

Stakeholder Comments Template

Review TAC Structure Stakeholder Working Groups

This template has been created for submission of stakeholder comments on the Review Transmission Access Charge (TAC) Structure Working Group Meetings that were held on August 29 and September 25, 2017. The working group presentations and other information related to this initiative may be found on the initiative webpage at:

<http://www.caiso.com/informed/Pages/StakeholderProcesses/ReviewTransmissionAccessChargeStructure.aspx>

Submitted by	Organization	Date Submitted
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Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on **October 13, 2017**.

Please provide your organization's comments on the following issues and questions.

NOTE: See last page for definitions of some key acronyms and terms.

The Office of Ratepayer Advocates (ORA) submits responses to the questions in this template based on the currently available information. Due to questions regarding the Clean Coalition's TAC Fix Impact Analysis model, some of ORA's responses to the questions are limited in scope. ORA and other stakeholders submitted questions on this model to the California Independent System Operator (CAISO) on September 18, 2017. These questions, along with three additional ones, have not yet been addressed and are included in ORA's response to template question 15.

Prior to the posting of the straw proposal for this initiative, ORA recommends that the CAISO allow stakeholders to supplement their responses to this comment template after the Clean Coalition responds to the questions submitted on September 18, 2017, or after the CAISO provides an independent evaluation of the Clean Coalition model.

1. One concept for allocating the costs of the existing transmission infrastructure is to charge each user of the grid in accordance with their usage of or benefits received from the grid. What do you believe is the most appropriate way to measure each end-use customer's or load-serving entity's (LSE) benefits or usage of the grid? What specific benefits should be considered? Please explain your answer.

ORA supports the allocation of transmission costs based on benefits received from the grid consistent with Federal Energy Regulatory Commission (FERC) Order No. 1000¹ and other FERC cost allocation principles.² The current volumetric TAC rate structure is consistent with FERC Order No. 1000 and other FERC cost allocation principles. Thus, ORA supports this cost allocation methodology, which accounts for the benefits received from and usage of the grid. As explained in ORA's July 31, 2017 comments on the issue paper for this initiative, "Transmission service includes the delivery of energy using the bulk power transmission system from generation sources to substations, as well as the following related energy services:

- 1) Voltage Support, which maintains local voltages within customer limits;
- 2) Frequency Control, which balances load with demand;
- 3) Fault Control, which ensures safety when there is an outage;
- 4) Access to Black Start, which provides start-up energy when there is an outage;
- 5) Access to Ramping, which provides energy to meet extreme changes in demand; and
- 6) Access to Back-up resources, which provides energy in the event of a loss of local generation."³

ORA recommends that transmission cost allocation reflect energy delivery and the above energy services.

2. The example the ISO presented at the August 29 working group meeting (slides 21-22 of the ISO presentation) illustrated how using transmission energy downflow (TED) as the high-voltage TAC billing determinant (instead of end-use metered load) affects all ratepayers of each utility distribution company (UDC) irrespective of which Load Serving Entity (LSE) serves that load. If the ISO were to adopt TED as the billing determinant for the high-voltage TAC, what further procedures would be needed to ensure that the benefits of reduced TAC payments go to the correct LSEs that make the decisions to procure DG? Please explain your answer.

ORA does not support adoption of the TED as the billing determinant for the high-voltage TAC at this time without further study on its impacts such as cost shifts. As stated in ORA's Comments on July 31, 2017 "Given that the existing transmission system was designed to provide reliability services to all customers, including customers on circuits that also include [distributed generation] DG installations, reducing existing transmission capital costs for DG customers would result in unjustified shifting of those costs to California ratepayers without DG. On a going forward basis, ORA recommends a study to determine the potential for DG to reduce the costs to maintain and operate existing transmission system. ORA also recommends evaluating the costs and benefits of DG to the transmission system in future CAISO Transmission Planning Processes to determine if new transmission system costs

¹ *Order No. 1000, Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Federal Energy Regulatory Commission, July 21, 2011, Section 622, p. 447.

² *Inquiry Concerning the Commission's Pricing Policy for Transmission Services Provided by Public Utilities Under the Federal Power Act*, 69 FERC 61,086 (1994).

³ *Review Transmission Access Charge Structure - Stakeholder Comments Template*, July 31, 2017, ORA, p.2. (ORA Comments)

should be allocated differently for DG based on its contributions to the transmission system.”⁴

However, if the proposal is adopted, ORA recommends that Clean Coalition, the CAISO, and LSEs collaborate to develop and then present a proposal to stakeholders regarding the accounting mechanisms and system improvements required to ensure that the DG benefits from LSEs are accurately considered in the TAC payment obligation under a TED billing proposal. Stakeholders should have the opportunity to comment on the proposal.

3. The ISO could (a) continue to use the end-use metered load (EUML) or customer energy downflow (CED) as the basis for assessing high-voltage TAC [HV TAC], or (b) propose a change to assess HV TAC based on downflow at the transmission-distribution interface (T-D TED), or (c) assess HV TAC based on downflow at the interface between the high-voltage and low-voltage transmission systems (HV-LV TED). Does your organization prefer one of these approaches at this time? Please explain the reasons for your preference.

ORA recommends the continued use of reported gross load “end-use metered load” or “customer energy downflow” as the bases for assessing the high voltage TAC (item (a)). Please refer to ORA’s response to question 1, for further information on this preference.

4. Does your organization believe that any of the options in the previous question present any potential problems or issues that have not been identified or explained during the stakeholder process thus far? If so, please explain. Also, please indicate what other analyses could be done to help understand the impacts of changing the point of measurement?

ORA requests further study on the impact of DG on the transmission and distribution systems before considering different methods for allocating costs for these systems. This study and analysis would allow for consideration of the cost and benefits of DG. Unless the impacts of DG on the transmission and distribution systems are clearly understood, changes to the current cost allocation method may produce results that are inconsistent with FERC Order No. 1000’s requirement that costs be commensurate with the benefits received.

5. Does your organization believe that the ISO should change *only* the point of measurement utilized for assessing TAC apart from considering other changes to the TAC structure? Alternatively, should the ISO change the point of measurement in conjunction with other changes to the TAC structure? Please explain your position.

ORA does not recommend changing the point of measurement for assessing the TAC or making any other changes to the TAC structure at this time. Please refer to ORA’s response to question 1, for further information on this preference.

6. Does your organization believe that changing the point of measurement for assessing TAC to use TED instead of metered customer demand will result in increased procurement of DG by LSEs? Please explain your position.

⁴ ORA Comments p.5.

ORA does not recommend changing the point of measurement for assessing TAC in order to increase the procurement of DG. California's existing policies already support the procurement of DG and distributed energy resources.⁵ At this time there is no evidence that revising the point of measurement for assessing the TAC would increase the procurement of DG or is necessary to support increased procurement of DG.

California's energy procurement and transmission planning processes (TPP) considers DG output in determining the resources and transmission improvements needed to address reliability needs. For example, during 2017-2018 TPP the CAISO and Pacific Gas and Electric Company (PG&E) recommended the procurement of distributed energy resources as mitigations for observed reliability needs.⁶ The 2017-2018 Integrated Resource Plan did not recommend procuring additional behind the meter solar.⁷

ORA supports the continued consideration of DG in new procurement and transmission decisions when it is the cost efficient option.

7. Does your organization believe that increased procurement of DG by LSEs will reduce the need for future investment in transmission infrastructure? Please explain your position.

ORA foresees some continued investment in transmission infrastructure that cannot be deferred entirely with increased procurement of DG. These investments include on-going operation and maintenance investments in existing transmission infrastructure.

8. The Clean Coalition provided a spreadsheet and documentation (available at the ISO's TAC initiative web page link on page 1) showing its approach for estimating the savings from avoided future transmission investment that could result from increased DG procurement in response to the ISO adopting TED as the point of measurement for assessing TAC. Does your organization believe that Clean Coalition's analysis provides a reasonable projection of transmission cost savings as a result of DG growth? Please explain your position.

In order to respond to this question, ORA requests answers to the questions following the template questions, which ORA first submitted on September 18, 2017. If answers cannot be provided prior to the October 31, 2017 posting of the straw proposal for this initiative, ORA recommends that the CAISO provide stakeholders with an evaluation of the Clean Coalition's TAC FIX Impact analysis model and documentation, including the assumptions used to project the TAC cost savings as a result of DG growth.

⁵ For example, net energy metering has operated to increase roof top solar, and the Commission's Rulemaking 14-08-013 is developing policies to optimize the use of DG.

⁶ *Day 1 & 2 Preliminary Reliability Assessment Results Presentations*, September 21-22, 2017, CAISO and Oakland Reliability Proposal CAISO Stakeholder Meeting CAISO 2017/2018 Transmission Planning Process, September 22, 2017, Pacific Gas & Electric Company staff, slide 24.

⁷ *Proposed Reference System Plan, Modeling Results Files and Resolve Model September 18, 2017 Attachment A: Proposed Reference System Plan*, September 19, 2017, California Public Utilities Commission, slide 134. "Increasing quantities of BTM PV increase total resource cost across all scenarios, with significant portion of costs being borne by customer generation owners."

9. If you do not agree with Clean Coalition’s projections of transmission cost savings, what approach would you suggest for estimating savings from reduced need for future investment in transmission that could result from increased DG development?

ORA’s July 31, 2017 comments recommend that this initiative consider avoided cost calculators and methodologies that are being developed through the California Public Utilities Commission (CPUC) proceedings. ORA’s comments explained that “the CPUC is expanding its avoided cost calculator through a current proceeding to estimate system-level costs that could be avoided through the deployment of DERs. This avoided cost calculator includes avoided transmission cost estimates.”⁸ The CPUC is also beginning a process to estimate locational differentiated avoided transmission costs in the Distribution Resources Plan (DRP) Locational Net Benefits Analysis (LNBA) working group. ORA recommends using these avoided cost approaches to estimate the benefit/reduced transmission costs from increased DG development.

10. The ISO must decide what types of analyses to perform to evaluate alternative TAC approaches, and how to prioritize them. Please provide your organization’s view on what analyses would be most useful, and indicate the relative importance of each analysis you recommend to assist the ISO in determining which analyses should take precedence.

ORA is concerned that the proposed TAC structure changes may not reflect the full range of benefits provided by the transmission system. For this reason, ORA requests the opportunity to reply to this question after a study has been completed on the alternative TAC structure approaches and their impacts on ratepayers.

11. How can the ISO evaluate the downstream financial impacts of potential changes to the TAC structure? What data would best inform the ISO and stakeholders of the potential impacts to various entities? Does your organization believe the ISO should focus on this question now, or wait until potential TAC structure options are better defined (e.g., after the ISO issues a straw proposal)? Please explain your position.

Evaluating the downstream financial impacts of potential changes to the TAC structure would require analysis of the energy use of CAISO ratepayers including when the energy is used. ORA recommends that the CAISO determine the financial impact of the proposed changes to the TAC structure on California ratepayers now, prior to moving forward with a straw proposal for this initiative.

12. How are transmission needs and costs driven by the delivery of energy versus the provision of capacity necessary to meet peak load conditions? Please explain your position.

New transmission may be needed for load growth or reliability under peak load conditions. However, even if load is not increasing, the delivery of energy to meet policy mandates such as RPS and reducing greenhouse gas emissions may also drive the need for new

⁸ ORA Comments, Review Transmission Access Charge Issue Paper, July 31, 2017, p. 9 (footnote omitted).

transmission.⁹ Currently, it appears that the CAISO's transmission needs for the near term are driven to meet state RPS targets, transmission electrification goals, and to address peak demand shifts.

13. In considering potential changes to the TAC structure, what kinds of changes would best align with the impacts of energy delivery, peak load and other drivers of new transmission investment? Please explain your answer.

ORA requests the opportunity to reply to this question after an analysis is provided on the possible ratepayer impacts with the proposed TAC structure changes.

14. What are the cost drivers of operating and maintaining the existing transmission system and what, if anything, could materially affect these cost drivers? In particular, does your organization believe that increasing the share of load served by DG can reduce any costs associated with the existing transmission system? Please explain your position.

Existing transmission capital costs are fixed, and for this reason DG cannot reduce existing transmission capital costs. It is possible that DG could reduce some portion of the operating and maintenance costs of existing transmission, but further study is needed to determine what costs could be deferred and if DG could reduce these costs alone or in combination with other resources. Additionally, as stated in ORA's July 13, 2017 comments, "there are also unknown costs to support DG on the transmission system and to respond to its unique output and load profile."^{10 11}

15. Please offer any other comments your organization would like to provide on the material discussed in the two Review TAC Structure Working Group meetings (August 29 and September 25), or any other aspect of this initiative.

Prior to the posting of the straw proposal for this initiative, the CAISO should allow stakeholders to supplement their responses to this comment template after answer to the questions submitted on September 18, 2017 have been provided, or after the CAISO provides an independent evaluation of the Clean Coalition model.

Listed below are questions/comments that ORA submitted on September 18, 2017 (1-4), along with three additional questions/comments (5-7) on the September 25, 2017 Review TAC Structure stakeholder meeting for consideration.

⁹See e.g. *Administrative Law Judge's Ruling Seeking Comment On Proposed Reference System Plan And Related Commission Policy Actions*, p. 32, filed September 19, 2017 in CPUC R.16-02-007 ("it appears as though some ratepayer cost savings, as well as resource diversity benefits for renewable integration, could be achieved by procuring more out-of-state wind resources in the near term. Achieving this outcome would require targeted examination of options for accelerating the development of transmission to support delivery of additional wind from out of state.")

¹⁰ The 2016-2017 CAISO Transmission Planning studies noted that the "increasing variable loading on the transmission system has resulted in more widely varying voltage profiles, [requiring additional] reactive control devices to maintain acceptable system voltages." *2015-2016 Transmission Planning Process Unified Planning Assumptions and Study Plan*, CAISO, March 31, 2015, pp. 14-15.

¹¹ ORA Comments, p.4.

1. Please provide the DER impact analysis on existing transmission costs.

Existing transmission costs are sunk costs for transmission lines in service today. These costs include both capital, and operating and maintenance expenses. Maintenance (non-capacity) capital costs can represent up to 50% of the total existing transmission capital costs.¹²

Clean Coalition's presentation stated that DER reduce existing transmission costs.¹³ Clean Coalition also explained that DER increases line capacity and reduces congestion and line losses, and thereby reduces grid stress.¹⁴

- A. *Provide the analysis, including any assumptions used as part of the analysis that demonstrates that DER impacts reduce existing transmission operating and maintenance costs.*

During the August 29, 2017 presentation discussion, Clean Coalition staff stated that the TAC Fix Impact (TAC-Fix) analysis assumes that existing transmission capital costs are not reduced.

- B. *Confirm that the TAC-Fix analysis does not assume a reduction in existing transmission capital costs. Please refer to the calculations on TAC Impact 20 Years excel workshop of Clean Coalition's TAC Fix Impact Analysis model, cell D109, which is a function of cells D103, and D106.*
- C. *Explain the assumed relationship between existing capital cost and changes in load in the TAC-Fix analysis.*
- D. *Confirm that the TAC-Fix analysis assumes that High Voltage TAC rate increase requiring new transmission (referred to as the CapEx and ROE portion in the model) is solely a function of load growth from one year to the next. Please refer to the calculations on TAC Impact 20 Years excel worksheet of Clean Coalition's TAC Fix Analysis model, cell D196, which is a function of cells D195 and D109.*

2. Please provide the DER output assumption used for the TAC-Fix analysis.

Clean Coalition's presentation states that DER output includes energy from wholesale DG and DERs as well as net energy metering exports.¹⁵ During the September 25, 2017 stakeholder meeting, Clean Coalition staff stated that Clean Coalition has only

¹² Table Pacific Gas and Electric (PGE) 9-1, PGE Forecast Capital Expenditures (\$000) in EXHIBIT PGE 9, Page 65 of 216, PG&E Transmission Owner Tariff 18 Filing, July 29, 2016.

¹³ Clean Coalition Presentation, August 29, 2017, slide 25.

¹⁴ The Clean Coalition Presentation, August 29, 2017, slide 25.

¹⁵ The Clean Coalition Presentation, August 29, 2017, slide 5.

considered wholesale DG for their proposal, yet the presented Clean Coalition TAC-Fix model considered output from both wholesale DG and net metering DG.¹⁶

- A. *Provide the analysis used to determine the output from wholesale DG and DERs as well as net-metering exports in the TAC-Fix analysis.*
- 3. Please describe the assumptions used to account for solar DER variability in the TAC-Fix analysis.**

The Clean Coalition presentation illustrates that solar production can reduce a portion of the evening peak at reduced capacity, i.e. 46% is maximum capacity at 6 p.m. on September 10, 2016.¹⁷ However, this solar production may be greater in the summer months and reduced in the winter months.

- A. *Explain how the TAC-Fix analysis accounts for variations in the production of solar during peak demand periods in the morning, afternoon, and evening and throughout the year.*
 - B. *Provide the assumed percent of DER output that serves morning, afternoon and evening peak load, excluding possible line losses, for all the DER types included in the TAC-Fix analysis.*
- 4. Please explain how the load served by DER would continue to pay for existing transmission costs in the TAC-Fix analysis.**

During the Clean Coalition presentation discussion, Clean Coalition staff stated that load served by DER would continue to pay for existing transmission costs that could not be avoided with DER.

- A. *Confirm that load served by DER would pay for existing transmission capital costs. If so, please provide the method used to determine the existing transmission capital costs that load served by DER would pay.*
- B. *Provide the methodology or formula used in the TAC-Fix analysis to determine the existing transmission operating and maintenance costs that load served by DER would continue to pay.*
- C. *Provide the assumptions and/or analysis that support these cost recovery methods or formula.*

¹⁶ *Clean Coalition Making Clean Local Energy Accessible Now, Transmission Access Charge (TAC) Structure-Structure and Implications of a TED-Based TAC, September 25, 2017, Doug Karpa, slide 54.*

¹⁷ *The Clean Coalition Presentation, August 29, 2017, slide 28.*

5. ***Please explain how DG exports would be treated under the TED-based billing determinant when it originates in one LSE and serves load in another LSE.***
During the September 25, 2017 stakeholder meeting, CAISO staff confirmed that it is possible for DG to travel from low-voltage transmission to high voltage transmission.¹⁸ Given this possibility, stakeholders requested that Clean Coalition explain how DG originating from one LSE but serving load in another LSE would be treated under the Clean Coalition’s proposal. For example, the CAISO requested information on how DG exports on the Valley Electric Association (VEA) transmission system and under contract with Pacific Gas and Electric Company (PG&E) would be accounted for under the Clean Coalition’s proposal. Would this DG be attributed to VEA service area or PG&E’s service area?¹⁹ ORA requests a reply to this question, since a direct reply was not provided during the September 25, 2017 stakeholder meeting.
6. ***Please explain how DG exports within or between LSEs impact the distribution and transmission system.***
7. ***Please confirm if this proposal would apply to all DG on the distribution and low-voltage transmission system.***

¹⁸ CAISO Review Transmission Access Change Structure Working Group Meeting September 25, 2017, Lorenzo Kristov, “My understanding from our [CAISO] engineers, where the ISO has operational control over high voltage and low voltage [transmission] you get flows in both directions.” ...“It [energy] could be going down and up at the same time at different substations. ...At any given substation its one way at a given moment, ...with a system with high voltage that has multiple connections to the same PG&E low voltage system there could be flows in different directions at different substations.” presentation time 1:54-1:56.

¹⁹ CAISO Review Transmission Access Change Structure Working Group Meeting September 25, 2017, Lorenzo Kristov presentation time 2:31.

Related Acronym Definitions:

- **Community Choice Aggregator (CCA):** One type of non-utility Load Serving Entity that can operate in an investor-owned utility service area.
- **Customer Energy Downflow (CED):** Metered energy delivered from the grid to an end-use customer measured at a customer meter, also referred to as end-use metered load (EUML). Customer energy consumption that is met by output of DG located behind the same customer meter is not included in CED. Also, CED does not include any production of DG behind the customer meter in excess of consumption behind the same meter during the same interval.
- **Distributed Energy Resources (DER):** Energy resources connected at distribution level, either on the utility side or the customer side of the customer meter, without regard to technology type or size. DERs include distributed generation (DG), energy storage of various types, EV charging stations, as well as demand response and energy efficiency.
- **Distributed Generation (DG):** Generating resources deployed at the distribution system level, either on the utility side or the customer side of the customer meter; DG is one type of DER.
- **Electric Service Provider (ESP):** One type of non-utility Load Serving Entity that can operate in an investor-owned utility service area.
- **End Use Metered Load (EUML):** Another term for customer energy downflow (CED).
- **High Voltage (HV):** Transmission system 200kV and above.
- **Low Voltage (LV):** Transmission system below 200kV.
- **Transmission Energy Downflow (TED):** Gross metered energy flow measured at specified transmission system interfaces, either (a) from high-voltage to low-voltage transmission (**HV-LV TED**), or (b) from transmission to distribution (**T-D TED**). TED measurements do not reflect energy flows in the opposite direction from LV to HV transmission or from distribution to transmission.