions about future conditions, such as load or gas prices.

GHG Benchmark (or LSE-specific 2030 GHG Benchmark): the mass-based GHG emission planning targets calculated by staff for each LSE based on the methodology established by the California Air Resources Board and required for use in LSE Portfolio development in IRP.

GHG Planning Price: the systemwide marginal GHG abatement cost associated with achieving a specific electric sector 2030 GHG planning target.

Integrated Resources Planning Standards (Planning Standards): the set of CPUC IRP rules, guidelines, formulas and metrics that LSEs must include in their LSE Plans.

Integrated Resource Planning (IRP) process: integrated resource planning process; the repeating cycle through which integrated resource plans are prepared, submitted, and reviewed by the CPUC

Long term: more than 5 years unless otherwise specified.

Load Serving Entity: an electrical corporation, electric service provider, community choice aggregator, or electric cooperative.

Load Serving Entity (LSE) Plan: an LSE's integrated resource plan; the full set of documents and information submitted by an LSE to the CPUC as part of the IRP process.

Load Serving Entity (LSE) Portfolio: a set of supply- and/or demand-side resources with certain attributes that together serve the LSE's assigned load over the IRP planning horizon.

Loss of Load Expectation (LOLE): a metric that quantifies the expected frequency of loss-of-load events per year. Loss-of-load is any instance where available generating capacity is insufficient to serve electric demand. If one or more instances of loss-of-load occurring within the same day regardless of duration are counted as one loss-of-load event, then the LOLE metric can be compared to a reference point such as the industry probabilistic reliability standard of "one expected day in 10 years," i.e. an LOLE of 0.1.

Net Qualifying Capacity: Qualifying Capacity reduced, as applicable, based on: (1) testing and verification; (2) application of performance criteria; and (3) deliverability restrictions. The Net Qualifying Capacity determination shall be made by the California ISO pursuant to the provions of this California ISO Tariff and the applicable Business Practice Manual.

Non-modeled costs: embedded fixed costs in today's energy system (e.g., existing distribution revenue requirement, existing transmission revenue requirement, and energy efficiency program cost).

Nonstandard LSE Plan: type of integrated resource plan that an LSE may be eligible to file if it serves load outside the CAISO balancing authority area.

Optimization: an exercise undertaken in the CPUC's Integrated Resource Planning (IRP) process using a capacity expansion model to identify a least-cost portfolio of electricity resources for meeting specific policy constraints, such as GHG reduction or RPS targets, while maintaining reliability given a set of assumptions about the future. Optimization in IRP considers resources assumed to be online over the planning horizon (baseline resources), some of which the model may choose not to retain, and additional resources (candidate resources) that the model is able to select to meet future grid needs.

Planned resource: any resource included in an LSE portfolio, whether already online or not, that is yet to be procured. Relating this to capacity expansion modeling terms, planned resources can be baseline resources (needing contract renewal, or currently owned/contracted by another LSE), candidate resources, or possibly resources that were not considered by the modeling, e.g., due to the passage of time between the modeling taking place and LSEs developing their plans. Planned resources can be specific (e.g., with a CAISO ID) or generic, with only the type, size and some geographic information identified.

Qualifying capacity: the maximum amount of Resource Adequacy Benefits a generating facility could provide before an assessment of its net qualifying capacity.

Preferred Portfolio: the portfolio preferred by an LSE as the most suitable to its own needs; submitted to CPUC for review as one element of the LSE's overall IRP plan.

Preferred System Plan: the Commission's integrated resource plan composed of both the aggregation of LSE portfolios (i.e., Preferred System Portfolio) and the set of actions necessary to implement that portfolio (i.e., Preferred System Action Plan).

Preferred System Portfolio: the combined portfolios of individual LSEs within the CAISO, aggregated, reviewed and possibly modified by Commission staff as a proposal to the Commission, and adopted by the Commission as most responsive to statutory requirements per Pub. Util. Code 454.51; part of the Preferred System Plan.

Reference System Plan: the Commission's integrated resource plan that includes an optimal portfolio (Reference System Portfolio) of resources for serving load in the CAISO balancing authority area and meeting multiple state goals, including meeting GHG reduction and reliability targets at least cost.

Reference System Portfolio: the multi-LSE portfolio identified by staff for Commission review and adopted/modified by the Commission as most responsive to statutory requirements per Pub. Util. Code 454.51; part of the Reference System Plan.

Short term: 1 to 3 years (unless otherwise specified).

**Staff**: CPUC Energy Division staff (unless otherwise specified).

Standard LSE Plan: type of integrated resource plan that an LSE is required to file if it serves load within the CAISO balancing authority area (unless the LSE demonstrates exemption from the IRP process).

1. Introduction

Senate Bill (SB) 350 introduced integrated resource planning as the statewide approach to long-term electric resource planning in California. The Commission adopted in the 2018 Decision Setting Requirements for Load Serving Entities Filing Integrated Resource Plans (D.18-02-018), a two-year cycle for the IRP process. In broad terms, in the first year of the cycle staff prepares modeling and analysis to recommend a GHG emissions target for the electricity sector and the optimal portfolio to meet this target; in the second year load serving entities (LSEs) file IRP plans to be considered by the Commission. In 2019, the Commission issued Decision Adopting Preferred System Portfolio and Plan for the 2017-2018 Integrated Resource Plan Cycle (D.19-04-040) which initiated a procurement track and provided additional guidance on filing requirements. Figure 1 below presents the IRP process, updated to reflect the changes proposed in this document as well as procedural updates to reflect the annual transmittal of resource portfolios to the CAISO Transmission Planning Process (TPP) and the adoption of the Procurement Track[1].

Figure 1 – Integrated Resource Planning Process
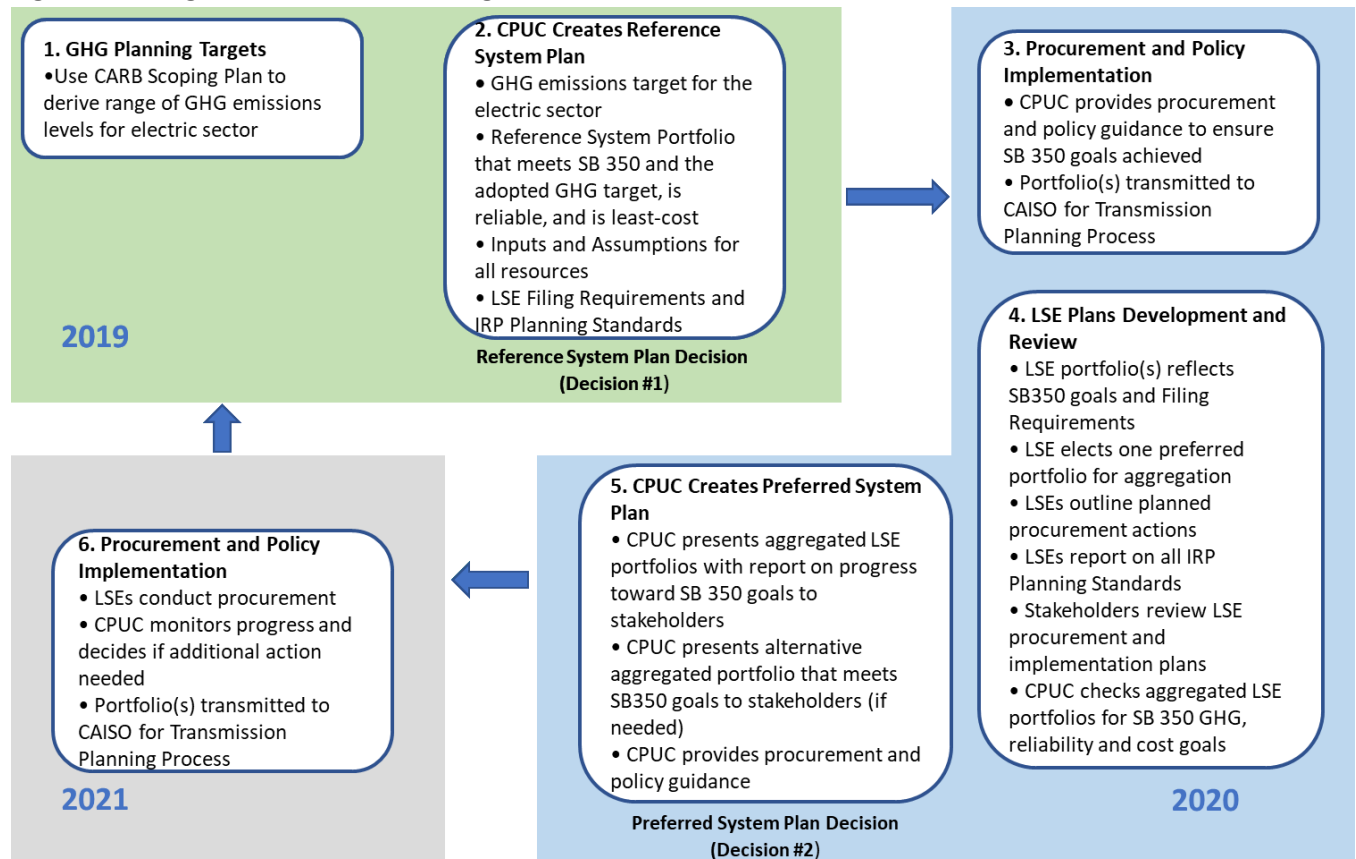
As part of the activities of Year 1 and the preparation of the Reference System Plan and LSE Filing Requirements (step 2), staff has developed this proposal to inform the 2019-2020 LSE IRP filings.

---

[1] The Commission in decision D.19-04-040 ordered the creation of a Procurement Track to assess procurement needs identified in the IRP process. In this case, procurement need may be identified at any planning stage.

a. Purpose

California has pathbreaking environmental, reliability, and cost goals for its energy future. These goals are meant to be achieved by over 40 LSEs with differing governing structures, planning horizons, and regulatory frameworks. The Integrated Resource Plan (IRP) process led by the Commission every two years is designed to allow for both a centralized examination of the incremental new electric resources needed to accomplish California's statewide goals, and an examination of how the many individual LSE plans work together to meet those goals. These filing requirements are the tool by which stakeholders and the Commission can gain insight into our progress toward a near-zero emissions, reliable, and least-cost electric portfolio.

The filing requirements are necessarily detailed, so that LSE plans can be assessed individually for their contributions toward state goals, and in aggregate to understand the extent of our progress in terms of hourly emissions, reliability, transmission, out-of-state resources and imports, impacts on disadvantaged communities, costs, the existing natural gas fleet, and other elements of long-term resource planning.

The purpose of this staff proposal is to make recommendations for improvements to the initial set of filing requirements used in the first IRP cycle in 2017-2018,[2] and new requirements set out in the decision approving the 2017-2018 Preferred System Plan.[3]

This document describes the proposed requirements in detail; it does not constitute the actual templates LSEs will be required to use in their filings.[4] Staff will informally post the draft 2019-2020 templates in Fall 2019. Final templates would be adopted together with the Reference System Plan in a decision later this year.

b. 2019-20 Filing Requirements Development and Adoption Process

As per D.18-02-018, LSE IRP filings are expected on May 1, 2020. In order to meet this deadline, staff proposes the following process for development and adoption of final templates, tools and instructions:

Date	Activity
September 2019	Staff proposal on 2019-20 filing requirements issued via ruling
September/October 2019	Comments and replies on staff proposal
Late October	Informal posting of draft templates
December 2019	2019 Reference System Plan and Filing Requirements Proposed Decision
January 2020	IEPR forecast adoption by the CEC
February 2020	2019 Reference System Plan and Filing Requirements Decision adoption
February 2020	Ruling adopting GHG Benchmark and Load Assignments
May 1, 2020	Deadline for LSEs IRP filings

---

[2] Adopted in D.18-02-018, available at
http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M209/K771/209771632.PDF
[3] Adopted in D.19-04-040, available at
http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=287437887
[4] The 2017-18 cycle LSEs were provided two templates: a Standard LSE Plan Template and a Data Template. Both can be accessed here: https://www.cpuc.ca.gov/irp_proposal/

c. Summary of changes to existing filing requirements

In this proposal, staff recommends the following changes to existing filing requirements:

- **Require all LSEs in the CAISO Balancing Authority Area (BAA)to file Standard Plans regardless of size, therefore eliminating the Alternative Plan:** requesting contractual information from all LSEs will improve the aggregation process, especially due to the proliferation of Community Choice Aggregators (CCAs) which in aggregate may represent a significant share of load.
- **Allow multi-jurisdictional utilities a Non-Standard Plan compliance path:** MJU may either file only the narrative template or submit IRPs prepared for other jurisdictions.
- **Require all LSEs to only file Conforming Portfolios, therefore eliminating the Alternative Portfolio option**: LSEs may only file plans that conform with 2019 Reference System Plan inputs and assumptions (I&A), assigned GHG emissions benchmark and other requirements.
- **Require all LSEs to use the IEPR assigned load forecast, including load modifiers**: To support aggregation, the LSEs may not deviate from assigned annual share of the 2019 Integrated Energy Policy Report (IEPR) forecast. However, LSEs with load shapes significantly different from the IEPR CAISO system shape may propose different load shapes if the assigned annual energy volumes remain unchanged.
- **Eliminate the GHG Planning Price to demonstrate achievement of the 2030 GHG planning target**: No LSE used this option last cycle. Staff will continue to report the GHG Planning Price based on the Reference System Portfolio to support distributed energy resources valuation needs.
- **Improve required reporting based on Integrated Resources Planning Standards:** Staff identified a set of metrics that LSEs should meet based on the various statutory requirements described in PU Code Sections 454.51 and 454.52, including ensuring reliability, minimizing criteria pollutants with early priority for disadvantaged communities, amongst others. Staff expects these planning standards should clarify expectations for LSEs in developing their portfolios, standardize reporting across LSEs of different types and sizes, and facilitate staff production of the Preferred System Portfolio.
- **Improve functionality of the Clean System Power calculator tool (formerly known as Clean Net Short or CNS)** to support various existing and new or improved reporting requirements including costs, revenue requirement and reliability.
- **Improve design and functionality of the Resources Data Template,** including functionality to support proposed filing requirements, such as the reliability planning standards introduced in this document.
- **Include new filing requirements adopted in D.19-04-040,** including hydro generation management risk, resource shuffling, and Diablo Canyon Power Plant replacement.
- **Improve reliability reporting requirements in LSE Plans** by requiring LSEs to report reliability metrics to support reliability checks of the Aggregated Portfolios.

d. Document Organization

This document is organized into four sections:

- **Section 1**: presents introduction and purpose of the document.

- **Section 2**: presents general rules and guidelines for the 2019-2020 filings, including which entities should file IRPs, the different types of plans and portfolios allowed, recommendations for confidential treatment of plans, and non-market participant review.
- **Section 3**: presents recommendations for technical requirements setting 2030 GHG Benchmarks and load forecast assignments, recommendations for the use of the GHG Planning Price, and the introduction of planning standards that LSEs should report in their plans.
- **Section 4:** presents proposed improvements, modifications and new requirements for the three main elements of the LSE plans – Study Design, Results and Action Plan, Resource Data Template and the Clean System Power (formerly known as Clean Net Short or CNS) calculator tool.

2. Proposed General Rules and Guidelines for IRP Filings

a. LSEs required to file IRP Plans

As ordered by the Commission in D.18-02-040, the following LSEs are required to file an IRP with the CPUC:

- All Investor Owned Utilities (IOUs).
- All CCAs with approved implementation plans filed with the CPUC as of the scheduled filing date, even if not yet serving load.
- All ESPs that have filed year-ahead (2020) load forecasts in the Resource Adequacy proceeding as of Fall 2019.

The following types of LSEs do not have to file an IRP in 2020; instead, they must make a filing demonstrating their exemption from the IRP filing process.

- Electric cooperatives whose energy sales do not exceed the three-year average of 700 GWh, per Assembly Bill (AB) 759 (Dahle, 2017), which added Section 454.52(e).
- Registered ESPs that are not serving California load in 2020.

b. Type of IRP Plan

Staff proposes that all LSEs within the CAISO BAA file a Standard LSE Plan, regardless of size or LSE type. Staff further proposes that multi-jurisdictional utilities (MJU) and LSEs outside the CAISO BAA be permitted to file a Nonstandard LSE Plan.

Standard LSE Plans
In the 2017-2018 cycle, LSEs were required to file Standard LSE Plans. Exceptions covered LSEs whose load forecast remained below 700 GWh for each of the first five years of the IRP planning horizon which could file an Alternative Type 1 LSE Plan, or MJUs which could file an Alternative Type 2 Plan.[5] Both Alternative Plan types included simplified filing requirements. In 2019-2020, staff proposes to eliminate the Alternative Type 1 and create a new category of LSE Plan that combines elements from the Type 1 and Type 2 LSE Plan options.

---

[5] Not to be confused with "Alternative Portfolios", which, in the 2017-2018 cycle, referred to all nonconforming portfolios filed by LSEs (see section 2.c for more detail)

In the first IRP cycle, stakeholders benefited from the fact that several CCAs opted to file Standard LSE Plans, because the more extensive content aided analysis of the Aggregated Portfolio.

Further, Alternative Type 1 Plans provided little value to the Preferred System Portfolio aggregation process in IRP, because they contained insufficient information on contracted resources. As the growth of CCAs continues, and as ESPs are collectively permitted to serve more load in California, there is likely to be an increased number of LSEs that fall under the 700 GWh threshold and yet in aggregate will comprise an increasingly larger share of statewide load. Therefore, understanding and accounting for those LSEs' resource positions in statewide planning will become increasingly important for California to achieve its policy objectives.

Nonstandard LSE Plans

For MJU, or LSEs outside the CAISO BAA (i.e., Liberty and PacifiCorp), staff proposes minor changes to the plan content they are required to file. The Nonstandard LSE Plan offers two compliance options:

1. Complete and submit the narrative template for the Standard LSE Plan.
    o   Under this option, the Nonstandard LSE Plan filer is not required to submit the Resources Reporting Template that is required of Standard LSE Plan filers or address any of the requirements based on contracted or planned resource information (see more detail in section 3).
    o   Under this option the Nonstandard LSE Plan filer is not required to submit the Clean System Power (CSP) calculator tool[6]. The LSE may use another method to fulfill requirements that would otherwise have required the CSP tool and justify the choice.
2. Submit any IRP that was submitted to another public regulatory entity within the previous calendar year. Specifically, if LSE Plans are due to the CPUC in 2020, then the eligible LSE may submit its 2019 IRP as its Nonstandard LSE Plan.
    o   If this IRP does not already include a demonstration of how disadvantaged communities were considered, a separate demonstration must be submitted that satisfies the requirements for disadvantaged communities.

All LSEs submitting Standard or Nonstandard plans must include the latest CEC Power Content Label[7] in their filing.

c. Required and Optional Portfolios

In the 2017-2018 cycle, LSEs were permitted to file at least one portfolio that conformed with Commission adopted criteria, or Conforming Portfolio. LSEs were also permitted to file any number of additional nonconforming portfolios, which were also known as Alternative Portfolio(s)[8]. From all portfolios submitted, LSEs could elect a Preferred Portfolio to be aggregated into the Preferred System Portfolio, regardless of whether the portfolio conformed with Commission adopted criteria or not. However, based on experience in the 2017-2018 cycle, staff found that non-conforming portfolios were not very useful for aggregation. For example, some portfolios used different planning assumptions for forecast demand, costs, and other metrics that could not be combined like-for-like with those of other

---

[6] Formerly known as the Clean Net Short or CNS tool
[7] https://ww2.energy.ca.gov/pcl/power_content_label.html
[8] Not be confused with Alternative Plans as described in Section 2.b.ii above

LSE portfolios, and some portfolios lacked detailed contractual information for certain resources, which made aggregation even more challenging.

For the 2019-2020 cycle, staff proposes to eliminate the possibility of LSEs filing non-conforming portfolios. Instead, each LSE must produce only Conforming Portfolio(s) using its assigned load forecast and a demonstration that it is consistent with the Reference System Portfolio according to the following criteria:

- Conform to the new portfolio Integrated Resources Planning Standards proposed by staff, in addition to the 2030 GHG Emissions Benchmark assigned to the LSE (see Section 3.c).
- Use inputs and assumptions (e.g., baseline generating fleet, candidate resource cost assumptions, financial assumptions, etc.) matching those used by staff in developing the Reference System Portfolio, with the following exceptions based on updated information:
  - LSEs shall align with the load assignment indicated above, namely the "mid Baseline mid AAEE" version of Form 1.1c of the CEC's adopted 2019 IEPR demand forecast.
  - LSE load modifier assumptions shall be consistent with the 2019 IEPR demand forecast projections of both PV and non-PV self-generation, and load-modifying demand response included in the "mid Baseline mid AAEE" case, unless the LSE demonstrates that its load shape is sufficiently different from the system average to warrant an adjustment (see Section 3.b for more detail).
  - LSEs shall use the 2019 IEPR burner-tip natural gas price projections.
- If the Commission identifies a specific resource, mix of resources, and/or resource attributes from the Reference System Portfolio as necessary for renewable integration, the LSE must include its share of that resource.
  - Each LSE should assume its planning obligation for such a resource to be proportional to its load share of the CAISO system for each year that the resource appears in the Reference System Portfolio.

LSEs may study and report multiple Conforming Portfolios developed with different resource mixes and load shapes, subject to the criteria described above.

Similar to the 2017-2018 IRP cycle, LSEs will be required to select a Preferred Portfolio among all portfolios developed and submitted. LSEs should provide justification for the election, including why the portfolio is consistent with all state goals and is the best representation for how the LSE plans to meet state goals. The Preferred Portfolio will be assessed by staff for compliance and will be used in the aggregation and system Production Cost Modeling verification.

d. Confidentiality

Staff suggests that each LSE strive to provide as much data and information as possible in a public manner, to support its IRP filing. Confidentiality statutes weigh in favor of public disclosure unless there is an explicit reason to keep specific material confidential. As in the last round of IRP filings, any LSE seeking to claim that there is confidential information in its filing must file a "motion to file under seal" no later than the IRP filing deadline, explicitly detailing the reasons for requesting the specific material be kept confidential, with specific reference to the matrices in D.06-06-066 and any subsequent

decisions modifying that decision. Each such LSE must also provide a proposed redacted and a public version of its plan at the same time, by no later than the filing deadline.

In addition, staff proposes that each LSE expecting to file a confidential version of its IRP be required to offer the confidential version to any non-market participant (as defined by the Commission in D.06-06-066 and subsequent orders modifying it, including D.07-05-032), on the required IRP filing date. To facilitate this, staff proposes that the Commission's standard non-disclosure agreement (NDA) for procurement purposes[9] be available to be signed by all interested non-market participants and each LSE, at any time up to 15 calendar days prior to the required IRP filing date. This would allow LSEs and stakeholders to begin the paperwork of trading signed NDA agreements soon, with the expected distribution of confidential versions of IRPs known by the LSEs ahead of the filing deadline. In this manner, stakeholders who are authorized to do so by their positions as non-market participants could begin reviewing confidential versions of individual IRP filings immediately after they are filed. This will assist the Commission in a robust review of IRP filings without compromising confidentiality, where it is deemed necessary by the Commission.

As with the previous round of IRP filings, the administrative law judge would review and rule on any motions to file under seal in parallel with the stakeholder review of the confidential material. A ruling would then be issued granting confidential treatment where it is supported by law and deemed appropriate.

3. Technical Requirements

a. Assigned Load Forecast for Each LSE

Consistent with 2017-2018 cycle, IOUs and CCAs should use the "mid Baseline mid AAEE" version of Form 1.1c of the California Energy Commission's (CEC) 2019 IEPR demand forecast, expected to be adopted in early 2020, for planning purposes across the IRP planning horizon (i.e., until 2030, for the purposes of IRP 2019-20).

The CEC has authority to request ten-year load forecasts and related information from all LSEs that sell or provide electricity to end users located in California.[10] This request is made through *Forms and Instructions for Submitting Electricity Demand Forecasts* (Forms and Instructions) adopted by the CEC as part of its *Integrated Energy Policy Report* (IEPR) public process.[11] Currently, the CEC does not receive long-term load forecast information from a majority of CCAs, as the Forms and Instructions traditionally exempt LSEs serving a peak load less than 200 MW.

The CEC revises the Forms and Instructions in advance of every odd-year IEPR and in consultation with stakeholders. Staff proposes to request that, as part of the next Forms and Instructions revision, the CEC

---

[9] A standard NDA was required by Resolution E-4468; the Resolution is available at: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M154/K641/154641163.PDF. In addition, a model protective order was adopted in D.08-04-023, Appendix A, available at: http://docs.cpuc.ca.gov/published/FINAL_DECISION/94608.htm

[10] California Code of Regulations, Title 20, Section 1345

[11] https://efiling.energy.ca.gov/GetDocument.aspx?tn=226226&DocumentContentId=56979

expand this data collection effort to include all CPUC-jurisdictional LSEs regardless of peak load and to request information necessary to support individual LSE load assignments in the IRP.

Similarly, as required in the 2017-208 cycle, ESPs should utilize their most recent year-ahead load forecast submission to the CPUC for resource adequacy purposes (i.e., submitted in 2019 forecasting 2020 load) and extend that energy requirement (in MWh) as a straight line annually out to 2030. ESP load forecasts may be filed under seal, and the Commission staff will aggregate the ESP submittals to protect confidentiality.

In order to accommodate the particular characteristics of certain LSEs' customer profile, LSEs may provide their own load shape in the CSP calculator tool, provided the total annual energy volumes remain consistent with their assigned forecast and the LSE provides a detailed explanation as to how their load shape was developed. Absent a unique load shape, the LSE should use the default hourly forecast set in the CSP calculator tool, which will reflect the 2019 IEPR "mid Baseline mid AAEE" hourly forecast for the CAISO system average.

Unlike in the previous IRP cycle, LSEs will not be permitted to use an annual load forecast (MWh) that differs from the one assigned to it in IRP. For any LSE required to file an IRP in 2020 but which does not appear in the 2019 IEPR forecast (e.g., newly emergent CCAs), an opportunity may be provided for them to file a motion in IRP with a proposed load forecast, similar to the previous IRP cycle.

b. GHG Planning Price

In the previous cycle, based on RESOLVE modeling output, staff calculated the marginal cost of GHG abatement, which approximated the marginal cost of GHG abatement associated with the chosen GHG target and resulting resource portfolio. LSEs could then use this information in their planning. However, no LSE used the GHG Planning Price for LSE plan development, opting to use the LSE-specific GHG Emissions Benchmark instead. Therefore, staff proposes eliminating the use of GHG Planning Price as an option for LSEs to demonstrate compliance with the 2030 GHG planning target in this IRP cycle.

In addition to informing LSE plan development, the GHG Planning Price was also used to develop the GHG adder, one of the inputs of the Avoided Cost Calculator, used in the valuation of distributed energy resources. Due to its role in the determination of the GHG adder, staff will continue to report the GHG Planning Price based on RESOLVE modeling for the Commission chosen GHG target.

c. 2030 GHG Emissions Benchmark

Staff proposes to use the same methodology from the 2017-2018 IRP cycle for calculating updated LSE-specific 2030 GHG Emissions Benchmarks, using the 2019 IEPR forecast.[12] The new 2030 GHG Emissions Benchmarks will be published to the IRP website after the 2019 IEPR is adopted, expected January 2020, and assigned to the LSE by ALJ ruling shortly thereafter.

Each ESP is required to calculate its own confidential GHG Emissions Benchmark based on its 2030 load share within the host IOU's territory. For ESPs that serve load in more than one IOU service territory,

---

[12] The methodology is described in D.18-02-018 and the CARB 2018 staff report, "Senate Bill 350 Integrated Resource Planning Electricity Sector Greenhouse Gas Planning Targets"

those ESPs should add up the separate GHG Emissions Benchmarks calculated based on its share of direct access load for each IOU service territory to result in a single benchmark. Staff expects to include a table for performing this calculation in the updated CSP calculator, which will be circulated for stakeholder review in the Fall of 2019.

d. Integrated Resources Planning Standards

Staff proposes to establish planning standards in IRP to guide the development and necessary reporting of LSE plans. Integrated Resources Planning Standards, or IRP Planning Standards, refer to the set of rules, formulas, and metrics that LSEs must follow when preparing their individual IRP portfolios. These IRP Planning Standards reflect the planning requirements set out in PU Code Section 454.52, including "ensur[ing] system and local reliability" and "minimiz[ing] localized air pollutants," as well as to facilitate staff production of the Preferred System Portfolio. As acknowledged in D.19-04-040, the instructions and review criteria for LSE Plans in the previous IRP cycle were clearer in some areas than others, and the IRP Planning Standards are designed to address that problem. Accordingly, the design of these IRP Planning Standards was largely informed by staff's experience and lessons learned from reviewing the 2018 LSE Plans.

The advantages of using planning standards are the following:

- Provide LSEs a more standardized approach to plan development.
- Clearly establish the expected level of information to be reported in LSE study results.
- Support the overall reliability assessment of the aggregated plans by providing LSE level reliability information.
- Facilitate the comparison between the aggregated LSE Plans, the Preferred System Portfolio and the Reference System Portfolio.
- Increase transparency of staff and stakeholder review of plans.
- Provide clear criteria to be used in a future Citation Program (yet to be developed).
- Provide planning metrics that can be used to track LSE performance over time.

Given some of the IRP Planning Standards are proposed for the first time in this cycle, staff proposes that IRP Planning Standards be informational. As the process evolves, the Commission may consider actions based on individual LSE performance in a future Citation Program.

Table 1 provides a summary of the IRP Planning Standards proposed in this cycle, the sections of the staff proposal that each standard is covered in more detail and applicability to Standard and Nonstandard Plan filers:

Table 1 – Proposed IRP Planning Standards and applicability to Standard and Nonstandard Plans:

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan	Section
GHG Emissions	2030 GHG Benchmark	CSP calculator tool output based on reported planned resources	LSE Portfolio GHG emissions (MMT)	LSE Plans GHG emissions are equal or lower than the assigned GHG Benchmark for current cycle GHG Benchmark assessed based on justification, proposed near-term corrective actions, and impact on Aggregated Portfolio results Track LSE performance over future IRP cycles (starting in 2021-22 cycle)	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool	4.b.i
Local Air Pollutants	Emissions of local air pollutants for planning years	CSP calculator tool output based on reported planned resources from SERVM generated hourly emissions	LSE Portfolio NOx, PM2.5, SO2 emissions (MMT)	Local air pollutant emissions of Aggregated Portfolio vs Reference System Portfolio emission and potentially the Preferred System Portfolio Track individual LSE performance over future IRP cycles (starting in 2021-22 cycle)	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool	4.b.iv

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan	Section
Commitment to DAC customers	DAC population served by the LSE	LSE reported number of DAC customers served	Reported number of customers served 2018, 2019 and projected for 2020	Track LSE performance over future IRP cycles	Yes	Yes	4.b.iv
Planned resources cost	Estimated cost of proposed planned resources based on 2019 I&A	CSP calculator tool output based on reported planned resources costs as per 2019 I&A (capital, fixed operations and maintenance (O&M), variable O&M, and fuel costs)	$MM/yr	Assess incremental cost of Aggregated Portfolio against incremental cost of Reference System Portfolio and the most recently adopted Preferred System Portfolio. Enable like-for-like comparison across individual LSEs	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool	4.b.v

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan	Section
Planned resources revenue requirement	Estimated revenue requirement of proposed planned resources based on RESOLVE methodology using 2019 I&A	CSP calculator tool output based on reported planned resources costs per 2019 I&A	$MM/yr	Assess incremental revenue requirement of Aggregated Portfolio against incremental cost of Reference System Portfolio and the most recently adopted Preferred System Portfolio. Enable like-for-like comparison across individual LSEs	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool	4.b.v
System capacity requirement	Individual LSEs contribution to system reliability	System reliability planning target apportioned to LSE by load share minus reported contracted or owned and planned resources in each planning year	Contracted and planned resources shortfall (MW)	Assess system reliability and individual LSE contribution to system reliability Support assessment of procurement need	Yes	No. LSEs filing nonstandard plans are exempt from providing contractual information	4.b.viii

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan	Section
Local capacity requirement	Individual LSE contribution to local capacity needs	Local capacity requirements apportioned to LSE by load share minus aggregated LSE contracted or owned and planned resources in each planning year	Contracted and planned resources shortfall (MW)	Assess local reliability and individual LSE contribution to local reliability

Support assessment of procurement need | Yes | No. LSEs filing nonstandard plans are exempt from providing contractual information | 4.b.viii |
| Resource mix | Demonstrate that its plan accounts for resource mix identified in the optimal portfolio. | CSP calculator tool output based on reported planned resources compared to Reference System Portfolio | MW under/over by resource type | Track LSE performance over future IRP cycles | Yes | Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool | 4.b.x |

4. LSE Plan Components

a. Study Design

Consistent with 2017-2018 IRP requirements, LSEs are required to provide a narrative description of the methods utilized in the development of their plan. The narrative description should cover the following topics:

- Objectives: a description of the LSE's objectives for the analytical work it is documenting in the IRP.
    - Methodology: the process through which the LSE developed its plan, including:
        - Modeling tool(s), if modeling used.
        - Modeling approach, if modeling used, including description and rationale for the cases modeled.
        - Alternative method to the CSP calculator if applicable.
        - Description of any post-processing used to generate metrics for portfolio analysis.
- Load shape used if other than the system load shape, including:
    - Source of data used.
    - Methods used to develop the load shape.
- Numerical data is reported according to the requirements itemized below under Resource Reporting Template, unless otherwise stated.

b. Study Results

Following the process established in the decision adopting the IRP process[13], once LSEs file their IRP Plans staff aggregates all plans, conducts reliability checks and recommends a Preferred System Portfolio for Commission consideration. The Preferred System Portfolio should be reliable in all planning years, meet the GHG constraints and be cost-effective. It should reflect each LSE's assessment of their part in contributing to the Reference System Portfolio, considering their unique circumstances and strategies, as well as industry conditions.

In order to support the assessment of individual LSE plans and the ability of the individual plans to support the aggregation process, LSEs are required to report as listed below for all submitted portfolios unless otherwise directed by the Commission. Staff will assess the impact of individual LSE Preferred Plans on the ability of the Aggregated Portfolio to meet IRP objectives.

i. Portfolio GHG Results

LSEs will be assigned a GHG Benchmark based on the results of the Reference System Portfolio, specifically the 2030 GHG planning target adopted by the Commission for the electric sector, calculated using the same methodology from the previous IRP cycle, and as established by the California Air Resources Board (CARB) 2018 Staff Report, "Senate Bill 350 Integrated Resource Planning Electricity Sector Greenhouse Gas Planning Targets."[14]

---

[13] D.18-02-018 - http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M209/K771/209771632.PDF
[14] Available at https://ww3.arb.ca.gov/cc/sb350/staffreport_sb350_irp.pdf.

All LSEs are required to report on the GHG emissions of each portfolio submitted. If the total emissions attributable to any LSE's Preferred Portfolio exceed its GHG Emissions Benchmark for 2030, the LSE must explain the difference and describe additional measures it would take over the following 1-3 years to close the gap, along with the estimated cost of those measures. Below is the summary of the proposed IRP planning standard for GHG emissions:

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan
GHG Emissions	2030 GHG Benchmark	CSP calculator tool output based on reported planned resources	LSE Portfolio GHG emissions (MMT)	LSE Plans GHG emissions are equal or lower than the assigned GHG Benchmark for current cycle GHG Benchmark assessed based on justification, proposed near-term corrective actions, and impact on Aggregated Portfolio results Track LSE performance over future IRP cycles (starting in 2021-22 cycle)	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool

ii.   Reported Contracted and Planned Resources

Similar to the previous cycle, LSEs are expected to report all contracted and planned resources for each plan filed in the Resource Data Template. To enable the Preferred System Portfolio to be formed efficiently and effectively, staff proposes that the Resource Data template be modified to support the following improvements in LSE reporting:

- For resources already procured but not yet operational in the planning horizon:
  - Resource name/ID, location, commercial operation date (COD) and other details. LSEs should directly cross-check and update baseline resources listed by staff in the Baseline Dataset[15].
  - Viability information as required in the 2019 Data Request, to confirm development status.[16]

---

[15] https://www.cpuc.ca.gov/General.aspx?id=6442461894
[16] https://www.cpuc.ca.gov/General.aspx?id=6442451195

- For resources not yet procured, but expected to be operational in the medium-term (COD by 2026):
  - Resource type, MW, zone and COD. LSEs will select from resources in the RESOLVE supply curve; if necessary, LSEs can communicate issues and suggested changes to those resources (arising from inevitable discrepancies between a point-in-time theoretical estimate and commercial reality).
- For resources only expected to be online in the long-term (COD 2027-2030):
  - LSEs can elect to only indicate resource type and MW (e.g., 100 MW of generic CAISO solar) if that better reflects the extent of their planning for such long-dated resources.

This information will be valuable to support the aggregation process and the development of the Preferred System Portfolio in the following ways:

- Reported resources already procured but not yet online allow staff to update 2019 IRP Baseline resources for forming the Preferred System Portfolio, including CODs.
- Reported resources not yet procured will allow staff to compare aggregated information to resource potential in the RESOLVE supply curve and the existing transmission capability of each zone, potentially resulting in manual re-allocation of resources. If staff identifies such issues from an examination of the system-level perspective, staff will re-allocate resources and describe their re-allocation to stakeholders.
- Clarity about whether LSEs' long-term resource choices are specific, and their significance to LSEs' plans, will guide staff about which planned procurement may be allocated to different zones within the CAISO based on potential transmission implications.

iii. Deviations from Currently Filed Resource Plans

In the previous cycle, staff requested LSEs to identify in their plans any deviations between their reported existing contracts in IRP and any resource contracts reported in other submissions to the Commission proceedings (for example Resource Adequacy or Renewable Portfolio Standard compliance filings). Staff found that reporting was inconsistent and challenging to review, therefore staff will explore ways to streamline the reporting, potentially providing standard comparison tables as part of the Reporting Templates.

Potential for RPS Plan Alignment

The Commission has recognized there are advantages in consolidating compliance filings, as stated in an April 19, 2019 Assigned Commissioner and Assigned Administrative Law Judge Ruling Identifying Issues and Schedule of Review for 2019 Renewables Portfolio Standard Procurement Plans,[17] which requested LSEs to file proposals for alignment of RPS and IRP filings. The outcome of this process may not happen in time for the 2019-20 IRP cycle. [18]

---

[17] http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M283/K539/283539009.PDF
[18] Alignment of plans could consist of consolidation of information related, but not limited to, planning elements, procurement proposals, cost quantification, reliability assessments, or other elements and could take the form of new or updated narrative and/or quantitative tables.

iv.   Local Air Pollutant Minimization and Disadvantaged Communities

Local Air Pollutants

Staff found that assessing compliance with this requirement was difficult due to the lack of unified reporting method. Therefore, Staff proposes updates to the CSP calculator so that NOx, PM2.5, and SO2 emissions associated with an LSE's reliance on system power can be automatically calculated based on the LSE's resource portfolio. Staff plans to use SERVM results to develop hourly emissions factors, including both steady state emissions and emissions from start and stops, then create month-hourly emission factors and incorporate them into the CSP calculator.

LSEs will be required to report, based on CSP outputs, the results for the planning years. If the only contribution to air pollutants are a result from reliance on system power, then LSEs should still report results and provide explanation in the Action Plan Section of its plan of how it plans to reduce reliance on system power. Staff will assess the local air pollutant emissions of the Aggregated Portfolio against the emissions of the Reference System Portfolio and potentially the Preferred System Portfolio. Individual LSEs will also be assessed based on trajectory over future IRP cycles. For local pollutants, staff proposes the following planning standard:

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan
Local Air Pollutants	Emissions of local air pollutants for planning years	CSP calculator tool output based on reported planned resources from SERVM generated hourly emissions	LSE Portfolio NOx, PM2.5, SO2 emissions (MMT)	Local air pollutant emissions of Aggregated Portfolio vs Reference System Portfolio emission and potentially the Preferred System Portfolio Track individual LSE performance over future IRP cycles (starting in 2021-22 cycle)	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool

Focus on Disadvantaged Communities (DACs)

Staff proposes that the definition of disadvantaged communities remain the same as defined in D. 18-02-018 OP6: "For purposes of integrated resource planning, a disadvantaged community shall be defined as any community statewide scoring in the top 25 percent statewide or in one of the 22 census tracts within the top five percent of communities with the highest pollution burden that do not have an overall score, using the most recent version of the California Environmental Protection Agency's

CalEnviroScreen tool." Unless a more updated version of the tool is adopted prior to the adoption of the 2019 Reference System Plan, LSEs should use version 3.0 of the tool. [19]

Consistent with last cycle, LSEs are required to describe their actions for targeting disadvantage communities and how engagement has changed over time. Additionally, LSEs are required to describe the current and planned activities/programs it has, if any, that impact disadvantaged communities and must provide an update on these programs in their 2019-20 cycle filing. Staff proposes to track LSE performance over time. For DACs, staff proposes the following planning standard:

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan
Commitment to DAC customers	DAC population served by the LSE	LSE reported number of DAC customers served	Reported number of customers served 2018, 2019 and projected for 2020	Track LSE performance over future IRP cycles	Yes	Yes

v.   Cost and Rates Impact

The Commission in D.19-04-040 affirmed the responsibilities of LSEs to report cost and rates information about the incremental resources proposed in their respective IRPs to meet the requirements of P.U. Code 454.52 (D) of minimizing impacts on ratepayer bills.

This requirement involves forecasting costs and rate impacts for resources yet to be developed, and the costs vary based on the ownership or contractual structure, the length of a PPA, and other factors.

To account for these complexities and provide enough information to assess cost and rate impacts, staff proposes the following:

Cost Impact

Staff proposes updates to the CSP calculator to automatically report costs of planned resources (including capital, fixed operations and maintenance (O&M), variable O&M, and fuel costs) based on the 2019 I&A[20] and LSE's reported planned resources. In the event LSEs include resources not listed in the CSP tool, LSEs will be required to provide publicly available cost assumptions for such resources and provide sources.

Staff recognizes that this approach may not fully characterize the costs of reported resources, however this exercise should be indicative of the cost of the portfolios that respond to the IRP and statutory goals. Staff proposes to assess the incremental cost of the Aggregated Portfolio against the incremental cost of the Reference System Portfolio and the most recently adopted Preferred System Portfolio. In

---

[19] https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30
[20] https://www.cpuc.ca.gov/General.aspx?id=6442459770

addition, this would enable stakeholders to engage in like-for-like comparisons across multiple LSE Plans without requiring each LSE to report the actual costs of each individual contract it plans to enter. Staff proposes the following planning standard for cost impact:

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan
Planned resources cost	Estimated cost of proposed planned resources based on 2019 I&A	CSP calculator tool output based on reported planned resources costs as per 2019 I&A (capital, fixed operations and maintenance (O&M), variable O&M, and fuel costs)	$MM/yr	Assess incremental cost of Aggregated Portfolio against incremental cost of Reference System Portfolio and the most recently adopted Preferred System Portfolio. Enable like-for-like comparison across individual LSEs	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool

Incremental Revenue Requirement Impact

Staff proposes that LSEs use the CSP calculator to report the additional revenue requirement of planned resources which will be modified to perform this calculation using the RESOLVE methodology for calculation of incremental revenue requirement using 2019 I&A inputs.[21] This will be limited to the incremental revenue requirement for the planned incremental resources for each LSE's 2030 IRP-driven portfolio. As with cost reporting, this element will be indicative of the additional revenue requirement needed to meet statewide goals. Staff proposes the following planning standard for incremental revenue requirement reporting:

---

[21] https://www.cpuc.ca.gov/General.aspx?id=6442459770

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan
Planned resources revenue requirement	Estimated revenue requirement of proposed planned resources based on RESOLVE methodology using 2019 I&A	CSP calculator tool output based on reported planned resources costs per 2019 I&A	$MM/yr	Assess incremental revenue requirement of Aggregated Portfolio against incremental cost of Reference System Portfolio and the most recently adopted Preferred System Portfolio. Enable like-for-like comparison across individual LSEs	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool

vi.   Hydro Generation Risk Management

The Reference System Portfolio will have inherent exposure to the risk of in-state drought reducing the amount of generation available from California's hydro-based generation resources. The likelihood and impact of this risk will depend upon factors including the proportion of total resources that hydro represents in each planning year, and the relationship between in-state hydro availability, out-of-state hydro availability and load.

Staff proposes that LSEs provide a narrative analysis and discussion of the risk that in-state drought poses to their portfolio, including the controls and strategies they have in place to manage such risk. Each LSE should identify if and how their portfolio differs from the Reference System Portfolio in terms of the amount of hydro generation proposed, and the level of risk thus incurred. This will require describing the degree to which the LSE's expected costs, GHG emissions and reliability rely on in-state hydro availability, and the controls such as hedging strategies or contingency plans. Understanding how each LSE approaches and manages drought-driven risk to hydro generation will help inform the formation of the Preferred System Plan.

vii.   Resource Shuffling

The effect of the Reference System Plan on WECC-wide emissions will depend on the interaction of many factors, including the resource planning of jurisdictions outside CAISO, that are beyond the scope of IRP modeling this cycle. However, IRP modeling inputs will necessarily make assumptions about the rest of the WECC, including the amount of out-of-state hydro that is available for import to CAISO.

As required by D.19-04-040, staff proposes that LSEs be required to include narrative description of the extent to which their plans differ from the Reference System Portfolio regarding assumptions that may affect emissions outside the CAISO (for example, the level of use of imports and their degree of contracting with specified imports).

viii.   Reliability Assessment

A primary objective of the IRP process is to ensure reliability across the IRP planning horizon. In June 2019, the Commission issued an Assigned Commissioner and Administrative Law Judge's Ruling Initiating Procurement Track and Seeking Comment on Potential Reliability Issues in the IRP proceeding including a staff led supply stack analysis using real time contract data which demonstrated insufficient supply levels to meet reliability needs.[22] The Commission is now considering a proposed decision (PD) ordering procurement to address the identified reliability needs, or Reliability PD.[23]

As noted in the Reliability PD, "[s]ince there is just a one-year-ahead requirement for system resource adequacy, such a potential shortfall would not be picked up by the regular system resource adequacy processes until late 2020."[24] In order to support the identification of reliability issues early, staff proposes two IRP Planning Standards covering system and local reliability to be reported by LSEs for the IRP planning horizon. In addition, during aggregation of LSE Plans, staff may conduct a Loss of Load Expectation (LOLE) study to test the reliability of the aggregated plans. If a loss of load concern is identified, staff may also conduct an Effective Load Carrying Capability (ELCC) study.

The objective of this proposal is to connect the short-term scope of the RA Program and long-term perspectives of IRP so potential reliability issues may be identified in time to inform action. In addition, staff expects that these modifications to previous cycle will allow for improved reliability assessments in the aggregation process after receipt of all LSE IRP pans, as well as:

- Improve the development of the Preferred System Portfolio by clarifying the role individual plans play in the system performance.
- Provide feedback to support current and future planning.

The two reliability standards proposed are summarized in the tables below. Methodology and assessment for each is described in detail in the subsections below.

---

[22] http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=302942332
[23] Decision Requiring Electric System Reliability Procurement for 2021-2023, Proposed Decision, available at: http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M312/K522/312522263.PDF
[24] Ibid pp 12-13

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan
System capacity requirement	Individual LSE contribution to system reliability	System reliability planning target apportioned to LSE by load share minus reported contracted or owned and planned resources in each planning year	Contracted and planned resources shortfall (MW)	Assess system reliability and individual LSE contribution to system reliability Support assessment of procurement need	Yes	No. LSEs filing nonstandard plans are exempt from providing contractual information
Local capacity requirement	Individual LSE contribution to local capacity needs	Local capacity requirements apportioned to LSE by load share minus aggregated LSE contracted or owned and planned resources in each planning year	Contracted and planned resources shortfall (MW)	Assess local reliability and individual LSE contribution to local reliability Support assessment of procurement need	Yes	No. LSEs filing nonstandard plans are exempt from providing contractual information

System Capacity Requirement Planning Standard

Staff proposes to compare planned and contracted or owned capacity reported in LSE Plans, individually and in aggregate, against each LSE's assigned share of peak electric demand, in order to characterize the potential for capacity shortfall throughout the IRP planning horizon. Staff proposes this be an annualized analysis in which the annual peak demand is compared to the sum of August contracted and planned RA capacity. Staff proposes the following method:

1) Determine, as part of the Reference System Portfolio modeling, a system RA planning target based on the CPUC's existing Planning Reserve Margin (PRM) definition at 115% of 1 in 2 peak in each year of the planning horizon.
   a) Staff will determine the LSE share of the planning in MW based on allocation of retail sales amongst LSEs included in the upcoming 2019 IEPR (form 1.1c). Due to the confidential nature of

ESP forecasts staff will not apportion individual targets for ESPs. Instead, staff will just provide the summary of contracted and planned resources in their LSE Plans (see step 2 below). [25]

b) Staff acknowledges that ideally this apportionment should be based on shares of peak demand, for example the apportionment included in the year-ahead RA forecast in the RA proceeding,[26] rather than shares of retail sales. However, the apportionment in the year-ahead RA forecast is confidential. To ensure the transparency of the IRP process, staff has opted for using publicly available information.

c) The ESP aggregated planning target will be based on the IEPR demand forecast for direct access customers.

2) Staff will modify the Resources Data Template to automatically produce a summary of all LSE reported current in-state resources (contracted or owned, and planned to be contracted), imports (contracted and planned to be contracted), and new procurement.

a) In the Resources Data Template, each LSE will identify each of its contracted, owned, and planned resources by filling in all required fields. The Resources Data Template will calculate the capacity contribution towards meeting the LSE's share of the system RA planning target. The capacity contribution of existing non-wind and non-solar resources will be based on the most recent RA program Net Qualifying Capacity (NQC) List. The capacity contribution of existing wind and solar resources will be based on the RA program's most recently adopted average ELCC factors. The capacity contribution of not-yet-online wind, solar and storage resources will be based on marginal ELCC factors that are produced through Reference System Portfolio modeling with the RESOLVE model. All other types of not-yet-online resources will be based on average historical capacity contribution implied by the NQC List.

3) LSEs will be required to include a summary table in their plans (see example below) that compares the LSE's IRP system reliability planning target, see step 1 above, contracted, owned, and planned resources in summary form, see step 2 above, and the deficiency, if any, for the month of August for every year in the planning horizon.

a) As ESPs will not have an IRP planning requirement, they should submit a modified table reflecting only the summary of reported contracted and planned resources. Any deficiency will be assessed in aggregate.

Example System Planning Capacity vs. Contracted and Planned Resources Table

	2021	2022	2023	2024	2025	…2030
System RA Planning Target						
a. LSE System RA Req.						
Contracted or Owned Resources and Planned Resources						

---

[25] This methodology is consistent with method for apportioning procurement responsibility in Proposed Decision Requiring Electric System Reliability Procurement for 2021-2023, available at: http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=312522263

[26] Adopted in D.04-01-050, available at: http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/33625.PDF and D.04-10-035, available at: http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/41416.PDF

	2021	**2022**	**2023**	**2024**	**2025**	**…2030**
b. Contracted or Owned Existing In-State						
c. Planned Existing In-State						
d. Contracted or Owned New In-State						
e. Planned New In-State						
f. Contracted Imports						
g. Planned Imports						
h. Total Existing and New Resources sum(b:g)						
i. Deficiency (h-a)						

Based on the results of this calculation, LSEs will be required to provide the following in the Action Plan section:

- An explanation of how the characteristics of planned resources contribute to running a reliable system.
- A description of how the LSE will address any deficits against the LSE's IRP planning requirement in the future in a cost-effective way, including as much information as possible on the potential resource type as well as when the LSE expects to begin the procurement process in case there's an overall deficiency and contracted resources do not meet the designated LSE IRP planning requirement.

Assessment of Aggregated and Individual Plans

To assess the reliability of the aggregated plans, staff may conduct one or more LOLE studies on the aggregated portfolios. Staff will use conclusions drawn from the LOLE studies to identify if an ELCC assessment of the aggregated portfolios needs to be conducted to determine whether the ELCC factors included in the Filing Requirements and Resource Data Templates resulted in LSEs submitting plans that in aggregate resulted in reliability issues (i.e. higher than acceptable LOLE). This situation may happen if for example the aggregate portfolio mix was sufficiently different from the Reference System Plan such that the ELCC of wind and solar resources significantly changes. In case an ELCC analysis is necessary, staff proposes the following:

- Staff will use the contract information provided in the Resource Data Template to stack up all physical supply (contracted and planned).
- Staff will then conduct ELCC studies for each resource class based on the system-wide contracted and planned MW capacity of each resource type in 2030 (for example, wind and solar).
- The new ELCC values will be used to recalculate the comparison between system capacity and peak demand in the Resources Data Template.

If staff identifies reliability concerns during an LOLE study of the aggregated system portfolio and follows up with an ELCC assessment, staff may consider applying the new ELCC values to specific LSE plans to explore potential solutions. This is most likely to occur if the aggregated plans resource mix is significantly different from the Reference System Portfolio. Staff proposes that each LSE resource stack may be analyzed using the new ELCC values to assess whether the LSE meets its specific System RA planning standard during peak or how much it may need to rely on capacity planned by other LSEs. Findings of aggregated and individual analyses will inform recommendations for the Reference System Plan.

Local Capacity Requirements Planning Standard

Staff proposes that LSEs report contracted or owned resources, and planned resources available to address local capacity needs in the short-, medium-, and long-term in order to help identify foreseeable but unaccounted for local area needs and prevent expensive resource procurement. For this standard, staff proposes the following method:

1) Staff proposes to determine the local capacity planning target for LSEs based on the total local capacity requirement identified in the CAISO 1and 5 year Local Capacity Technical Studies (LCT)[27] and most current Transmission Planning Process 2028 LCT[28] Study results for covered local areas or the latest version of the study available at the adoption of the Reference System Plan.
   a) Staff will determine the LSE share of the local capacity requirement in MW based on allocation of 2019 IEPR retail sales by transmission access charge (TAC) area (form 1.1c) amongst LSEs operating in each TAC area. Due to the confidential nature of ESP forecasts staff will not apportion individual targets for ESPs which will just provide the summary of contracted, owned, and planned resources in their LSE Plans (see step 2 below). [29]
   b) The ESP aggregated planning target will be based on the IEPR demand forecast for direct access customers.
   c) Staff acknowledges that ideally this apportionment should be based on shares of peak demand, for example the apportionment included in the year-ahead RA forecast in the RA proceeding,[30] rather than shares of retail sales. However, the apportionment in the year-ahead RA forecast is

---

[27] http://www.caiso.com/informed/Pages/StakeholderProcesses/LocalCapacityRequirementsProcess.aspx

[28] http://www.caiso.com/planning/Pages/TransmissionPlanning/2018-2019TransmissionPlanningProcess.aspx

[29] This methodology is consistent with method for apportioning procurement responsibility in Proposed Decision Requiring Electric System Reliability Procurement for 2021-2023, available at: http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=312522263.

[30] Adopted in D.0606064, available at: http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/57644.PDF

confidential. To ensure the transparency of the IRP process, staff has opted for using publicly available information.

2) Staff will modify the Resources Data Template so that it identifies, based on known or reported geographic locations, the subset of resources that qualify as local capacity.

3) LSEs will be required to include a summary table in their plans (see example below) that compares the LSE's IRP local reliability planning target, see step 1 above, contracted, owned, and planned resources in summary form, see step 2 above, and the deficiency, if any, for the month of August for every year in the planning horizon.

   a) As ESPs will not have an IRP planning requirement, they should submit a modified table reflecting only the summary of reported contracted and planned resources. Any deficiency will be assessed in aggregate.

Example of Local RA Resource Requirements and Compliance

	2021	2022	2023	2024	2025	…2030
Local RA Planning Target						
a. LSE Local RA Req.						
Contracted or Owned Resources and Planned Resources						
b. Contracted or Owned Existing Resources						
c. Planned Existing Resources						
d. Contracted or Owned New Resources						
e. Planned New Resources						
f. Total Existing and New Resources sum(b:e)						
g. Deficiency (f-a)						

In addition, based on the results, LSEs will be required to provide the following in the Action Plan section of the plan:

- A description of how it plans to meet local capacity requirements in the future in a cost-effective way, including as much information as possible on the potential resource type as well as when the LSE expects to begin the procurement process in case the combination of contracted and planned resources does not meet the designated LSE System planning contribution.

- In the case of new resources, the LSE will indicate which sub-local area the resource is intended to be built.

As stated above, staff will assess the reported contracted and planned local capacity at the local area. The assessment should be indicative of areas where further analysis may be considered to support Commission action. In addition, this analysis intends to support future LSE planning by providing visibility of local area needs relative to existing and future local procurement.

ix.   Resource Mix

LSEs will be required to provide a demonstration of how their planned resources compare to the proportion of new Reference System Portfolio mix of resources proportional to load share.[31] Staff anticipates that this information will be useful to inform future planning once LSEs understand how their planning activities impact the system as a whole.

Plan Component	Planning Standard	Method	Metric	Assessment	Standard Plan	Nonstandard Plan
Resource mix	Demonstrate that its plan accounts for resource mix identified in the optimal portfolio.	CSP calculator tool output based on reported planned resources compared to Reference System Portfolio	MW under/over by resource type	Track LSE performance over future IRP cycles	Yes	Yes, if not using the CSP tool, detail method used and justification for not using the CSP tool

x.   Resource Oversubscription

For this analysis, staff proposes to display transmission capability limits and the estimated upgrade costs for each transmission zone in the CSP calculator, which LSEs can use when preparing their plans. For each resource type available for selection, the CSP calculator will display the resource potential available for selection by RESOLVE and calculate (based on the LSE's portfolio) the LSE's capacity share of each resource type by deliverability as a percentage of its share of system load.

Each LSE will identify in its LSE Plan how much transmission capacity it will rely on for each zone, based on the CSP calculator results. Any resources for which the transmission zone is unclear will also have to be accounted for. If an LSE expects that its planned resources will surpass the current deliverability limit for any area, the LSE should assume the cost of the transmission upgrade in its plan development.

By requiring LSEs to report resources by transmission zones, LSEs will have to consider where to locate projects and assess potential risks of planning to rely too heavily on certain resources. It is important to note that these reporting is not intended to restrict or prohibit any LSE planning preferences. However,

---

[31] For clarification, the Reference System Portfolio encompasses baseline resources and the new resources resulting from the RESOLVE optimization. For this IRP planning standard, staff is referring to only the mix of resources identified in the optimal portfolio.

staff may use this information to support adjustments during the Aggregated Portfolio and development of the Preferred System Plan.

c. Action Plan

Similar to the 2017-18 cycle, LSEs are required to identify necessary actions to implement the planned resource selection identified in its Preferred Portfolio unless otherwise ordered by the Commission. LSEs should use the action plan to demonstrate to the Commission and to stakeholders how feasible its planning strategy is, what barriers it envisions to implementing its plan and what actions the Commission should consider in order to facilitate plan implementation.

i. Proposed Activities

Staff proposes that LSEs describe all the activities the LSE proposes to undertake across resource types in order to implement the planned resources identified in its LSE Plan, including proposed and procurement-related activities as required by Commission decision. LSEs will describe how each planned resource identified in its Study Results section corresponds to proposed activities.[32] For each resource identified, LSEs would provide a narrative description of procurement plans, potential barriers, and resource viability.

ii. Procurement Activities

The LSE should identify when and how it proposes to undertake the resource procurement that it has identified in its Portfolio Results. The LSE would also describe the type of solicitation(s), when the solicitation(s) would take place, the desired online dates of projects requested, and other relevant procurement planning information.

iii. Potential Barriers

LSEs will be required to identify key market, regulatory, financial, or other resource viability barriers or risks associated with the LSE's resources coming online as identified in the Preferred Portfolio. The LSE would include an analysis of key risks associated with potential retirement of existing resources on which the LSE intends to rely in the future.

iv. Commission Direction or Actions

If applicable, the LSE would describe any direction that the LSE seeks from the Commission, including any new spending authorizations, changes to existing authorizations, or changes to existing programmatic goals or budgets. The LSE would clearly relate any requested direction to the study results, proposed activities, and barrier analysis presented above.

v. Diablo Canyon Power Plant Replacement

Staff proposes that LSEs operating in the Pacific Gas and Electric (PG&E) territory include additional narrative describing which specific resources are planned to be procured to serve their load in the absence of Diablo Canyon power plant (DCPP). Consistent with decision D.19-04-040, those LSEs will

---

[32] For instance, if an LSE plans to procure 100 MW of behind-the-meter PV by 2030, the LSE should explain how it plans to acquire this resource: e.g. start a new marketing campaign to reach X number of new customers by 2030.

have to demonstrate that new resources are suitable substitutes and are able to maintain system reliability without increasing GHG emissions (i.e., renewable energy credits alone do not satisfy this requirement, nor do natural gas resources). The assessment of individual LSE Plan and aggregation of plans will also shed light on any over-reliance on system power or other reliability concerns that may arise from LSE proposals for DCPP replacement.

d. Data Reporting Tools and Templates

i. Clean System Power Methodology and Calculator (formerly known as Clean Net Short)

The Clean System Power methodology attributes GHG emissions to each load serving entity (LSE) based on the energy it plans to use to serve its load on an hourly basis, as calculated based on its proposed new resource portfolio.

Simply defined, an LSE's hourly CSP equals the amount of system power it relies on to serve its demand after subtracting (1) non-dispatchable GHG-emitting generation, (2) GHG-free generation, and (3) the storage discharging pattern (plus charging pattern) for that hour. The CSP methodology defines "GHG-free" generation resources as RPS Portfolio Content Category (PCC) 1, hydroelectric, and nuclear generation, and any other RPS-eligible resources that exhibit the same operational characteristics as PCC-1 resources. Resources count as GHG-free only if the energy is delivered to a California balancing authority area (BAA), as the hourly profile for that energy can be directly linked to the hourly production profile of the underlying GHG-free resource. PCC-2 resources, which represent "firmed and shaped" products, are not considered GHG-free for IRP purposes because PCC-2 energy may be substituted with GHG-emitting generation.

As done in the previous IRP cycle, staff plans to develop hourly emissions factors for each modeled year based on the Reference System Portfolio to be adopted by the Commission for the IRP 2019-20 cycle. These emissions factors will represent the average intensity of dispatchable thermal and unspecified imports on the CAISO system for every hour. An LSE may receive "credit" for GHG-free energy provided to the grid in excess of its load, but only during hours in which the GHG-free energy displaces energy from GHG-emitting resources on the system (i.e., during hours with a non-zero emissions factor). An LSE's total GHG emissions for any given year reflect both its hourly reliance on system power—calculated by multiplying its hourly CSP by the hourly emissions factor—and any owned or contracted non-dispatchable GHG-emitting resources the LSE plans to use to serve its load. Staff plans to make a new CSP calculator tool publicly available to help LSEs automate these calculations.

Finally, it is important for LSEs to keep in mind that the CSP calculator is not an optimization tool like RESOLVE. It is not designed to send portfolio investment signals, as it utilizes average rather than marginal hourly emissions factors to compute emissions. Therefore, it is not an appropriate tool for portfolio development decision making. LSEs should be using it primarily as an "after-the-fact" check on their portfolios.

Proposed changes to the CSP methodology and calculator tool

1) As described in the previous sections on planning standards, staff proposes to modify the CSP calculator tool to report information on the following new metrics, in addition to the estimated GHG emissions associated with an LSE's portfolio.

   a) Criteria air pollutants

   b) Costs

   c) Revenue requirement

   d) Resource mix

   e) Over-reliance on system power

   f) Resource oversubscription

2) Staff proposes the following changes to the CSP methodology itself.

   a) Asset-Controlling Supplier (ACS) resources: Allow LSEs to claim the low-carbon energy from contracts with hydro-dominated ACS systems using the hourly dispatch profile of Pacific Northwest hydro, consistent with the Reference System Portfolio.[33]

   b) Thermal generation during curtailment events: Account for emissions from thermal units operating during hours when renewable curtailment is on the margin, potentially due to operational or reliability constraints. This may require adjusting or removing the ability for an LSE to claim oversupply credit for displacing these emissions, because adding more GHG-free energy to the system would not allow such generating units to avoid minimum generation needs.[34]

   c) CHP GHG attribution: Attribute GHG emissions to each LSE proportional to its load share of the CAISO system-wide CHP generation, rather than have LSEs enter information on the non-dispatchable CHP they may own or contract with, as was done in the previous IRP cycle. The rationale is that many LSEs currently do not have CHP contracts, or have contracts with CHP facilities that will phase out before 2030, which is inconsistent with the IRP 2019-20 baseline assumption for CHP in the Reference System Portfolio.

3) Staff proposes the following changes to the CSP calculator design.

   a) Clearly differentiate between existing vs. new resource data entry fields.

---

[33] An ACS is a specific type of electric power entity approved and registered by CARB under the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. Each ACS must be approved by CARB and is assigned a system emission factor for the wholesale electricity procured from its system and imported into California. More information is available at: https://ww2.arb.ca.gov/mrr-acs.

[34] Whether staff will pursue this update will depend in part on the Reference System Portfolio results as tested by production cost modeling in SERVM. In the previous IRP cycle, RESOLVE showed very minimal levels of dispatchable thermal generation during times of curtailment, and CNS emissions factors were generated using RESOLVE results, so it was appropriate and consistent not to include the Pmin generation. On the other hand, SERVM showed a significant amount of thermal generation plus curtailment events, at least on a few sample days.

b) Provide an "implied resource capacity calculator" tab for LSEs to convert values from energy-only contracts with unspecified large hydro into an implied capacity value for CSP purposes.

c) Develop a consistent way for LSEs to represent energy-only contracts that specify deliveries in PCC-1 eligible renewable energy without specifying the nameplate capacity of the delivering resource(s). Staff presents two options for party consideration:

   i) Each LSE that wishes to claim the GHG-free benefit of such contracts must develop estimated hourly load shapes based on a weighted average of forecasted energy from all the resources in the designated sales pool, and enter those shapes into the CSP calculator as user-specified GHG-free power.

   ii) Staff may create new custom resource categories for unspecified blocks of PCC-1 eligible resources, and allow the LSE to specify percentages of wind, solar, and baseload renewable resources that compose the block of resources. The CSP calculator would then construct a custom renewable production shape based on the system average of those resources, and the LSE would simply enter the energy value for that contract.

      (a) For either option described above, the LSE would be required to provide a narrative explanation in its plan regarding what resource(s) the user-specified GHG-free power represents, and demonstrate that the values claimed are reasonable.

4) Include a load-modifier toggle that allows the LSE to choose a percentage of load that is commercial and industrial (C&I) versus residential, which would enable LSEs with load shapes that are very different from the system average to more accurately reflect their expected customer load. Portfolios using these load shapes could qualify as the LSE's Conforming Portfolio, provided that the LSE demonstrates the load shape is reasonable. LSEs choosing to use load modifiers based on the system average, rather than a custom load shape, must also explain why the system average most accurately reflects their expected load.

ii.   Resources Reporting Template

Staff proposes several changes to the Baseline and New resources template from the 2017-2018 cycle. The template will be redesigned to support the proposed modifications for 2019-2020 cycle. In addition, staff proposes to:

- Consolidate baseline and new resources template.
- Improve template instructions.
- Automation of the templates to the extent feasible to reduce ambiguity, standardize responses and support aggregation of plans.
- Where possible, provide standard lists of all resources, resource types, and other data items.
- Add error checking tools in-template.

Staff will be releasing the Resources Reporting Template, together with the Narrative Template and the CSP Calculator Tool, informally in the Fall of 2019.