



Vancouver Control Center

Customer Workshop

March 13, 2024



Business Need

The existing Dittmer Control Center (DCC) is at end-of-functional life and must be upgraded or replaced to retain functionality and mitigate growing operational risks.



Preserve safe, reliable system operations



Modernize business systems and processes



Enhance the value of products and services



Sustain financial strength



Mature asset management



Invest in people

- Improve resiliency (weather, fire, seismic)
- Improve security (physical, cyber)
- Supports the evolving grid system needs
- Supports control center operational needs
- Lowers lifecycle facility costs
- Effective office space utilization
- Improve workflow and efficiency
- Consolidate data centers

What's in it for Customers?

Continuity, resiliency and efficiency are essential for Bonneville to meet customer needs and reliably serve the Pacific NW

Business Need

- Even in RTO/ISO structures, local utilities maintain most TOP responsibilities and some BA responsibilities

NERC Reqs.	MidWest ISO		Local Utility	
	BA	TOP	BA	TOP
Full	332	37	0	0
Partial	7	2	7	2
None	4	489	332	37
Normal	110	0	114	489

RTO: Regional Transmission Organization
 ISO: Independent System Operator
 TOP: Transmission Operator
 BA: Balancing Authority
 NERC: North American Electric Reliability Corp.
 RAS: Remedial Action Schemes

*Organization Registration and Organization Certification (nerc.com)

- Control Center functions are more than just NERC responsibilities, for example:
 - Safe switching and clearance procedures
 - Dispatching crews
 - Monitoring control systems and communications networks
- Technology needs are significant, for example:
 - Significant RAS infrastructure
- Communications network is designed and built to support the Transmission system
- Legal and policy constraints on contracting out inherently governmental functions

Strategic Alignment

Alignment: Investment integrated in FY24 Strategic Asset Management Plans (SAMPs) and FY23 Asset Plans (Trans/Facilities/IT)



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Business Needs: The Dittmer building is at end-of-functional life as a Control Center and must be replaced to preserve existing functionality and mitigate growing operational risks.

Continuity

Efficiency

Expandability

Benchmarking: Facility and technology investments would provide an average level of quality and service compared to peers, e.g., CAISO, MISO, PGE, SDG&E, TVA, Duke, BC Hydro

Investment Goals

Objective: Implement a modern control center with the necessary continuity, security, and technology capabilities to support critical functions through an all-hazards event with flexibility for future growth and market opportunities.

- **Lifecycle replacement of Dittmer Control Center**
 - Provide growth potential on the Ross Complex and enable future mission requirements
 - Multiple options were extensively examined for Dittmer Control Center renovation/expansion and declined due to:
 - Unacceptable level of operational risk
 - Unable to mitigate all risks (security, hazards, safety and operations)
 - Higher long-term cost
- **Long-Term Planning**
 - VCC is an enabling investment which balances business needs, risks and long-term costs
 - VCC investment is included in the Transmission and Facilities SAMPs, Asset Plans and IPR projections
- **Prior Approvals for Design Services**
 - Facility design approved for \$45M (Capital Expand) – November 2021
 - Technology design approved for \$57M (Capital Sustain) – November 2021

Investment Benefits

- **People:**
 - Mitigate life safety hazards and provide building/fire code compliance
 - Mitigate capacity constraint and enable future mission capabilities
 - Optimize workspaces to support real-time operations
- **Continuity:**
 - Improve grid situational awareness, response, and control
 - Improve resiliency for an All-Hazards event
 - Improves security
 - Improve continuity of operations (COOP)
- **Expandability:**
 - Adaptive functional areas support the evolution of future markets and business needs
 - Flexible and secure workspaces to meet current and future compliance requirements
- **Financial:**
 - Consolidate and protect agency data centers
 - Lower lifecycle technology and facility costs

Timeline and Deliverables



Capital Cost Containment

- Capital Investment Acquisition process limits exposure
- Stage Gate 0 approved feasibility scoping
- SG3 Business Case approved design costs only
- SG4 Business Case approves construction/activation costs
- Full Business Case target reported and tracked

August 2019 – September 2021 (SG0-SG3) – Key Deliverables

- Alternatives selected
- Preliminary engineering valid
- Requirements finalized
- Concept design completed
- Cost estimate -30% to +50%
- NEPA environmental review initiated
- Primary Alternative selected
- Owners Consultant/Progressive Design Builder On boarded
- Business Case Approval for Design (2021)
- Project Schedule Approval

September 2021 – July 2025 SG3 – Key Deliverables

- Design Completed
- Activation plan completed
- Guaranteed Maximum Price determined
- Project Schedule updated if needed
- Cost estimates -20% to +30%
- Business Case Approval for Construction

April 2025 - August 2031 SG4 – Key Deliverables

- Site Preparation
- Cost estimates -15% to +20%
- Project Schedule Updated if needed
- VCC Building Completed
- Technical Equipment installation begins
- Review Transmission Technology technical installation costs (2025)

Take Away: Continuous oversight and management of cost, schedule and technical requirements to increase success of project delivery and activation.

Project Schedule

Project Schedule Milestones	Schedule
Technology 65% completed	Apr. 2024
Facility Construction Begin	Apr. 2025
Technology GMP	Apr. 2025
Technology Design complete	July 2025
Facility Substantial Completion	Nov. 2028
Technology Install/Testing Complete	Sep. 2029
Technology Completion/Project Complete	Aug. 2031

Initial Cost Forecast

BP-22 - IPR2

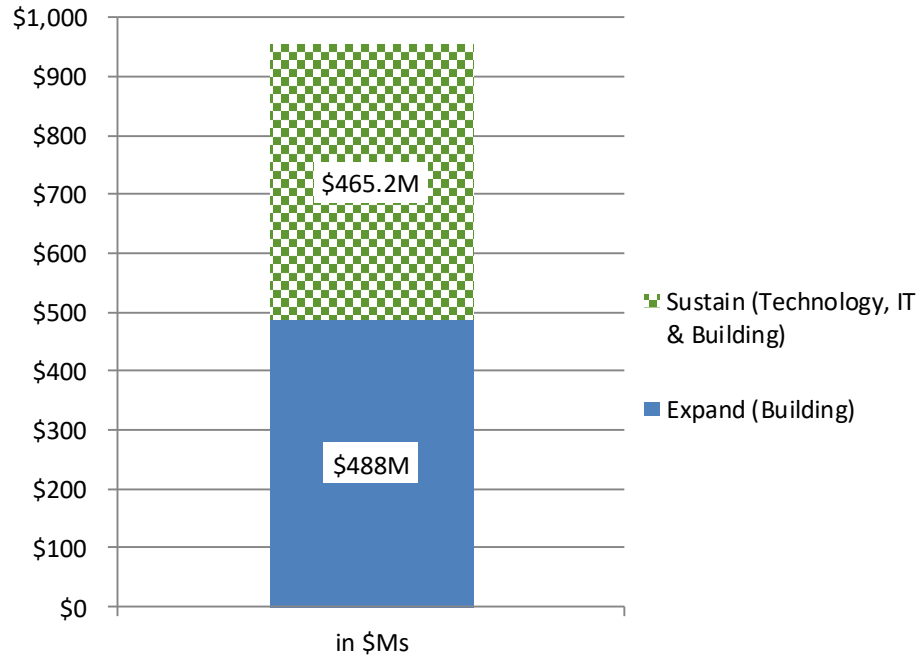
(\$ Millions)	Capital spending assumed Vancouver Control Center						Total
	2022	2023	2024	2025	2026	2027	
Facilities	\$12,2	\$42	\$78	\$55	-	-	\$187.2
Transmission	-	-	-	\$148.6	\$144	\$70	\$362.6
IT	-	-	-	\$5	-	-	\$5
Total Vancouver Control Center	\$12.2	\$42	\$78	\$208.6	\$144	\$70	\$554.8

Current Forecasted Costs

VCC Current Forecast (\$Millions)	Actuals		Actuals		Rate Case		Rate Case			Rate Case			Totals
	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	
Facilities Costs (Capital & Expense)		\$1.4	\$4.2	\$17.4	\$36.8	\$93.6	\$153.7	\$146.1	\$39.7	\$3.9	\$0.0	\$0.0	\$496.6
Transmission Costs (Capital)	\$0.2	\$1.8	\$2.5	\$17.5	\$21.8	\$38.8	\$76.7	\$68.4	\$115.4	\$33.5	\$25.6	\$58.0	\$460.2
IT Costs (Capital)									\$2.5	\$2.5			\$5.0
Total Costs	\$0.2	\$3.2	\$6.7	\$34.9	\$58.6	\$132.4	\$230.4	\$214.5	\$157.6	\$39.9	\$25.6	\$58.0	\$961.8

Capital Funding Allocation

Current Capital Funding Allocation



*Current – This does not include the Expense component amount for Facilities (\$8.6M)

Why the Change in Costs

Cost drivers for the Facility costs:

1. Federal security considerations
2. Continuity resiliency
3. Seismic resiliency
4. Regulatory requirements
5. Market Escalation

Cost drivers for the Technology costs:

1. Market Escalation
 - Racks
 - Equipment
 - Pathways
 - Infrastructure
2. Regulatory requirements

Rate Impact

- The costs (e.g. debt service, depreciation) are not anticipated to provide significant upward rate pressure in BP-26 because the project goes into service after the rate period.
- The project is projected to create upward rate pressure averaging just more than 3% per year from 2030 through approximately 2045
- Beyond 2045, rate pressure is expected to be below 2% until the project is paid for in 2067
- Spending associated with the project from a Portfolio perspective will be included in IPR and are subject to decisions related to those discussions.

Risk Mitigation

- Senior leader oversight
- Progressive Design Build delivery model
- Risk informed cost/schedule
- Guaranteed Maximum Price contract
- Improved cost/schedule certainty
- Costs are contained through use of the Capital Investment Acquisition (CIA) process
- Shift +1 year for scoping to refine cost and schedule

Moving Forward

Next Steps

- Future customer workshops on updates for VCC
 - Strategic Asset Management Plan (ie. April 2024)
 - Quarterly Business Review (ie. May 2024), quarterly updates
 - Integrated Program Review (June 2024)
 - Another customer workshop in Fall of 2025, after the Guaranteed Maximum Price (GMP) on technology costs are received
- Exploring all financing options, including lease financing
- Continue to refine future capital projections, including sustain vs. expand, to deliver long-term value

Questions?

