RFP
Attachment 14: Credit Methodology

Credit Security Requirements Methodology

Methodology Overview for Base Load Category

The RFP (includes Resources Alternatives with an Eligible Online Date of June 1, 2016) selected resources have the potential to expose PacifiCorp and its ratepayers to credit risk in the event a selected Bidder is unable to fulfill its obligations pursuant to the terms of an executed agreement. The credit risk profile is a function of several factors:

1. Type of resource (see Resource Alternatives Key at the end of this paper)
2. The Bid Category (Base Load, Intermediate Load and Summer Peak)
3. Size of Resource Alternative
4. Expected energy delivery start date
5. Term of underlying contract
6. Creditworthiness of Bidder and Bidder's credit support provider, if applicable

Acquisition of an Asset

For all resources that involve a physical asset with appropriate step-in rights (Resource Alternatives #3-6), PacifiCorp views potential credit exposure as the cost it would incur in the event the resource failed to come on-line when expected. PacifiCorp believes it could take up to 12 months to either step in and complete the project or cause the project to be completed on its behalf. If the failure occurred near the expected on-line date, PacifiCorp would have to procure energy in the open market at then-prevailing market prices.

Although it may take up to one additional year to get the resource on-line in the event of a Bidder default, PacifiCorp is most concerned about replacing expected energy during the summer months (June-September), specifically the on-peak hours.

In determining where prices for replacement power might be between contract execution and the replacement period (i.e. the future summer months), PacifiCorp employs standard statistical analysis to estimate future price levels within a certain confidence interval. Once the "stressed" forward price is determined, the expected cost to procure energy, had the project not been delayed, based on contract terms and conditions is subtracted. The difference between these prices is then multiplied by the number of megawatt hours for the replacement period to estimate the expected replacement cost, or damages, PacifiCorp might sustain due to Bidder nonperformance.

To illustrate, for a 2016 resource the forward price for on-peak power delivered at PACE over the four summer months during 2016 as indicated by the market on June 30, 2011 was $63.59/MWh. Market-implied volatility of prices for those same delivery months was 20.6%[1] on the same observation date. Using this data, PacifiCorp estimated – with

[1] Execution of contracts related to the RFP is expected to occur on or about April 1, 2013. Therefore, the December 1, 2014 forward volatilities were used as the best estimate of where volatility levels would be in 2016 as viewed on April 1, 2013.

84% confidence – that prices for that delivery point and replacement period are expected to be no higher than $92.62/MWh. Subtracting the cost of on-peak power PacifiCorp expects to pay had the resource been operational (i.e.$63.59/MWh) results in a potential replacement cost to PacifiCorp of $29.03/MWh, or $56,673[2] for a 1 MW resource.

With regard to a calculation for the estimate of the price of PACE power for the replacement period of $92.62/MWh, PacifiCorp estimated, with 84% confidence, how high Utah power prices could be in the event PaciCorp had to procure replacement energy during the summer of 2016 (four months, June-September) in the event of a bidder default. PacifiCorp used the forward price curve and the forward price volatility level observed on June 30, 2011 as inputs to its statistical analysis. Using a 7x16 delivery pattern, PacifiCorp nominally levelized power prices for each of the individual summer months to arrive at a single strip price of $63.59/MWh. The price was then multiplied by a stress factor to generate a potential forward price based on the desired confidence level:

Stress factor = exp^(1 standard deviation * 20.6% annual five year volatility * sqrt[(mid point date of summer strip - contract signing date)/365.25] = 1.4566.

Stressed price = 1.4566 stress factor * $63.59/MWh levelized price = $92.62/MWh

Asset-Backed Agreements

For other resources that are backed by an asset with appropriate step-in rights (Resource Alternatives 1, 2, 7, 8(b) and 8(c): asset-backed only), PacifiCorp views its potential credit exposure as the cost it would incur in the event the Bidder failed at any time during the life of the contract. However because the resource is backed by an attachable asset, PacifiCorp believes it can have the project operational, or cause to have the project operational on its behalf, within 12-18 months from the date of nonperformance. PacifiCorp acknowledges that the potential for prices to change is greater for this resource group due to the term of the underlying contract but will treat the potential replacement costs the same as asset backed Resource Alternatives 3-6. PacifiCorp will hold any credit security for a longer period, however, due to the length of contract related to this resource group.

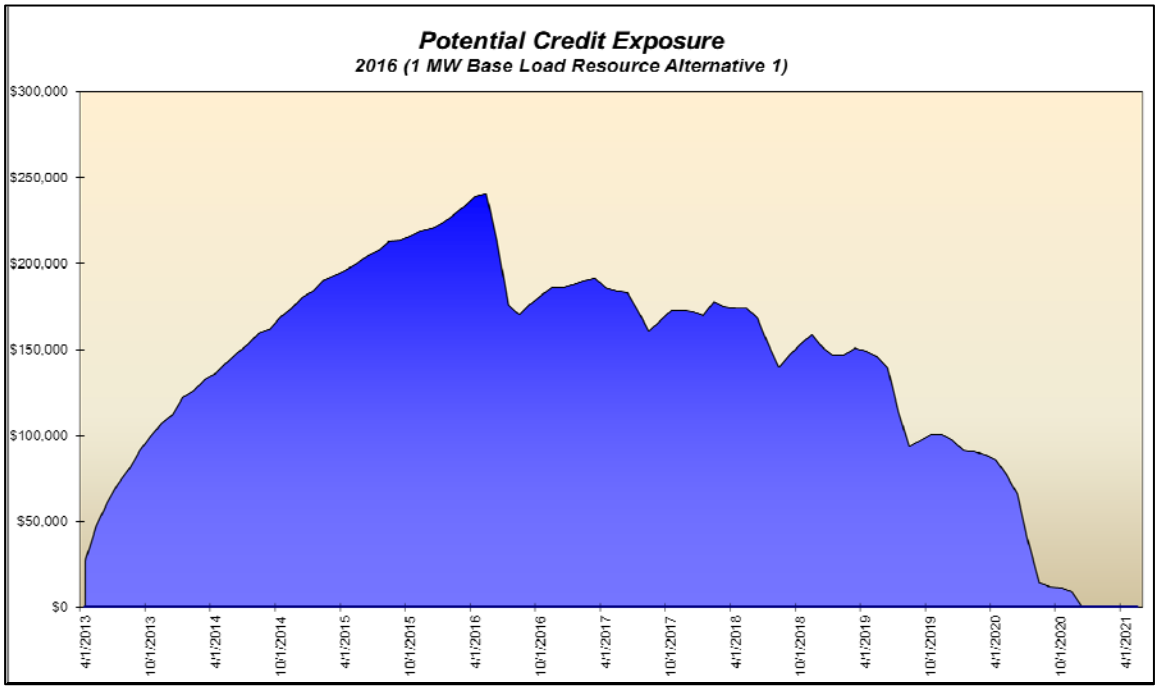
This discussion of the credit requirements for Power Purchase Agreements, Engineering, Procurement and Construction Agreements, Tolling Services Agreements, and the Asset Purchase and Sales Agreements assumes, for these credit requirements to be comparably analyzed, that each of these types of agreement is backed by its respective physical asset. In order for this to be the case, the agreements by their terms must put that physical resource behind the agreement, which would include, but not be limited to, the following: allowing PacifiCorp meaningful and actual exercise of step-in rights and a second lien (behind only the project lenders) on the assets and the special purpose entity equity, limiting the amount of leverage on the project by way of a cap on the debt to equity ratio, and other financial covenants for the life of the Power Purchase Agreement (resources 1, 2, 7, 8(b), and 8(c)).

[2] Assumes 1,952 on-peak hours during June-September 2016.

Non-Asset Backed Agreements

For resources that are not backed by an asset (resources 1, 2, 7, 8(a), 8(b) and 8(c)), PacifiCorp estimates potential credit exposure on not just four summers' worth of replacement volume but on the entire remaining volume at any point a Bidder might default during the term of a contract. PacifiCorp also takes into account the entire time horizon of the contract from contract execution. To estimate potential credit exposure at any possible point of default, PacifiCorp performs a Monte Carlo simulation[3] using a program purchased from a third-party vendor[4] that factors in forward prices, forward price volatility, temporal correlations, and asset correlations. The simulation steps through time, removing delivered volumes from the valuation while revaluing remaining, undelivered volumes. The result is a distribution of potential credit exposures from which PacifiCorp uses those at the 84th percentile.

The following chart shows the potential credit risk profile of a 1 MW, five year, non-asset backed, base load Resource Alternative 1 for 2016:



For the 2016 resources that are not backed by an asset, the potential credit exposure was estimated to be $240,928, for a 1 MW resource.

[3] A Monte Carlo simulation incorporates randomness into the revaluation process while mindful of the boundaries imposed by volatility and correlation assumptions.
[4] Risk Capital Management Partners, LLC, acquired by Towers Perrin on June 19, 2006.

Credit Matrix

Once the potential credit exposures were estimated for all resources, the exposures then were inserted into a series of credit matrices (each a "Credit Matrix"). Each Credit Matrix lists various sizes of resources in 100 MW increments (columns) for each possible credit rating of Bidder and Bidder's credit support provider, if applicable (rows). A Credit Matrix for each Resource Alternative is shown for the Eligible Online Date.

Next, PacifiCorp applies its internal credit risk tolerance specific to this RFP to each potential credit exposure in every cell of every Credit Matrix. The results are the amounts of excess credit risk that PacifiCorp requests be secured through third-party guaranties, cash, letters of credit, or other collateral, or combinations thereof.

To interpret a Credit Matrix, a Bidder needs to select the Resource Alternative, the Bid Category, and the size of the resource. Depending on the credit rating of the Bidder and the Bidder's credit support provider, if applicable, the value in the applicable Credit Matrix represents the maximum value of credit security the Bidder and/or the Bidder's credit support provider(s) must provide. The credit matrix was developed based on the Base Load Bid Category; credit requirements for the other two Bid Categories will be determined based on a percentage of the amount contained in the credit matrix.

Using the sample Credit Matrix excerpt below for illustration purposes only, credit security required for a base load 600 MW asset purchase and sale agreement for 2016 with a 'BBB+' rated Bidder would be $0 (row 2). If the Bidder was not rated or was rated less than investment grade, the Bidder would be required to provide $34,003,800 (row 5) in credit security to cover the potential credit exposure. Security could include a third-party guaranty from an investment grade entity but in that event additional security may be required depending on the security amounts listed in the Credit Matrix corresponding to the rating of the guarantor. For instance, if the third-party guarantor was only rated 'BBB-', PacifiCorp would require a guaranty in the amount of $25,000,000 ($34,003,800 (row 5) minus $9,003,800 (row 4)) from the guarantor and additional security (i.e. a letter of credit or cash) in the amount of $9,003,800 (row 4) from the Bidder.

Size of Nameplate bid in MW ==>	501-600	
Credit Rating		
A-/A3 and above	$0	row 1
BBB+/Baa1	$0	row 2
BBB/Baa2	$0	row 3
BBB-/Baa3	$9,003,800	row 4
Below BBB-/Baa3	$34,003,800	row 5

In the event the Bidder's credit rating and Bidder's credit support provider's credit rating, if applicable, adversely changes during the contract term, the amount of credit security must be adjusted commensurate with the amounts listed in the Credit Matrix.

For resource sizes that fall inside a MW range on the Credit Matrix, the exact amount of credit security is determined by taking the actual MW size of the resource and dividing it by the upper range boundary MW size. That result is then multiplied by the security amounts shown in the Credit Matrix for that size range to produce the credit security amount. For example, using the sample Credit Matrix excerpt above, for a 525 MW resource the amount of credit security required for a non-investment grade Bidder would be:

$29,753,325= 525 MW / 600 MW *$34,003,800

Please note: In addition to any credit security requirements as shown in the Credit Matrix, the Bidder may be required to post other credit security, depending on the Resource Alternative that is bid. The Bidder should refer to the respective proforma agreement for that Resource Alternative for any additional credit security requirements.

Posting of Credit Security

For all Resource Alternatives that are backed by an asset that can be attached by PacifiCorp, credit security must be posted in accordance with the following schedule (this includes a Power Purchase Agreement that is backed by an asset) Note that if the credit security posted is in the form of a third-party guaranty, 100% of the credit security is to be posed at the Effective Date:

Cumulative Value of Credit Security*	2016 Resource
10%	Effective Date (ED)
20%	ED+18 months
30%	ED+24 months
40%	ED+30 months
100%	ED+38 months or the Eligible Online Date, whichever is earlier.

* When the Bidder receives project development financing, 100% of the required credit security is then immediately due, regardless of the deadlines contained in the schedule.

The Effective Date is the date the contract is approved by the Utah Commission or the date the contract is executed by the parties, whichever is later.

A Bidder may select to either post the initial security, which must be in the form of cash or letter of credit only, or alternatively, a Bidder may post the full amount of credit security using *any* form of security acceptable to PacifiCorp (e.g. a third-party guaranty.)

For all other resources, full credit security is due within ten (10) business days after the Effective Date.

Reduction in Credit Security

For Resource Alternatives 3, 4, 5 and 6, any credit security posted will be returned to the counterparty at a reasonable time period after PacifiCorp has assumed complete ownership of the resource and any necessary indemnification period has passed.

For Resource Alternatives 1, 2, 7, 8(a), 8(b), and 8(c), posted credit security will be reduced according to the following schedule: starting at the mid-point of the term of the contract, the amount of credit security will be amortized over the remaining term of the contract and may be reduced in equal installments at the end of each successive contract year until the amount of credit security to be posted is $0. PacifiCorp reserves the right to hold credit security for a longer period if the potential credit exposure at the time of collateral return warrants such an action.

As an example: the counterparty has posted $24,092,800 in credit security for a PPA with a term of 6/1/2016 to 5/31/2020, or 4 years. After 2 years, the credit security amount of $24,092,800 will be divided by the 2 years remaining ($24,092,800/2, or $12,046,400) such that the amount of security may be reduced by $12,046,400 at the end of each successive contract year until the balance of the credit security reaches $0 at the end of the contract term.

Note that the above examples assume that the creditworthiness of the counterparty and/or its credit support provider remains the same over time. If the creditworthiness of the counterparty and/or its credit support provider changes at any point before or after the contract is executed, the amount of credit security required may change.

Resource Alternatives Key:	
1	Power Purchase Agreements
2	Tolling Service Agreements
3	Engineering, Procurement, and Construction Agreements on PacifiCorp site.
4	Asset Purchase and Sale Agreements
5	Purchase of an Existing Facility
6	Purchase of a portion of a facility jointly owned by or operated by PacifiCorp
7	Restructuring of existing Power Purchase Agreement or Exchange Agreement
8(a)	Load Curtailment
8(b)	Qualified Facility
8(c)	Renewable Resources