



e-FILING REPORT COVER SHEET

COMPANY NAME: PORTLAND GENERAL ELECTRIC COMPANY

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes If yes, submit a redacted public version (or a cover letter) by email. Submit the confidential information as directed in OAR 860-001-0070 or the terms of an applicable protective order.

Select report type: RE (Electric) RG (Gas) RW (Water) RT (Telecommunications)
 RO (Other, for example, industry safety information)

Did you previously file a similar report? No Yes, report docket number: 18 (8)

Report is required by: OAR
 Statute ORS 757.105 and ORS 759.100
 Order

Note: A one-time submission required by an order is a compliance filing and not a report (file compliance in the applicable docket)

Other
(For example, federal regulations, or requested by Staff)

Is this report associated with a specific docket/case? No Yes, docket number:

List Key Words for this report. We use these to improve search results.

Portland General Electric Company 2020 New Construction Budget Report RE-18

Send the completed Cover Sheet and the Report in an email addressed to PUC.FilingCenter@state.or.us

Send confidential information, voluminous reports, or energy utility Results of Operations Reports to PUC Filing Center, PO Box 1088, Salem, OR 97308-1088 or by delivery service to 201 High Street SE Suite 100, Salem, OR 97301.



Portland General Electric Company
121 SW Salmon Street • 1WTC0306 • Portland, OR 97204
portlandgeneral.com

May 1, 2020

Via Electronic Filing

Public Utility Commission of Oregon
Attention: Filing Center
PO Box 1088
Salem, OR 97308-1088

RE: Portland General Electric Company – 2020 New Construction Budget Report 18(8)

Dear Filing Center:

Enclosed for filing is Portland General Electric Company's replacement filing for the New Construction Budget Report for the 2020 calendar year. This report is being provided per OAR 860-027-0015 and the OPUC E-Report Filing requirements. No hardcopy will be submitted.

Should you have any questions, please call Darrington Outama, Manager, Corporate Planning at (503) 464- 2919 or Jaki Ferchland, Manager, Revenue Requirement, at (503) 464 - 7805.

Sincerely,

/s/ Jaki Ferchland
Jaki Ferchland
Manager, Revenue Requirement

JF/np
Enclosure
cc: Darrington Outama, PGE



ELECTRIC COMPANY NEW CONSTRUCTION BUDGET FOR Portland General Electric

GENERAL INSTRUCTIONS

- Each energy utility operating within the State of Oregon and having gross operating revenues of \$50,000 or more per year is required to file a New Construction Budget annually on or before March 31st and report information on new construction, extensions, and new additions to property of the utility in accordance with Oregon Administrative Rule 860-027-0015.
- The New Construction Budget Report should be completed and filed with the Public Utility Commission of Oregon Filing Center. Complete the e-Filing Report Cover Sheet found at http://www.puc.state.or.us/eFiling/eReports/efiling_report_cover_sheet_FM050.pdf. Email both the report and the cover sheet to PUC.FilingCenter@state.or.us, no later than March 31st.


PROJECT NARRATIVE

For major projects (the three largest projects in terms of cost and all projects greater than \$10 million) a narrative supplying the following information is required:

- Project Description:** Include a brief technical specification of the project, ownership, if jointly owned, operating date, stage of construction, and other relevant information.
- Need for the Project:** Attach all prepared information documenting the need for the project, including the specific need the project is intended to fill. Economic comparisons with alternatives are to be attached. All the underlying assumptions of the economic analyses are to be specified.
- Contingencies:** Attach a listing of existing or potential future problems which might impact the final cost or successful completion and operation of the project, such as licensing problems, labor difficulties, litigation, etc.
- Reconciliation with Prior Budget:** Each successive year's budget can be expected to reflect differing estimates of project costs as the project progresses. For each major project, prepare a reconciliation with the prior budget's estimates and provide specific reasons for the changes.

In addition, please attach copies of prepared documentation or plans describing generation transmission, and general plant projects exceeding \$1,000,000 in total cost and for which construction will commence in the budget year. Information submitted should contain:

- A Brief Project Description:** Include the project function (e.g., production, transmission, distribution, general plant, thermal, hydro, or other), project identification.
- Location:** Include a starting and ending date.
- Total budgeted cost.**

FULL NAME OF ELECTRIC COMPANY Portland General Electric Company			
ADDRESS: PO BOX OR STREET NUMBER 121 SW Salmon St.	CITY Portland	STATE OR	ZIP CODE 97204
CERTIFICATION: I CERTIFY THAT THE INFORMATION REPORTED IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.			
SIGNATURE 		TITLE SVP FINANCE, CFO, TREASURER	DATE 4/03/20

INSTRUCTIONS

1. Report size of major production projects only, and percent ownership, scheduled operating dates, and expenditures required to complete project for major production, transmission, and general plant projects.
2. Major projects are defined as those projects having a total estimated cost to completion exceeding \$10 million.
3. Under "Distribution," report specific line item expenditures for the budget year only. All expenditures for distribution following the budget year should be aggregated for the year and only total distribution expenditures reported for the period.
4. Non-major project expenditures within each category should be aggregated and only the totals reported.
5. Report all expenditures in thousands of dollars.

DESCRIPTION	SIZE	PERCENT OWNERSHIP %	SCHEDULED OPERATING DATE (MO / YR)	EXPENDITURES (B.Y. = BUDGET YEAR; B.Y.+ 1 = THE FIRST YEAR AFTER THE BUDGET YEAR, ETC.)						REQUIRED TO COMPLETE	TOTAL	
				PRIOR TO B.Y.	B.Y.	B.Y. + 1	B.Y. + 2	B.Y. + 3	B.Y. + 4			
Major Production Projects:												
P22449 Colstrip Capital Proj PPL		100%	2020-12-31	\$96,957	\$10,724	\$-	\$-	\$-	\$-	\$-	\$-	\$107,681
P35172 PSES - Generation Fitness Fund		100%	2021-12-31	\$31,735	\$4,291	\$-	\$-	\$-	\$-	\$-	\$-	\$36,026
P35959 WSH Structural/Reliability Upgrades		100%	2021-10-31	\$43,385	\$1,343	\$1,735	\$-	\$-	\$-	\$-	\$-	\$46,463
P36116 Wind Generation Fitness Program		100%	2021-12-31	\$21,488	\$7,140	\$6,124	\$-	\$-	\$-	\$-	\$-	\$34,752
P36134 Hydro Control System Upgrade		100%	2022-12-31	\$13,173	\$5,760	\$4,625	\$2,452	\$-	\$-	\$-	\$-	\$26,010
P36167 FY: Repower Faraday Units 1-5		100%	2021-03-31	\$35,659	\$43,890	\$6,998	\$-	\$-	\$-	\$-	\$-	\$86,547
P36855 Wheatridge Renewable Enrgy Facility		100%	2020-12-31	\$4,415	\$133,921	\$-	\$-	\$-	\$-	\$-	\$-	\$138,336
Non-Major Production Projects				\$323,361	\$29,899	\$7,408	\$-	\$-	\$-	\$-	\$-	\$360,668
Total Production Projects				\$570,173	\$236,968	\$26,889	\$2,452	\$-	\$-	\$-	\$-	\$836,482
Major Transmission Projects:												
P35834 Round Butte Transmission Upgrades		100%	2020-10-05	\$11,071	\$1,815	\$-	\$-	\$-	\$-	\$-	\$-	\$12,887
P36373 Blue Lake Phase II		100%	2021-12-31	\$22,515	\$8,904	\$-	\$-	\$-	\$-	\$-	\$-	\$31,419
Non-Major Transmission Projects				\$129,521	\$20,250	\$48	\$(2,901)	\$(33,557)	\$(13,885)	\$-	\$-	\$99,475
Total Transmission Projects				\$163,108	\$30,969	\$48	\$(2,901)	\$(33,557)	\$(13,885)	\$-	\$-	\$143,780
Distribution (See Instruction 3):												
Station Equipment					\$206,935							
Poles, Towers, and Fixtures					\$26,729							
Overhead Conductors and Devices					\$42,710							
Underground Conductors and Devices					\$50,548							
Underground Conduit					\$1,511							
Line Transformers					\$9,931							
Services					\$28,983							
Meters					\$6,678							
Street Lighting and Signal Systems					\$6,029							
Other: Land/Land Rights (360)					\$12,640							
Total Distribution					\$392,693							
Major General Plant Projects:												
P36101 Substation Communication Upgrade		100%	2022-12-31	\$23,993	\$5,337	\$4,907	\$-	\$-	\$-	\$-	\$-	\$34,237
P36394 Vintage Vehicle Replacement II		100%	2022-12-31	\$23,968	\$13,205	\$13,509	\$14,311	\$-	\$-	\$-	\$-	\$64,993
P36501 Integrated Operations Center - IOC		100%	2021-12-31	\$37,533	\$88,266	\$71,444	\$4,570	\$-	\$-	\$-	\$-	\$201,812
P36587 Physical Access Control System		100%	2020-12-31	\$8,603	\$6,524	\$-	\$-	\$-	\$-	\$-	\$-	\$15,127
P36653 Budget Only: People BSG Blanket		100%	2021-12-31	\$-	\$10,967	\$31	\$-	\$-	\$-	\$-	\$-	\$10,998
P36706 HR Optimization Project		100%	2020-04-30	\$7,290	\$2,952	\$-	\$-	\$-	\$-	\$-	\$-	\$10,242
P36869 2020 IT Software Blanket		100%	2021-12-31	\$-	\$21,875	\$10,206	\$-	\$-	\$-	\$-	\$-	\$32,081
P36879 Advanced Dist Mgmt Sys Phase 1		100%	2021-04-30	\$6,358	\$14,700	\$4,128	\$-	\$-	\$-	\$-	\$-	\$25,185
P36898 2020 Infrastructure Fitness Blanket		100%	2020-12-31	\$-	\$12,727	\$-	\$-	\$-	\$-	\$-	\$-	\$12,727
Non-Major General Plant Projects				\$620,675	\$27,368	\$6,940	\$-	\$-	\$-	\$-	\$-	\$654,983
Total General Plant Projects				\$728,420	\$203,921	\$111,165	\$18,881	\$-	\$-	\$-	\$-	\$1,062,387
Total New Construction Budget				\$1,461,700	\$864,550	\$166,380	\$20,983	\$(1,934)	\$(1,093)	\$-	\$-	\$2,510,586

PROJECT NARRATIVE - Major Projects

For major projects (the three largest projects in terms of cost and all projects greater than \$10 million) a narrative supplying the following information is required:

- 1 Project Description: Include a brief technical specification of the project, ownership, if jointly owned, operating date, stage of construction, and other relevant information.
- 2 Need for the Project: Attach all prepared information documenting the need for the project, including the specific need the project is intended to fill. Economic comparisons with alternatives are to be attached. All the underlying assumptions of the economic analyses are to be specified.
- 3 Contingencies: Attach a listing of existing or potential future problems which might impact the final cost or successful completion and operation of the project, such as licensing problems, labor difficulties, litigation, etc.
- 4 Reconciliation with Prior Budget: Each successive year's budget can be expected to reflect differing estimates of project costs as the project progresses. For each major project, prepare a reconciliation with the prior budget's estimates and provide specific reasons for the changes.

MAJOR PRODUCTION PROJECTS

PROJ. NO.	PROJ. TITLE	START DATE	EST. IN SERVICE DATE	PROJECT DESCRIPTION	NEED FOR PROJECT	CONTINGENCIES	RECONCILIATION W/ PRIOR BUDGET	PROJECT TOTAL ⁽¹⁾
P22449	Colstrip Capital Proj PPL	2004-03-01	2020-12-31	This project is for work related to the Colstrip power plant and based on the five year business plan agreed to by Colstrip's owners of which PGE has approximately 20% ownership.	Maintain plant and meet obligations in five year business plan agreed to with Colstrip's other owners.	No risks above and beyond the standard risks of all construction projects were identified	2020 projects include, but aren't limited to, Units 3&4 Water Management System.	\$ 107,996,194
P35172	PSES - Generation Fitness Fund	2012-01-01	2025-12-31	This project is to fund and approve known and emerging routine capital projects that are essential for maintaining fitness of PGE Generation plants.	Funds know and emerging routine capital projects that are small in nature but essential for maintaining PGE Generation Plants.	No risks above and beyond the standard risks of all construction projects were identified	2020 fitness projects include PW-Replace ST Vibration System, PW-Upgrade CEMS Analyzers, BR: Upgrade U5/U6 TG & RF VFDs, RB-Upgrade Seepage Monitoring	\$ 37,002,250
P35959	WSH Structural/Reliability Upgrades	2015-01-01	2021-10-31	This five year program (2015-2020) program provides funding to enhance the capability of four West Side Hydro Powerhouses and other structures to withstand seismic hazards, improve plant reliability over the duration of the new FERC operating license, and address personnel safety issues during routine and extreme events.	While the powerhouses have been maintained and are structurally sound, none of them were built with seismic reinforcements introducing an undesirable level of risk of catastrophic failure in the event of a major Cascadia subduction seismic episode, or a nearby crustal earthquake. Due to the age and original design of the West Side Hydro facilities, there are numerous routine tasks that include an undesirable safety risk to plant personnel, such as removing debris from the trash racks and placing flashboards. Additionally, some components have far exceeded their original design/functional life and are in need of replacement.	No risks above and beyond the standard risks of all construction projects were identified.	Additional work will be performed to improve access to the Harriet Lake Intake Buildings. In addition to scope changes on the Faraday Complex buildings that contributed to an overrun in 2019, additional work was performed near Timothy Lake to install a new underground feed to the USGS Gauging station below the new Timothy Lake Powerhouse which is the official station for monitoring minimum flow requirements.	\$ 46,674,020
P36116	Wind Generation Fitness Program	2016-02-01	2021-12-31	The scope of the Wind Generation fitness program includes replacement of in service equipment failures at Biglow Canyon and Tucannon Wind Farms that cannot wait until the next budget cycle to be addressed. This includes gearboxes, generators, main bearings and blades.	PGE has determined that renewal of the existing Service and Maintenance Agreement and Guaranteed Availability and Warranty Extension is no longer the most effective method for operating and maintaining the Biglow Canyon Wind Farm.	Biglow Canyon II & III consists of 141 turbines, establishing the Wind Generation Fitness Fund at \$4 million is based upon expected annual failure rates of the major components.	Not applicable (project was not included in 2019 BOE).	\$ 34,628,352
P36134	Hydro Control System Upgrade	2015-08-01	2022-12-31	This project will upgrade the control systems for generation and fish handling facilities at Pelton Round Butte and West Side Hydros. The new systems will be integrated into the plant information system for archiving and data mining of off-normal operating conditions.	Existing hydro control systems were installed in the 1990s and have exceeded their end of life. Typical control system hardware starts to fail at ten years. The current setup also uses a dial up modem network which limits plant operations visibility and operations responses.	No risks above and beyond the standard risks of working within outage windows to manage impacts to plant operations.	Project scope remains the same. Decrease in 2020 budget to accommodate other changes in 2020 capital portfolio, which shifts some work into 2022.	\$ 25,825,560
P36167	FY: Repower Faraday Units 1-5	2015-11-23	2021-03-31	This project will remove the hundred year old Faraday Units and replace them with three new vertical units. This will make the Faraday Powerhouse a new modern, reliable powerhouse and is anticipated to improve seismic resiliency and reduce maintenance costs.	This upgrade will increase plant reliability and efficiency, and reduce plant O&M costs. A new unit will also reduce unplanned outages and provide a more reliable and predictable outage schedule, especially important for PGE's participation in the Western Energy Imbalance Market.	In-water work required approval from environmental regulators and are limited to low-flow times of year. Unexpected and unseasonal high flows can delay or impact the construction schedule.	Increased total project cost due to higher construction estimates that originally anticipated.	\$ 86,405,546
P36855	Wheatridge Renewable Energy Facility	2019-04-01	2020-12-31	Project consists of a 300MW wind facility, 50MW solar facility, and a 30MW 4-hr duration energy storage facility, owned by Wheatridge Wind, LLC, a subsidiary of NextEra Energy Resources. 100 MW of the wind resource will be purchased by Portland General Electric(PGE) and the remaining 200 MW will be contracted by PGE for a 30-year term. The solar energy storage facilities will be contracted to PGE under one Power Purchase Agreement (PPA), with a 30-year term for solar and a 20-year term for storage. NextEra will serve as the operator and provide Operations and Maintenance (O&M) for all aspects of the facility with O&M for the 100 MW ownership portion provided under a 30-year agreement.	PGE's 2016 Integrated Resource Plan (IRP) Addendum identified an economic opportunity for PGE to engage in procurement of renewable resources providing customers with competitively priced renewables due to cost savings associated with expiring Federal tax credits.	The project must be complete and transferred to PGE by 12/31/2020 to maintain 100% Production Tax Credit (PTC) eligibility. Seller owes PGE damages if the date is missed except for delays due to force majeure or purchaser caused delays.	Not applicable (project was not included in 2019 BOE).	\$ 151,134,326

MAJOR TRANSMISSION PROJECTS

PROJ. NO.	PROJ. TITLE	START DATE	EST. IN SERVICE DATE	PROJECT DESCRIPTION	NEED FOR PROJECT	CONTINGENCIES	RECONCILIATION W/ PRIOR BUDGET	PROJECT TOTAL ⁽¹⁾
P35834	Round Butte Transmission Upgrades	2015-04-01	2020-10-05	This project implements a special protection scheme at Round Butte to mitigate the effect of a 200MW total generation limit for the loss of either the Grizzly BPA-Round Butte 500kV circuit or the Redmond BPA-Round Butte 500kV circuit. This will upgrade the transmission line, bus, and transformer protective relays and install a series reaction to reduce the fault current at the transformer terminals.	The transmission line, transformer, and bus protection has known design flaws and the protective devices have known mis-operation issues, or are unique to Round Butte and therefore PGE has little operational familiarity with these devices. These issues may lead to reduced transmission system reliability and availability.	The Special Protection Scheme requires WECC approval. Upgrading the protection on the Grizzly BPA-Round Butte 500kV transmission line requires coordination with BPA.	Communication fiber scope of project was moved to a separate project; estimate reduced by \$1.16M.	\$ 12,886,663
P36373	Blue Lake Phase II	2017-06-01	2021-12-31	This project will design and construct distribution feeder improvements to serve a new customer load and improve distribution and transmission reliability in the Gresham area.	A new Amazon distribution center has started construction near the Blue Lake substation. The distribution center's projected connected load is approximately 14 MW. The customer will initially require 4 MVA and will potentially ramp to 10 MVA. The Blue Lake distribution system has existing outage restoration concerns. Under current system peak load conditions, an outage to the Blue Lake Blue Lake 13 feeder can leave approximately 1500 customers unserved for an extended period. An outage to the Blue Lake WR1 transformer can leave approximately 2000 customers out of service for an extended period. If the system is left in its current state, the initial 4 MVA load addition will further exacerbate existing outage restoration concerns, and will introduce low voltage to the immediate area. Additionally, studies in the Transmission Operations Horizon indicate that 12transmission circuits and two bulk power transformers are at risk of exceeding their emergency summer ratings for 81 combinations of single line or bus outages followed by a single line outage. These overloads significantly impact PGE's ability to take planned outages for maintenance in the Gresham area.	Distribution service to the new load is required in Q2 of 2018. The installation of the second 115/13kV distribution transformer will not be completed until 2019. Until the Blue Lake substation work can be completed, a temporary substation will need to be installed in the Blue Lake yard. The temporary substation is not expected to impact the substation construction schedule. The distribution feeders will be installed in wetlands adjacent to Blue Lake substation. The permitting for construction in wetland areas is expected to take up to six months.	Total project reduced by \$167k as a result of a decrease in cost associated with tree removal along the Blue Lake-McGill line route. In addition, this revision shifts the timing of the 2020 spend due to a delay on the start of construction on the Blue Lake-McGill transmission work. The Blue Lake-McGill line work has shifted out 2 months due to a delay in obtaining permits and easements.	\$ 35,588,079

MAJOR GENERAL PLANT PROJECTS

PROJ. NO.	PROJ. TITLE	START DATE	EST. IN SERVICE DATE	PROJECT DESCRIPTION	NEED FOR PROJECT	CONTINGENCIES	RECONCILIATION W/ PRIOR BUDGET	PROJECT TOTAL ⁽¹⁾
P36101	Substation Communication Upgrade	2016-01-01	2022-12-31	This project will replace the communications all PGE substations with new equipment. This project is in response to telephone companies phasing out the equipment currently in use in 2020, putting at risk the ability to communicate with substations if the currently equipment breaks and replacement parts are no longer available.	The current state functionally is adequate. However, the telephone companies are discontinuing the types of circuits that utilities have historically used for the data and voice connections into substations. Some vendors have already stopped these services. Communication infrastructure must be replaced before service is discontinued or contact with substations will be lost. This is a compliance, safety, and reliability issue.	Resource availability to perform the work	No material change to total project estimate.	\$ 34,137,825
P36394	Vintage Vehicle Replacement II	2017-05-01	2022-12-31	The budget reflects Fleet's efforts to identify and support replacing vehicles that have exceeded their life expectancy or costs of repairs is excessive.	An aging fleet (both vehicle age and miles/hours) presents potential reliability and efficiency risks. Delays in vehicle and equipment replacement could cause increased operating costs, crew downtime, and decreased confidence in vehicles and equipment.	This project is subject to manufacturer's lead-times and requires coordination with vendors and management of costs to estimated timeline. Change Management: When purchasing new vehicles and equipment with upgrades to technology currently in use, operator familiarization training will be required. Ongoing training is provided by crew foremen.	In 2019, 126 vehicles and equipment were slated for vintage; in 2020, there was 140. Budget concurrently adjusted.	\$ 64,188,539
P36501	Integrated Operations Center - IOC	2017-11-01	2021-12-31	Operations of PGE's Transmission, Distribution, and Generation systems are changing at a fast pace. Construction of a new Integrated Operations Center creates the necessary foundation to deliver on new operational technologies, manage the grid of the future, and provide operational resiliency in the event of a major disaster.	3WTC was constructed in a high liquefaction area with the potential of being uninhabitable after a major earthquake. The Readiness Center is setup to accommodate only a few critical functions not all of the 24/7 departments residing at the new Operations Center. The Integrated Grid Roadmap initiatives will require departments to quickly adapt to how work is performed in the future. The space limitations of 3WTC are making it difficult to adapt quickly to new technologies. The building is at capacity and does not have space to accommodate expansion of PGE's operational departments.	The Operations Center layout needs to be designed to accommodate future implementation of the Distribution Management System which will significantly change how we manage the distribution system for our customers. This will change the roles and responsibilities for several departments requiring close evaluation to our current and future processes. The Operations Center needs to be designed so there is room to expand in order to adapt processes and add people when new technologies are deployed.	Project budget updated with estimates for 2020-2022 (remainder of project duration).	\$ 115,789,442
P36587	Physical Access Control System PACS	2018-07-01	2020-12-31	This project replaces the current physical security system with a new system including hardware, software, 330 cameras, and 1,100 card readers at 105 PGE sites.	PGE's current physical security system (AMAG) is running on an unsupported and out of date hardware and control panels; which are prone to failure. Many of the associated nodes and panels are also outdated and unsupported by the vendor. This has resulted in PGE needing to spend excessively on labor and contractor costs to maintain an old and brittle system. The new ISOC (Integrated Security Operations Center) at WTC is challenged with having to view disparate unconnected systems(physical, alarm, video surveillance) to understand how to effectively respond to issues and threats. PACS includes the integrated systems to improve these processes and tools.	Antiquated Control Panels may require expensive replacements or physical guards. Facilities may likely require new/additional network bandwidth cabling to support digital cameras.	Not applicable (project was not included in 2019 BOE).	\$ 15,269,046
P36653	Budget Only: People BSG Blanket	2019-01-01	2021-12-31	This blanket project is for emerging business continuity/emergency management and facility based projects. Funding will be allocated from this project to individual projects as detailed estimates are complete and planning and/or execution is ready to begin.	Given the difficulty in accurately estimated the cost and timing of projects before they have been fully vetted and scoped, PGE has experienced variances to both the original approved capital spend and timing of the spend.	Risks are in the specific projects funding is allocated to.	Funding three facility projects in 2020: 1. Sherwood Pole Training Yard 2. CSS/ERC Refresh 3. 3WTC01 Refresh	\$ 14,853,545

MAJOR GENERAL PLANT PROJECTS CONT.

PROJ. NO.	PROJ. TITLE	START DATE	EST. IN SERVICE DATE	PROJECT DESCRIPTION	NEED FOR PROJECT	CONTINGENCIES	RECONCILIATION W/ PRIOR BUDGET	PROJECT TOTAL ⁽¹⁾
P36706	HR Optimization Project	2018-12-15	2020-04-30	HR Optimization will replace four human resource systems with one system to manage core HR functions: payroll, compensation and benefits, recruiting, workforce data management, employee learning and talent development, and performance management.	Current framework consists of multiple systems, tools and processes that has been buildout over 15+ years. Resulting in a framework that does not effectively meet PGE's current or future business requirements and causes maintenance and significant inefficiencies. This includes the limited functionality of being mobile, too many customizations that require manual processes both electronic and paper based. In addition to the needs of the current system not meeting PGE needs, the PeopleSoft system will be discontinued within the next 10 years with minimal support and bug fixes only starting in 2020.	Resource allocation could cause not only a dependency but a risk if not properly backfilled and funded. If after planning, we decide to not move forward, the risk is that we have spent funding and additionally commitments would need to be mitigated with Workforce and the 3-year prepaid SAAS contract. Other Risks and constraints include scope and schedule slippage.	Not applicable (project was not included in 2019 BOE).	\$ 10,357,079
P36869	2020 IT Software Blanket	2020-01-01	2021-12-31	This project is budget only and is for IT Software PGE expects to fund in 2020. Funding will be allocated from this blanket project to individual projects as detailed estimated are completed and work is ready to begin.	Given the difficulty in accurately estimated the cost and timing of projects before they have been fully vetted and scoped, PGE has experienced variances to both the original approved capital spend and timing of the spend.	Risks are in the specific projects funding is allocated to.	2020 Projects funding from blanket in include, but aren't limited to: -Web Next Gen 2.0 -Replace IVA -LogRhythm Security Information Event Monitoring -IT Service Management	\$ 31,874,558
P36879	Advanced Dist. Mgmt. Sys(ADMS) Phis	2019-08-05	2021-04-30	Phase one will implement a Distribution Management System (DMS) with fault isolation service restoration on a minimum of three circuits. The primary functions of the DMS will focus on monitoring, predicting and operating distribution devices below the substation, updating the Outage Management System, monitoring integrated grid systems and operating equipment on the distribution system. It will collect real time information from distribution substations, feeder and customer devices and integrate existing and future distribution automation schemes, distributed energy resources and distributed standby generation resources.	In the current state of the Integrated Grid, PGE does not monitor or have visibility of the devices below the substation. As we modernize the grid, by implementing and installing new devices on the distribution circuits, it is imperative for us to monitor and operate those devices optimally and safely. Furthermore, the proliferation of customer wonders will necessitate a modularized system to achieve these functions.	Condensed timeline for implementation. Potential Staffing constraints from Business and IT. Significant change management challenges, union negotiations for Repair Dispatch roles. Dependent on Distribution Automation and Field Area Network to achieve full benefits Dependent on clean GIS data, to facility an accurate impedance model of our distribution system. Dependent on business process changes in both Grid Operations and Utility Operations. Dependent on IOC Project timeline.	Not applicable (project was not included in 2019 BOE).	\$ 25,920,665
P36898	2020 Infrastructure Fitness Blanket	2020-01-01	2021-12-31	This project is for emerging infrastructure replacement of aging servers, storage, networks, desktops, and cybersecurity infrastructure. Funding will be allocated from this blanket to three sub-blankets: Desktop Fitness/Vintage, Network, and Server Storage. Individual projects will then be funded by the sub-blankets.	Given the difficulty in accurately estimated the cost and timing of projects before they have been fully vetted and scoped, PGE has experienced variances to both the original approved capital spend and timing of the spend.	Risks are in the specific projects funding is allocated to.	2020 Projects funding from blanket in include, but aren't limited to: -Desktop Fitness -Network Fitness -Server Storage Fitness	\$ 12,727,425

PROJECT NARRATIVE - Projects with Total Budget > \$1M

In addition, please attach copies of prepared documentation or plans describing generation transmission, and general plant projects exceeding \$1,000,000 in total cost and for which construction will commence in the budget year.

Information submitted should contain:

- 1 A Brief Project Description: Include the project function (e.g., production, transmission, distribution, general plant, thermal, hydro, or other), project identification.
- 2 Location: Include a starting and ending date.
- 3 Total budgeted cost.

PROJ. NO.	PROJ. TITLE ^[2]	START DATE	EST. IN SERVICE DATE	FUNCTIONAL CLASS	PROJECT DESCRIPTION	PROJECT TOTAL
P36496	GIS/RAMTech - Construction Overhead	2017-07-01	2022-12-31	Distribution Plant	This project will establish a Managed Services (MS) contract for As-Builts in order to meet the needs of multiple lines of business and Geospatial Information System (GIS) end users. As-Building is the process of reviewing and documenting additions and modifications to PGE's infrastructure that is captured in PGE's GIS. The GIS is one of the systems of record for PGE's electrical infrastructure. Primary end users of As-Built information are any consumers of PGE's GIS data. This includes a multitude of lines of business within PGE as well as a variety of external customers and clients. The GIS department currently does not have adequate resources to address the existing design backlog and volume of new design work. The approach of using a Managed Service contract provides resource flexibility as PGE's volume of new construction work increases or decreases.	\$ 2,250,000
P36649	Budget Only: Customer Svc Blanket	2019-01-01	2021-12-31	Intangible & General Plant	This project is for emerging customer service projects that are identified throughout 2020. Funding will be allocated from this blanket project to individual projects as detailed estimates are complete and planning and/or execution is ready to begin.	\$ 4,000,302
P36654	Generation Portfolio Blanket	2019-01-01	2021-12-31	Production	This project is budget only and is for Generation Projects PGE expects to fund in 2020. These projects will come before the Business Sponsor group in a rolling basis to request planning and/or execution funds once the Generation BSG has validated project readiness to process.	\$ 4,992,812

FOOTNOTES

- [1] Schedule B Prior years represent 2003-2019. Strategic project prior year data are October 2019 board approved; Base Business project data are actuals.
- [2] Schedule B Current year data are October 2019 board approved and tie to the approved 2020 Operating Plan & Budget. These budgets are subject to change with future Board of Directors approval.
- [3] Schedule B Based on Budget Year +1 forecast with all other future years trended for inflation by Global Insight Chained Price Index - Public Utilities (Q4 2019) with the exception of Major Projects which forecasts at the time of the Operating Plan & Budget was established.
- [4] Schedule B Total does not necessarily equal total project cost in Project Narrative section because projects are reported here by Functional Category and exclude AFUDC.
- [5] Schedule B Major projects often include work defined in multiple Functional Classes (Production, Transmission, General/Intangible). Major Projects listed under each Functional Category have the majority of costs in that category. Each section includes only the amounts with that classification, with the remainder rolled into the Non-Major Project sections of the other functional categories.
- [6] Schedule B Includes only the Non-Major Projects for the current Budget Year and subsequent four years.
- [7] Schedule B Presents data based on all 2020 Distribution projects, including the major Production, Transmission, and General Plant projects listed.
- [1] Project Narratives Total is comprised of: Prior Year amounts are Working Forecast; Current Year amounts are BOD approved; Future Year amounts of approved multi-year projects, BOD approved. While these are the same parameters used to calculate Schedule B totals, these numbers won't directly correlate because (a) the Schedule B form only shows the Functional Class totals, and (b) Schedule B applies a chained price multiplier for future year amounts.
- [2] Project Narratives Includes those projects that have a total approved budget of greater than \$1M and less than \$10M; projects with >\$10M are included in the Major Projects sections. Additionally, only those projects with budget in the Budget Year and none in the year prior are included here, as an approximation of those which 'commence in the budget year'.