

Confidential per WAC 480-07-160
Exh. CAT-1CT
Docket UE-19____
Witness: Chad A. Teply

**BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-19____

PACIFICORP

REDACTED DIRECT TESTIMONY OF CHAD A. TEPLY

December 2019

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ATTACHED EXHIBITS

Confidential Exhibit No. CAT-2C—Energy Vision 2020 Wind Capital Cost Comparison

Exhibit No. CAT-3—Site Plan Ekola Flats

Confidential Exhibit No. CAT-4C—Ekola Flats Assessment and Wind Resource and Energy
Production Estimate

Confidential Exhibit No. CAT-5C—Ekola Flats Project Schedule

Exhibit No. CAT-6—Large Generator Interconnection Agreement Ekola Flats

Confidential Exhibit No. CAT-7C—Ekola Flats Easements

Exhibit No. CAT-8—Permit Status Record Ekola Flats

Exhibit No. CAT-9—Site Plan TB Flats

Confidential Exhibit No. CAT-10C—TB Flats Assessment, Wind Resource and Energy
Production Estimate, and Wind Resource Assessment Review

Confidential Exhibit No. CAT-11C—TB Flats Project Schedule

Exhibit No. CAT-12—Large Generator Interconnection Agreement TB Flats

Confidential Exhibit No. CAT-13C—TB Flats Easements

Exhibit No. CAT-14—TB Flats Permit Status Record

Exhibit No. CAT-15—Site Plan Cedar Springs

Confidential Exhibit No. CAT-16C—Cedar Springs Assessment and Wind Energy Analysis

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Confidential Exhibit No. CAT-17C—Cedar Springs Project Schedule

Exhibit No. CAT-18—Large Generator Interconnection Agreement Cedar Springs

Confidential Exhibit No. CAT-19C—Rights-of-Way Record Cedar Springs

Exhibit No. CAT-20—Permit Status Record Cedar Springs

Confidential Exhibit No. CAT-21C—Capital Costs Summary Pryor Mountain

Exhibit No. CAT-22—Site Plan Pryor Mountain

Confidential Exhibit No. CAT-23C—Wind Potential Assessment Pryor Mountain

Confidential Exhibit No. CAT-24C—Project Schedule Pryor Mountain

Exhibit No. CAT-25—Large Generator Interconnection Agreement Pryor Mountain

Confidential Exhibit No. CAT-26C—Rights of Way Record Pryor Mountain

Exhibit No. CAT-27—Permit Status Record Pryor Mountain

1 **Q. Please state your name, business address, and present position with PacifiCorp.**

2 A. My name is Chad A. Teply and my business address is 1407 West North Temple,
3 Suite 310, Salt Lake City, Utah 84116. I am currently employed as Senior Vice
4 President of Business Policy and Development. I am testifying for PacifiCorp dba
5 Pacific Power & Light Company (PacifiCorp or the Company).

6 **I. QUALIFICATIONS**

7 **Q. Please describe your education and professional experience.**

8 A. I have a Bachelor of Science Degree in Mechanical Engineering from South Dakota
9 State University. I joined Berkshire Hathaway Energy Company (formerly
10 MidAmerican Energy Company) in November 1999, and held positions of increasing
11 responsibility within the generation organization, including serving as project
12 manager for development and construction of a new 780 megawatt (MW)
13 supercritical coal-fueled generation resource placed in service in 2007. In April 2008,
14 I moved to Northern Natural Gas Company (a Berkshire Hathaway Energy affiliate
15 company) as Senior Director of Engineering. I joined PacifiCorp in February 2009.
16 My current responsibilities encompass strategic planning, stakeholder engagement,
17 regulatory support, and development and execution of major generation resource
18 additions, major transmission projects, and major environmental compliance projects.

19 **II. PURPOSE OF TESTIMONY**

20 **Q. What is the purpose of your testimony in this case?**

21 A. The purpose of my testimony is two-fold. First, as explained by Mr. Stefan A. Bird,
22 PacifiCorp developed an energy resource strategy, Energy Vision 2020, comprised of
23 two components: repowering existing wind resources and implementation of new

1 wind and transmission projects. Energy Vision 2020 was assessed and incorporated
2 into the Company's 2017 Integrated Resource Plan (2017 IRP) preferred portfolio,
3 which identified a time-limited opportunity to procure approximately 1,100 MW of
4 cost-effective Wyoming wind facilities and construct transmission facilities to relieve
5 existing congestion and allow interconnection of those new wind facilities, while
6 providing all-in customer savings. In my testimony and exhibits, I discuss and
7 support the Energy Vision 2020 new wind projects and demonstrate the
8 reasonableness of their costs. Mr. Richard A. Vail's testimony provides the same for
9 the related transmission projects, Mr. Timothy J. Hemstreet's testimony supports
10 PacifiCorp's wind repowering project, and Mr. Rick T. Link provides the economic
11 analysis demonstrating the net benefits associated with PacifiCorp's Energy Vision
12 2020 projects.

13 Second, I explain and support the Company's development and
14 implementation of the Pryor Mountain Wind Project and show that the costs are
15 reasonable. The Pryor Mountain Wind Project, located in Carbon County, Montana,
16 was identified as an opportunity to acquire and implement a late-stage renewables
17 development project to capture 100 percent federal production tax credits (PTCs) if
18 acted on expeditiously to deliver the project by year-end 2020. In addition to
19 providing PTC and net power cost benefits, the project also allows the Company to
20 meet a customer need for incremental renewable energy credits (RECs), the purchase
21 of which under PacifiCorp's Oregon Schedule 272 – Renewable Energy Rider
22 Optional Bulk Purchase Option (Schedule 272), further improves the project's
23 economics and associated customer benefits.

1 **Q. Please summarize your direct testimony.**

2 A. My testimony demonstrates that acquisition and construction of TB Flats I and II,
3 Cedar Springs II, and Ekola Flats (collectively referred to as the Energy Vision 2020
4 Wind Projects or individually as an Energy Vision 2020 Wind Project) and the
5 associated transmission facilities described in the testimony of Mr. Vail that form
6 Energy Vision 2020 (collectively, the Combined Projects) are prudent and in the
7 public interest. The Combined Projects will provide substantial customer benefits
8 after they achieve commercial operation by the end of 2020. My testimony explains
9 how the Company has developed, procured, and implemented the Energy Vision 2020
10 Wind Projects to deliver this outcome.

11 Similarly, my testimony demonstrates that the acquisition and construction of
12 the Pryor Mountain Wind Project is prudent and in the public interest. As with the
13 Energy Vision 2020 Wind Projects, the Pryor Mountain Wind Project has been
14 acquired, developed, procured, and implemented to achieve commercial operation by
15 the end of 2020 to deliver significant PTC benefits, as well as incremental customer
16 benefits derived from the associated Schedule 272 REC sale.

17 **III. ENERGY VISION 2020 OVERVIEW**

18 **Q. Please provide an overview of the Energy Vision 2020 Wind Projects and the**
19 **associated transmission facilities as identified and presented in the 2017 IRP.**

20 A. To support its participation in the Renewables Request for Proposals (2017R RFP)
21 included in the 2017 IRP Action Plan, PacifiCorp secured development and
22 implementation rights for the 250 MW Ekola Flats wind project and the 500 MW

1 TB Flats I and II wind project, which were ultimately selected from competitive
2 market respondents as successful final shortlist projects in the 2017R RFP. In
3 addition, the 2017R RFP final shortlist resulted in PacifiCorp executing a power
4 purchase agreement (PPA) for the third-party delivered 200 MW Cedar Springs I
5 wind project and a build-transfer agreement (BTA) for procurement of the third-party
6 delivered 200 MW Cedar Springs II wind project. The competitive market
7 solicitation conducted through the 2017R RFP confirmed the economics and
8 deliverability of these specific wind facilities, which are now under construction and
9 on schedule to be delivered before year-end 2020.

10 The Energy Vision 2020 Wind Projects rely upon the construction of the
11 Aeolus to Bridger/Anticline transmission line and associated network upgrades,
12 which will relieve existing congestion and allow interconnection of the Energy Vision
13 2020 Wind Projects. In turn, the benefits generated by the Energy Vision Wind
14 Projects—zero-fuel-cost generation that lowers net power costs and provides 10 years
15 of federal PTCs—support cost-effective development of the transmission projects.
16 Together, the Energy Vision Wind Projects and the associated transmission facilities
17 provide significant savings to customers over the lives of the resources. As further
18 detailed in the testimony of Mr. Vail, the transmission facilities are also currently
19 under construction and on schedule for delivery before year-end 2020.

20 **Q. Why is the Company implementing acquisition and construction of the**
21 **combined Projects?**

22 A. As further described in the testimony of Mr. Link, the Company is implementing the
23 acquisition and construction of the Combined Projects to deliver a time-sensitive

1 opportunity for customers that was identified in the Company’s 2017 IRP preferred
2 portfolio (*i.e.*, addition of approximately 1,100 MW of new wind resources and the
3 associated new transmission infrastructure by 2020). Following competitive market
4 engagement in the 2017R RFP, the Company has executed the necessary agreements
5 to ensure that the Energy Vision 2020 Wind Projects have effective implementation
6 plans and are positioned to support the associated transmission facilities.

7 **Q. Before proceeding, did PacifiCorp obtain the required state regulatory approvals**
8 **for the Energy Vision 2020 Wind Projects and associated transmission facilities?**

9 A. Yes. To capture the substantial customer benefits resulting from this time-limited
10 opportunity and in accordance with applicable state regulatory statutes, PacifiCorp
11 received approval of Certificates of Public Convenience and Necessity (CPCN) from
12 the Wyoming Public Service Commission (Wyoming CPCN) and the Idaho Public
13 Utilities Commission for the Energy Vision 2020 Wind Projects and associated
14 transmission facilities (Idaho CPCN). PacifiCorp also received approval orders from
15 the Utah Public Service Commission approving the “significant energy resource
16 decision” for the construction or acquisition of the new wind facilities and “voluntary
17 procurement preapproval” for the construction of the associated transmission
18 facilities (Utah Preapproval).

19 **IV. GENERAL DESCRIPTION OF THE ENERGY VISION 2020 WIND PROJECTS**

20 **Q. Please describe the Energy Vision 2020 Wind Projects.**

21 A. The Energy Vision 2020 Wind Projects information incorporated into this general rate
22 case filing is intended to allow the Commission to review the prudence and customer
23 benefits of the Energy Vision 2020 Wind Projects as validated through the 2017R

1 RFP. As outlined above, the Energy Vision 2020 Wind Projects include: (1) the
2 250 MW Ekola Flats facility; (2) the 500 MW TB Flats I and II facility; (3) the
3 nominal 200 MW Cedar Springs II facility; and (4) the 200 MW Cedar Springs I
4 facility that will provide energy to PacifiCorp's system through a PPA. My testimony
5 focuses on the facilities that will ultimately be owned and operated by PacifiCorp,
6 which excludes the Cedar Springs I PPA.

7 Each wind facility will consist of a number of 2.0 MW to 4.3 MW wind
8 turbine generators (WTGs) to achieve the facility's respective nameplate capacity, an
9 electrical collection system, 34.5 kilovolt (kV) to 230 kV collector substation(s), a
10 230 kV tie-line between the wind project and the point of interconnection substation,
11 meteorological towers, access roads, an operations and maintenance (O&M) building
12 and required communication and control facilities (*e.g.*, metering, hardware, software,
13 and associated communication circuits and related equipment).

14 The Energy Vision 2020 Wind Projects costs included in this case are
15 approximately \$1.23 billion.

16 **Q. Please provide a summary of the capital expenditures required to construct the**
17 **Energy Vision 2020 Wind Projects.**

18 A. Confidential Exhibit No. CAT-2C to my testimony includes the summary.

19 **Q. Please describe the time-sensitive nature of the Combined Projects.**

20 A. The time-sensitive nature of the Combined Projects is primarily driven by the pending
21 phase-out of federal PTCs for new wind resources and the time period involved to
22 construct a major transmission line. In Internal Revenue Code (IRC) section 45, the
23 Internal Revenue Service (IRS) provides for PTCs at the 2017 full rate of 2.4 cents

1 per kilowatt hour of electrical energy production by a wind facility. The PTCs are
2 available for a 10-year period that begins when the facility is placed in service.
3 The Protecting Americans from Tax Hikes Act of 2015 (the PATH Act) extended the
4 availability of the PTCs for wind facilities under construction before January 1, 2020.
5 The PATH Act extension, however, also provides for a phase-out of the PTCs. Wind
6 facilities that began construction before January 1, 2017, will realize the full PTC
7 credit, which is the case for the Energy Vision 2020 Wind Projects. If a wind facility
8 begins construction in 2017, the PTCs are reduced by 20 percent. The PTCs are
9 reduced by 40 percent if construction begins in 2018, and by 60 percent if
10 construction begins in 2019. PTCs are not available for wind facilities that begin
11 construction after December 31, 2019.

12 To receive “safe-harbor” PTCs, the facilities must be placed into commercial
13 operation by the end of the fourth calendar year following the year in which
14 construction began (the start-of-construction standard) or otherwise meet specific IRS
15 requirements for demonstrating the “continuity requirement” throughout the
16 implementation timeline. To mitigate the risk of interpretation associated with the
17 IRS’s “continuity requirements,” the Energy Vision 2020 Wind Projects (and other
18 wind facilities selected in the 2017R RFP that rely on (i) the transmission facilities
19 and (ii) also began construction before January 1, 2017) must be reviewed, approved,
20 implemented, and placed in service by year-end 2020 in accordance with the “start-
21 of-construction” standard, and meeting the “safe harbor” with respect to the
22 “continuity requirement,” to be eligible for full PTCs. The Company’s acquisition

1 and implementation plan is designed to meet this schedule and provide customers the
2 full economic benefit of the PTCs.

3 **Q. Do the Energy Vision 2020 Wind Projects meet the IRS’s “start-of-construction”**
4 **criteria?**

5 A. Yes. Each of the Energy Vision 2020 Wind Projects will use WTG equipment
6 acquired before December 31, 2016. These transactions satisfy the “safe-harbor”
7 requirements under the PTC guidance issued by the IRS.

8 **Q. Did the Company’s submittal of benchmark resources in the 2017R RFP**
9 **preclude other competitive market proposals from being selected for**
10 **implementation?**

11 A. No. As explained in the testimony of Mr. Link, the Company’s benchmark resources
12 (Ekola Flats and TB Flats I and II) represent only a portion of the competitive market
13 wind facilities that were determined to be viable in the 2017R RFP considering
14 interconnection, permitting, construction, performance, and implementation.
15 PacifiCorp received a robust competitive market response to the 2017R RFP, with the
16 Company’s benchmark resources ultimately being successful in that process, in
17 addition to the third-party Cedar Springs projects described above.

18 **Q. What is the current construction status of the Energy Vision 2020 Wind**
19 **Projects?**

20 A. For TB Flats I and II, 116 of 132 WTG foundations have been constructed; WTG
21 access roads are complete; foundations for both collector substations are complete;
22 structural steel erection is approximately 40 percent and 68 percent complete at the
23 TB Flats I and TB Flats II collector substations, respectively; underground collector

1 cable installation is approximately 86 percent and 27 percent complete at the TB Flats
2 I and TB Flats II areas, respectively; manufacturing, testing, and delivery of five main
3 power transformers are on schedule to support spring 2020 delivery to the site; and
4 manufacturing of “follow-on” WTGs continues in support of component delivery to
5 the site beginning in April 2020.¹

6 For Ekola Flats, 20 of 63 WTG foundations have been constructed; WTG
7 access roads are complete; foundations at the collector substation are complete;
8 certain directional borings have been completed in support of underground collector
9 cable installation; manufacturing, testing, and delivery of two main power
10 transformers are on schedule to support spring 2020 delivery to the site; and
11 manufacturing of the follow-on WTGs continues in support of component delivery
12 to the site beginning in June 2020.

13 For the Cedar Springs II BTA project, the project achieved the contractual
14 Firm Date on November 7, 2019, which is a pre-closing date indicative of completion
15 and transition from project development activities to field construction; detailed
16 engineering work continues (including WTG layout adjustments in support of U.S
17 Fish and Wildlife avian mitigation guidance), site rough grading of the collector
18 substation has commenced, and work has begun on the transmission tie-line between
19 the Cedar Springs II and the Cedar Springs I (NextEra PPA) collector substations.

20 **Q. What is the status of the WTG agreements for the Energy Vision 2020 Wind**
21 **Projects?**

22 A. With respect to WTG supply agreements, Vestas - American Wind Technology, Inc.

¹ Follow-on WTGs are the non-safe harbor WTG components, and the safe harbor WTG components are currently located in storage offsite.

1 (Vestas) was originally competitively selected in the third quarter of 2017 as the
2 follow-on WTG supplier for the Ekola Flats and TB Flats projects. On November 14,
3 2018, PacifiCorp received a letter from Vestas communicating that it was unable to
4 hold pricing for the WTGs due to (1) steel pricing risk, (2) tariffs on Chinese goods,
5 and (3) increased transportation costs. In response, PacifiCorp investigated the
6 conditions associated with the Vestas letter and consequently initiated a competitive
7 market request for proposal (RFP) update exercise with all originally shortlisted
8 WTG suppliers beginning on November 15, 2018. The shortlisted suppliers from this
9 update were asked to confirm their positions on pricing and availability in conformity
10 with permit conditions and constraints. Final firm price proposals were received on
11 January 21, 2019. PacifiCorp completed an assessment of life cycle costs associated
12 with the updated proposals. Both 2.* MW and 4.* MW WTG platform options from
13 multiple WTG suppliers were compared. Ultimately, the assessment concluded that
14 the Ekola Flats and TB Flats project initial capital cost estimates for WTG supply
15 would exceed the estimates included in PacifiCorp's original CPCN filings. As I
16 discuss in more detail below, however, when considered in conjunction with updated
17 run rate O&M cost reductions included in the new proposals and remaining
18 Combined Projects contingencies, the increased costs were effectively offset and not
19 assessed as creating a material challenge to the overall benefit and ultimate
20 deliverability of the Combined Projects.

21 WTG component deliveries for all of the Energy Vision 2020 Wind Projects
22 will begin in spring 2020.

1 **Q. Has the Company performed preliminary evaluations of the wind potential at**
 2 **each Energy Vision 2020 Wind Project site?**

3 A. Yes. Wind potential studies for each of the Energy Vision 2020 Wind Projects were
 4 completed by the individual project developers and were also validated with a third-
 5 party wind resource evaluation firm as part of the 2017R RFP process. As reflected
 6 in Table 1, wind assessments for each of the Energy Vision 2020 Wind Projects
 7 indicate that the sites have favorable wind regimes suitable for high performance
 8 wind energy generation. Pertinent wind potential assessments including expected
 9 capacity factors are included in Exhibit Nos. CAT-3, CAT-9, and CAT-15.

Table 1: Energy Vision 2020 Wind Project Capacity Factor Estimates

EV 2020 Net Capacity Factors (P50 Assessment)		
<u>Project Name</u>	<u>Project Size (Nameplate MWs)</u>	<u>Project Net Capacity Factor (a) (b)</u>
Ekola Flats	250.9	██████
TB Flats I and II	503.2	██████
Cedar Springs II BTA	199.8	██████

10 The 2017R RFP evaluation team also reviewed the wind resource assessments
 11 for each project and independently determined whether the wind data for each project
 12 supported the proposed capacity factors or whether adjustments to the proposed
 13 capacity factor for a project were warranted when assessing project benefits.

14 **Q. Is the Company collaborating with the U.S. Fish and Wildlife Service in**
 15 **developing and implementing the Energy Vision 2020 Wind Projects?**

16 A. Yes. The Company has engaged the U.S. Fish and Wildlife Service regarding
 17 developing and implementing the Energy Vision 2020 Wind Projects. The Company,
 18 or with respect to the Cedar Springs projects, the third-party developer, has begun

1 pre-construction usage surveys for various avian, bat, and wildlife species utilizing
2 recommendations from applicable state and federal guideline documents, including
3 the 2012 Land Based Wind Energy Guidelines. The Company will continue to
4 coordinate with county, state, and federal agencies that have jurisdiction over
5 development, permitting, and operations to ensure appropriate environmental and
6 safety measures are implemented throughout the life of the Energy Vision 2020 Wind
7 Projects. The Company is committed to maintaining development and
8 implementation schedules and protocols that recognize potential environmental
9 impacts and strive to mitigate them.

10 **Q. How did the Company generate the cost information for construction, operation,**
11 **and maintenance of the individual wind facilities through their useful life?**

12 A. The Company assessed life cycle costs for the Energy Vision 2020 Wind Projects
13 using information submitted by the various project proponents in the 2017R RFP and
14 validated against a variety of sources. For example, initial installation costs and run
15 rate O&M cost projections were incorporated into the respective facility's 2017R RFP
16 proposals. Transmission interconnection costs were confirmed against the respective
17 wind facility's transmission interconnection studies. PacifiCorp's internal project
18 management and administrative costs were estimated based on the Company's
19 experience with construction of past wind facilities and other recent generation
20 resource additions.

21 The Company also applied contingencies to the Ekola Flats and TB Flats I and
22 II self-build projects to account for project uncertainties. Contingencies carried in the
23 Cedar Springs project costs are to the account of the third-party developers

1 responsible for delivering those projects. O&M cost estimates were developed based
2 on the Company's experience with currently operating wind facility O&M budgets
3 and third-party contracts for the Company's existing wind facilities. Ongoing capital
4 costs were estimated based on the Company's experience and indicative costs
5 provided by WTG suppliers for critical capital components.

6 **Q. In terms of managing implementation of the Combined Projects to meet the**
7 **December 31, 2020 PTC deadline, what were the critical path items?**

8 A. The critical path items were obtaining the CPCNs and pre-approvals necessary to
9 allow PacifiCorp to begin work on the Aeolus to Bridger/Anticline transmission line.
10 To meet the December 31, 2020 deadline for the Combined Projects, PacifiCorp had
11 to have these regulatory approvals and make its investment decision before the
12 summer of 2018, to allow sufficient time to obtain rights of way and permits for the
13 Aeolus to Bridger/Anticline transmission line. PacifiCorp received the Wyoming
14 CPCN in April 2018 and Utah Preapproval in June 2018, and made the decision to
15 proceed with the Combined Projects shortly thereafter (the Idaho CPCN was issued
16 slightly later, in July 2018). PacifiCorp's decision to invest in the Combined Projects
17 was based on the Company's February 2018 economic analysis, adjusted in April
18 2018 to remove the Uinta project.

19 **Q. Have there been any material changes to the scope or overall economics of the**
20 **Combined Projects since PacifiCorp began work on the Aeolus to**
21 **Bridger/Anticline transmission line in the summer of 2018?**

22 A. No. Project permitting and rights of way acquisition proceeded as planned for the
23 Ekola Flats and TB Flats projects and the associated 500 kilovolt transmission

1 facilities. As noted above, an issue did arise related to U.S. tariff impacts and other
2 unfavorable market conditions, which negatively impacted previously established
3 WTG equipment supply pricing and competitive market costs for the 230 kilovolt
4 transmission facilities.

5 The increased costs for the 230 kilovolt transmission facilities were absorbed
6 in project contingencies carried in the 500 kilovolt transmission facilities and
7 therefore had no negative impact on originally assessed customer benefits for the
8 Energy Vision 2020 projects.

9 The U.S. tariff impacts on Ekola Flats and TB Flats WTG equipment required
10 PacifiCorp to re-engage the originally shortlisted WTG suppliers for the Ekola Flats
11 and TB Flats projects to submit updated WTG capital costs, run rate O&M costs, and
12 equipment performance information. In Table 2 below, the Company compared the
13 updated information to the originally assessed life-cycle cost and benefit information.
14 This analysis demonstrated that the competitive market update and reassessment
15 resulted in a slight increase in customer benefits when compared to the Company's
16 February 2018 economic analysis, as adjusted to remove the Uinta project:

**Table 2: Annual Revenue Requirement PVRR(d) through 2050
(Benefit) / Cost of the Projects (\$ millions)**

Price-Policy Scenario	Updated Annual Revenue Requirement PVRR(d)	Original Annual Revenue Requirement PVRR(d)
Low Gas, Zero CO ₂	152	154
Medium Gas, Medium CO ₂	(176)	(174)

17 **Q. What is the expected operational life of the Energy Vision 2020 Wind Projects?**

18 A. The anticipated operational life of the Energy Vision 2020 Wind Projects has been

1 assessed at 30 years, which aligns with the Company’s currently approved
2 depreciable life for wind resources.

3 **Q. When did construction of the Energy Vision 2020 Wind Projects begin?**

4 A. Site construction of the Wind Projects began in mid-2019 following receipt of all
5 necessary regulatory approvals and applicable permits and authorizations from other
6 local, state, tribal or federal governmental agencies that have jurisdiction over the
7 construction or operation of the Energy Vision 2020 Wind Projects, including
8 approval from the Wyoming Industrial Siting Council. The Company anticipates that
9 substantial completion, under normal construction circumstances, weather conditions,
10 labor availability and materials delivery, will be achieved by November 15, 2020, for
11 the Ekola Flats and TB Flats projects and by December 31, 2020, for Cedar Springs
12 II.

13 **Q. Please explain why the Energy Vision 2020 Wind Projects are prudent and in the**
14 **public interest.**

15 A. The information and analysis in the Company’s 2017 IRP and in this case
16 demonstrate that the Energy Vision 2020 Wind Projects are prudent and in the public
17 interest. The Energy Vision 2020 Wind Projects provide a range of benefits to
18 Washington customers, including PTCs, net power cost savings, renewable energy
19 credits that may be sold or used for Renewable Portfolio Standard compliance,
20 reduced emissions, and generation diversification. The Energy Vision 2020 Wind
21 Projects will become an essential element of the Company’s diversified resource
22 portfolio that is needed to serve customers, and as described more fully in the

1 testimony of Mr. Link and Mr. Vail, the Energy Vision 2020 Wind Projects and
2 associated transmission projects will provide net benefits to all customers.

3 **Q. Please describe your exhibits for the 250 MW Ekola Flats facility.**

4 A. Information for the 250 MW Ekola Flats facility is identified as follows:

- 5 • Exhibit No. CAT-3C—Site Plan Ekola Flats
- 6 • Confidential Exhibit No. CAT-4C—Ekola Flats Assessment and Wind Resource
7 and Energy Production Estimate
- 8 • Confidential Exhibit No. CAT-5C— Ekola Flats Project Schedule
- 9 • Exhibit No. CAT-6— Large Generator Interconnection Agreement Ekola Flats
- 10 • Confidential Exhibit No. CAT-7C— Ekola Flats Easements
- 11 • Exhibit No. CAT-8— Permit Status Record Ekola Fats

12 **Q. Please describe the exhibits to your testimony for the 500 MW TB Flats wind
13 facility.**

14 A. Information for the 500 MW TB Flats wind facility is identified as follows:

- 15 • Exhibit CAT-9— Site Plan TB Flats
- 16 • Confidential Exhibit CAT-10C— TB Flats Assessment, Wind Resource and
17 Energy Production Estimate, and Wind Resource Assessment Review
- 18 • Confidential Exhibit CAT-11C— TB Flats Project Schedule
- 19 • Exhibit CAT-12— Large Generator Interconnection Agreement TB Flats
- 20 • Confidential Exhibit CAT-13C— TB Flats Easements
- 21 • Exhibit CAT-14— TB Flats Permit Status Record

22 **Q. Please describe the exhibits for the 200 MW Cedar Springs II wind facility.**

23 A. Information for the 200MW Cedar Springs II wind facility is identified as follows:

- 1 • Exhibit No. CAT-15— Site Plan Cedar Springs
- 2 • Confidential Exhibit No. CAT-16C— Cedar Springs Assessment and Wind
- 3 Energy Analysis
- 4 • Confidential Exhibit No. CAT-17C— Cedar Springs Project Schedule
- 5 • Exhibit No. CAT-18— Large Generator Interconnection Agreement Cedar
- 6 Springs
- 7 • Confidential Exhibit No. CAT-19C— Rights-of-Way Record Cedar Springs
- 8 • Exhibit No. CAT-20— Permit Status Record Cedar Springs

9 **V. PRYOR MOUNTAIN WIND PROJECT**

10 **Q. Please provide an overview of the Pryor Mountain Wind Project.**

11 A. The Pryor Mountain Wind Project will have a nameplate capacity of 240 MW. The
12 facility will be located on a site in Carbon County, Montana, approximately 60 miles
13 south of Billings, Montana. The project consists of 57 Vestas Model 110-2.0 MW
14 safe harbor, 24 Vestas Model 110-2.2 MW safe harbor, four General Electric Model
15 116-2.3 MW safe harbor, and 29 Vestas model 110-2.2 MW follow-on WTGs. In
16 addition to the wind turbines there will be a 34.5 kV collector system, a collector
17 substation with two 34.5 kV to 230 kV step-up transformers, an O&M building, and
18 site access roads. A new point of interconnection substation located on the project
19 site in Montana will also be constructed. The planned in-service date for the project
20 is December 2020. Based on current regulatory practice, the project has been
21 assessed using a depreciable life of 30 years.

1 **Q. Please provide background on PacifiCorp's development of the Pryor Mountain**
2 **Wind Project.**

3 A. The opportunity to capture the customer benefits resulting from the acquisition,
4 development, and implementation of the Pryor Mountain Wind Project was identified
5 and evolved over a compressed timeline beginning in October 2018 and ending with
6 final terms on all material agreements (*i.e.*, the engineer, procure, and construct (EPC)
7 contract and WTG supply agreements) completed by September 30, 2019. In parallel,
8 negotiation of a Schedule 272 REC purchase agreement for the sale of all RECs
9 associated with the output of the Pryor Mountain Wind Project to Vitesse, LLC
10 (Vitesse) began in December 2018 and final terms were reached in late June 2019.
11 The process from initial discussions to negotiation of final terms of the Schedule 272
12 REC purchase agreement occurred in under six months.

13 The Pryor Mountain wind project costs included in this case are approximately
14 [REDACTED].

15 **Q. Please provide a summary of the capital expenditures required to construct the**
16 **Pryor Mountain wind project.**

17 A. Confidential Exhibit No. CAT-21C includes the summary.

18 **Q. Please describe the time-sensitive nature of the federal PTCs as it pertains to the**
19 **Pryor Mountain Wind Project.**

20 A. Similar to the Energy Vision 2020 Wind Projects, the time-sensitive nature of the
21 Pryor Mountain Wind Project is primarily driven by the pending phase-out of the
22 federal PTCs for new wind resources. With an in-service date before the end of 2020,

1 the Pryor Mountain Wind Project will be eligible for the full rate (100 percent) of the
2 PTCs as described earlier in my testimony. The Pryor Mountain Wind Project will
3 deploy safe harbor WTG equipment to achieve eligibility. The Company's
4 acquisition and implementation plan for the Pryor Mountain Wind Project is designed
5 to meet the year-end 2020 in-service schedule and provide customers the full
6 economic benefit of the project.

7 **Q. Does the Pryor Mountain Wind Project meet the IRS's "start-of-construction"**
8 **criteria as described earlier in your testimony?**

9 A. Yes. The Pryor Mountain Wind Project will utilize WTG equipment acquired before
10 December 31, 2016. The WTG equipment acquisitions satisfy the "safe-harbor"
11 requirements under the PTC guidance issued by the IRS.

12 **Q. What approach was taken to secure late-stage development safe harbor wind**
13 **turbine generator equipment and follow-on WTG equipment for the Pryor**
14 **Mountain Wind Project?**

15 A. The Vestas safe harbor WTG identified above was sourced and will be acquired and
16 transferred under an affiliate transaction with Berkshire Hathaway Energy
17 Renewables (BHER). The four General Electric safe harbor WTG's described above
18 were directly procured by the Company in 2016. PacifiCorp completed a competitive
19 market solicitation for the follow-on WTG equipment required to complete the
20 nominal 240 MW Pryor Mountain Wind Project. The combination of utilizing
21 PacifiCorp's safe harbor equipment, BHER's safe harbor equipment, and competitive
22 market engagement for follow-on WTG equipment limited exposure to competitive

1 market constraints and pricing volatility for 2020 delivery of 100 percent PTC
2 projects with the safe harbor equipment already manufactured and awaiting delivery.

3 **Q. What is the current construction status of the Pryor Mountain Wind Project?**

4 A. The Pryor Mountain Wind Project will primarily be constructed in 2020, although site
5 activities have begun with completion of geotechnical borings and surveys, other site
6 surveys and detailed engineering, construction of a material laydown area, and
7 installation of approximately five percent of WTG access roads. A ramp up of site
8 construction activities will occur in Spring 2020 as winter weather in Montana
9 improves.

10 **Q. Has the Company performed preliminary evaluations of the wind potential at**
11 **the Pryor Mountain Wind Project site?**

12 A. Yes. A wind potential study for the Pryor Mountain Wind Project was completed by a
13 third-party wind resource evaluation firm. The wind potential assessments for Pryor
14 Mountain indicates that the site has a favorable wind regime suitable for high
15 performance wind energy generation. The expected capacity factor for the project is
16 described in the exhibits to my testimony, but for ease of reference is provided here as
17 [REDACTED] and aligns with the assumptions made in support of the economics
18 evaluation of the project.

19 **Q. Is the Company collaborating with the U.S. Fish and Wildlife Service in**
20 **developing and implementing the Pryor Mountain Wind Project?**

21 A. Yes. The Company has engaged the U.S. Fish and Wildlife Service regarding
22 developing and implementing the Pryor Mountain Wind Project. The Company and
23 the project's previous owner and developers began pre-construction usage surveys for

1 various avian, bat, and wildlife species utilizing recommendations from applicable
2 state and federal guideline documents, including the 2012 Land Based Wind Energy
3 Guidelines. The Company will continue to coordinate with county, state, and federal
4 agencies that have jurisdiction over development, permitting, and operations to ensure
5 appropriate environmental and safety measures are implemented throughout the life
6 of the Pryor Mountain Wind Project. The Company is committed to maintaining
7 development and implementation schedules and protocols that recognize potential
8 environmental impacts and strive to mitigate them.

9 **Q. How did the Company assess the customer benefits provided by the Pryor**
10 **Mountain Wind Project?**

11 A. Mr. Link provides a detailed description of the Company's customer benefits
12 assessment in his testimony. In general terms, the methodology used to perform the
13 economic analysis of the Pryor Mountain Wind Project is consistent with the
14 methodology used to perform the economic analysis of bids submitted into the
15 Company's 2017R RFP, which ultimately resulted in selection of the Energy Vision
16 2020 Wind Projects. PacifiCorp's economic analysis reflects the significant benefits
17 from the sale of RECs associated with the Pryor Mountain Wind Project.

18 **Q. How did the Company generate the cost information for construction, operation,**
19 **and maintenance of the Pryor Mountain Wind Project through its useful life?**

20 A. Consistent with the Energy Vision 2020 Wind Projects, the Company assessed life
21 cycle costs for the Pryor Mountain Wind Project using information from a variety of
22 sources. For example, initial installation costs and run rate O&M cost projections
23 were developed through competitive market engagements for project construction and

1 WTG supply and long-term O&M contracts. Transmission interconnection costs
2 were confirmed against the Pryor Mountain Wind Project's transmission
3 interconnection studies. PacifiCorp's internal project management and administrative
4 costs were estimated based on the Company's experience with construction of past
5 and current wind facilities and other recent generation resource additions. The
6 Company also applied limited contingencies to the Pryor Mountain Wind Project to
7 account for project uncertainties. O&M cost estimates were developed based on the
8 Company's experience with currently operating wind facility O&M budgets and
9 third-party contracts for the Company's existing wind facilities. Ongoing capital
10 costs were estimated based upon the Company's experience and indicative costs
11 provided by WTG suppliers for critical capital components.

12 **Q. Please describe the exhibits for the 240 MW Pryor Mountain Wind Project.**

13 A. Information for the 240 MW Pryor Mountain Wind Project is identified as follows:

- 14 • Exhibit No. CAT-22— Site Plan Pryor Mountain
- 15 • Confidential Exhibit No. CAT-23C— Wind Potential Assessment Pryor Mountain
- 16 • Confidential Exhibit No. CAT-24C— Project Schedule Pryor Mountain
- 17 • Exhibit No. CAT-25— Large Generator Interconnection Agreement Pryor
18 Mountain
- 19 • Confidential Exhibit No. CAT-26C— Rights of Way Record Pryor Mountain
- 20 • Exhibit No. CAT-27— Permit Status Record Pryor Mountain

1 **VI. CONCLUSION AND RECOMMENDATION**

2 **Q. Please summarize your testimony.**

3 A. I recommend that the Commission determine that the Energy Vision 2020 Wind
4 Projects and the Pryor Mountain Wind Project provide benefits to Washington
5 customers and therefore are prudent and in the public interest. Based on this
6 conclusion, I recommend that the Commission approve the Energy Vision 2020 Wind
7 Projects and the Pryor Mountain Wind Project for inclusion in rates.

8 **Q. Does this conclude your direct testimony?**

9 A. Yes.