

OCS Data Request 2.1

2023 IRP Chapter 7, page 213 states:

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2023 IRP Chapter 8, page 221 states:

Transmission Options In addition to topology, Figure 8.3 illustrates modeled options for endogenous selection by the LT model. Over a span of three public input meetings, PacifiCorp presented information about transmission modeling as it was developed and presented interconnection and Cluster study results used to establish resource and transmission options based on the best available data.

2023 IRP Chapter 8, page 222 states:

Transmission Costs In developing resource portfolios for the 2023 IRP, PacifiCorp included modeling to endogenously select transmission options, in consideration of relevant costs and benefits. These costs are influenced by the type, timing, location, and number of new resources as well as any assumed resource retirements, as applicable, in any given portfolio.

Please provide a list of the transmission options referenced above (in the excerpts from IRP Chapters 7 and 8) that could be “endogenously select[ed]” by the IRP models. Please include a breakdown of the major components of each transmission option and provide the costs assumed in the IRP model for each major transmission option component and for each transmission option in total.

Response to OCS Data Request 2.1

The list of transmission endogenous options are provided with the confidential work papers accompanying PacifiCorp’s 2023 Integrated Resource Plan (IRP). Specifically confidential folder “Chapters, Shortfalls - Part 1\Input Assumptions\Transmission\”, confidential file “CONF_Transmission options clean.xlsx”.

OCS Data Request 2.2

2023 IRP Chapter 7, page 213 states:

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Please provide the documents that supported the development of each transmission option – e.g. transmission plans, transmission studies, etc.

Response to OCS Data Request 2.2

The documents that support the transmission options are from a variety of sources and are discussed by transmission category. Transmission options also support the addition of proxy resources to reliably serve loads in the PLEXOS model. In PacifiCorp's 2023 Integrated Resource Plan (IRP), PacifiCorp significantly enhanced its study of resource and transmission potential to better align with project expectations and costs resulting from these advanced studies.

The 2023 IRP categorized transmission options into interconnect (CON) and incremental (INC). Interconnect was used to recognize transmission addition within a transmission area (bubble) within the transmission topology. Incremental transmission additions increase transfer capability between transmission areas and may also provide additional interconnection capability.

For additional transmission information relevant to this data request, please refer to:

- the public data disk that accompanied PacifiCorp's 2023 IRP, specifically folder "Model Reports\LT\LT Reliable Portfolio\Preferred Portfolio" and, for example, file "(P)-LT-13338-23I.LT.Reliable.20.PA1-.EP.MM.PP-D3 29 v109.9.xlsb", tab "Transmission Options" for the transmission options selected in the 2023 IRP preferred portfolio.
- the Company's response to OCS Data Request 2.1 and the confidential data disk that accompanied PacifiCorp's 2023 IRP, specifically file "CONF_23IRP Transmission and Interconnection_2023 03 02v2.xlsx", tab "23IRP Options", column G "Queue Number", and tab "23IRP Option Detail".
- please refer to Confidential Attachment OCS 2.2 which provides the description of transmission options modeled in the 2023 IRP.
- Regarding large transmission projects related to Energy Gateway, please refer to the 2023 IRP, Volume I, Chapter 4 (Transmission). This chapter provides a description of transmission projects that includes Energy Gateway South, Energy Gateway West Sub-segment D1, Energy Gateway Segment H – Boardman-to-Hemingway (B2H) line, and Energy Gateway West Sub-segment D3.

Generation interconnection studies are located on the Company's Open Access Same-Time Information System (OASIS) website, select "Generation Interconnection" in the sidebar.

PacifiCorp's OASIS website is publicly available and can be accessed by utilizing the following website link:

<https://www.oasis.oati.com/ppw/index.html>

The following types of interconnection studies are available under the "Generation Interconnection" subfolder and were considered in developing the transmission options for the 2023 IRP:

- Serial Queue - The serial queue was closed to new requests several years ago, but many requests are pending transmission system upgrades and/or determination of a final commercial operation date (COD).
- Cluster Queues: Transition Cluster / Cluster Study 1: the transmission upgrades and associated interconnection capability of all of the active requests from these cluster studies were incorporated in the 2023 IRP.
- Cluster Study 2: these cluster studies were produced in November 2022, after the 2023 IRP was well underway, and only cluster areas with near-term transmission opportunities (through 2029) were modeled in the 2023 IRP.

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For locations with limited or no cluster study requests, and for longer term transmission system upgrade opportunities beyond what has been identified thus far in response to specific interconnection requests, specific studies are not generally available. Instead, the 2023 IRP reflects high-level cost assumptions consistent with distance and voltage level requirements pertinent to a given area.

Confidential information is provided subject to Public Service Commission of Utah (UPSC) Rules R746-1-601–606.

OCS Data Request 2.3

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Please identify all non-wire transmission options that were available for selection by the IRP models. If none were available, please explain why.

Response to OCS Data Request 2.3

PacifiCorp's 2023 Integrated Resource Plan (IRP) included non-wire transmission options for selection in the PLEXOS model. They are identified as proxy resources in the PLEXOS model instead of transmission. These options include demand side management (DSM) - energy efficiency (EE) and demand response (DR) programs. A state-specific transmission and distribution investment deferral cost credit is applied to the DSM programs which recognize that the programs reside at the customer meter and would save transmission and distribution system enhancements. Private generation (PG) is also a non-wire option and is modeled in PLEXOS as a scenario low, medium, and high. The medium PG, or "expected case" assumption, is included in the 2023 IRP preferred portfolio.

OCS Data Request 2.4

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To what extent can the IRP identify new transmission options, both wire and non-wire, that would enable a lower cost and lower risk preferred portfolio?

Response to OCS Data Request 2.4

The Company interprets the use of the term “new transmission options” to mean integrated resource plan (IRP) transmission that is not existing or in-service. Based on the foregoing interpretation, the Company responds as follows:

The PLEXOS model optimizes modeled transmission options to create least-cost, least-risk portfolios as part of its core functionality. Please refer to PacifiCorp’s 2023 IRP, Volume I, Chapter 9 (Modeling and Portfolio Selection Results), Table 9.29 (Transmission Projects Included in the 2023 IRP Preferred Portfolio 2023-2026) and Table 9.30 (Transmission Projects Included in the 2023 IRP Preferred Portfolio 2027-2042) on pages 310 – 311 for the information.

The PLEXOS Long-Term (LT) model endogenously selects the transmission wire and non-wire options entered into the model as referenced in the Company’s responses to OCS Data Request 2.1 and OCS Data Request 2.3. These transmission options (wire and non-wire) entered into PLEXOS are sourced from transmission requests, transmission studies, conservation potential assessments (CPA), and private generation (PG) assessments. PLEXOS is not able to identify

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transmission project options that have no source or basis and are therefore not modeled.

OCS Data Request 2.5

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Can the IRP modeling process identify new transmission options for review and consideration by PacifiCorp Transmission's planning process? Please explain and discuss both wire and non-wire options.

Response to OCS Data Request 2.5

Please refer to the Company's response to OCS Data Request 2.4. PacifiCorp transmission provided data for relevant transmission options which were used as options in the 2023 Integrated Resource Plan (IRP). PacifiCorp's 2023 IRP in turn informs transmission services regarding transmission projects selected in the preferred portfolio and transmission studies in the variant analysis.

OCS Data Request 2.6

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PacifiCorp's 2023 IRP states "PacifiCorp included modeling to endogenously select transmission options, in consideration of relevant costs and benefits".

- (a) Please explain how the IRP models consider both "relevant costs and benefits" when deciding to select a transmission option.
- (b) For each transmission option available to be endogenously selected by the IRP models, please provide the assumed or calculated benefits.
- (c) Please explain how the benefits of each transmission option were developed or calculated.
- (d) Please provide the spreadsheets and/or any other source documents supporting the calculated benefits for each transmission option.
- (e) Were benefits netted against the costs for each transmission option? In other words, were the costs of each transmission option reduced by its assumed benefits when made available for endogenous selection by the model?

Response to OCS Data Request 2.6

- (a) The Integrated Resource Plan (IRP) PLEXOS model endogenously selects transmission options from all available options in the long term (LT) initial study. PLEXOS also simultaneously optimizes the selection of the proxy resource options available that coincide with the transmission selection. The transmission and associated proxy resource costs are inputs into PLEXOS and are known. The benefits from the transmission and proxy resources selected are calculated by PLEXOS for the system and consist of lowering energy not served, serving loads, lowering thermal generation costs, and increasing net market sales. These benefits are considered in the optimization of transmission and proxy resource selection as a part of PLEXOS core functionality. Any tax benefits related to proxy resources are considered in the resource costs by PLEXOS.
- (b) As stated in the Company's response to subpart (a) above, the PLEXOS model calculates the benefits of the transmission project.
- (c) Please refer to the Company's response to subpart (b) above.
- (d) The PLEXOS model does not identify or report out specific benefits for each transmission option selected in the study. Instead, the benefits are reported in the system present value of revenue requirements (PVRR) results, incorporating all impacts simultaneously to generate the least-cost, least-risk portfolio. Specific variant studies P07-D3_D2_32, P08-No D3_D2, P14-All GW, P15-No GW and P16-No B2h were run for transmission projects that reported a present value of revenue requirements differential (PVRR(d)) to value the transmission projects.
- (e) No, the transmission costs were not netted against the benefits in the PLEXOS transmission setup nor did PLEXOS net the benefits against the transmission costs reported. Additional information regarding optimization modeling and math is available in materials presented at the 2023 IRP public input meeting held on April 7, 2022.

The 2023 IRP public input meeting presentational materials are publicly available and can be accessed by utilizing the following website link:

[Public Input Process \(pacificorp.com\)](https://www.pacificorp.com/public-input-process)