California ISO
Your Link to Power

# California ISO Draft Proposal for

# Remote Resource Interconnection

**August 23, 2007**

# Remote Resource Interconnection Draft Proposal

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# Remote Resource Interconnection Proposal

***Prepared for Discussion at Stakeholder Conference Call on August 30, 2007***

## 1 Executive Summary

The potential exists for the development of significant generation resources that are constrained as a result of their location in areas that are not readily accessible to the CAISO grid and the general immobility of their fuel source (referred to hereinafter as “location constrained resources”). Many CAISO stakeholders have stated that the cost of transmission interconnection facilities constitutes a significant barrier to the development of location constrained resources that are located in remote locations. Most obviously, the production of electricity through wind, solar, biomass and other technologies is limited to certain geographical regions with very little nearby load but vast potential for energy supply. Power plants in these remote regions typically require long-distance, high-voltage transmission lines to interconnect to the high-voltage transmission grid, so the costs of such interconnection facilities are considerably greater than the costs of traditional generator tie-lines that are used to connect generators that are located closer to the CAISO grid. Moreover, location constrained resources typically are developed by multiple developers in relatively small increments over a period of time.

The construction costs associated with a long, large-sized interconnection facility that can efficiently handle the output from multiple location constrained resources that are likely to be developed in these regions constitutes too great a financing hurdle for the first generation developer(s). To address these barriers to the development of transmission for location constrained resources, the CAISO is proposing an innovative approach to financing transmission facilities that will connect Energy Resource Areas to the grid.

Under the CAISO’s proposal, Participating Transmission Owners (“PTO”) would finance the costs of a Remote Resource Interconnection Facility (“RRIF”) initially through their FERC-approved revenue requirement, and generators would become responsible for their *pro rata* share of these annual payments as they come on line and use the facilities. Thus, the costs for the unsubscribed portion of RRIFs will be collected through the Transmission Access Charge (“TAC”), rather than assigning all of the costs to the initial increment of renewable generation facilities. As more generation is developed in the area, the revenue requirement for the facilities would be transferred from TAC to the generators that have come on line until the entire cost of the RRIF is recovered from the generation resources in the area.

This draft proposal brings together the principles that were identified in the Petition for Declaratory Order (which was granted by FERC) and stakeholder input from written comments as well as feedback that the Remote Resource Interconnection (“RRI”) team received at the July 27th stakeholder meeting.

## 2 Background

The CAISO began developing this initiative along with stakeholders in 2006, producing a white paper entitled “Proposal to Remove Barriers to Efficient Transmission”. In October of that year, the Board of Governors approved the plan to file a petition with FERC for a Declaratory Order in preparation for a later tariff filing.

## 2.1 CAISO Petition for Declaratory Order

On January 25, 2007, the CAISO filed a Petition with FERC for a Declaratory Order seeking conceptual approval of a new financing mechanism to facilitate the construction of interconnection facilities for location-constrained resources. On April 19, 2007, FERC granted the CAISO's petition and accepted the design concepts proposed therein, thereby paving the way for the CAISO, in cooperation with its stakeholders, to develop and file tariff language for implementing this important policy initiative. The RRI draft proposal contains feedback that the CAISO received from stakeholders, as well as the guidance the CAISO received from FERC in its April 19 Order, and lays out a second draft of a proposal which will be reflected in tariff language and filed with FERC no later than October 31, 2007.

The CAISO's proposal can be summarized as follows:

Participating Transmission Owners would pay the up-front costs of constructing Remote Resource Interconnection transmission facilities, *i.e.,* RRIFs. The costs of the unsubscribed capacity of qualifying RRIFs will be rolled into the CAISO's TAC, As additional generation resources are developed in the area and connect to the RRIFs, cost recovery will be transferred on a going forward basis to those new generation owners on a "pro rata" basis, and the costs included in TAC will be reduced accordingly. Once the anticipated generation is fully developed, the going forward costs of the project will be borne entirely by generation developers and will not be included in the TAC. Thus, under the CAISO's proposal, the costs associated with the unsubscribed portion of the qualifying facilities will be included in TAC, until additional generators are interconnected, at which time costs will be directly assigned to such generators.

The proposal allows for multiple developers to pay for their share of the capacity of a line as they come on-line. The CAISO's proposal will promote the construction of transmission interconnection facilities to connect remote regions to the grid where location constrained resources are located. Also, the CAISO's proposal will facilitate the optimal sizing of such interconnection facilities in order to capture efficiencies in areas with large potential for location-constrained resources. As more generation is developed in the area, the revenue requirement for the facilities would be transferred from the TAC to the specific generation developers until such time as the developers are fully responsible for the entire cost of the transmission facilities, similar to the current cost treatment for generator tie-lines.

## 2.2 Order granting petition for declaratory order

On April 19, 2007 FERC granted the CAISO's petition for Declaratory Order. FERC agreed with a number of the proposals and left others open for consideration during the stakeholder process.

The Commission made the following determinations:

- "Proposed rate treatment is not unduly preferential or discriminatory and includes protections to customers that are just and reasonable"(P2)
- "Strikes a reasonable balance that addresses the barriers to development of location-constrained resources and includes appropriate ratepayer protections" (P3)
- "the CAISO's proposal is consistent with and supports state, federal and regional policies that encourage the types of clean, renewable generation that are often location-constrained" (P68)

- “the CAISO proposal should be limited to ‘wires only,’ and that the CAISO ‘s proposal is still subject to Commission review under FPA section 205 when the CAISO files tariff provision to implement the proposal”(P88)
- All resources meeting the definition of location constrained should be eligible under the CAISO’s proposal (PP 74-75)

Needs to be resolved:

- “clarify in its eventual tariff filing what if any costs would be allocated to wheel-through customers and their corresponding benefits” (P86)
- Subscription levels and the rate impact cap – FERC declined to rule but stated that “we preliminarily accept the ranges proposed as they strike an appropriate balance between encouraging the development of location constrained resources on one hand and protecting ratepayers on the other” and “the overall requirements should be finalized in the stakeholder process” (P89)
- “The process for identifying an energy resource area under the CAISO’s proposal is ambiguous…We expect eventual tariff provision will make clear how these areas will be selected”. (P90)

# 3 Key Principles for Eligibility

The CAISO’s proposal, accepted by FERC, contains the key principles which are the basis for this proposal and ultimately the October 2007 Tariff filing. They are:

## 3.1 The transmission project must not otherwise be eligible for rate treatment that allows costs to be incorporated into the Transmission Access Charge (TAC).

To be eligible for the rate treatment proposed by the CAISO, a qualifying RRIF cannot otherwise be eligible for rate treatment that would allow its costs to be incorporated into the TAC *i.e.,* it must not meet the definition of a network facility under FERC precedent.

Additionally, In FERC’s order granting the CAISO’s petition for declaratory order, the question was raised whether wheel-through customers would receive benefits from RRIFs and whether they should be allocated the costs through the TAC in the same manner as other transmission customers. This issue was vetted through written stakeholder comments as well as discussion during the stakeholder meeting on July 27th. Based on this feedback the CAISO determined that wheel-through customers benefit in many ways from these types of projects, just as other customers do and should be allocated their share of the costs in the TAC accordingly. In particular, wheel-through customers will benefit from RRIFs in the following ways: (1) they provide additional resource interconnections to help relieve congestion; (2) they provide additional opportunities to meet the state’s RPS goals; (3) the CAISO operates an integrated transmission system (which will include RRIFs under the CAISO’s operational control) used to serve all customers, including wheel-through customers; and (4) RRIFs will improve system flexibility and reliability, thereby benefiting all customers. In addition, the transmission revenue requirements (“TRRs”) of PTOs are currently calculated in the same way for purposes of establishing the Transmission Access and Wheeling Access charges; the CAISO does not believe that TRRs should be calculated differently with respect to the costs of RRIFs.

## 3.2 The transmission project would permit wholesale transmission access to an area not readily accessible where there is a significant energy resource that is not transportable.

This proposal addresses the current problem faced by developers who must situate their location constrained generation resources in areas that are remote from the grid. Transmission facilities that are necessary to connect these locationally constrained resources would be eligible for the RRI financing mechanism. To qualify for the treatment proposed herein, a line must connect to location-constrained resources including, but not limited to, the following types of resources-- wind, solar, biomass, geothermal, photovoltaic, hydroelectric, fuel cells using renewable fuel, digester gas, municipal solid waste, landfill gas, ocean wave and ocean thermal tidal current.

RRI rate treatment will depend upon a RRIF's location in an Energy Resource Areas ("ERA") certified by an appropriate state agency or body. Feedback from stakeholders included discussion about the role of the California Renewable Energy Transmission Initiative ("CRETI") in fulfilling this function[1]. This group membership includes the California Public Utilities Commission ("CPUC"), the California Energy Commission ("CEC"), the CAISO, Center for Energy Efficiency and Renewable Technology ("CEERT") and public utilities. In their mission statement their scope of work includes three phases:

- Phase 1 – Identification and ranking of competitive renewable energy zones ("CREZ")
- Phase 2 – Refinement of CREZ analysis or priority zones and development of statewide conceptual transmission plan
- Phase 3 – Detailed Transmission Planning for CREZs identified to be developed

Further coordination will need to take place between the CAISO and CRETI in a number of areas, including (1) the similarities and differences between a CREZ and an ERA, and (2) clearly defining respective roles in this process, particularly for Phase 2 and 3 where the transmission planning process takes place. The CAISO transmission planning process will need to include the development of the transmission projects that are to be located under the CAISO control and are incorporated into the TAC.

One issue that has been raised by stakeholders is that the process and criteria for designating energy resource areas -- and the ultimate designation of energy resource areas -- might not occur by the time the CAISO's tariff development process is complete.

The stakeholders, particularly from the renewable industry, have advocated that areas where there are currently thousands of MW of newly proposed generation projects in the CAISO generation interconnection queue be specified as ERAs. They state that this demonstrates the development potential of a particular region as well as sufficient commercial interest for an RRIF. SCE, however, has advocated the use of the State agencies' designation of CREZs when those become available. The CAISO proposes the following:

1) Utilize the areas which currently have thousands of MW of new generation projects proposed and included in the CAISO generation interconnection queue as ERAs for the interim (provided such areas meet applicable criteria, *e.g.,* remoteness, potential

[1] CRETI process - http://www.energy.ca.gov/creti/process.html

to develop location constrained resources that would we developed by multiple developers) until the State agencies designate the final ERAs;

2) Modify the LGIP provisions of the CAISO Tariff to allow for retroactive clustering study approach for generation projects in these areas;

3) Proceed with the transmission study process to identify RRIF transmission projects to connect location-constrained generation in these areas.

4) When the State agencies and the stakeholders complete the designation of the final ERAs, the CAISO will cease using the interim ERAs and will then use the final ERAs on a prospective basis.

## 3.3 The transmission project will be turned over to the CAISO's operational control.

This proposal is targeted toward High-Voltage transmission facilities that are will be under CAISO's operational control.

## 3.4 The transmission project is designed to serve multiple power plants.

This proposal is targeted toward bulk-transfer transmission facilities that can efficiently serve multiple generating resources. These locationally constrained resources would each individually, which may be developed over a period of time, have capacity that is significantly smaller than the total transfer capability of the transmission facilities.

## 3.5 The transmission project is evaluated within a prudent grid planning process involving the CAISO, affected utilities and stakeholders.

The CAISO is developing revisions to its transmission planning process in compliance with FERC's Order No. 890, which FERC has required be filed as an attachment to the CAISO Tariff by December 7, 2006. The proposed revisions will incorporate numerous opportunities for stakeholder input, including opportunities for the submission during an "open season" of proposals for RRIFs that would be studied during the planning process. The planning process would involve a flexible and robust transmission plan to link RRIFs to the CAISO Controlled Grid as part of the integrated CAISO transmission plan. It would also provide for the evaluation of RRIFs proposed in the CAISO planning process with non-PTO's transmission proposals to access the same ERAs through the California Sub-Regional Planning Group ("CSPG").

The CAISO proposes the following process, consistent with its annual transmission planning process, to evaluate proposed RRIFs that are to be located under the CAISO's operational control:

### 4.5.1 Submittal/Application of proposed RRIFs

The CAISO proposes the following project justification and technical data requirements (aka Project Justification and Technical Study) when a PTO or other Project Proponent submits their proposed RRI transmission project to the CAISO for evaluation:

a. Provides detailed information in meeting Key Principles 4.1, 4.2, 4.3, 4.4 and perhaps 4.7 (see section 4.7 for further details on the proposed "pre-designation" mechanism);

b. Has detailed transmission studies which include power flow, short circuit and transient stability analyses to demonstrate that the proposed project meets applicable CAISO/WECC/NERC Grid Planning Standards;

c. Includes several transmission alternatives (the CAISO suggests having at least three);

d. Provides planning level cost estimates for the proposed transmission project as well as its alternatives;

e. Provides a conceptual network transmission plan for future connection of the proposed RRIF;

f. Provides an estimate for the operating date;

g. Provides a conceptual plan for connecting potential generation projects in the area if this information is known.

Upon receiving the Project Justification and Technical Study, the CAISO will review to determine whether the proposed submittal meet the data requirements above. The CAISO will provide a letter response to the Project Proponent within 30 calendar days to notify whether or not the project submittal meets the above data requirements. The CAISO will include the proposed project in the CAISO Transmission Plan in its following year's transmission planning process (please see "Open Season" discussion in Section 4.5.2 below).

### 4.5.2 Open Season

The proposed RRIF transmission project must be submitted to the CAISO during the Open Season of the annual transmission planning process, which lasts from January 1$^{st}$ to December 31$^{st}$ for the following year's evaluation (i.e., submittal of the projects from January 1$^{st}$ – December 31$^{st}$, 2008 for the CAISO transmission planning process that occurs in 2009).

### 4.5.3 Evaluation of Proposed RRIF Transmission Project(s)

If a proposed RRIF transmission project meets the data adequacy requirements as outlined in Section 4.5.1, the CAISO will include the proposed project in its annual transmission planning process in the following year. The proposed transmission project will be included in the Study Plan of the CAISO annual transmission plan for further detailed evaluation and approval. The CAISO annual transmission planning process is a stakeholder process that includes the CAISO, PTOs and stakeholders. This process will be described in greater detail in the CAISO's Order No. 890 compliance filing.

In evaluating the proposed RRIF transmission project(s), the CAISO considers the following key elements:

a. Meeting Key Principles 4.1, 4.2, 4.3 and 4.4 (these principles are pre-requisite as outlined in Section 4.5.1);

b. Meeting or surpassing applicable CAISO/WECC/NERC Grid Planning Standards;

c. Having a flexible and robust transmission plan for RRIFs (i.e., the proposed transmission plan is robust that it can be expanded to network facilities in the future, yet flexible to accommodate the initial proposed location-constrained generation interconnections);

d. Having a "least cost" solution based on per MW line capacity basis (i.e., the proposed transmission project may have higher total cost but may be able to connect more generation plants; therefore, its cost per MW basis may be the lowest of all considered alternatives);

e. Providing additional reliability and/or economic benefits for the grid; these are added benefits for consideration and are not requirements for an RRIF.

### 4.5.4 Competing Projects from a Non-PTO

In the event that a competing project is proposed by a non-PTO, the CAISO proposes that the evaluation of similarly situated transmission projects be evaluated by the proposed California Sub-Regional Planning Group ("CSPG"). The CSPG is a newly proposed sub-regional planning group to address seams issues for transmission owners and stakeholders in California and neighboring utilities. More detailed discussion on the CSPG will be provided in the CAISO's Order 890 compliance filing.

## 3.6 There will be a rate impact cap imposed to ensure the TAC rates mitigate the short-term cost impact on ratepayers.

The total investment in interconnection facilities that can be included in the TAC cannot exceed 15 percent (15%) of the sum total of the net high-voltage transmission plant of all PTOs as reflected in their Transmission Revenue Requirement ("TRR") and in the TAC. In Attachment H to the petition for declaratory order, the CAISO provided an illustrative analysis of the proposed asset-based cap based on the total net high-voltage transmission plant investment of the following PTOs: PG&E, SCE, and San Diego Gas & Electric Company ("SDG&E"). The CAISO's illustrative calculations indicated that the total net high-voltage transmission plant investment of these PTOs at that time was $3,199,765,286.[2] Applying the 15 percent cap to that amount would result in an "aggregate cap" amount of $479,964,793 under current circumstances. Further, applying the general rule of thumb in the electric industry that the annual fixed (carrying) cost for plant is approximately 20 percent of the cost of plant capital,[3] the resulting maximum rate impact the CAISO's proposal could have under the then-current level of net high voltage transmission plant would be an increase in high-voltage TRRs of $95,992,959, *i.e.,* a maximum increase of approximately 16.04% over the current CAISO high-voltage TAC. As the total amount of net high voltage transmission plant included in the PTOs' TRRs change, the level of the 15 percent aggregate cap likewise will change.

## 3.7 The transmission project will be able to demonstrate adequate commercial interest among multiple generation developers.

As an additional safeguard to ensure the viability of RRIF projects and to mitigate the risk of stranded costs, a demonstration of commercial interested will be required for this alternative cost treatment. The CAISO proposed a two-pronged test: (a) the CAISO will require that 25% of the capacity of the new RRIF be "subscribed" pursuant to executed Large Generator or Small Generator Interconnection Agreement ("LGIA" or "SGIA") prior to commencement of construction of the RRIF; and (b) there must be a showing of additional interest in the project representing 35% of the capacity above and beyond the percentage LGIA/SGIA capacity required in (a). Both prongs of this test must be satisfied before construction of an RRI transmission facility commences.

A suggestion has also been made that the CAISO consider implementing some sort of pre-designation mechanism whereby a specific proposed RRIF to a particular ERA could be "pre-designated" early in the development process by indicating its eligibility for the financing treatment proposed herein before having to clear the commercial interest hurdles. The CAISO seeks parties' comments on this and, in particular, how any pre-designation process would

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[2] Attachment H to the Petition for Declaratory Order (http://www.caiso.com/1b71/1b71d1263dad0.pdf) contains all of the calculations that are described in the paragraph above, and also shows the means of calculating the net high-voltage transmission plant for PG&E, SCE, and SDG&E. The CAISO emphasizes that these calculations are for illustrative purposes only.

[3] *See Western Systems Power Pool*, 55 FERC ¶ 61,099, at 61,325 (1991).

work, what the criteria should be and the amount of time provided to complete the "contingent" RRIF request.

To address this concern, the CAISO is proposing that it would accept initial applications for RRI financing that met all of the defined criteria except of the demonstration of commercial interest. Upon a CAISO finding that a proposed project met all of the RRI criteria other than the commercial interest requirement, the CAISO would issue a contingent approval of the project that the developer could use to complete the commercial interest showing. Upon meeting the commercial interest showing, the CAISO would then grant final approval of RRI financing for the project.

### 3.7.1 Test of adequate subscription through executed agreements

The CAISO proposed in the Declaratory Order for the minimum percentage of capacity that must be subscribed pursuant to LGIAs before commencing construction was in the range of 25% - 35%. FERC preliminarily accepted this range; so this was the starting point for developing the amount required in our proposal. Through our stakeholder process a number of suggestions were considered:

- The percentage that is the most equitable in balancing the ability to spur initial investment in a project while minimizing the risk to ratepayers is 25%
- The CAISO agreed with stakeholders that this percentage should be considered in coordination with the expressions of additional interest. The combined commercial interest showing before construction can commence would be 60%. That is, 25% of the capacity of the RRIF is subscribed through an executed LGIA/SGIA and an additional 35% of the capacity of the RRIF has expressed adequate additional interest.
- The Small Generator Interconnection Agreement ("SGIA") also meets the qualifications for this test.
- During the stakeholder meeting on July 27$^{th}$, some stakeholders suggested that executed PPAs should be counted for purposes of meeting the first prong of the two-prong commercial interest test. This concept requires further discussion and analysis. The CAISO is considering this suggestion but believes that further discussion is necessary. For example, are there specific terms that a PPA should contain in order to "count" for purposes of meeting the subscription requirement? What provisions of a PPA would make the PPA arrangement "comparably firm" to an executed LGIA? The CAISO seeks stakeholder input on this issue.

### 3.7.2 Test of adequate additional interest

The CAISO proposed in the Petition for Declaratory Order that the minimum percentage of additional interest should be in the range of 25% - 35% which FERC accepted preliminarily. The CAISO proposes is to set the minimum percentage of addition at 35%. As mentioned above, combining this with the requirement that at least 25% minimum of the capacity be subject to executed LGIAs/SGIAs should provide adequate protection for the ratepayers, while at the same time provide an attainable threshold for developers. Again the CAISO stresses that the commercial interest test only applies to when construction of the RRIF can commence. It does not preclude any prior designation of ERAs or selection of an RRIF to connect a particular ERA. The CAISO seeks input from stakeholders whether, if the CAISO were to implement some sort of process for pre-determining the eligibility of a RRIF, that would address concerns that a 35% additional interest requirement is too stringent.

The expression of additional interest can be shown in the following ways:

- LGIAs or SGIAs exceeding the 25% minimum for the showing of executed agreements above,
- Power Purchase Agreements ("PPA") – Projects that are supported by signed firm power purchase agreements demonstrate a degree of commitment and should count toward the showing of additional interest.
- An RRI project that is in the interconnection queue and has commenced the Facilities Study process.
- The CAISO also proposed, initially, that additional interest could be demonstrated by a two-part showing that would require parties to meet at least one of the conditions in each category listed below. The CAISO believed that such a showing would constitute a sufficient commitment to the project. Specifically, the CAISO proposed that, to count toward the additional showing requirement, a generation project must:
    - Reside in the interconnection queue
    - Sign a declaration of intent, or
    - Participate in an open season

  And

    - Submit a deposit based on $/kw of the project's capacity
    - Own the land
    - Own the mineral rights or
    - Submit payment for the System Impact Study

  During the stakeholder meeting and in the written comments that were submitted, some stakeholders suggested the second half of this "combined" test be limited to submitting a deposit based on $/kw of the project's capacity only (i.e., eliminate owning the land, owning mineral rights or submitting payment for the system impact study as showings that would count toward satisfying the additional interest test). Based on this input, the CAISO raises the following questions for stakeholder consideration:

    - What is the correct dollar/kw that should be assessed as a deposit?
    - This would result in large projects being assessed a more than small projects to qualify. Is this appropriate or is it unduly discriminatory?
    - Instead, should a flat dollar amount be used, perhaps an amount equal to the payment that must be made at some phase of the LGIP process.

If all options on the combined test are maintained, thus keeping more flexibility for applicants, could the showing of "owning the land" be extended to controlling the land, e.g. leasing the land or holding an option?

# 4 Coordination with Order 890

Individual RRIFs will be evaluated and approved as part of the overall CAISO transmission planning process. That process is being developed as part of the CAISO's Order No. 890 compliance filing. FERC has required that public utilities, including the CAISO, file by December 7, 2006 an attachment to their tariffs setting forth a transmission planning process that is compliant with Order No. 890. Thus, the transmission planning process, including the process applicable to RRIFs, will be set forth in the CAISO's Order No. 890 compliance filing on December 7, not in the RRI tariff filing.

Currently the processes in the RRI are proposed based on the CAISO transmission planning process that will be filed in compliance with Order No. 890. The relations between the Order 890 transmission planning process and the RRI include the following:

- Open Season: the process outlined in Section 4.5.2 assumes that we have the "Open Season" under Order No. 890;
- CAISO Transmission Planning Process: as outlined in Section 4.5.3, the proposed RRI transmission projects, if having sufficient data as outlined in Section 4.5.1, are proposed to be included in the CAISO annual transmission planning process for further evaluation and approval.

# 5 Process and Timetable

The following table outlines the current plan for stakeholder input in the development of the RRI project:

| Date | Milestone |
|---|---|
| August 23 | **Post Proposal** |
| August 30 | **Stakeholder conference call for final review** |
| September 5 | **Deadline for Stakeholder comments on proposal** |
| September 5 | **Post Draft Tariff Language** |
| September 19 | **Stakeholder comments due on Tariff Language** |
| September 25 | **Stakeholder conference call on Tariff Language** |
| October 17, 18 | **CAISO Board of Governors Meeting** |
| Before October 31 | **File Transmittal Letter and Tariff Language** |
| | |

# 6 Summary of Stakeholder Process and Input

The Stakeholder Comments matrix will be added in the final version of this proposal.