

**PACIFIC DIRECT CURRENT INTERTIE OPERATING AGREEMENT**

executed by the

**UNITED STATES OF AMERICA,**

**DEPARTMENT OF ENERGY**

acting by and through the

**BONNEVILLE POWER ADMINISTRATION**

and

**LOS ANGELES DEPARTMENT OF WATER & POWER**

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This PACIFIC DIRECT CURRENT INTERTIE OPERATING AGREEMENT (Agreement) is entered into by the UNITED STATES OF AMERICA, Department of Energy, acting by and through the BONNEVILLE POWER ADMINISTRATION (BPA), and the LOS ANGELES DEPARTMENT OF WATER & POWER (LADWP), a municipality organized and existing under the laws of the State of California, on behalf of itself and as operating agent for Southern California Edison Company, and the Cities of Burbank, Glendale and Pasadena, collectively referred to as the "Southern Owners." BPA and LADWP are hereinafter sometimes referred to individually as "Party" and together as "Parties."

## RECITALS

WHEREAS the Pacific Direct Current Intertie (PDCI) is a single high-voltage direct current ("DC") transmission system that includes the Celilo Converter Station ("Celilo") located in The Dalles, Oregon, the Sylmar Converter Station ("Sylmar") located in Sylmar, California, and the DC transmission line that connects Celilo and Sylmar; and

WHEREAS the PDCI was built jointly by the BPA and the Southern Owners as a single high voltage DC system to connect the Pacific Northwest with Southern California; and

WHEREAS BPA owns and has authority and responsibility for the operation of the Northern Portion of the PDCI, including the authority and responsibility for the interconnection of the Northern Portion with other transmission systems; and

WHEREAS LADWP and the Southern Owners jointly own the PDCI south of the Nevada-Oregon state line border (NOB); and LADWP has authority and responsibility for the operation of the Southern Portion of the PDCI, including sole authority and responsibility for the interconnection of the Southern Portion with other transmission systems; and

WHEREAS in a written resolution of Southern Owners' Advisory Committee, the Southern Owners confirmed that (i) this Agreement may contain terms and conditions affecting the Southern Owners' interests in the PDCI south of NOB and (ii) LADWP is authorized to execute this Agreement as set forth in Exhibit C; and

WHEREAS BPA and LADWP each operate a transmission system, which has been interconnected at the Transmission System Interconnection Point since May 21, 1970, and BPA and the Southern Owners have made a commitment, in BPA Memorandum of Agreement No. 14ZZ-15941 (LADWP Contract No. BP 14-019), to maintain the long-term Transfer Capability of the PDCI at 3100 MW; and

WHEREAS certain operation and maintenance rights and obligations of LADWP relating to the Southern Portion of the PDCI are provided for in separate agreements between LADWP and each of the Southern Owners; and

WHEREAS BPA has authorized, in coordination with the Southern Owners, a major upgrade to the Northern Portion of the PDCI, with construction scheduled primarily in calendar year 2015, which together with a modification to the Southern Portion of the PDCI by the Southern Owners, could increase long-term Transfer Capability to 3220 MW, and potential PDCI Transfer Capability of 3800 MW if a substantial upgrade to the Southern Portion is made in the future; and

WHEREAS LADWP and BPA wish to establish their agreement on matters pertaining to operation of the PDCI.

NOW THEREFORE, the Parties agree to the following:

**1. TERM AND TERMINATION**

This Agreement shall become effective on the date of execution by the last Party signing this Agreement ("Effective Date"), and shall continue in effect until the earlier of: (i) thirty (30) years from the Effective Date; (ii) the date that the facilities, equipment and transmission elements comprising the PDCI are permanently removed from service; (iii) the date ordered by a regulatory agency or court of competent jurisdiction that the PDCI must cease operations; or (iv) the date computed upon a Party's exercise of its right to terminate this Agreement upon three (3) years advanced written notice to the other Party. All liabilities accrued hereunder shall be and are hereby preserved until satisfied.

**2. DEFINITIONS**

When used in this Agreement, the following words and terms have the meaning shown below:

- (a) "City-Burbank Pacific Intertie D-C Transmission Facilities Agreement" shall mean the original agreement entered into by Burbank and LADWP under DWP Agreement No. 10129 and effective on or around March 16, 1967, as may be amended from time to time, relating to the PDCI.
- (b) "City-Edison Pacific Intertie D-C Transmission Facilities Agreement" shall mean the original agreement entered into by SCE and LADWP under DWP Agreement No. 10078 and effective on or around March 31, 1966, as amended by DWP Agreement No. BP02-007 and as may be further amended from time to time, relating to the PDCI, and on file with the Federal Energy Regulatory Commission under SCE's Rate Schedule No. 448.
- (c) "City-Glendale Pacific Intertie D-C Transmission Facilities Agreement" shall mean the original agreement entered into by Glendale and LADWP under DWP Agreement No. 10128 and effective on or around March 16, 1967, as may be amended from time to time, relating to the PDCI.
- (d) "City-Pasadena Pacific Intertie D-C Transmission Facilities Agreement" shall mean the original agreement entered into by Pasadena and LADWP under

DWP Agreement No. 10130 and effective on or around March 16, 1967, as may be amended from time to time, relating to the PDCI.

- (e) "Good Utility Practice" shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practice, reliability, safety, and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4).
- (f) "Northern Portion" shall mean the northern system of the PDCI as separated by the Nevada-Oregon Border(NOB), extending through the Celilo Converter Station (Celilo) to Big Eddy Substation bus bars including all associated transmission facilities and lines controlled and operated by BPA that are used solely for the purpose of providing transmission service on the PDCI.
- (g) "Pacific Direct Current Intertie" or "PDCI" shall mean the  $\pm 500$  kV DC system that is operated as a continuous path, divided into the Northern Portion and the Southern Portion, and associated substation facilities.
- (h) "PDCI Transfer Capability" shall mean the capability of the PDCI to reliably transfer power between Big Eddy Substation and Sylmar Switching Station bus bars as measured at the output of the source DC converter terminal and not limited by alternate current ("AC") system operating constraints. The units of PDCI Transfer Capability are expressed in megawatts (MW).
- (i) "Southern Owners" shall mean LADWP, Southern California Edison Company, and the Cities of Burbank, Glendale and Pasadena, which together jointly own the Southern Portion of the PDCI.
- (j) "Southern Portion" shall mean the southern system of the PDCI as separated by the NOB extending through the D-C Transmission Facilities, as that term is defined in Article 3(a) of the City-Burbank Pacific Intertie D-C Transmission Facilities Agreement, the City-Glendale Pacific Intertie D-C Transmission Facilities Agreement and the City-Pasadena Pacific Intertie D-C Transmission Facilities Agreement and in Article 3(b) of the City-Edison Pacific Intertie D-C Transmission Facilities Agreement.
- (k) "Transmission System Interconnection Point" or "Interconnection Point" shall mean the physical point of connection between the Northern Portion and the Southern Portion. The interconnection details are described in Exhibit A (Facility and Procedural Details), to this Agreement.

3. **EXHIBITS AND REVISIONS**

Exhibit A (Facility and Procedural Details), Exhibit B (Notices), and Exhibit C (Southern Owners Advisory Committee Resolution) are hereby incorporated as part of this Agreement. Either Party may unilaterally revise its contact information in Section 2 of Exhibit B, without further authorization from its governing body or by resolution as required by the Southern Owner's Advisory Committee Resolution.

4. **INTERCONNECTED OPERATION**

(a) **Obligation to Operate in Accordance with Reliability Standards**

Subject to the provisions of this Agreement, and in accordance with Good Utility Practice and the Reliability Standards for the Bulk Electric Systems of North America ("Reliability Standards") set forth by the North American Electric Reliability Corporation ("NERC") or any successor entity, each Party shall operate and maintain its portion of the PDCI, in accordance with Reliability Standards and the provisions of this Agreement, or cause the same to be so maintained and operated.

(b) **Pacific HVDC Operating Orders and Parties' Operating Practices**

- (1) Each Party will operate its portion of the PDCI in accordance with written procedures jointly developed by the Parties relating to Pacific High Voltage Direct Current ("HVDC") operations. ("Pacific HVDC Operating Orders" are incorporated by reference herein.) The Pacific HVDC Operating Order(s) will, without limitation, establish operating authority boundaries and standards for isolation and notification to ensure safe and consistent operation of the PDCI.
- (2) Each Party reserves the right to develop, amend, and terminate any operating procedures and/or business practices related specifically to the PDCI. Each Party will make reasonable efforts to avoid operating its portion of the PDCI in conflict with the other Party's operating procedures and/or business practices associated with the PDCI. In the event that a Party develops, amends, or terminates any operating procedure and/or business practices associated with the PDCI, such Party should provide reasonable notice to the other Party.
- (3) In the event the Pacific HVDC Operating Orders or applicable operating procedures and/or business practices do not address a particular circumstance that arises, or an event of an Uncontrollable Force under Section 8 of this Agreement prevents the Parties from following the same procedures, the Parties will act in accordance with Good Utility Practice.

(c) **Remedial Action Scheme**

Each Party shall operate its portion of the PDCI in order to maintain stability on the WECC interconnected systems in the event of partial or total power loss on the PDCI. Exhibit A, Section 8 to this Agreement provides specific information addressing remedial action schemes for the PDCI.

Each Party agrees to assist in WECC required remedial action scheme testing if the Party's participation is necessary.

(d) **Loss Calculations**

The Parties shall use the loss calculation formulas in Exhibit A for power scheduling, dispatch, automatic generation control ("AGC"), and other purposes related to operation of the PDCI. A Party implementing a system modification expected to impact PDCI loss calculation accuracy shall propose appropriate modification to the Exhibit A loss calculation formulas. The proposed change shall be submitted to the other Party for review and approval at least six months prior to implementing the system modification. A Party may propose modification to the loss formulas to improve accuracy at any time subject to review and approval of both Parties. PDCI loss measurements may be conducted periodically as determined by the Parties to confirm the accuracy of the loss calculation formulas.

(e) **Site Access**

If a Party requires access to any part of the other Party's portion of the PDCI related to the Interconnection Point, the Party requiring access will deliver prior written notice to the other Party, and the other Party will reasonably provide such access, subject to its applicable safety and security requirements.

5. **COORDINATION OF OPERATIONS, MAINTENANCE, AND CONSTRUCTION**

(a) **Annual Meeting**

The Parties shall meet annually, or as the Parties determine necessary, to coordinate and resolve matters related to the PDCI, as identified in Section 5(b) below.

(b) **Coordination of PDCI Activities**

The Parties shall identify and, in good faith, facilitate resolution to matters related to operations, scheduling, maintenance, and construction on the PDCI. Such issues include, but are not limited to, the following:

- (1) Pacific HVDC Operating Orders and each Party's operating procedures and/or business practices that relate to the operation of the PDCI;

- (2) Notice, coordination, and scheduling of planned maintenance and construction;
- (3) Notice and restoration of forced outages;
- (4) Standards for maintenance such as spare equipment redundancy;
- (5) Coordinated operation;
- (6) Coordinated scheduling;
- (7) Curtailment procedures;
- (8) Reliability;
- (9) Probe testing;
- (10) Integration and quality of service; and
- (11) Test or circulation power.

(c) **Test/Circulating-Power**

The Parties shall endeavor to accommodate the need for power to be transferred from one terminal to the other for testing and other purposes from time to time. The accommodations will be made in accordance with Good Utility Practice and may include circulating power on the parallel AC path, entering into purchasing/selling agreements, banking of energy, or other methods as mutually agreed by the Parties.

(d) **Implementation of Maintenance and Construction**

(1) **Minimize Adverse Effects of Scheduled Maintenance and Construction**

The Parties shall coordinate scheduled maintenance and construction affecting the PDCI in a manner that will minimize adverse effects, including but not limited to reduction of PDCI Transfer Capability or any portion thereof. In coordinating scheduled maintenance and construction requiring a scheduled outage of the PDCI, the Parties shall negotiate in good faith to determine: (i) the period of time, prior to the outage, required by each Party to prepare for the outage; and (ii) the period of time necessary to accomplish the required maintenance or construction.

(2) **Outage and Maintenance Schedules**

By January 31 of each calendar year, or by such other date as the Parties mutually agree, each Party shall submit to the other Party estimated schedules for proposed maintenance and construction and

related outages of the PDCI. Such estimated schedules shall include: (i) a schedule for the current calendar year and (ii) an estimated rolling five-year schedule for construction, if applicable, which each Party shall update annually.

(3) **Notification**

Upon a Party's determination of the need for scheduled maintenance or construction affecting the PDCI, such Party shall provide notice to the other Party in advance of performing the actual maintenance or construction to the extent practicable.

6. **METERING**

(a) **General and Standards**

Each Party has installed, and shall maintain in accordance with its own procedures, primary and secondary revenue-quality interchange meters and all associated equipment at the points of metering, described in Exhibit A, for which that Party is responsible. In accordance with NERC Mandatory Reliability Standards, all interchange values, continuous/instantaneous MW and hourly MWh, shall come from a common, agreed upon source described in Exhibit A and shall be adjusted as provided for in Exhibit A. If necessary, the Parties' representatives shall determine which Party's meters are used as primary and which are secondary.

(b) **Testing and Access**

Each Party shall, at its own cost, test its meters in accordance with its own procedures at least once every two (2) years. If requested to do so by one Party, the other Party shall make additional tests or inspections of its meters. Unless otherwise mutually agreed, the requesting Party shall pay for such additional tests and/or inspections, provided that in the event the additional tests or inspections find that a meter registers an error equal to or greater than the allowable maximum error of 0.2 percent permitted under the ANSI C12.20, such additional tests and/or inspections shall be at the expense of the other Party. Each Party shall give the other Party reasonable notice of the time when any test or inspection pursuant to this Section is to be made, and the other Party shall have the right to have a representative present at such test or inspection.

(c) **Communication Path**

Each Party shall provide and operate the communications circuits used to telemeter the required MW and MWh data, which shall include redundant communication paths. The sampling rate for the MW data of the primary meter shall be as mutually agreed by the Parties, with the intention of the Parties that it be as near instantaneous as possible.



- (d) **Meter Failure**  
If any meter listed in Exhibit A fails to register, or if any meter registers an error greater than prescribed in Section 6(b), the Party owning such inaccurate meter shall use commercially responsible efforts to immediately repair or replace it.
- (e) **Updates**  
The Parties may agree to update and establish new metering standards for the PDCI and to amend this Section 6 as appropriate. With respect to LADWP, such amendment shall require approval by resolution of the Advisory Committee as outlined in Exhibit C of this Agreement; however further authorization of LADWP's respective governing authority is not required.

## 7. PROPRIETARY INFORMATION

### (a) Exchange of Information

#### (1) Exchange of Information

Subject to any applicable confidentiality agreements, terms of service, Standards of Conduct, or any applicable law or regulation, LADWP and BPA will exchange, in a timely manner, all information reasonably required in order for the Parties to carry out their respective obligations hereunder, including such further information as may be reasonably required to meet obligations to any organization of which one or both Parties are members and which imposes upon it or them an obligation to collect information for submission to that organization.

#### (2) Cost of Providing Information

Unless the Parties otherwise agree, each Party will be responsible for the costs incurred by it in providing any information it is required to provide under this Agreement.

#### (3) Liability for Data

Each Party will use reasonable efforts to provide accurate information pursuant to this Section 7. However, any information provided for submission to an organization of which one or both Parties are members will be relied on by the recipient at its sole risk and the providing Party will have no liability for any inaccuracy in the information provided.

### (b) Proprietary Information

- (1) All information supplied by a Party (the "Disclosing Party") to the other Party (the "Recipient") under this Agreement, clearly marked or otherwise designated in writing as "proprietary" or "confidential" and

"subject to BPA Agreement 14TX-15783" on the face of the document, will be considered proprietary information; or, if the Disclosing Party orally identifies such information as confidential and proprietary at the time of oral disclosure, and, within five (5) days after such disclosure provides a written record in accordance with this Section 7(b)(1) and consistent with the notice provisions of Exhibit B to the Agreement, such information will also be treated as proprietary information (all such proprietary information, considered "Proprietary Information"). The Recipient will make the same efforts to keep and protect the Proprietary Information of the Disclosing Party as it would its own Proprietary Information.

- (2) Proprietary Information will not be disclosed by the Recipient to any third party, except:
  - (A) to consultants or other advisors of the Recipient who have a need to know to further the purposes set forth herein;
  - (B) if such information has entered the public domain (other than through the actions of the Recipient);
  - (C) as required by law, regulation, or by any authority having jurisdiction, as the Recipient's legal counsel shall determine, including, but not limited to, under the Freedom of Information Act, 5 U.S.C. § 552 (FOIA) and the California Public Records Act, Cal. Gov't Code §§6250 et seq.; provided that the Recipient notifies the Disclosing Party as soon as practicable, and if possible before disclosing Proprietary Information;
  - (D) with the prior written consent of the Disclosing Party;
  - (E) if such information was in the lawful possession of the Recipient on a non-proprietary basis before receiving it from the Disclosing Party;
  - (F) if such information was independently developed by the Recipient without reference to Proprietary Information of the Disclosing Party; or
  - (G) as the Parties may otherwise agree.
- (3) Unless the Parties otherwise agree in writing, information designated as Proprietary Information will no longer be deemed Proprietary Information upon the earlier of: (i) the Disclosing Party notifies the Recipient that it no longer is Proprietary Information, or (ii) five (5) years from the date that the Disclosing Party supplied such Proprietary Information to the Recipient.

- (4) Subject to the terms of Section 7(a)(1) and this Section 7(b), each Party may use Proprietary Information solely to fulfill its obligations to the other Party under this Agreement or its regulatory requirements.

**8. UNCONTROLLABLE FORCES**

The Parties shall not be in breach of their respective obligations to the extent the failure to fulfill any obligation is due to an Uncontrollable Force. "Uncontrollable Force" means an event beyond the reasonable control of, and without the fault or negligence of, the Party claiming the Uncontrollable Force that prevents that Party from performing its contractual obligations under this Agreement and which, by exercise of that Party's reasonable care, diligence and foresight, such Party was unable to avoid. Uncontrollable Forces include, but are not limited to:

- (a) strikes or work stoppage;
- (b) floods, earthquakes, or other natural disasters; terrorist acts; and
- (c) final orders or injunctions issued by a court or regulatory body having competent subject matter jurisdiction which the Party claiming the Uncontrollable Force, after diligent efforts, was unable to have stayed, suspended, or set aside pending review by a court of competent subject matter jurisdiction.

Neither the unavailability of funds or financing, nor conditions of national or local economies or markets shall be considered an Uncontrollable Force. The economic hardship of either Party shall not constitute an Uncontrollable Force. Nothing contained in this provision shall be construed to require either Party to settle any strike or labor dispute in which it may be involved.

If an Uncontrollable Force prevents a Party from performing any of its obligations under this Agreement, such Party shall: (i) immediately notify the other Party of such Uncontrollable Force by any means practicable and confirm such notice in writing as soon as reasonably practicable; (ii) use its best efforts to mitigate the effects of such Uncontrollable Force, remedy its inability to perform, and resume full performance of its obligation hereunder as soon as reasonably practicable; (iii) keep the other Party apprised of such efforts on an ongoing basis; and (iv) provide written notice of the resumption of performance. Written notices sent under this section must comply with Exhibit B, Notices.

## 9. LIMITATIONS OF LIABILITY

### (a) Indemnification

It is understood and agreed between the Parties, that each of the Parties to this Agreement is a governmental entity and is unable to indemnify the other Party, due to legal restrictions.

### (b) Insurance

It is understood and agreed between the Parties, that each of the Parties to this Agreement is a self-insured governmental entity.

### (c) Limitation of Liability and Consequential Damages Waiver

It is understood and agreed between the Parties, neither Party shall be liable to the other Party under any circumstances, under any theory of liability at law or in equity, whether such liability is known or unknown at the time of signing this Agreement, or any time thereafter, for consequential damages including but not limited to any loss of use of equipment, cost of replacement power, lost revenue or profit, downtime costs, business interruption, incidental, or indirect, damages as a result of the operation, maintenance, and/or construction of the PDCI line pursuant to this Agreement. This limitation of liability shall not affect or alter the rights and obligations of any of the Parties under any other Agreement.

## 10. DISPUTE RESOLUTION

### (a) Submission

In the event either Party has a dispute, or asserts a claim, that arises out of or in connection with this Agreement, such Party (the "Disputing Party") shall provide the other Party with written notice of the dispute or claim ("Notice of Dispute"). Such dispute or claim shall be referred to a designated senior representative of each Party for resolution on an informal basis as promptly as practicable after receipt of the Notice of Dispute by the other Party. Neither Party shall commence any proceedings or actions, or seek any declaratory or other orders, in connection with a dispute or claim noticed in a Notice of Dispute for at least thirty (30) calendar days after receipt of the Notice of Dispute by the other Party. ~~The Parties are not obligated to~~ continue dispute resolution efforts after the thirty (30) calendar days have expired.

### (b) Performance During Dispute Resolution

While attempts are being made pursuant to Section 10(a) to resolve a dispute or claim noticed in a Notice of Dispute, the Parties will continue to perform all obligations under this Agreement and will continue to comply with all terms of this Agreement without waiver of any remedies available at law or equity.

(c) **Maintain Reliability**

Nothing in this Section 10 limits a Party from taking any action it deems necessary to maintain the reliability of its system.

**11. GENERAL PROVISIONS**

(a) **Clarifications**

In this Agreement, except as otherwise expressly provided or as the context otherwise required:

- (1) headings and captions are for convenience only and are not intended as a guide to interpretation of this Agreement or any portion thereof;
- (2) the words "include" and "including" when following any general statement or term, are not to be construed as limiting the general statement or term to the specific items or matters set forth or to similar items or matters, but rather as permitting the general statement or term to refer to all other items or matters that could reasonably fall within its broadest possible scope;
- (3) words importing the singular number, where the context requires, include the plural and vice-versa and words importing the masculine gender include the feminine gender and the neuter and vice-versa, as appropriate;
- (4) unless otherwise noted, a reference to a section or exhibit means a section or exhibit of this Agreement;
- (5) a reference to an entity includes any successor to that entity; and
- (6) if any conflict arises between provisions contained within the body of this Agreement and those contained within the exhibits to this Agreement, the body of the Agreement shall prevail.

(b) **Severability**

Wherever possible, each provision of this Agreement shall be interpreted in such a manner as to be effective, valid and enforceable under applicable law. If any provision of this Agreement is or becomes illegal, invalid or unenforceable under applicable law, such provision shall be deemed severed from this Agreement to the extent of such illegality, invalidity or unenforceability and its illegality, invalidity or unenforceability shall not affect the legality, validity or enforceability of the remaining provisions of this Agreement, unless such illegality, invalidity or unenforceability materially or adversely affects the spirit or intent of this Agreement.

- (c) **Assignment**  
This Agreement is binding on any successors and assigns of the Parties. Neither Party may otherwise transfer or assign this Agreement, in whole or in part, without the other Party's written consent. Such consent shall not be unreasonably withheld.
- (d) **Waiver**  
No waiver of any provision or breach of this Agreement shall be effective unless such waiver is in writing and signed by the waiving Party, and any such waiver shall not be deemed a waiver of any other provision of this Agreement or any other breach of this Agreement.
- (e) **Enurement**  
This Agreement will enure to the benefit of and be binding upon the Parties and their respective successors and permitted assigns.
- (f) **No Partnership**  
This Agreement shall not be interpreted or construed to create an association, joint venture, partnership or agency between the Parties or to impose any partnership obligations or liability upon either Party. Further, neither Party shall have any right, power or authority to enter into any agreement or undertaking for or on behalf of, to act as or be an agent or representative of, or to otherwise bind the other Party.
- (g) **Amendments and Exhibit Revisions**  
Except where this Agreement explicitly allows one Party to unilaterally amend a provision or revise an exhibit, no amendment or exhibit revision to this Agreement shall be of any force or effect unless set forth in a written instrument signed by authorized representatives of each Party. Any such amendments or revisions shall require Southern Owners' approval by resolution and such resolution shall be attached to this Agreement.
- (h) **Entire Agreement**  
This Agreement, including documents expressly incorporated by reference, constitutes the entire agreement between the Parties. It supersedes all previous communications, representations, or contracts, either written or oral, which purport to describe or embody the subject matter of this Agreement.
- (i) **Exercise of Rights**  
Nothing contained in this Agreement will be construed as affecting in any way the ability of either Party to exercise its rights under relevant governing laws or pursuant to any rules and regulations of a commission with jurisdiction.

(j) **No Third Party Beneficiaries**

This Agreement is made and entered into for the sole benefit of the Parties, and the Parties intend that no other person or entity shall be a direct or indirect beneficiary of this Agreement.

(k) **Execution in Counterparts**

This Agreement may be executed in any number of counterparts, each of which when delivered will be deemed to be an original and all of which together constitute one and the same document and Agreement.

(l) **Governing Law**

This Agreement shall be governed by and construed in accordance with federal law without reference to conflicts of law among the several states. To the degree that no Federal law applies, the laws of the State of California will apply.

(m) **Surviving Obligations**

Termination or expiration of this Agreement for any reason shall be without prejudice to any rights that have accrued to the benefit of one or more Parties with respect to information exchange requirements under Section 7 prior to such termination or expiration. Such termination or expiration does not relieve a Party from obligations that are expressly indicated to survive the termination or expiration of this Agreement.

12. **SIGNATURES**

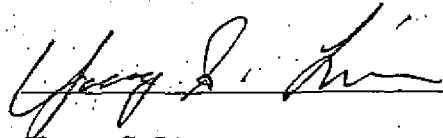
The Parties have executed this Agreement as of the last date indicated below.

LOS ANGELES DEPARTMENT OF  
WATER & POWER, acting as  
Operating Agent for the  
Southern Owners

UNITED STATES OF AMERICA  
Department of Energy  
Bonneville Power Administration

By: \_\_\_\_\_

Name: David H. Wright  
Title: General Manager

By:  \_\_\_\_\_

Name: Young S. Linn  
(Print/Type)

By: \_\_\_\_\_

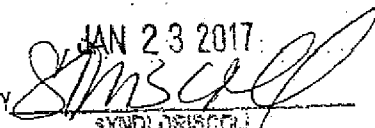
Name: Barbara E. Moschos  
Title: Board Secretary

Title: Senior Transmission Account Executive

Date: \_\_\_\_\_

Date: 7/13/2016

APPROVED AS TO FORM AND LEGALITY.  
MICHAEL N. FEUER, CITY ATTORNEY

JAN 23 2017  
BY  \_\_\_\_\_  
SYNDI DRISCOLL  
DEPUTY CITY ATTORNEY

**EXHIBIT A  
FACILITY AND PROCEDURAL DETAILS**

1. **FACILITY: PACIFIC DIRECT CURRENT INTERTIE (PDCI)**
  - (a) Celilo Converter Station
  - (b) Celilo-Sylmar Transmission Line
  - (c) Sylmar Converter Station
  
2. **TRANSMISSION SYSTEM INTERCONNECTION POINT**  
Nevada – Oregon Border (NOB) at the line jumpers on BPA dead-end structure 265/6.
  
3. **VOLTAGE**  
1000 kV, DC ( $\pm 500$  kV pole to ground).
  
4. **PHASING**  
Not applicable.
  
5. **TRANSFER CAPABILITY**  
3100 MW South to North  
3100 MW North to South
  
6. **OWNERSHIP**
  - (a) Celilo and that portion of the PDCI between Celilo and NOB (264.72 circuit miles) owned by BPA.
  - (b) Sylmar and that portion of the PDCI between NOB and Sylmar (579.72 circuit miles) owned by LADWP and its Southern Owners.
  - (c) Metallic Return Transfer Breaker (MRTB) and Ground Return Transfer Switch (GRTS) 50/50 jointly owned by BPA and LADWP.
  - (d) Fault Locator equipment at Sylmar end – BPA owns the fault locator specific equipment; LADWP provides timing source and maintenance of BPA fault locator equipment without monetary compensation. BPA provides fault location information to LADWP upon request.



## 7. METERING

### (a) Metering point locations

#### (1) Celilo:

- (A) Big Eddy terminal of the 230 kV Big Eddy-Celilo No. 3 line  
230 kV Celilo No. 3 Meter "A" (primary)  
230 kV Celilo No. 3 Meter "B" (secondary)
- (B) Big Eddy terminal of the 230 kV Big Eddy-Celilo No. 4 line  
230 kV Celilo No. 4 Meter "A" (primary)  
230 kV Celilo No. 4 Meter "B" (secondary)
- (C) Celilo terminal of the 500 kV Big Eddy-Celilo No. 1 line  
500 kV Celilo Converter No. 1 Meter "A" (primary)  
500 kV Celilo Converter No. 1 Meter "B" (secondary)
- (D) Celilo terminal of the 500 kV Big Eddy-Celilo No. 2 line  
500 kV Celilo Converter No. 2 Meter "A" (primary)  
500 kV Celilo Converter No. 2 Meter "B" (secondary)

#### (2) Sylmar:

- (A) Sylmar Switching Station E10 position: Sylmar Converter 1,  
220 kV
- (B) Sylmar Switching Station E5 position: Sylmar Converter 2,  
230 kV

### (b) Metering Types

- (1) Celilo: JEMSTAR Meter Model No. JS-09R6020-43-DNP; two for each metering point
- (2) Sylmar:
  - (A) Square D, ION 8600, Model No. S8600B4C0H6A0B1B for each position, designated Converter 1 Meter A and Converter 2 Meter A. These meters provide telemetered MW data to BPA.
  - (B) Square D, ION 8600, Model No. S8600B4C0H6A0B1B for each position, designated Converter 1 Meter B and Converter 2 Meter B. These are backup meters.

(C) Scientific Columbus JEM-1 meter, Model No. 603P-J, one for each position

(c) Source of Interchange Values Celilo: Primary meter

## 8. REMEDIAL ACTION SCHEME(S) ASSOCIATED WITH THIS FACILITY

(a) BPA

(1) In order to maintain stability on the WECC interconnected systems in the event of partial or total power loss on the 1000 kV PDCI during north to south (N-S) power flow, the following remedial action schemes (RAS) are installed:

- (A) PDCI Generator Dropping
- (B) High Speed Series Capacitor Insertion
- (C) Shunt Capacitor Insertion
- (D) SW-DC Controller set to actual
- (E) WECC Loop Open Operations

(2) For south to north (S-N) power flow, the following RAS are installed:

- (A) High speed series Capacitor Insertion
- (B) Shunt Capacitor Insertion
- (C) SW-DC Controller set to actual
- (D) WECC Loop Open Operations

(3) In order to protect against voltage collapse in the Big Eddy area during periods of low generation at The Dalles Powerhouse and high N-S flows for the loss of both John Day-Big Eddy 500 kV lines, the following RAS is installed:

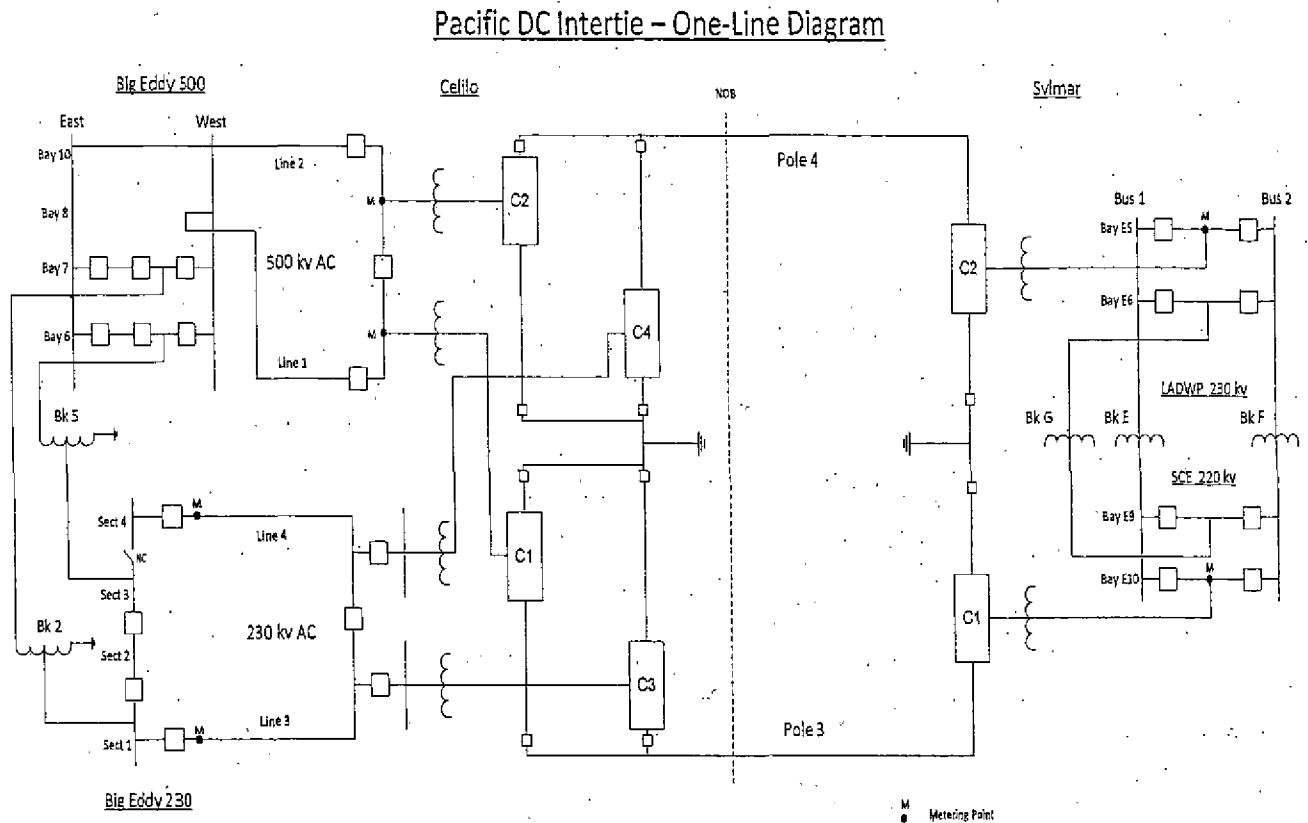
PDCI Fast Ramp

(4) Applicable BPA Dispatchers' Standing Order: DSO No. 301

(b) LADWP

None required under the present system configuration. The Parties will update this provision if RAS is required on the Southern Portion in the future.

## 9. ONE-LINE DIAGRAM



## 10. LOSS CALCULATION FORMULAS

(a) Transmission Line Losses

(1) Line Loss per Pole for Bipole Operation:

$$P_{LL} = P_{CL} + 0.2 I^4 + 0.03 I^3 + 16.0 I^2$$

(2) Total Line Loss for Monopole Metallic Return Operation:

$$P_{LL} = P_{CL} + 0.4 I^4 + 0.06 I^3 + 32.0 I^2$$

(3) Total Line Loss for Monopole Earth Return Operation:

$$P_{LL} = P_{CL} + 0.2 I^4 + 0.03 I^3 + 17.0 I^2$$

Where:  $P_{LL}$  = Line loss in MW  
 $I$  = DC line current in kA  
 $P_{CL}$  = Corona loss from Table 1 below

Nominal Pole Voltage (kV)	Corona Losses (MW) Per Pole
367	0
400	0.6127
500	2.1103

Table 1 - Corona Losses

(4) Line Loss Allocation

BPA Share = 264.43 mi/844.15 mi = 31.325%  
LADWP Share = 579.72 mi/844.15 mi = 68.675%

(b) Celilo Converter Losses:

$$P_{LC} = 0.64 I^2 + 0.64 I + 1.82$$

Where:  $P_{LC}$  = Celilo converter loss per pole in MW  
 $I$  = DC pole current in kA

(c) Sylmar Converter Losses:

$$P_{LS} = 0.793 I^2 + 0.523 I + 1.734$$

Where:  $P_{LS}$  = Sylmar converter loss per pole in MW  
 $I$  = DC pole current in kA

**EXHIBIT B  
NOTICES**

**1. NOTICES RELATING TO PROVISIONS OF THE PDCI OPERATING AGREEMENT**

Any notice required under this Agreement shall be in writing and shall be delivered in person; or with proof of receipt by a nationally recognized delivery service or by United States Certified Mail. Notices are effective when received. Either Party may change the name or address for receipt of notice by providing notice of such change. The Parties shall deliver notices to the following person and address:

**2. ADMINISTRATIVE CONTACTS**

Any notice or other communication related to this Agreement, other than notices of an operating nature (Section 3 below), shall be in writing and shall be deemed to have been received if delivered in person, by First Class mail, by facsimile or sent by overnight delivery service.

Administrative contacts under this Agreement are as follows:

**If to LADWP:**

Los Angeles Department of Water & Power  
111 North Hope Street, Room 921  
Los Angeles, CA 90012  
Attention: Director of Power System Planning & Development  
Title: Power Engineering Manager  
Phone: (213) 367-0881

**If to BPA:**

Attention: Transmission Account Executive  
for Los Angeles Department of Water & Power - TSE/TPP-2  
Phone: (360) 619-6013  
Fax: (360) 619-6940  
  
**If by First Class Mail:**  
Bonneville Power Administration  
P.O. Box 61409  
Vancouver, WA 98666-1409

**If by Overnight Delivery Service:**

Bonneville Power Administration - TSE/TPP-2  
901 NE 11<sup>th</sup> Avenue  
Portland, OR 97232

### 3. NOTICES OF AN OPERATING NATURE

Any notice, request, or demand of an operating nature by BPA or LADWP shall be made to the following Points of Contact:

BONNEVILLE		LADWP	
Transmission Dispatcher (Primary)	(360) 418-2282	Transmission Dispatcher (Primary)	(818) 771-6635
Transmission Dispatcher (Secondary)	(360) 418-2281	Transmission Dispatcher (Backup/Secondary)	(818) 353-8843
Real-Time Scheduler	(360) 418-2878	Real-Time Scheduler (Primary)	(818) 771-6633
Dispatch Fax	(360) 418-2938	Shift Supervisor	(818) 771-6631
Outage Coordination Fax	(360) 418-2274 (360-418-2214)	Control Room Fax	(818) 771-6560
Manager of Dispatch	(360) 418-2739	Outage Coordination Fax	(818) 771-6652 (818) 771-6540
		Manager of Grid Operations	(818) 771-6585
		Manager of Energy Control and EHV Stations	(213) 367-4373
Address: Dittmer Control Center 5411 NE Hwy 99 Mail Stop: TOD-Ditt1 Vancouver, WA 98663  If by US Mail: P.O. Box 491 Mail Stop: TOD-DITT1 Vancouver, WA 98666-0491		Address: Assistant Director of Internal Generation 111 North Hope Street, Room 949 Los Angeles, CA 90012 Phone: (213) 367-4373	

**EXHIBIT C**  
**SOUTHERN OWNER'S ADVISORY COMMITTEE RESOLUTION**

**(See Attached)**

**RESOLUTION NO. 2015-1**

**PACIFIC DC INTERTIE TRANSMISSION FACILITIES  
ADVISORY COMMITTEE RESOLUTION FOR APPROVAL OF THE PDCI  
OPERATING AGREEMENT BETWEEN LADWP AND BONNEVILLE POWER  
ADMINISTRATION**

WHEREAS, the Department of Water and Power of the City of Los Angeles ("LADWP") is a co-owner of the southern portion of the Pacific Intertie DC Transmission Facilities (PDCI) from the Nevada-Oregon Border to Sylmar Converter Station in Sylmar, California, along with Southern California Edison Company ("SCE") and the Cities of Burbank, Glendale and Pasadena (all herein referred to, including LADWP, as the "Southern Owners"); and

WHEREAS, pursuant to Article 8 of the Southern Owners' respective PDCI Transmission Facilities agreements (Agreements) with LADWP, LADWP Agreement Nos. 10078 (SCE), 10128 (Glendale), 10129 (Burbank) and 10130 (Pasadena), LADWP operates and maintains the southern portion of the PDCI on behalf of the Southern Owners; and

WHEREAS, Bonneville Power Administration ("BPA") is the owner and operating agent for the Northern Portion of the PDCI from the Nevada-Oregon Border to Celilo Converter Station in The Dalles, Oregon; and

WHEREAS, no operating agreement currently exists between BPA and LADWP which defines the duties and obligations of the operating agents for the northern and southern portion of the PDCI to one another in the operation of the PDCI; and

WHEREAS, BPA and the Southern Owners have jointly developed the PDCI Operating Agreement (LADWP No. BP14-018/BPA No. 14TX-15783) ("Operating Agreement") between BPA and LADWP and;

WHEREAS, pursuant to Article 2, Advisory Committee, of the Agreements, the Advisory Committee's duty is to consult and advise LADWP with respect to, among other things, the operation of the southern portion of the PDCI; and

WHEREAS, the Southern Owners agree that LADWP's execution of the Operating Agreement as well as any amendments, changes or revisions to the Operating Agreement or to the exhibits to the Operating Agreement shall be reviewed and approved by resolution of the Advisory Committee; and

NOW THEREFORE, BE IT RESOLVED by this Advisory Committee that the PDCI Operating Agreement be approved; and



THE FOREGOING RESOLUTION is hereby approved and adopted by  
the Advisory Committee on this 4<sup>th</sup> day of February, 2016  
6

SOUTHERN CALIFORNIA EDISON

By \_\_\_\_\_  
Advisory Committee Member

DEPARTMENT OF WATER AND POWER  
OF THE CITY OF LOS ANGELES

By M. R. Blumstein  
Advisory Committee Member

CITY OF BURBANK

By \_\_\_\_\_  
Advisory Committee Member

CITY OF GLENDALE

By \_\_\_\_\_  
Advisory Committee Member

CITY OF PASADENA

By \_\_\_\_\_  
Advisory Committee Member

THE FOREGOING RESOLUTION is hereby approved and adopted by  
the Advisory Committee on this 4th day of February, 2015.

SOUTHERN CALIFORNIA EDISON

By \_\_\_\_\_  
Advisory Committee Member

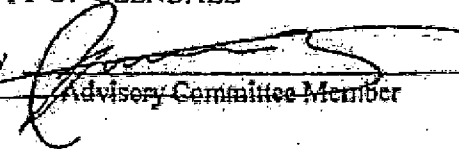
DEPARTMENT OF WATER AND POWER  
OF THE CITY OF LOS ANGELES

By \_\_\_\_\_  
Advisory Committee Member

CITY OF BURBANK


By \_\_\_\_\_  
Advisory Committee Member

CITY OF GLENDALE

By  \_\_\_\_\_  
~~Advisory Committee Member~~

CITY OF PASADENA

By \_\_\_\_\_  
Advisory Committee Member

APPROVED AS TO FORM  
  
Principal Assistant City Attorney  
Date Oct. 20, 2015

THE FOREGOING RESOLUTION is hereby approved and adopted by  
the Advisory Committee on this 4th day of February, 2016

SOUTHERN CALIFORNIA EDISON

By \_\_\_\_\_  
Advisory Committee Member

DEPARTMENT OF WATER AND POWER  
OF THE CITY OF LOS ANGELES

By \_\_\_\_\_  
Advisory Committee Member

CITY OF BURBANK

By \_\_\_\_\_  
Advisory Committee Member

CITY OF GLENDALE

By \_\_\_\_\_  
Advisory Committee Member

CITY OF PASADENA

By Susa Nayudu  
Advisory Committee Member

APPROVED AS TO FORM:  
This 4th day of February 2016  
By [Signature]  
Deputy City Attorney

THE FOREGOING RESOLUTION is hereby approved and adopted by  
the Advisory Committee on this 4th day of February, 2015.

SOUTHERN CALIFORNIA EDISON

By \_\_\_\_\_  
Advisory Committee Member

DEPARTMENT OF WATER AND POWER  
OF THE CITY OF LOS ANGELES

By \_\_\_\_\_  
Advisory Committee Member

CITY OF BURBANK

By [Signature]  
Advisory Committee Member

CITY OF GLENDALE

By \_\_\_\_\_  
Advisory Committee Member

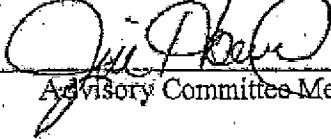
CITY OF PASADENA

By \_\_\_\_\_  
Advisory Committee Member

Approved as to Form  
Office of the City Attorney  
By: [Signature]  
Title: Charles C. Brown  
Date: 1/2/15

THE FOREGOING RESOLUTION is hereby approved and adopted by  
the Advisory Committee on this 4th day of February, 2018.

SOUTHERN CALIFORNIA EDISON

By   
Advisory Committee Member

DEPARTMENT OF WATER AND POWER  
OF THE CITY OF LOS ANGELES

By \_\_\_\_\_  
Advisory Committee Member

CITY OF BURBANK

By \_\_\_\_\_  
Advisory Committee Member

CITY OF GLENDALE

By \_\_\_\_\_  
Advisory Committee Member

CITY OF PASADENA

By \_\_\_\_\_  
Advisory Committee Member