

# 2018 Request for Offers for Renewable and Storage Resources

Peninsula Clean Energy is San Mateo County's locally-controlled electricity provider. We are reducing greenhouse gas emissions and offering customer choice at competitive rates.

Offers due Friday, February 9, 2018 at 12:00 pm PPT

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## **RFO Overview**

Peninsula Clean Energy (PCE), a community choice energy (CCE) program, is San Mateo County's official electricity provider. PCE is a joint powers agency, formed in February 2016, consisting of the County of San Mateo and all twenty of its cities. PCE provides cleaner and greener electricity, at lower rates than the incumbent investor-owned utility (IOU), Pacific Gas & Electric Company (PG&E). PCE plans for and secures commitments from a diverse portfolio of energy generating resources to reliably serve the electric energy requirements of its customers over the near-, mid-, and long-term planning horizons. For more information on PCE, please go to <a href="https://www.peninsulacleanenergy.com">www.peninsulacleanenergy.com</a>.

In December 2017, PCE's Board approved PCE's first Integrated Resource Plan (IRP). The IRP documents PCE's current procurement status and outlines PCE's resource planning policies and objectives over a ten-year planning timeframe. Participants are encouraged to closely read this document to understand PCE's priorities in building its supply portfolio. You can download and review the IRP here: <a href="https://www.peninsulacleanenergy.com/our-power/energy-sources/">https://www.peninsulacleanenergy.com/our-power/energy-sources/</a>.

The goal of this 2018 Renewables Request for Offers (RFO) is to provide a competitive, objectively administered opportunity for qualified suppliers to propose projects to fulfill certain portions of PCE's future resource requirements consistent with the guidelines set out in the IRP. Specifically, PCE plans to enter into one or more Power Purchase and Sale Agreements (PPAs) to purchase energy from eligible renewable resources (ERRs)<sup>1</sup> and storage projects.

By participating in PCE's RFO process, a Participant acknowledges that it has read, understands, and agrees to the terms and conditions set forth in these RFO Instructions. PCE reserves the right to reject any offer that does not comply with the requirements identified herein. Furthermore, PCE may, in its sole discretion and without notice, modify, suspend, or terminate the RFO without liability to any organization or individual. The RFO does not constitute an offer to buy or create an obligation for PCE to enter into an agreement with any party, and PCE shall not be bound by the terms of any offer until PCE has entered into a fully executed agreement.

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<sup>&</sup>lt;sup>1</sup> For purposes of this RFO and any final agreement executed pursuant thereto, an ERR is a generating facility that meets all of the criteria set forth in Public Utilities Code Section 399.12, Public Resources Code Section 25741, and the California Energy Commission's "Renewables Portfolio Standard (RPS) Eligibility Guidebook," available at: <a href="http://www.energy.ca.gov/portfolio/index.html">http://www.energy.ca.gov/portfolio/index.html</a>.

#### **RFO Process**

The RFO will consist of the following phases:

- Webinar: PCE will host an informational Webinar on Wednesday, January 24, 2018 at 10:00 am PPT. Details on registering for the Webinar will be posted on the RFO Web site Wednesday January 17, 2018.
- - Once a Participant pre-registers, PCE will send the Participant a secure
    unique email address for that Participant to submit documents into the
    RFO's document management system. All documents must be submitted
    to this email address. No text should be submitted in the body of the
    email.
  - The cumulative size of the attachments cannot exceed 80 MB.
  - Please only submit final documents as there is no way for a Participant to delete a document from the system once submitted. You will receive an email confirmation once your document is uploaded to the system.
  - PCE will also send a four letter "Developer Code". Please use this in when naming files as shown in the Naming Convention section below. Also, please input this information into your Offer Form(s).
- Offers Due: Participants' Offers must be submitted by Friday, February 9, 2018 at 12:00 pm PPT, and must include the required documents described below.
- Offer Review: PCE will evaluate all Offers according to the criteria listed below.
   During this phase, PCE will identify submitted Offers for short-listing, and then notify short-listed Participants. PCE expects to notify short-listed Participants by Friday, March 9, 2018.

- Short-listed Participants Provide Documentation and Security: Short-listed participants interested in moving forward to the negotiation phase will be required to provide additional documentation and a bid security within two weeks of notification of short-listing.
- Negotiations and Execution: PCE will negotiate PPA(s) with short-listed
  participants with the intention of executing PPA(s). PCE may execute PPAs with
  selected participants at any time during the negotiation phase or may choose to
  execute none at all. Selected projects will be presented at a public meeting to
  PCE's board for approval.

# **RFO Schedule**

| <u>Date</u>  | <u>Event</u>  |
|--|---|
| Friday, January 12, 2018                           | PCE launches RFO: publishes RFO Instructions, pro forma PPA and other RFO documents   |
| Friday, January 19, 2018                           | Deadline for Participants to submit questions to be answered during the January 24 RFO Webinar                                  |
| Wednesday, January 24,                             | PCE hosts RFO Webinar   |
| 2018,<br>10:00 am Pacific Prevailing<br>Time (PPT) |   |
| Friday, February 2, 2018                           | Deadline for Participants to pre-register to submit offers  |
| Friday, February 2, 2018                           | Deadline for Participants to submit additional questions  |
| Wednesday, February 7,<br>2018                     | PCE to post responses to questions  |
| Friday, February 9, 2018,<br>12:00 pm PPT          | Deadline for Participants to submit offers and required documentation   |
| Friday, March 9, 2018                              | Anticipated date PCE will notify each<br>Participant regarding short-list status  |
| Friday, March 23, 2018                             | Anticipated deadline for selected short-listed<br>Participants to submit deposits, PPA redlines<br>and other required documents |

## Offer Submittal

Offers must be received on or before <u>Friday</u>, <u>February 9</u>, <u>2018</u>, <u>12:00 pm PPT</u>. All Participants intending to submit offers must pre-register by Friday, February 2, 2018. Once a Participant pre-registers, PCE will send the Participant a unique email address for that Participant to submit documents into the RFO's document management system. All documents must be submitted to this email address. Please note, do not include text in the body of the email as the text will not be received.

Participants may submit multiple Projects and may submit variations on each Project. A Project is defined as a generating facility that qualifies as an ERR as defined above. A Project variation may include, for example, different sizes offers from the same generating facility, different CODs, or an offer with or without energy storage.

Only electronic submittals will be accepted and must be submitted as described in these instructions.

## Required Information

- Offer Form: Please submit one Offer Form at <a href="https://docs.google.com/forms/d/1YwtCaHIDgY28d0tNnA3xlfRj1PndxhKt7Vf6hjdf7CM/viewform?edit\_requested=true">https://docs.google.com/forms/d/1YwtCaHIDgY28d0tNnA3xlfRj1PndxhKt7Vf6hjdf7CM/viewform?edit\_requested=true</a> per Project-size combination. Separate Offer forms must be submitted if you are offering the same Project under different size combinations.
- The following documents should be submitted as attachments to the Participant's unique email address received after pre-registration. Please use the document naming convention described below to name each of the files submitted to the unique email address.
  - o The following documents are required for each Participant:
    - A cover letter defining the relationships among offers, in the event that multiple Projects are submitted or multiple offers are presented for the same Project.
    - A document describing the roles, experience and qualifications of all project team members including the following:
      - Years of experience developing similar projects;
      - Number, type and size of projects;
      - Parent company;
      - Organization chart;
      - Experience financing projects;
      - Financing plan; and
      - Financial strength of Participant including the following:
        - o Credit rating; and
        - Financial statements.

- PCE's Sustainable Workforce Policy can be found here: <a href="https://www.peninsulacleanenergy.com/wp-content/uploads/2017/01/PCE-Policy-10-final-1.pdf">https://www.peninsulacleanenergy.com/wp-content/uploads/2017/01/PCE-Policy-10-final-1.pdf</a>. Please submit information on past, current and/or planned efforts to:
  - Employ workers and use businesses from the PCE service territory.
  - Employ properly licensed (A, B, C10, C7, C46) contractors and California Certified electricians.
  - Utilize multi-trade project labor agreements on the proposed project or any prior project developments.
  - Utilize local apprentices, particularly graduates of local preapprenticeship programs.
  - Pay workers the correct prevailing wage rates for each craft, classification and type of work performed.
  - Display a poster at jobsites informing workers of prevailing wage requirements.
  - Provide workers compensation coverage to on-site workers.
  - Support and use State of California approved apprenticeship programs.

Relevant information submitted by bidders will be used to evaluate potential workforce impacts of proposed projects with the goal of promoting fair compensation, fair worker treatment, multi-trade collaboration, and support of the existing wage base in local communities where contracted projects will be located.

- PCE's Ethical Vendor Standards can be found here: <a href="https://www.peninsulacleanenergy.com/wp-content/uploads/2017/01/PCE-Policy-9-final.pdf">https://www.peninsulacleanenergy.com/wp-content/uploads/2017/01/PCE-Policy-9-final.pdf</a>. Please describe your company's business practices, environmental track record, and commitment to sustainability.
- o The following documents are required for each Project:
  - A completed Generation Profile and LMP Historical Data form. This form can be downloaded from the RFO web site.
     If you are submitting the same project with different size options, please include a separate generation profile for each size. There is an option in the profile to include energy storage.
  - A document describing the project's characteristics and development status including:
    - Technology and equipment type
    - Environmental issues: List all known environmental issues on the project site
    - Permit status including permits required for construction and operation (Conditional Use Permit,

Notice of Determination, Environmental Impact Report) and status of each as well as details on the following:

- Has the project demonstrated "application deemed complete" status by land use authority?
- Is the project located on RETI Category 1 (development prohibited) or Category 2 (potential resource conflicts) lands? (see map)
- How complete is other environmental information?
  - All reconnaissance level surveys (e.g. biological, archaeological) and tribal consultation completed and no occupied habitat for endangered species or cultural resources identified
  - CEQA/NEPA completed or not required
  - Wildlife permits obtained or none required. Include written opinion from CDFW.
  - · Land use approvals granted
- Site control
- Milestone schedule
- Transmission/interconnection status: provide queue position, completed studies (System Impact Study, Facilities Study, CAISO Full Deliverability Study), Interconnection level of the proposed generator (Distribution or Transmission), Scheduled Commercial Operation Date and progress related to any applicable agreement

## **Document Naming Convention**

To allow us to quickly determine whether your offer meets the requirements outlined herein, please use the following naming convention for all documents submitted through the unique email address. Please only submit final documents as there is no way to delete a document from the system once submitted. Each document should include the project developer's name, the project name, the project variation and the document name in the following format:

DeveloperCode\_ProjectName\_ProjectVariation\_DocumentName.pdf

## **Short-listed Offer Required Documents**

Within 2 weeks of short-list notification, the following items or documents must be submitted to PCE:

- The required offer deposit (\$3/kWac)
- An executed confidentiality agreement
- A complete redline of the pro forma PPA, representing a version of the PPA that the Participant is willing to execute in the event that PCE accepts all the changes
- The most recent Phase 2 Interconnection Study and (if available) Generator Interconnection Agreement (GIA)
- · Site map, showing nearest cross streets, latitude and longitude
- Demonstration of site control

## **Products**

PCE is accepting offers from any generating facilities that meet the California Energy Commission's definition of a RPS Product Content Category (PCC) 1 or 2 Eligible Renewable Resource (PCC 1 or PCC 2 ERR). (See footnote 1 on page 1 for reference.)

- For PCC 1 Products:
  - <u>California In-state:</u> For ERR generating facilities located in California that are, or will be, interconnected to the California Independent System Operator ("CAISO"), the Delivery Point must be the point where the facility connects to the CAISO Controlled Grid.
    - For in-state ERR generating facilities that are, or will be, interconnected to a California Balancing Authority ("CBA") other than the CAISO, the Delivery Point must be the intertie point where Seller's Transmission Provider ties to the CAISO Controlled Grid ("CAISO Intertie").
  - Out-of-state: For PCC1 products from generating facilities located outside California, Seller must reasonably demonstrate to PCE as part of its submitted offer package that the output of the proposed Project can be scheduled on an hourly or sub-hourly basis into a CBA, without substituting electricity from another source, or dynamically transferred into a CBA. Such reasonable demonstration may include, for example, a Dynamic Scheduling Host Balancing Authority Operating agreement as defined in the CAISO Tariff.

Seller will be required to have firm transmission rights to the Delivery Point within the CAISO or to the respective CAISO Intertie for the duration of the term of the PPA.

#### • For PCC 2 Products:

- The ERR from which the electricity is procured is firmed and shaped with substitute electricity providing incremental electricity scheduled into a CBA within the same calendar year as the generation from the ERR. For further details, please refer to California Public Utilities Decision D.11-12-052. PCC 2 Offers must include firming and shaping service to a CAISO inter-tie point. Offers to deliver at the Project's busbar will not be accepted. Participants offering a PCC 2 Product should provide the delivery profile of the firmed and shaped product in their Offer and specify the CAISO delivery point.
- Additionally, any supplier of Bucket 2 product volumes shall ensure that any e-tags associated with Substitute Energy deliveries (energy delivered to a point of interconnection within California) do not reflect a generating resource that uses coal or coal-based fuels to produce electric power.

#### **Preferred Products**

PCE encourages participants to submit offers for products of short-, medium- and long-term lengths from new and existing projects. In addition, PCE is particularly interested in products that help meet the following open positions:

- Fixed price contracts to fill in the open hours identified in the tables in Appendix A, with the open hours shown in year 2024 as representative of PCE's long-term open position;
- PCC 1: 1-2 year contracts covering 2018-2019;
- PCC 2: 1-2 year contracts covering 2019-2020; and
- Participants are encouraged to submit offers for renewable energy alone, and renewable energy combined with energy storage.

## Eligibility Criteria

**Resource Location:** Eligible resources located within the Western Electricity Coordinating Council ("WECC") will be considered. PCE will evaluate the potential for congestion between the project's point of interconnection and PCE's service territory. Preference will be given to resources with a lower likelihood of congestion charges.

Generating Capacity: Minimum one (1) megawatt ("MW") AC.

**Initial Date of Delivery:** All eligible offers will be considered.

**Annual Delivery Specifications:** Maximum 500,000 MWh per year from any one project.

**Minimum Development Progress:** To the extent that a proposed generating resource is not yet commercially operational, a Project must have achieved the following

development milestones: 1) site control, and 2) a Phase 2 interconnection study or an executed interconnection agreement. Short-listed Participants will be required to provide documentation substantiating these milestones within two weeks after shortlisting.

#### **Product:**

- For PCC 1, the Product will include all electric energy, Green Attributes/Renewable Energy Credits and Capacity Attributes (if available).
- For PCC 2, Electric Energy and associated Green Attributes (inclusive of Renewable Energy Credits ("RECs")) produced on or after the Trade Date and delivered, if needed, with Substitute Energy to Seller from the Project(s) to Buyer at the Delivery Point. All deliveries must meet minimum specifications for PCC 2 resources, which are described in the Code as referenced in footnote 1 and applicable regulations.

#### **Proposed Pricing:**

- For PCC 1, the energy price shall include procurement of the energy commodity, all Green Attributes/Renewable Energy Credits related thereto, Capacity Attributes (if available), transmission charges to the delivery point, including but not limited to CAISO imbalance costs, fees and penalties associated with delivered energy volumes. PCE prefers to be the scheduling coordinator (SC), however, if the project requires the Seller to serve as the SC, scheduling fees, if any, should be broken out separately. Each submitted offer must specify both of the following:
  - A single, flat price for each MWh of electric energy delivered from the proposed resource in which Seller shall be financially and operationally responsible for delivery of all electric energy to the generator's applicable production node. This energy price shall remain constant throughout the entire contract term and shall not be adjusted by periodic escalators or time of delivery adjustments.
  - A single, flat price for each MWh of electric energy delivered from the proposed resource in which Seller shall be financially and operationally responsible for delivery of all electric energy to the NP15 trading hub.

Alternative pricing structures and delivery options may be proposed so long as the two aforementioned requirements have been satisfied.

- For PCC 2, each respondent <u>must</u> include product pricing under option (a) below and may include pricing under option (b) or (c):
  - a) **Index Plus REC Premium** A single fixed REC premium for each MWh of electric energy delivered from the proposed resource plus the

hourly day-ahead market clearing price per MWh of energy delivered by Seller at NP15. The REC premium price shall remain constant throughout the entire contract term and shall not be adjusted by periodic escalators or time of delivery adjustments.

- b) **Fixed Price** A single, flat price for each megawatt-hour of electric energy produced by the proposed resource. This price shall remain constant throughout the entire contract term and shall not be adjusted by periodic escalators or time of delivery adjustments. This price shall include procurement of the energy commodity, all Green Attributes/Renewable Energy Credits, transmission charges to the delivery point, including but not limited to CAISO imbalance costs, fees and penalties associated with delivered energy volumes.
- c) Respondents may propose alternative pricing options so long as the aforementioned pricing requirements under option (a) have been satisfied.
- Transfer of Environmental Attributes/Renewable Energy Certificates: As part of
  the proposed transaction associated with any renewable energy product, all
  Environmental Attributes/Renewable Energy Certificates must be tendered and
  transferred to PCE via the Western Renewable Energy Generation Information
  System ("WREGIS"), or its successor, without any additional costs or conditions to
  PCE. As appropriate, any e-tags associated with delivered product volumes
  shall be matched to associated renewable energy certificates within the
  WREGIS system before transferring such certificates to PCE.

## **Evaluation Criteria**

Evaluation will be based on a combination of quantitative and qualitative criteria. PCE will evaluate each Offer against these criteria and select a subset of Offers to move to the negotiation phase. In addition, throughout the negotiation process, as discussed below, PCE will continue to evaluate a Participant's fit and each Offer's fit with PCE's goals and objectives.

**Quantitative Evaluation Criteria:** Contract benefit is evaluated based on market forward prices, various quantity scenarios, the value of capacity, and the value of energy storage. Contract cost is calculated from the expected energy generation profile times offered prices.

**Qualitative Evaluation Criteria:** PCE's evaluation of qualitative criteria will be conducted in two stages: 1) evaluation of all conforming offers prior to short-listing decisions; and

2) further evaluation of short-listed projects and project teams, continuing throughout the negotiation process.

During the first stage, PCE will rely to a large extent on attestations and representations made by Participants, as specified in the offer form. Following short-listing, each successful Participant must provide, within two weeks of notification, a nonrefundable shortlisting fee and several additional documents, as specified herein.

Qualitative criteria will include, but not be limited to, the following:

- Project viability:
  - Project status regarding interconnection, site control, permits and equipment; and
  - Technology viability (mature, commercially proven technologies only; no research, development or demonstration projects);
- · Project location;
- Environmental impacts and related mitigation requirements;
- Project team experience;
- Financing plan and financial stability of project owner/developer;
- Consistency with PCE's mission statement and Integrated Resource Plan including the following:
  - Labor practices/employment opportunities;
  - Sustainable vendor policy; and
  - Resource fit;
- · Modifications to the pro forma PPA; and
- Other factors that may emerge during contract negotiations.

## **Seller Credit Requirements**

Following supplier notification (i.e., shortlist selection), the selected respondent(s) will be required to submit a Shortlist Deposit of \$3.00 / kWAC of proposed project capacity for each shortlisted generating project(s) within two weeks of such notification. The Shortlist Deposit is generally intended to secure the obligations of any shortlisted respondent(s) during the negotiating period and to ensure that each offer has been carefully considered. The Shortlist Deposit must be in the form of either a cash deposit or a Letter of Credit. "Letter of Credit" means an irrevocable standby letter of credit, in a form reasonably acceptable to PCE, issued either by (i) a U.S. commercial bank, or (ii) a U.S. branch of a foreign commercial bank that meets the following conditions: (A) it has sufficient assets in the U.S. as determined by PCE, and (B) it is acceptable to PCE in its sole discretion. The issuing bank must have a Credit Rating of at least A- from S&P or A3 from Moody's, with a stable outlook designation. In the event the issuer is rated by both rating agencies and the ratings are not equivalent then the lower rating will apply. All costs of the Letter of Credit shall be borne by respondent.

The Letter of Credit should be sent by overnight delivery to:

Peninsula Clean Energy Attn: Director of Power Resources 2075 Woodside Rd Redwood City, CA 94061

The Shortlist Deposit will be returned to respondent under one or more of the following conditions:

- 1) Following execution of a PPA and posting of required collateral;
- 2) PCE's rejection of the respondent's offer following shortlist selection;
- 3) Failure of PCE and the shortlisted respondent to agree on terms of the offer or PPA; or
- 4) PCE's termination of the RFO process.

Respondent will forfeit its deposit if:

- 1) Material misrepresentations of information related to respondent's offer are identified during the negotiating process;
- 2) Respondent fails to comply with the terms and conditions of this RFO process;
- 3) Respondent unilaterally withdraws the offer or attempts to materially modify the terms of its offer during the ninety-day (90-day) period immediately following supplier's acceptance of shortlist status.

In addition, PCE shall be able to retain any Letter of Credit provided as a Shortlist Deposit as security under any executed PPA resulting from the RFO process in the event that respondent fails to provide required security in accordance with the terms of such PPA.

The following securities will be required following PPA execution. Participant is solely responsible for the cost of providing these securities and this should be included in the price offered to PCE.

- Following PPA execution: Development Security of \$60/kWAC for the Generating Facility and \$90/kWAC for the Storage Facility, if applicable. This can be provided as cash or Letter of Credit. (Shortlist Deposit can be rolled forward into the Project Development Security.)
- Upon Commercial Operation: Delivery Term Security equivalent to 5% of total contract revenues. This can be provided as cash, Letter of Credit, or acceptable guaranty.

## **PCE Legal Obligations**

PCE is not obligated to respond to any offer submitted as part of the RFO. The Parties acknowledge that PCE is a public agency subject to the requirements of the California Public Records Act Cal. Gov. Code section 6250 et seg. PCE acknowledges that the other party may submit information to PCE that the other party considers confidential, proprietary, or trade secret information pursuant the Uniform Trade Secrets Act (Cal. Civ. Code section 3426 et seg.), or otherwise protected from disclosure pursuant to an exemption to the California Public Records Act (Government Code sections 6254 and 6255). The other party acknowledges that PCE may submit to the other party information that PCE considers confidential or proprietary or protected from disclosure pursuant to exemptions to the California Public Records Act (Government Code sections 6254 and 6255). Upon request or demand of any third person or entity not a party to this Contract ("Requestor") for production, inspection and/or copying of information designated by a Disclosing Party as Confidential Information, the Receiving Party as soon as practical but within three (3) business days of receipt of the request, shall notify the Disclosing Party that such request has been made, by telephone call, letter sent via facsimile and/or by US Mail to the address and facsimile number listed on the cover page of the Contract. The Disclosing Party shall be solely responsible for taking whatever legal steps are necessary to protect information deemed by it to be Confidential Information and to prevent release of information to the Requestor by the Receiving Party. If the Disclosing Party takes no such action, after receiving the foregoing notice from the Receiving Party, the Receiving Party shall be permitted to comply with the Requestor's demand and is not required to defend against it.

## **Communications**

All RFO documents are available on PCE's website at: <a href="https://www.peninsulacleanenergy.com/our-power/pce-2018-renewables-rfo/">www.peninsulacleanenergy.com/our-power/pce-2018-renewables-rfo/</a>.

All announcements, updates and Q&As will be posted on the website.

All questions should be submitted through the form here: <a href="https://docs.google.com/forms/d/1v22HE8FE\_aJvMYdre\_pJd2dGGQHL0RrKHGpHSyh4g7s/">https://docs.google.com/forms/d/1v22HE8FE\_aJvMYdre\_pJd2dGGQHL0RrKHGpHSyh4g7s/</a>.

All other communications should be directed to: <a href="mailto:procurement@peninsulacleanenergy.com">procurement@peninsulacleanenergy.com</a>.

# **Appendix A: Open Positions**

The following charts are heat maps reflecting PCE's open positions for the years 2018, 2019, 2020, 2021, and 2024. Negative numbers indicate an open position and positive numbers indicate over-procurement for each hour. A darker red indicates a larger open position. All quantities are in MWh. These heat maps are in a 12x24 format with the months of the year on the horizontal axis and the hours of the day on the vertical axis.

## 2018

| HE | 2018          | 2018 Long/(Short) MWh |        |        |        |        |        |        |           |         |          |          |
|----|---------------|-----------------------|--------|--------|--------|--------|--------|--------|-----------|---------|----------|----------|
|    | January       | February              | March  | April  | May    | June   | July   | August | September | October | November | December |
|    | -365          | -324                  | -399   | -454   | -429   | -384   | -390   | -523   | -531      | -455    | -504     | -533     |
| :  | -365          | -354                  | -377   | -426   | -382   | -347   | -462   | -433   | -406      | -439    | -387     | -513     |
| ;  | -373          | -370                  | -384   | -445   | -392   | -290   | -414   | -469   | -502      | -453    | -478     | -438     |
|    | <b>4</b> -371 | -369                  | -381   | -383   | -354   | -368   | -397   | -453   | -470      | -392    | -436     | -456     |
|    | -348          | -375                  | -349   | -397   | -277   | -294   | -454   | -483   | -428      | -477    | -450     | -512     |
|    | -415          | -423                  | -363   | -478   | -713   | -851   | -665   | -440   | -418      | -449    | -504     | -582     |
|    | -433          | -513                  | -669   | -1,582 | -1,853 | -2,049 | -1,884 | -1,665 | -1,193    | -799    | -528     | -537     |
|    | -749          | -1,042                | -1,988 | -2,801 | -2,735 | -2,806 | -2,816 | -2,943 | -2,510    | -2,151  | -1,382   | -1,184   |
| 9  | -1,867        | -2,007                | -2,973 | -2,973 | -2,898 | -2,992 | -3,005 | -3,122 | -2,907    | -2,931  | -2,307   | -4,208   |
| 10 | -2,362        | -2,192                | -2,933 | -3,100 | -3,108 | -3,059 | -3,102 | -3,228 | -2,946    | -2,942  | -2,587   | -5,054   |
| 1  | -2,285        | -2,186                | -2,982 | -3,029 | -2,956 | -3,142 | -3,165 | -3,266 | -2,979    | -2,840  | -2,316   | -4,681   |
| 1: | -2,205        | -2,060                | -2,639 | -2,906 | -2,958 | -3,058 | -3,099 | -3,222 | -2,896    | -2,683  | -2,325   | -4,612   |
| 13 | -2,033        | -2,105                | -2,774 | -2,948 | -3,055 | -3,016 | -3,172 | -3,288 | -2,942    | -2,748  | -2,318   | -4,639   |
| 14 | -2,141        | -2,043                | -2,749 | -2,828 | -3,189 | -2,947 | -3,190 | -3,280 | -3,077    | -2,899  | -2,408   | -4,866   |
| 1: | -2,247        | -2,169                | -2,597 | -2,826 | -3,126 | -3,044 | -3,219 | -3,361 | -3,077    | -2,905  | -2,385   | -5,098   |
| 10 | -1,836        | -2,126                | -2,625 | -2,804 | -3,055 | -2,931 | -3,211 | -3,396 | -3,036    | -2,358  | -1,665   | -3,835   |
| 1  | -669          | -1,270                | -1,849 | -2,419 | -2,773 | -2,937 | -3,213 | -2,979 | -2,095    | -1,143  | -592     | -1,013   |
| 18 | -605          | -492                  | -547   | -1,308 | -1,554 | -1,832 | -1,885 | -1,717 | -775      | -649    | -697     | -727     |
| 19 | -619          | -612                  | -558   | -556   | -551   | -574   | -639   | -803   | -736      | -712    | -753     | -745     |
| 2  | -621          | -548                  | -604   | -652   | -505   | -583   | -590   | -807   | -746      | -702    | -659     | -711     |
| 2  | -585          | -569                  | -567   | -591   | -485   | -564   | -598   | -776   | -731      | -653    | -642     | -721     |
| 2: | -520          | -453                  | -543   | -593   | -515   | -526   | -608   | -686   | -607      | -642    | -562     | -656     |
| 2: | -534          | -402                  | -511   | -573   | -429   | -457   | -513   | -597   | -634      | -573    | -601     | -628     |
| 2  | -393          | -401                  | -394   | -479   | -443   | -469   | -465   | -588   | -586      | -501    | -470     | -491     |

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| HE | 2019    | Long/(Short) MWh |        |        |        |         |         |         |          |         |          |          |
|----|---------|------------------|--------|--------|--------|---------|---------|---------|----------|---------|----------|----------|
|    | January | February         | March  | April  | May    | June    | July    | August  | Septembe | October | November | December |
| 1  | -7,864  | -6,947           | -6,377 | -6,022 | -5,290 | -5,592  | -5,531  | -6,067  | -6,622   | -6,643  | -7,548   | -7,994   |
| 2  | -7,535  | -6,645           | -6,021 | -5,680 | -4,922 | -5,201  | -5,135  | -5,656  | -6,271   | -6,279  | -7,182   | -7,572   |
| 3  | -7,380  | -6,538           | -5,870 | -5,510 | -4,760 | -4,978  | -4,925  | -5,416  | -6,067   | -6,159  | -7,031   | -7,353   |
| 4  | -7,340  | -6,521           | -5,863 | -5,525 | -4,750 | -4,937  | -4,867  | -5,352  | -5,994   | -6,119  | -6,971   | -7,309   |
| 5  | -7,622  | -6,796           | -6,096 | -5,692 | -4,932 | -5,124  | -5,023  | -5,534  | -6,165   | -6,337  | -7,217   | -7,538   |
| 6  | -8,274  | -7,462           | -6,681 | -6,263 | -5,449 | -5,558  | -5,413  | -6,048  | -6,670   | -6,885  | -7,870   | -8,097   |
| 7  | -9,435  | -8,663           | -7,868 | -7,299 | -6,240 | -6,248  | -6,013  | -6,829  | -7,535   | -7,930  | -8,986   | -9,115   |
| 8  | -10,284 | -9,470           | -8,697 | -8,071 | -7,036 | -7,048  | -6,715  | -7,547  | -8,114   | -8,680  | -9,766   | -9,688   |
| 9  | -10,400 | -9,600           | -8,873 | -8,478 | -7,486 | -7,686  | -7,398  | -8,234  | -8,620   | -8,964  | -10,040  | -7,922   |
| 10 | -10,565 | -9,778           | -9,111 | -8,829 | -7,979 | -8,334  | -8,049  | -8,973  | -9,197   | -9,364  | -10,282  | -7,653   |
| 11 | -10,590 | -9,853           | -9,345 | -9,136 | -8,447 | -8,937  | -8,732  | -9,735  | -9,803   | -9,775  | -10,429  | -7,854   |
| 12 | -10,502 | -9,798           | -9,416 | -9,301 | -8,727 | -9,370  | -9,243  | -10,256 | -10,261  | -10,009 | -10,420  | -7,879   |
| 13 | -10,357 | -9,742           | -9,412 | -9,382 | -8,849 | -9,664  | -9,653  | -10,699 | -10,599  | -10,158 | -10,357  | -7,681   |
| 14 | -10,161 | -9,609           | -9,336 | -9,366 | -8,901 | -9,883  | -9,984  | -11,139 | -10,939  | -10,271 | -10,276  | -7,369   |
| 15 | -9,952  | -9,410           | -9,151 | -9,247 | -8,863 | -10,029 | -10,169 | -11,371 | -11,171  | -10,304 | -10,131  | -7,131   |
| 16 | -9,856  | -9,244           | -8,951 | -9,043 | -8,749 | -10,011 | -10,200 | -11,444 | -11,244  | -10,244 | -10,045  | -7,742   |
| 17 | -10,174 | -9,310           | -8,911 | -8,881 | -8,655 | -9,896  | -10,178 | -11,387 | -11,251  | -10,155 | -10,329  | -10,105  |
| 18 | -11,359 | -9,899           | -8,989 | -8,836 | -8,538 | -9,693  | -9,950  | -11,123 | -11,109  | -10,109 | -11,341  | -11,741  |
| 19 | -11,699 | -10,474          | -9,161 | -8,675 | -8,221 | -9,271  | -9,470  | -10,516 | -10,649  | -10,132 | -11,404  | -11,918  |
| 20 | -11,531 | -10,363          | -9,466 | -8,791 | -8,066 | -8,800  | -8,981  | -9,942  | -10,507  | -10,258 | -11,111  | -11,705  |
| 21 | -11,156 | -10,018          | -9,438 | -9,086 | -8,215 | -8,495  | -8,520  | -9,628  | -10,175  | -9,838  | -10,726  | -11,378  |
| 22 | -10,426 | -9,268           | -8,782 | -8,462 | -7,804 | -8,157  | -8,008  | -8,824  | -9,297   | -9,062  | -10,033  | -10,693  |
| 23 | -9,452  | -8,379           | -7,905 | -7,550 | -6,840 | -7,233  | -7,110  | -7,741  | -8,235   | -8,103  | -9,139   | -9,760   |
| 24 | -8,517  | -7,516           | -6,986 | -6,649 | -5,944 | -6,305  | -6,189  | -6,792  | -7,259   | -7,237  | -8,229   | -8,760   |

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| HE | 2020    | Long/(Sho | rt) MWh |        |        |        |        |         |          |         |          |          |
|----|---------|-----------|---------|--------|--------|--------|--------|---------|----------|---------|----------|----------|
|    | January | February  | March   | April  | May    | June   | July   | August  | Septembe | October | November | December |
| 1  | -8,472  | -7,799    | -6,941  | -6,616 | -5,886 | -6,189 | -6,142 | -6,681  | -7,195   | -7,204  | -8,136   | -8,570   |
| 2  | -8,132  | -7,473    | -6,575  | -6,232 | -5,486 | -5,754 | -5,723 | -6,222  | -6,823   | -6,823  | -7,740   | -8,138   |
| 3  | -7,964  | -7,328    | -6,397  | -6,064 | -5,318 | -5,508 | -5,470 | -5,963  | -6,609   | -6,675  | -7,576   | -7,912   |
| 4  | -7,931  | -7,323    | -6,400  | -6,068 | -5,283 | -5,461 | -5,399 | -5,893  | -6,523   | -6,632  | -7,535   | -7,867   |
| 5  | -8,221  | -7,638    | -6,635  | -6,260 | -5,463 | -5,620 | -5,554 | -6,056  | -6,694   | -6,856  | -7,787   | -8,100   |
| 6  | -8,936  | -8,406    | -7,259  | -6,812 | -5,123 | -4,725 | -4,597 | -6,350  | -7,211   | -7,469  | -8,479   | -8,701   |
| 7  | -10,160 | -9,726    | -8,161  | -5,915 | -3,118 | -2,480 | -440   | -2,717  | -5,518   | -7,855  | -9,669   | -9,804   |
| 8  | -10,858 | -9,828    | -6,244  | -4,930 | -2,827 | -2,090 | 990    | -273    | -1,917   | -4,212  | -8,324   | -10,257  |
| 9  | -9,427  | -8,377    | -5,306  | -4,604 | -2,746 | -2,431 | 872    | -259    | -1,228   | -3,180  | -6,095   | -7,916   |
| 10 | -8,776  | -8,154    | -5,157  | -4,694 | -3,227 | -3,063 | 132    | -905    | -1,670   | -3,003  | -5,979   | -7,181   |
| 11 | -8,777  | -8,221    | -5,323  | -5,064 | -3,662 | -3,725 | -621   | -1,796  | -2,481   | -3,685  | -6,091   | -7,241   |
| 12 | -8,832  | -7,986    | -5,537  | -5,161 | -3,895 | -4,187 | -1,198 | -2,454  | -3,239   | -4,126  | -6,334   | -7,220   |
| 13 | -8,822  | -7,974    | -5,540  | -5,362 | -4,087 | -4,545 | -1,697 | -2,977  | -3,709   | -4,289  | -6,289   | -6,963   |
| 14 | -8,493  | -7,573    | -5,449  | -5,390 | -4,133 | -4,856 | -2,087 | -3,568  | -4,133   | -4,353  | -6,065   | -6,606   |
| 15 | -8,223  | -7,660    | -5,143  | -5,301 | -3,999 | -4,998 | -2,361 | -3,806  | -4,324   | -4,339  | -6,035   | -6,377   |
| 16 | -8,460  | -7,773    | -4,913  | -5,280 | -3,967 | -5,081 | -2,560 | -3,983  | -4,648   | -4,967  | -6,607   | -7,395   |
| 17 | -10,267 | -8,785    | -5,795  | -5,729 | -4,642 | -5,373 | -2,970 | -4,579  | -5,833   | -7,722  | -10,366  | -10,772  |
| 18 | -12,257 | -10,961   | -8,521  | -7,361 | -5,666 | -6,283 | -4,308 | -6,886  | -9,871   | -10,884 | -12,217  | -12,604  |
| 19 | -12,581 | -11,788   | -9,925  | -9,392 | -8,204 | -8,487 | -8,094 | -10,684 | -11,494  | -10,974 | -12,279  | -12,786  |
| 20 | -12,383 | -11,639   | -10,242 | -9,578 | -8,896 | -9,596 | -9,834 | -10,850 | -11,357  | -11,101 | -11,957  | -12,538  |
| 21 | -11,998 | -11,243   | -10,214 | -9,913 | -9,055 | -9,294 | -9,365 | -10,507 | -11,021  | -10,612 | -11,531  | -12,172  |
| 22 | -11,187 | -10,391   | -9,500  | -9,241 | -8,599 | -8,931 | -8,808 | -9,645  | -10,069  | -9,780  | -10,767  | -11,450  |
| 23 | -10,156 | -9,411    | -8,570  | -8,251 | -7,558 | -7,923 | -7,826 | -8,474  | -8,928   | -8,760  | -9,818   | -10,463  |
| 24 | -9,166  | -8,461    | -7,597  | -7,285 | -6,580 | -6,919 | -6,846 | -7,453  | -7,889   | -7,816  | -8,855   | -9,407   |

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| HE | 2021    | Long/(Shor | t) MW h |         |         |         |         |         |           |         |          |          |
|----|---------|------------|---------|---------|---------|---------|---------|---------|-----------|---------|----------|----------|
|    | January | February   | March   | April   | May     | June    | July    | August  | September | October | November | December |
| 1  | -11,342 | -10,323    | -9,597  | -9,386  | -6,977  | -6,814  | -6,650  | -7,300  | -8,539    | -8,938  | -10,273  | -10,882  |
| 2  | -10,898 | -9,917     | -9,126  | -8,899  | -6,493  | -6,289  | -6,094  | -6,721  | -8,062    | -8,436  | -9,713   | -10,346  |
| 3  | -10,694 | -9,743     | -8,903  | -8,656  | -6,300  | -6,043  | -5,803  | -6,375  | -7,780    | -8,312  | -9,652   | -10,145  |
| 4  | -10,675 | -9,744     | -8,904  | -8,656  | -6,310  | -6,013  | -5,747  | -6,333  | -7,713    | -8,390  | -9,618   | -10,050  |
| 5  | -11,080 | -10,141    | -9,217  | -8,896  | -6,531  | -6,185  | -5,876  | -6,625  | -7,983    | -8,751  | -9,980   | -10,366  |
| 6  | -12,030 | -11,093    | -10,027 | -9,509  | -5,959  | -4,754  | -5,081  | -7,073  | -8,821    | -9,680  | -10,914  | -11,141  |
| 7  | -13,671 | -12,735    | -10,945 | -7,689  | -2,679  | -1,422  | -1,266  | -3,733  | -7,588    | -10,458 | -12,450  | -12,595  |
| 8  | -14,560 | -12,638    | -7,913  | -5,815  | -2,032  | -1,031  | -401    | -1,683  | -4,358    | -7,173  | -11,410  | -13,353  |
| 9  | -12,622 | -10,444    | -6,709  | -5,703  | -2,295  | -1,774  | -1,025  | -2,138  | -4,121    | -6,458  | -9,373   | -11,330  |
| 10 | -11,862 | -9,945     | -6,520  | -6,061  | -3,137  | -2,817  | -2,274  | -3,267  | -4,915    | -6,612  | -9,441   | -10,816  |
| 11 | -11,856 | -9,888     | -6,743  | -6,515  | -3,920  | -3,903  | -3,532  | -4,732  | -6,116    | -7,465  | -9,683   | -10,861  |
| 12 | -11,801 | -9,798     | -6,987  | -6,730  | -4,311  | -4,669  | -4,515  | -5,749  | -7,191    | -8,070  | -9,934   | -10,739  |
| 13 | -11,566 | -9,815     | -6,963  | -7,019  | -4,497  | -5,156  | -5,248  | -6,539  | -7,841    | -8,304  | -9,884   | -10,276  |
| 14 | -11,028 | -9,456     | -6,818  | -7,000  | -4,541  | -5,571  | -5,719  | -7,295  | -8,425    | -8,415  | -9,705   | -9,901   |
| 15 | -10,641 | -9,515     | -6,462  | -6,924  | -4,379  | -5,597  | -5,957  | -7,514  | -8,636    | -8,360  | -9,679   | -9,719   |
| 16 | -10,992 | -9,600     | -6,306  | -6,867  | -4,303  | -5,491  | -5,909  | -7,550  | -8,850    | -8,861  | -10,115  | -10,708  |
| 17 | -13,748 | -11,095    | -7,473  | -7,323  | -4,926  | -5,436  | -5,975  | -7,833  | -9,819    | -11,334 | -13,851  | -14,084  |
| 18 | -16,455 | -14,336    | -11,510 | -9,892  | -6,400  | -6,680  | -6,834  | -9,727  | -13,443   | -14,227 | -15,943  | -16,243  |
| 19 | -16,763 | -15,376    | -13,528 | -12,989 | -10,135 | -9,991  | -10,143 | -13,121 | -14,681   | -14,174 | -15,867  | -16,356  |
| 20 | -16,421 | -15,123    | -13,944 | -13,329 | -11,069 | -11,503 | -11,724 | -12,978 | -14,421   | -14,273 | -15,355  | -15,975  |
| 21 | -15,856 | -14,585    | -13,839 | -13,750 | -11,247 | -11,062 | -11,113 | -12,387 | -13,849   | -13,510 | -14,784  | -15,465  |
| 22 | -14,800 | -13,520    | -12,876 | -12,812 | -10,541 | -10,534 | -10,270 | -11,181 | -12,525   | -12,303 | -13,756  | -14,474  |
| 23 |         | -12,272    | -11,638 | -11,488 | -9,086  | -9,052  | -8,895  | -9,565  | -11,003   | -10,799 | -12,524  | -13,275  |
| 24 | -12,202 | -11,098    | -10,407 | -10,240 | -7,821  | -7,725  | -7,569  | -8,285  | -9,566    | -9,607  | -11,256  | -11,909  |

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| HE | 2024    | Long/(Short) | MWh     |         |         |         |         |         |           |         |          |          |
|----|---------|--------------|---------|---------|---------|---------|---------|---------|-----------|---------|----------|----------|
|    | January | February     | March   | April   | May     | June    | July    | August  | September | October | November | December |
| 1  | -12,200 | -11,797      | -10,672 | -10,876 | -10,617 | -10,778 | -11,138 | -11,520 | -11,477   | -10,946 | -11,720  | -12,303  |
| 2  | -11,715 | -11,329      | -10,180 | -10,324 | -10,058 | -10,128 | -10,476 | -10,858 | -10,872   | -10,431 | -11,241  | -11,736  |
| 3  | -11,483 | -11,102      | -9,924  | -10,030 | -9,723  | -9,727  | -10,046 | -10,427 | -10,474   | -10,124 | -10,967  | -11,421  |
| 4  | -11,446 | -11,073      | -9,885  | -9,973  | -9,623  | -9,557  | -9,846  | -10,231 | -10,297   | -10,011 | -10,899  | -11,367  |
| 5  | -11,864 | -11,481      | -10,173 | -10,200 | -9,738  | -9,588  | -9,916  | -10,384 | -10,476   | -10,248 | -11,260  | -11,738  |
| 6  | -12,873 | -12,525      | -11,007 | -10,796 | -9,050  | -8,084  | -9,025  | -10,699 | -11,124   | -11,050 | -12,216  | -12,629  |
| 7  | -14,629 | -14,345      | -11,988 | -9,016  | -5,784  | -4,661  | -5,132  | -7,375  | -9,746    | -11,799 | -13,824  | -14,199  |
| 8  | -15,599 | -14,323      | -9,057  | -7,177  | -5,070  | -4,061  | -4,020  | -5,273  | -6,534    | -8,611  | -12,876  | -15,001  |
| g  | -13,721 | -12,168      | -7,895  | -7,090  | -5,292  | -4,717  | -4,505  | -5,645  | -6,256    | -7,899  | -11,061  | -13,022  |
| 10 | -12,992 | -11,687      | -7,747  | -7,487  | -5,960  | -5,579  | -5,538  | -6,538  | -7,059    | -8,063  | -11,214  | -12,509  |
| 11 | -12,983 | -11,667      | -7,981  | -7,966  | -6,551  | -6,452  | -6,548  | -7,636  | -8,155    | -9,006  | -11,517  | -12,707  |
| 12 | -12,910 | -11,560      | -8,210  | -8,168  | -6,812  | -7,067  | -7,312  | -8,459  | -9,137    | -9,588  | -11,804  | -12,678  |
| 13 | -12,659 | -11,591      | -8,194  | -8,468  | -7,079  | -7,592  | -8,007  | -9,163  | -9,770    | -9,825  | -11,727  | -12,346  |
| 14 |         | -11,254      | -8,058  | -8,465  | -7,328  | -8,138  | -8,626  | -9,977  | -10,434   | -9,998  | -11,467  | -11,907  |
| 15 | -11,702 | -11,211      | -7,709  | -8,414  | -7,385  | -8,435  | -9,105  | -10,432 | -10,768   | -10,037 | -11,364  | -11,574  |
| 16 | ,       | -11,267      | -7,564  | -8,428  | -7,510  | -8,650  | -9,440  | -10,709 | -11,090   | -10,616 | -11,803  | -12,449  |
| 17 |         | -12,790      | -8,730  | -8,939  | -8,347  | -9,015  | -9,932  | -11,324 | -12,194   | -13,204 | -15,453  | -15,865  |
| 18 |         | -16,125      | -12,724 | -11,500 | -10,032 | -10,541 | -11,155 | -13,449 | -15,922   | -16,109 | -17,538  | -18,062  |
| 19 |         | -17,276      | -14,752 | -14,546 | -13,771 | -13,858 | -14,590 | -16,876 | -17,216   | -16,126 | -17,480  | -18,095  |
| 20 |         | -17,033      | -15,208 | -14,960 | -14,732 | -15,432 | -16,168 | -16,975 | -17,097   | -16,302 | -16,973  | -17,698  |
| 21 |         | -16,465      | -15,113 | -15,448 | -15,091 | -15,161 | -15,691 | -16,701 | -16,635   | -15,623 | -16,342  | -17,153  |
| 22 |         | -15,330      | -14,114 | -14,509 | -14,410 | -14,609 | -14,952 | -15,555 | -15,322   | -14,464 | -15,253  | -16,138  |
| 23 |         | -13,976      | -12,827 | -13,124 | -12,954 | -13,193 | -13,520 | -13,961 | -13,757   | -13,086 | -13,910  | -14,762  |
| 24 | -13,103 | -12,694      | -11,561 | -11,804 | -11,600 | -11,820 | -12,161 | -12,544 | -12,375   | -11,814 | -12,646  | -13,372  |