

agreements enabling 78 MW to be repowered in the last two years or so.¹ In addition, these utilities have recently announced additional repowering agreements. In January, SCE submitted an application to the CPUC seeking approval of four contracts with Caithness Corporation to enable repowering that will yield between 32 and 69 MW of repowered or expanded capacity in the Tehachapi-Mohave area, depending on transmission capacity.² PG&E very recently submitted an Advice Letter seeking approval of the restructuring of six contracts with FPL Energy representing a total of 287 MW in the Altamont Pass. The contracts appear to provide some of the contractual groundwork for repowering of these projects.^{3,4}

So, all told, some 340 MW, or about 20% of the 1,600 megawatts operating in the 1990's has been repowered, another 32 MW will be repowered in the near future, and more is possible in later years. (In addition, substantial repowering of first-generation technology took place in the late '80s).

3. Factors In Lack Of Repowering

Repowering brings a lot of benefits: 30-100% more energy production from the same capacity and the same land, improved power quality, improved aesthetics, lower avian impacts, greater local tax base, capturing currently available federal tax credits, and jobs. So why isn't the other ~70% of the 1990's fleet being repowered?

There are many reasons.

a. Again, the California Fix gives the utilities the upper hand in negotiations.

There is no requirement in the California Fix or in CPUC policy that requires the utilities to sign contracts that are in the spirit of what the California Fix requires – which is to cap ISO4 capacity payments at historical levels and pay prevailing SRAC prices for incremental deliveries.⁵

Likewise, there is nothing that requires them to be reasonable or flexible in their negotiations. Some project owners who would like to repower have attempted to

¹ Some of this capacity is in addition to what was previously operating.

² See “Application of Southern California Edison Company (U 338-E) for Approval of Renewables Portfolio Standard Power Purchase Agreement with Affiliates of the Caithness Corporation” (Application No. 07-01-____, filed January 2, 2007).

³ See PG&E Advice Letter 3001-E, March 9, 2007. FPLE's presentation at the workshop indicated that repowering could occur in the 2014-2017 timeframe.

⁴ Neither Caithness nor FPLE is a CalWEA member.

⁵ There was a settlement that required the utilities to obtain CPUC approval of a form contract and to sign contracts using the form. The form was flawed and the utilities never followed through on their obligations.

negotiate with a utility but have been unsuccessful. Others have not attempted to repower. The reasons include an unwillingness or inability on the part of the project owner to:

- put up substantial credit,
- sacrifice pricing that the current project is entitled to,
- agree to terms that are far less favorable than the terms in the existing contract,
- pay for expensive interconnection studies for a very small increase in capacity, and
- tear down operational turbines which could remain operational along with new turbines.⁶

b. Most existing projects are operating reasonably well

The projects that have been repowered to date were the “low hanging fruit” – the projects that were not operating well and needed to repower to reduce operating costs and increase revenue. For many other projects, the good news is that the technology is functioning very well at 20 years old. Since the debt is retired, there is very little economic incentive for the owners to repower.

c. The transaction costs of negotiating a new contract are high

The cost of going through the bidding process and negotiating a new contract is very high, in large part because of the lack of standardized terms and the presence of many onerous terms in the utilities’ proposed contracts. And there is no certainty that the project owner will end up with something he wants to sign. So, given that the projects are operating well and making money, the project owners – who also are typically developers of new projects – are opting to put their human and capital resources on their greenfield developments.

d. The permitting process is costly and time-consuming

Local permitting and wildlife agencies treat repowers as if they are new projects, requiring full-blown EIRs and biological surveys, rather than looking at the repower as a project that will reduce the impacts of the existing project and bring important greenhouse gas reduction benefits as well. The process is very costly and cumbersome. I hear frequently how much more difficult it is to build projects in California than almost anywhere else.

⁶ In some cases, it is possible to install additional new turbines without removing operational turbines – allowing the latter to run until their capital repair costs become prohibitive. In this case, the project output is curtailed so as not to exceed the maximum contract capacity, but the project provides more energy.

e. Avian issues are slowing repowers in the Altamont

The Altamont is, of course, a unique situation. In Alameda County, lawsuits have triggered a county-wide EIR that includes extensive avian studies of existing and repowered sites. Until that EIR is completed in late 2008 (assuming it's on schedule), the path to repowering in Alameda County will not be clear.

Projects in Contra Costa County, which has about a quarter of total Altamont capacity (about 150/600 MW), can proceed with project-specific EIRs, but, again, that process has its own difficulties.

There is at least one project in Contra Costa County that is in discussions with PG&E about repowering, and we believe that PG&E is genuinely interested in repowers (though not so interested that they want to standardize the process).

f. Other circumstances

Sometimes repowering just does not mesh with a company's internal business plan or activities in a particular year.

4. Ways to Encourage Repowers

CalWEA supports the principle of the RPS, which is that all renewable providers should compete to provide the least-cost, best-fit renewable energy. So we are not asking for any special monetary incentive to encourage repowers, and we don't think that they are necessary to encourage repowers. Nor are we likely to see any state incentives, such as special tax credits, given the state's budget deficits.

But there are a few things that this agency, and the CPUC, can do to foster repowers other than explicit monetary incentives:

a. Make the contracting process easier

The CPUC could encourage repowering by standardizing the process of replacing an existing contract with a new one for purposes of repowering. In October, CPUC Commissioner Peevey issued a Scoping Memo on RPS issues (in R.06-05-027) that specifically requested proposals for encouraging repowers. We made such a proposal, which received some support from TURN and UCS. The CPUC has yet to rule on the issues raised in this scoping memo. Basically, we proposed:

- i. **a standard replacement contract** containing terms very similar to those in the existing contract – which are far less onerous than what the utilities include with their RPS requests-for-offers (e.g., the utility would act as the scheduling coordinator, and there would be no financial credit

requirements; in addition, the nameplate rating of the original project could be increased by 20%), and

- ii. **a basic pricing model** which would account for the profitability of the current contract and not penalize the project owner for bidding a price that captures these profits. Using the model would assure the project owners that they can repower without losing profits that they are now entitled to. (TURN agrees with this principle that existing contract revenues should be viewed as water under the bridge.) Without such an understanding, project owners have little incentive to repower before their current contract ends.

With these standard terms and pricing model, the project owner would only need to negotiate a price with the utility – greatly simplifying the process and bolstering a company’s incentive to pursue the repower over a greenfield project.

We also proposed that if the utility and the project owner are unable to come to agreement on price, that the project owner would be entitled to sign a **standard contract amendment that meets the requirements of the California Fix**. That is: contract capacity payments would be capped at historical deliveries, and incremental energy would be priced at short-run avoided cost. Although relying on SRAC is riskier for the developer, some are willing to take that risk.

Our proposal would remove one of the main barriers to repowering, although it does not overcome all of the barriers noted above. Our proposal is attached to these comments (relevant sections excerpted from a longer set of comments).

b. Ensure that existing interconnection rights are preserved

It is important that existing facilities that are not increasing their generating capacity not lose their interconnection rights when their power purchase contract is terminated. Otherwise, they will go to the back of the queue and wait for new transmission capacity. The FERC has addressed this issue for FERC-jurisdictional facilities, but we are awaiting a decision from the CPUC on distribution-level interconnections. This issue is within the docket on long-term PURPA policy that has been pending at the CPUC for over a year.

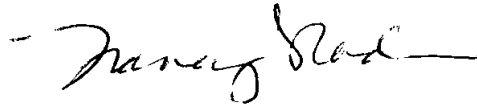
c. Make the siting process easier

Another way that the state could encourage repowers is to streamline the CEQA review process for repowers, subject to site-specific reconnaissance confirming that certain criteria have been met. We have made this recommendation in the CEC’s Wind-Avian Guidelines process. Although our recommendation was not reflected in the first staff draft, we hope to see it in the revised draft.

Streamlining the CEQA process for wind repowers would be consistent with the Energy Commission's ability (under Public Resources Code Section 25541) to exempt proposals to repower natural gas power plants from full-blown EIR requirements. The Commission has exercised this ability in practice, as it did recently with the El Centro gas facility whose capacity is being increased from 44 MW to 128 MW.⁷

The legislature might also think about extending some of CEQA's existing streamlining provisions for several types of energy projects with demonstrated benefits (e.g. gas plant repowers, geothermal and co-generation facilities) to wind projects. Otherwise, we face a situation where the Commission can declare that an expanded gas plant "would result in no substantial adverse impact" as it did in the case of the El Centro gas plant repower (despite global warming) while a wind project repower is held up in a full-blown EIR because of temporary impacts during construction or potential mortality to a single migratory bird. It is possible that CEQA will be a significant impediment to achieving the state's greenhouse gas reduction goals. We hope that the Guidelines begin to address this problem.

Respectfully submitted,



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March 14, 2007

⁷ See http://www.energy.ca.gov/releases/2007_releases/2007-01-03_elcentro_approves.html.

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Continue Implementation
and Administration of California Renewables
Portfolio Standard Program.

Rulemaking 06-05-027
(Filed May 25, 2006)

**COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION
IN RESPONSE TO THE SCOPING MEMO AND RULING OF ASSIGNED
COMMISSIONER FILED AUGUST 21, 2006**

REPOWER-RELATED EXCERPTS

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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Develop Additional
Methods to Implement the California Renewables
Portfolio Standard Program.

Rulemaking 06-05-027
(Filed May 25, 2006)

**COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION
IN RESPONSE TO THE SCOPING MEMO AND RULING OF
ASSIGNED COMMISSIONER FILED AUGUST 21, 2006**

Introduction

Pursuant to the August 21, 2006 Scoping Memo and Ruling of Assigned Commissioner (“Scoping Memo”) and the September 14, 2006 Administrative Law Judge’s Ruling on Filing of Draft 2007 RPS Procurement Plans and Revised Schedule, the California Wind Energy Association (“CalWEA”) submits these comments on the issues listed in Attachment A of the Scoping Memo.

REPOWER-RELATED EXCERPTS

Repowering

4.1 The feasibility of repower opportunities.

CalWEA has long been an advocate for repowering and has been encouraged that the Commission has likewise supported repowering. Among other benefits, repowering has significant environmental and economic benefits. For example, because repowering usually involves the replacement of numerous smaller wind turbines with fewer larger wind turbines, repowering is expected to reduce avian fatalities. The modern equipment brings with it far greater energy conversion efficiency as well as power quality benefits to the grid. Repowering also will stimulate the local and state economies by creating construction jobs, generating substantial state sales tax revenues, generating substantial additional property tax revenues (by replacing old equipment having little or no tax basis with new equipment having a current tax basis that could be 10-20 times greater), and by generating significant building and other permit fees, among other things.

While supporting repowering, the Commission has not taken any concrete and affirmative steps to promote repowering, instead leaving it to the utilities to negotiate with developers as part of the normal conduct of their business. *See, e.g.*, D.05-10-014, at 17. As a result, there has been limited success with repowering of wind projects to date.⁸ Due to the “California Fix” amendment to federal product tax credit (“PTC”) legislation, the availability of PTCs is limited for wind projects that operate under existing standard offer contracts. These projects must either obtain contract amendments from the utilities that provide short-run avoided cost (“SRAC”) prices for incremental deliveries or obtain whole new contracts from the utilities. As the gatekeepers for PTCs and, therefore, repowers, the utilities have, with a few notable exceptions, frustrated repower efforts by developers.

The time is ripe for the Commission to take concrete and affirmative action in support of repowers. The federal PTC is a very significant benefit that may not last forever. It provides an additional source of revenues to project developers that is passed along to ratepayers in the form of lower prices for wind energy. As such, it is important to take action now, while it is still likely that there will be a PTC. Repowering now also mitigates the risk of wind facility shutdowns in specific areas such as the Altamont, where Alameda County has required that project owners either to repower or remove turbines on a defined schedule due to avian impacts. Repowering also ensures that this land is preserved for wind energy production (rather than otherwise developed), a very important consideration given the state's long-term carbon reduction goals. Repowering improves the power quality of existing projects as new turbines have to meet FERC's new grid code standards for wind.⁹ This provides much needed grid benefits. Finally, repowering assists utilities in meeting their near-term RPS goals as preserves and increases their existing baselines and, at least outside of Tehachapi, no significant, time-consuming transmission upgrades would be required. This is especially important given

⁸ A limited number of CalWEA members have successfully repowered wind facilities. CalWEA considers these to be the “low hanging fruit,” projects that were not performing nearly up to the relevant site's potential. The overwhelming majority of existing facilities have not been, but could be, repowered under the right conditions.

⁹ *See* http://www.awea.org/newsroom/releases/news_pr_12132005.html.

that the utilities are behind in meeting their RPS goals and SCE has even stated that it does not project meeting the 20% requirement by 2010 due to transmission issues.¹⁰

4.2 Specific changes to the RPS program to facilitate repower opportunities.

Given that projects seeking to repower are already covered by an existing power purchase contract, which contract generally performs very well for both the developer and the utility, CalWEA believes that the standardization of a repower contract amendment or a whole new contract should be eminently achievable. CalWEA proposes two standard repower contract forms; term sheets for both are attached to these comments.

The first proposed standard repower contract form is an amendment to the developer's existing standard offer contract designed to fit "hand-in-glove" the parameters of the California Fix. It retains ISO4 contract pricing (SRAC energy plus fixed as-available capacity pricing) for historical deliveries and provides for SRAC energy and prevailing as-available capacity prices for incremental output. It also retains ISO4 terms and conditions for all output. This contract form corresponds to repower contract amendments that the Commission already approved for a number of projects in Resolution E-3935. Furthermore, it utilizes SRAC pricing which, as the Commission's own pricing construct, should be viewed as inherently reasonable. Given that repowers cannot reasonably be expected to occur without at least 10-year contract terms, this option proposes that the ISO4 contract be extended, if necessary, to allow for at least 10 full years. The term sheet for Option 1 is attached hereto as Attachment A.

The second option involves a new power purchase contract to be applied to a repower project in lieu of the ISO4 contract. This new contract will also permit developers to obtain PTCs by eliminating the existing contract and thereby taking the contract out of the ambit of the California Fix. The critical difference between this new contract option and the contract amendment option is that the new contract would employ fixed prices as opposed to prevailing SRAC prices. CalWEA envisions that the terms of this new contract would be very similar to those of the ISO4 contract, given its proven

¹⁰ See Southern California Edison Company's (U 338-E) 2007 Renewables Portfolio Standard Procurement Plan, at pp. 10-13 (filed September 25, 2006).

success. As the new contract would govern an existing facility with a pre-existing contractual relationship with the utility and proven track record for operations, CalWEA does not anticipate that onerous credit or performance requirements would be needed or included, and that the utility would continue to perform scheduling coordinator duties for the facility as under the ISO4. The term sheet for Option 2 is attached hereto as Attachment B.

Because of the unique characteristics of every wind project (e.g., capacity factor, turbine cost), it may not be possible to arrive at a standard fixed price for every repower project under Option 2. As a result, CalWEA proposes a standard pricing methodology to facilitate negotiations between the utility and the developer as well as facilitating review by the Commission and the utility's PRG. In particular, CalWEA proposes a basic pricing model that contains the key assumptions that any wind developer would consider when deciding whether to repower its project or not, including the value of the existing ISO4 contract and the value of PTCs. Here is how the model operates: assume that a developer has an existing ISO4 contract that expires at the end of 2012 and that this developer is willing to repower this project beginning on January 1, 2009, thus terminating the existing ISO4 contract four years before it is scheduled to expire.¹¹ The first step of the model calculates the net present value of the developer's expected after-tax profits from the last four years of operations of the existing project under the ISO4. The next step of the model assumes that the developer repowers the project with new turbines with the same MW capacity as the existing project, and signs a new 20 year, fixed-price contract with the utility for the output from the repowered project. The model determines the 20 year fixed price for the new contract that provides the developer with the same after-tax, after-PTC net present value that the developer will give up by terminating the old contract four years early. In other words, the model determines the price for the repowered project that provides the developer with the same economic benefits that the developer would have received if it had not undertaken the repowering. Based on CalWEA's work with this model to date, CalWEA believes that many existing wind projects in California can be repowered at prices that provide ratepayers with the

¹¹ The choices of an ISO4 contract expiring in 2012 and a repowering project starting in 2009 are just an example – the model can accommodate a variety of expiration dates for the existing contract and start dates for the repowered project.

benefit of substantial incremental renewable generation at prices that are below today's MPR.¹² Our proposal is that developers electing to employ Option 2 would bid their repower proposals to the utility using this repower pricing model. The utility would forward the proposal to its PRG for review and discussion, and would then negotiate with the developer. Importantly, the model is not designed to be a mechanism under which the developer is required to present its actual costs. Rather it is designed to allow the developer, utility, PRG and Commission to work from a common set of assumptions about what it costs to repower a wind project. Obviously, the assumptions used in the model, including during negotiations, are far less important than the acceptability for all parties of the resulting price.

Each option, admittedly, has strengths and weaknesses. Option 1, a simple form contract amendment, would eliminate delays over negotiating the price. However, this option provides no price certainty once the contract is signed, as the price is tied to prevailing SRAC and as-available capacity prices (although developers should be able to hedge at least the SRAC variability with natural gas purchases). The second option, executing a new contract, provides price certainty as it employs a fixed price for the life of the contract, but if the parties cannot agree on that price, the new contract will never be executed. CalWEA believes that both options should be available to developers, and proposes to convert the term sheets into specific contract language utilizing already approved repower contracts (e.g., those approved in Resolution E-3935) for specific language.

¹² CalWEA has had initial discussions with TURN and UCS about this model, and plans to discuss the model with other parties, including the utilities, in the near future.

ATTACHMENT A

Repower Term Sheet – Option 1 / ISO4 PPA Amendment

1. Unless otherwise stated below, all terms of original ISO4 PPA remain in effect.
2. Term of PPA to be extended to provide for 10 year minimum remaining term after repower's commercial operation date. Developer to be given reasonable period of time to complete construction of repower after execution of Amendment.
3. Definition of project site to be amended to permit new turbines located on parcels near to original project to be included in PPA.
4. Estimated annual deliveries term, if applicable, is to be updated to permit expected repowered energy deliveries.
5. If nameplate rating of original project does not change, no need for system impact study, facilities study or any action related to interconnection or transmission service.
6. Nameplate rating of original project may be increased, at the option of seller, by 20%. If new capacity is within limits of existing Interconnection Facilities Agreement, no further action is required. If new capacity exceeds limits of existing Interconnection Facilities Agreement, and developer employs reliable mechanisms to ensure that output to remains within limits of existing Interconnection Facilities Agreement, no further action is required. If new capacity and anticipated deliveries exceed limits of existing Interconnection Facilities Agreement, any necessary interconnection studies are to be conducted by utility under Rule 21.
7. Nameplate rating of original project may be increased by more than 20% with utility approval and subject to ISO interconnection protocols.
8. Utility is to continue to serve as Scheduling Coordinator and shall implement its role as under the original ISO4 PPA.
9. Price for Historical Deliveries, defined below, will be per original ISO4 capacity and energy pricing terms. Price for deliveries above Historical Deliveries will be

SRAC energy and prevailing CPUC approved as-available / as-delivered capacity prices.

- a. "Historical Deliveries" will be determined on a monthly basis pursuant to the following two-step process:
 - i. First, determine annual average quantity as the greatest of (i) the annual average of deliveries from the project between 1994-1998 (with years in which only parts of the project are in service to be excluded); or (ii)(a) the estimated annual deliveries set forth in the PPA or if no estimate is in the PPA then (b) the greatest annual quantity in 1996, 1997 or 1998.
 - ii. Second, determine the monthly quantities by prorating the annual quantity on a monthly basis using (y) in the case of an annual quantity determined under (i) or (ii)(a) above, the average monthly quantities in the full project years between 1994 and 1998, or (z) in the case of an annual quantity determined under (ii)(b) above, the monthly quantities from the relevant year.

10. Seller to retain full value of PTC and other financial incentives.

11. Seller to convey all environmental and capacity attributes to utility.

12. PPA amendments with many of the terms included above were approved by the CPUC in Resolution E-3935 (July 21, 2005). Form PPA amendment to be developed and approved by CPUC via expedited motion using samples from Resolution E-3935.

13. Utilities must negotiate in good faith to accommodate unique circumstances associated with proposed repower projects; separate ratepayer benefits are not required to accommodate individual deviations from the form.

14. No CPUC approval is required for PPA amendments conforming to form PPA amendment (including minor deviations to accommodate unique repower circumstances). Amendments to be filed by compliance advice letter filings.

ATTACHMENT B

Repower Term Sheet – Option 2 / New PPA

1. Original ISO4 to be terminated without penalty upon commercial operation date of repower. Developer to be given reasonable period of time to complete construction of repower after execution of Amendment.
2. Term of PPA to be 10, 15 or 20 years, at option of seller.
3. Utility to be Scheduling Coordinator as under pre-existing ISO4 contract, but repowered project to contain sufficient meteorological equipment to permit PIRP compliance (at utility cost).
4. No financial credit requirements for either seller or utility (so long as utility maintains investment grade credit rating), although utility to have second lien on assets and step-in rights in the event of a material default (to be defined in PPA).
5. Delivery point to be project busbar, with no project liability for congestion.
6. Line losses set based upon CPUC-approved method for QFs.
7. If nameplate rating of original project does not change, no need for system impact study, facilities study or any action related to interconnection or transmission service.
8. Nameplate rating of original project may be increased, at the option of seller, by 20%. If new capacity exceeds limits of existing Interconnection Facilities Agreement, and developer employs reliable mechanisms to ensure that output to remains within limits of existing Interconnection Facilities Agreement, no further action is required. If new capacity and anticipate deliveries exceed limits of existing Interconnection Facilities Agreement, any necessary interconnection studies to be conducted by utility under Rule 21.
9. Nameplate rating of original project may be increased by more than 20% with utility approval and subject to ISO protocols.
10. Pricing to be negotiated based on CalWEA evaluation model.

Attachment to CalWEA CEC Comments on Repowers

11. Mechanical availability warranty to be 85% annual requirement. Energy delivery guaranty set at 70% of expected annual deliveries, to be met in one of any two calendar years.

12. Seller to retain full value of PTC and other financial incentives.

13. Seller to convey all environmental and capacity attributes to utility.

14. Form PPA to be developed and approved by CPUC via expedited motion.

Utilities must negotiate in good faith to accommodate unique circumstances associated with proposed repower projects; separate ratepayer benefits are not required to accommodate individual deviations from the form PPA.

PPAs to be filed by compliance advice letter filings.