CENTRAL WASHINGTON UNIVERSITY

Illustration of the proposed GeoEco building replacing 22,000 metric tons of CO2 from gas fired boilers heating three academic buildings (343,000 sqft)

2024 Supplemental Capital Request

CENTRAL WASHINGTON UNIVERSITY

September 13th, 2023

Washington State Office of Financial Management
302 Sid Snyder Ave SW / Mailstop 43113
Olympia, WA 98501-1342

RE: CWU 2024 Supplemental Capital Budget Outline

This letter transmits the Central Washington University (CWU) 2024 Supplemental Capital Budget Request. This request was developed in support of the university's vision, mission, and strategic plan that prioritizes being a model learning community of equity and belonging.

Our supplemental capital requests focus on implementation of critical Climate Commitment projects & the preservation of primary power infrastructure that result in immediate reduction in our carbon footprint of 22,000 metric tons and ensuring the integrity of our electrical systems on an operational and emergency basis respectively.

1. **Secondary Geothermal Well - CLIMATE COMMITMENT ACT INCENTIVES**

Central Washington University seeks funding to construct a second geothermal well system and progressively re-engineer three large science buildings to connect to it. The combined 341,000 square feet of academic space would be converted to renewable geothermal heating/cooling and would no longer rely on natural gas fired boilers for steam heat. The project would result in the conversion of the recently completed Health Science, Samuelson, and Discovery Halls to a renewable energy source while providing redundancy to the geothermal well associated with the North Academic Complex. This project aligns with the Office of Financial Management (OFM) budget instructions requesting projects that are consistent with Governor's highest priority for Climate and Clean Energy.

2. **Science Building Carbon Reduction– CLIMATE COMMITMENT ACT INCENTIVES**

Central Washington University seeks funding to aggressively help bring our Science 1 building in closer compliance of the Clean Building Standard Performance (HB 1257) for our campus. The facility currently has an estimated Energy Use Intensity (EUI) of 245.5 while the target for our institution is 102. This facility has the highest EUI rating on our campus, second only to our boiler plant. The project would include a comprehensive overhaul of mechanical systems and components including but not limited to the building's chiller, air handling units, fume hoods, lab equipment, and lighting. This project aligns with the Office of Financial Management (OFM) budget instructions requesting projects that are consistent with Governor's highest priority for Climate and Clean Energy.

CAPITAL PLANNING & PROJECTS
400 E University Way | Ellensburg WA 98926 | Office: 509-963-2906
Email: Delano.Palmer@cwu.edu | Web: CWU.edu/operations/capital

3. Emergency Backup Power System

Central Washington University seeks funding to establish a dedicated emergency back-up system for our Ellensburg campus by installing a 3-megawatt generator to key campus facilities. The backup electrical system would enhance the safety of the campus in case of an extended power outage in winter months that could pose serious life and safety risk. The facilities that would be connected to the generator are critical in an emergency situation and include the physical plant, facilities management shops, CWU Police, Student Union & Recreation Center, Student Medical Center, and the campus sidewalks and lighting. This project aligns with the Office of Financial Management (OFM) budget instructions requesting projects that are high priority emergent needs that must be addressed.

Regards,

Delano Palmer
Director of Capital Planning & Projects

CC: Jim Wohlpart, President of Central Washington University
Andrew Morse, Chief of Staff
Joel Klucking, Senior VP of Finance & Administration
Steve Dupont, Director of Government Relations
Stuart Thompson, AVP of Campus Planning & Facilities

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CENTRAL WASHINGTON UNIVERSITY

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375 - Central Washington University
Ten Year Capital Plan by Project Class
2023-25 Biennium
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Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS001
Date Run: 9/11/2023 4:17PM

Project Class: Preservation

Agency Priority	Project by Account-EA Type	Estimated Total	Prior Expenditures	Current Expenditures	Reapprop 2023-25	New Approp 2023-25	Estimated 2025-27	Estimated 2027-29	Estimated 2029-31	Estimated 2031-33
1	**40000161 Secondary Geothermal Module**									
	26C-1 Climate Commit Accou-State	16,464,000				12,464,000	4,000,000			
2	**40000162 Science Building Carbon Reduction**									
	26C-1 Climate Commit Accou-State	4,509,000				4,509,000				
3	**40000163 Emergency Backup Power System**									
	063-1 CWU Capital Projects-State	4,316,000				4,316,000				
	Total: Preservation	**25,289,000**				**21,289,000**	**4,000,000**			

Total Account Summary

Account-Expenditure Authority Type	Estimated Total	Prior Expenditures	Current Expenditures	Reapprop 2023-25	New Approp 2023-25	Estimated 2025-27	Estimated 2027-29	Estimated 2029-31	Estimated 2031-33
063-1 CWU Capital Projects-State	4,316,000				4,316,000				
26C-1 Climate Commit Accou-State	20,973,000				16,973,000	4,000,000			
Total	**25,289,000**				**21,289,000**	**4,000,000**			

Ten Year Capital Plan by Project Class

*

Report Number: CBS001
Date Run: 9/11/2023 4:17PM

Parameter	Entered As	Interpreted As
Biennium	2023-25	2023-25
Functional Area	*	All Functional Areas
Agency	375	375
Version	3B-A	3B-A
Project Classification	*	All Project Classifications
Include Enacted	No	No
Sort Order	Project Class	Project Class
Include Page Numbers	Y	Yes
For Word or Excel	N	N
User Group	Agency Budget	Agency Budget
User Id	*	All User Ids

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OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

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Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/10/2023 3:37PM

Project Number: **40000161**
Project Title: **Secondary Geothermal Module**

Description

Starting Fiscal Year: 2025
Project Class: Preservation
Agency Priority: 1

Project Summary

Central Washington University seeks funding to construct a second geothermal well system and progressively re-engineer 341,000 square feet of academic space to be powered by the utilization of expanded geothermal systems and reduce our dependency on natural gas fired boilers for steam heat. The project would result in the conversion of the recently completed Health Science, Samuelson, and Discovery hall to a renewable energy source while providing redundancy to the geothermal well system associated with the North Academic Complex. The implementation of this system would result in the reduction of 22,000 metric tons of carbon emissions over the life of these buildings.

Project Description

What is the problem/opportunity? Identify: priority, underserved people/communities, operating budget savings, public safety improvements & clarifying details. Preservation projects: include information about the current condition of the facility/system.

Decarbonization is a priority of CWU, mirroring the legislative efforts at the state and federal levels and is critical part of the development of our Climate Action Plan. Currently, a majority of our campus buildings are heated off the generation of steam from our four (4) natural gas fired boilers. The 70's era boilers have been well maintained, but are well beyond the life expectancy as well as being the largest contributors to our greenhouse gas emissions. In order to sustainably decarbonize our campus, alternate means of energy generation must be implemented to mitigate our dependency on fossil fuels at our central energy plant.

This request is a priority because, along with being a cornerstone of CWU's Climate Action Plan strategy; recent legislation such as the Clean Building Performance Standard (1257), Decarbonization (1390) have an aggressive timetable associated with university compliance. The implementation and completion of this project would result in completing CWU's key performance indicators for the Clean Building performance along with making a substantial impact to our decarbonization efforts in a fairly short time.

What will the request produce or construct (predesign/design of a building, additional space, etc.)? When will the projec start/end? Identify if the project can be phased, and if so, which phase is included in the request. Provide detailed cost backup.

This request will produce the engineering and construction of one (1) injection and one (1) extraction well plus the construction of a 2nd GeoEco Plant supplementing the 1st GeoEco Plant being constructed at the North Academic Complex. The GeoEco plant will be approximately 3,000 to 4,000 square feet and house all the mechanical,electrical, and plumbing equipment associated with geothermal wells. The engineering is anticipated to take 3 -4 months, followed by 4 months of permitting before 8-10 months of construction and commissioning.

This scope of work must be completed entirely in order to achieve the intended results of taking buildings of natural gas powered steam and therefore can't be phased. The enclosed estimate on the C100 is reflective a similar GeoEco plant being constructed at the North Academic Complex project.

Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/10/2023 3:37PM

Project Number: 40000161
Project Title: Secondary Geothermal Module

Description

How would the request address the problem or opportunity identified in question #1? What would be the result of not taking action?

The campus efforts for conversion from natural gas will be extensive especially with aging systems, but the proposed project would result in three (3) of CWU's most recent major capital projects to be converted to geothermal as its primary source of heating and cooling. The environmental impacts associated withthis conversion would almost be immediate and would result in nearly 500,000 square feet of academic space utilizing ground source heating & cooling by the end of the 2023-2025 biennium.

Per the recommendation of MW Engineers, a new geothermal utility plant serving the Science District, potentially called the Science GeoEcoPlant or GeoEco Plant 2 would be sized to service Samuelson Hall (~142,000 SF), Health Sciences (~81,000 SF), and Discovery Hall (~120,000 SF), or a total ofapproximately 343,000 SF, CO2 reductions could be expected as follows:

- Using the same 50-year timeline that the Energy Life Cycle Cost Analysis (ELCCA) uses, the GEP 2 would be roughly equivalent to removing 4,800 cars from the road, or a CO2 reduction of approximately 22,000 metric tons over the course of 50 years.

Without this project, we continue our use our natural gas fired boilers and an average annual distribution of 23,794 Tons of carbon emission for our entire campus.

What alternatives were explored? Why was the recommended alternative chosen? Be prepared to provide detailed cost backup. If this project has an associated predesign, please summarize the alternatives the predesign considered.

CWU has explored several options for renewable energy,such a solar or wind generation technology; however this project would result in the largest most immediate impact. Without the implementation of this project, we risk several years of continued operation making meniscal modifications at the building level to improve energy efficiency and minor reductions in carbon emissions.

Which clientele would be impacted by the budget request? Where and how many units would be added, people or communities served,etc.

The proposed facilities that would benefit all citizens of Washington with the production of cleaner air to breathe thanks to our reduction in carbon emissions. The GeoEco plant housing the mechanical, plumbing, electrical systems that support the geothermal system would be located in the center of campus and provide an innovative and educational understanding of the sustainable operation of the system. On a broader perspective, it offers the surrounding community a better understanding of innovative fossil fuel reduction options available to serve the masses.

Does this project or program leverage non-statefunding? If yes, how much by source? If the other funding source requires cost share, also include the minimum state (or other) share OF project cost allowable and the supporting citation or documentation.

No, however CWU is aggressively seeking funding for improving energy efficiency and sustatinability through federal appropriations, government and private grants, as well as philanthropic fundraising.

OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

*

Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/10/2023 3:37PM

Project Number: **40000161**
Project Title: **Secondary Geothermal Module**

Description

Describe how this project supports the agency's trategic master plan or would improve agency performance. Reference feasibility studies, master plans, space programming, and other analyses as appropriate.

This project supports the CWU Capital Master Plan by reducing deferred maintenance and proactively solving a problem before a critical failure occurs; doing so protects the integrity of operations and avoids repair costs. This project supports every aspect of CWU's Strategic Plan by emphasizing student success, engagement, belonging and stewardship with the integration of sustainable physical facilities use to illustrate and educate the importance of environmentally concise designs and operations.

Does this project include IT-related costs, including hardware, software,cloud-based services, contracts or IT staff? If yes, IT Addendum

No

If the project is linked to the Puget Sound ActionAgenda, describe the impacts on the Action Agenda, including expenditure and FTE detail. See Chapter 12 Puget Sound Recovery) in the 2021-23 Operating Budget Instructions.

This project is not linked to the Puget Sound Action Agenda.

How does this project contribute to meeting the greenhouse gas emissions limits established in RCW 70A.45.050, Clean Buildings performance standards in RCW 19.27A.210, or other statewide goals to reduce carbon pollution and/or improve efficiency?

Yes, because this project is necessary to migrate from primary dependency on natural gas fired boilers for steam generation, with a potential reduction of 22,000 metric tons of CO2. This project meets Govenor Inslee's priority to adapt real/practical Clean energy technologies.

How is your proposal impacting equity in the state? Which communities are impacted by this proposal? Include both demographic and geographic communities. How are disparities in communities impacted?

CWU is one of the most diverse public four-year university in Washington. For fall 2020, 40 percent of enrollees were students of color.Along with increasing the number of students of color, CWU has expanded strategies for keeping students enrolled and on-track to graduate. CWU'sefforts to support student success has earned six Higher Education Excellence in Diversity Awards from INSIGHT Into Diversity magazine over the last sevenyears. CWU is the only institution in the state that can boast this record of achievement. This project enhances their academic pursuits by providing the classrooms, labs, and collaboration spaces all-electric heating and cooling energy generated by geothermal systems. Additionally, this new building will provide all CWU students the opportunity to access and learn about these systems, further enhancing their understanding of the importance and the implementation of carbon footprint reducing technologies.

Location

City: Ellensburg **County:** Kittitas **Legislative District:** 013

Project Type

Infrastructure (Major Projects)

OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

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Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
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Project Number: **40000161**
Project Title: **Secondary Geothermal Module**

Description

Growth Management impacts

Central Washington University (CWU) is required to adhere to the State Environmental Policy Act (SEPA). The SEPA process is where growth management act impacts are considered. CWU coordinates planning efforts with all applicable city and county jurisdictions.

Funding

Acct Code	Account Title	Estimated Total	Expenditures Prior Biennium	Current Biennium	2023-25 Fiscal Period Reapprops	New Approps
26C-1	Climate Commit Accou-State	16,464,000				12,464,000
	Total	**16,464,000**	**0**	**0**	**0**	**12,464,000**

		Future Fiscal Periods 2025-27	2027-29	2029-31	2031-33
26C-1	Climate Commit Accou-State	4,000,000			
	Total	**4,000,000**	**0**	**0**	**0**

Schedule and Statistics

	Start Date	End Date
Predesign		
Design	7/1/2024	10/1/2024
Construction	10/1/2024	12/1/2025

	Total
Gross Square Feet:	4,878
Usable Square Feet:	1,000
Efficiency:	20.5%
Escalated MACC Cost per Sq. Ft.:	2,613
Construction Type:	Heating and Power Plants
Is this a remodel?	No
A/E Fee Class:	A
A/E Fee Percentage:	9.11%

Cost Summary

	Escalated Cost	% of Project
Acquisition Costs Total	**0**	**0.0%**
Consultant Services		
Pre-Schematic Design Services	0	0.0%
Construction Documents	792,494	4.8%
Extra Services	0	0.0%

OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

*

Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/10/2023 3:37PM

Project Number: **40000161**
Project Title: **Secondary Geothermal Module**

Cost Summary

		Escalated Cost	% of Project
Consultant Services			
Other Services		368,360	2.2%
Design Services Contingency		106,112	0.6%
Consultant Services Total		**1,266,965**	**7.7%**
Maximum Allowable Construction Cost(MACC)	**12,747,139**		
Site work		0	0.0%
Related Project Costs		0	0.0%
Facility Construction		12,747,139	77.4%
GCCM Risk Contingency		0	0.0%
GCCM or Design Build Costs		0	0.0%
Construction Contingencies		296,289	1.8%
Non Taxable Items		0	0.0%
Sales Tax		1,095,648	6.7%
Construction Contracts Total		**14,139,075**	**85.9%**
Equipment			
Equipment		0	0.0%
Non Taxable Items		0	0.0%
Sales Tax		0	0.0%
Equipment Total		**0**	**0.0%**
Art Work Total		**0**	**0.0%**
Other Costs Total		**176,035**	**1.1%**
Project Management Total		**882,253**	**5.4%**
Grand Total Escalated Costs		**16,464,328**	
Rounded Grand Total Escalated Costs		**16,464,000**	

Operating Impacts

Total one time start up and ongoing operating costs

Acct Code	Account Title	FY 2026	FY 2027	FY 2028	FY 2029
057-1	State Bldg Constr-State		272,564	278,015	283,576
26C-1	Climate Commit Accou-State	10,000			
	Total	**10,000**	**272,564**	**278,015**	**283,576**

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Report Number: CBS002
Date Run: 9/10/2023 3:37PM

Project Number: 40000161
Project Title: Secondary Geothermal Module

Operating Impacts

Narrative

This is a new system so FTE recommendations are estimates for geothermal plant management based on 2 Mechanical Control techicians and and 1 Mechanic FTE for an on-going basis. We estimate at $10k start-up cost.

Capital Project Request

2023-25 Biennium

*

Parameter	Entered As	Interpreted As
Biennium	2023-25	2023-25
Agency	375	375
Version	3B-A	3B-A
Project Classification	*	All Project Classifications
Capital Project Number	40000161	40000161
Sort Order	Project Priority	Priority
Include Page Numbers	Y	Yes
For Word or Excel	N	N
User Group	Agency Budget	Agency Budget
User Id	*	All User Ids

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STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Updated May 2023

Agency	Central Washington University
Project Name	Secondary Geothermal System
OFM Project Number	40000161

Contact Information	
Name	Steve Dupont
Phone Number	509-201-0528
Email	Steve.Dupont@cwu.edu

Statistics			
Gross Square Feet	4,878	MACC per Gross Square Foot	$2,413
Usable Square Feet	1,000	Escalated MACC per Gross Square Foot	$2,546
Alt Gross Unit of Measure			
Space Efficiency	20.5%	A/E Fee Class	A
Construction Type	Heating and power plant	A/E Fee Percentage	9.08%
Remodel	No	Projected Life of Asset (Years)	50
Additional Project Details			
Procurement Approach	DBB	Art Requirement Applies	No
Inflation Rate	3.33%	Higher Ed Institution	Yes
Sales Tax Rate %	8.40%	Location Used for Tax Rate	Ellensburg, WA
Contingency Rate	5%		
Base Month (Estimate Date)	September-23	OFM UFI# (from FPMT, if available)	
Project Administered By	Agency		

Schedule			
Predesign Start		Predesign End	
Design Start	July-24	Design End	September-24
Construction Start	October-24	Construction End	December-25
Construction Duration	14 Months		

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Project Cost Summary

Total Project	$15,624,304	Total Project Escalated	$16,463,955
		Rounded Escalated Total	$16,464,000

Amount funded in Prior Biennia	**$0**
Amount in current Biennium	**$12,464,000**
Next Biennium	**$4,000,000**
Out Years	**$0**

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$0		
Design Phase Services	$774,227		
Extra Services	$40,000		
Other Services	$347,841		
Design Services Contingency	$58,103		
Consultant Services Subtotal	**$1,220,172**	**Consultant Services Subtotal Escalated**	**$1,266,723**

Construction			
Maximum Allowable Construction Cost (MACC)	$11,769,124	Maximum Allowable Construction Cost (MACC) Escalated	$12,419,957
DBB Risk Contingencies	$0		
DBB Management	$0		
Owner Construction Contingency	$588,456		$620,998
Non-Taxable Items	$0		$0
Sales Tax	$1,038,037	Sales Tax Escalated	$1,095,440
Construction Subtotal	**$13,395,617**	**Construction Subtotal Escalated**	**$14,136,395**

Equipment			
Equipment	$0		
Sales Tax	$0		
Non-Taxable Items	$0		
Equipment Subtotal	**$0**	**Equipment Subtotal Escalated**	**$0**

Artwork			
Artwork Subtotal	**$0**	**Artwork Subtotal Escalated**	**$0**

Agency Project Administration			
Agency Project Administration Subtotal	$836,015		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$836,015**	**Project Administration Subtotal Escalated**	**$882,247**

Other Costs			
Other Costs Subtotal	**$172,500**	**Other Costs Subtotal Escalated**	**$178,590**

Project Cost Estimate			
Total Project	**$15,624,304**	Total Project Escalated	**$16,463,955**
		Rounded Escalated Total	**$16,464,000**

Funding Summary

	Project Cost (Escalated)	Funded in Prior Biennia	Current Biennium 2023-2025	2025-2027	Out Years
Acquisition					
Acquisition Subtotal	$0				**$0**
Consultant Services					
Consultant Services Subtotal	$1,266,723		$1,266,723		**$0**
Construction					
Construction Subtotal	$14,136,395		$10,136,395	$4,000,000	**$0**
Equipment					
Equipment Subtotal	$0		$0		**$0**
Artwork					
Artwork Subtotal	$0		$0		**$0**
Agency Project Administration					
Project Administration Subtotal	$882,247		$882,247		**$0**
Other Costs					
Other Costs Subtotal	$178,590		$178,590		**$0**
Project Cost Estimate					
Total Project	**$16,463,955**	**$0**	**$12,463,955**	**$4,000,000**	**$0**
	$16,464,000	**$0**	**$12,464,000**	**$4,000,000**	**$0**
	Percentage requested as a new appropriation		**76%**		

What is planned for the requested new appropriation? (*Ex. Acquisition and design, phase 1 construction, etc.*)
The project would result in the conversion of the recently completed Health Science, Samuelson, and Discovery Halls to a renewable energy source
while providing redundancy to the geothermal well associated with the North Academic Complex.
Insert Row Here

What has been completed or is underway with a previous appropriation?
Nothing was completed in the previous appropriation
Insert Row Here

What is planned with a future appropriation?
The future appropriation will be for the completion of the Geothermal well installation.
Insert Row Here

Cost Estimate Details

Acquisition Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Consultant Services				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0268**	**$0**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$774,227			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	**$774,227**	**1.0296**	**$797,145**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)				
Geotechnical Investigation				
Commissioning				
Site Survey				
Testing				
LEED Services				
Voice/Data Consultant				
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)	$40,000			
Landscape Consultant				
Other				
Insert Row Here				
Sub TOTAL	**$40,000**	**1.0296**	**$41,184**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$347,841			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Other				
Insert Row Here				
Sub TOTAL	**$347,841**	**1.0553**	**$367,077**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$58,103			
Other				
Insert Row Here				
Sub TOTAL	**$58,103**	**1.0553**	**$61,317**	Escalated to Mid-Const.

CONSULTANT SERVICES TOTAL	**$1,220,172**		**$1,266,723**	

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Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation				
G20 - Site Improvements				
G30 - Site Mechanical Utilities				
G40 - Site Electrical Utilities				
G60 - Other Site Construction				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0353**	**$0**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Insert Row Here				
Sub TOTAL	**$0**	**1.0353**	**$0**	
3) Facility Construction				
A10 - Foundations				
A20 - Basement Construction				
B10 - Superstructure	$2,191,257			
B20 - Exterior Closure				
B30 - Roofing				
C10 - Interior Construction				
C20 - Stairs				
C30 - Interior Finishes				
D10 - Conveying				
D20 - Plumbing Systems				
D30 - HVAC Systems	$5,658,627			
D40 - Fire Protection Systems				
D50 - Electrical Systems	$1,443,529			
F10 - Special Construction				
F20 - Selective Demolition	$650,000			
General Conditions				
2nd Heat recovery Chiller	$902,385			NAC only has 1 chiller in base bid
2nd chiller - Condenser pumps	$24,532			
2nd chiller - HWP Pumps	$21,490			
2nd chiller - CWPs	$22,364			
2nd Chiller - Trap Primers	$5,440			
Distribution Piping	$89,600			
2nd Chiller - VFD	$93,720			
Gas piping to generator	$7,200			
MSB(3,000 amp service)	$180,000			
Distribution Panel	$13,980			
Electrical Wiring & Distribution	$250,000			
Misc Site utility modification	$65,000			

LTHW Loop extension	$150,000			
Sub TOTAL	**$11,769,124**	**1.0553**	**$12,419,957**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$11,769,124**		**$12,419,957**	
	$2,413		*$2,546 per GSF*	
This Section is Intentionally Left Blank				
7) Owner Construction Contingency				
Allowance for Change Orders	$588,456			
Other				
Insert Row Here				
Sub TOTAL	**$588,456**	**1.0553**	**$620,998**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0553**	**$0**	
9) Sales Tax				
Sub TOTAL	**$1,038,037**		**$1,095,440**	
CONSTRUCTION CONTRACTS TOTAL	**$13,395,617**		**$14,136,395**	

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Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Equipment					
E10 - Equipment					
E20 - Furnishings					
F10 - Special Construction					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0553**	**$0**	
2) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0553**	**$0**	
3) Sales Tax					
Sub TOTAL	**$0**			**$0**	
EQUIPMENT TOTAL	**$0**			**$0**	

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Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Artwork					
Project Artwork	$0				0.5% of total project cost for new construction
Higher Ed Artwork	$82,320				0.5% of total project cost for new and renewal construction
Art Deduct	-$82,320				
Insert Row Here					
ARTWORK TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Agency Project Management					
Agency Project Management	$836,015				
Additional Services					
Other					
Insert Row Here					
Subtotal of Other	*$0*				
PROJECT MANAGEMENT TOTAL	**$836,015**		**1.0553**	**$882,247**	

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Cost Estimate Details

Other Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs					
Hazardous Material Remediation/Removal	$80,000				
Historic and Archeological Mitigation					
Shop Support	$27,500				
Permitting	$65,000				
OTHER COSTS TOTAL	**$172,500**		**1.0353**	**$178,590**	

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C-100(2023)
Additional Notes

Tab A. Acquisition
Insert Row Here

Tab B. Consultant Services
Insert Row Here

Tab C. Construction Contracts
Insert Row Here

Tab D. Equipment
Insert Row Here

Tab E. Artwork
Insert Row Here

Tab F. Project Management
Insert Row Here

Tab G. Other Costs
Insert Row Here

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Expected Use of Bond/COP Proceeds

Agency No:	**375**	**Agency Name**	**Central Washington University**
Contact Name:	**Steve Dupont**		
Phone:	**509-201-0528**	**Fax:**	
Fund(s) Number:	**26C**	**Fund Name:**	**Climate Commitment Account**
Project Number:	**40000161**	**Project Title:**	**Secondary Geothermal Module**

Agencies are required to submit this form for all projects funded with Bonds or COPs, as applicable. OFM will collect and forward the forms to the Office of the State Treasurer.

1. Will any portion of the project or asset ever be owned by any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
2. Will any portion of the project or asset ever be leased to any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
3. Will any portion of the project or asset ever be managed or operated by any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
4. Will any portion of the project or asset be used to perform sponsored research under an agreement with a nongovernmental entity (business, non-profit entity, or the federal government), including any federal department or agency? ☐ Yes ☒ No
5. Does the project involve a public/private venture, or will any entity other than the state or one of its agencies or departments ever have a special priority or other right to use any portion of the project or asset to purchase or otherwise acquire any output of the project or asset such as electric power or water supply? ☐ Yes ☒ No
6. Will any portion of the Bond/COP proceeds be granted or transferred to nongovernmental entities (businesses, non-profit entities, or the federal government) or granted or transferred to other governmental entities which will use the grant for nongovernmental purposes? ☐ Yes ☒ No
7. If you have answered "Yes" to any of the questions above, will your agency or any other state agency receive <u>any payments</u> from any nongovernmental entity, for the use of, or in connection with, the project or assets? A nongovernmental entity is defined as ☐ Yes ☒ No
    a. any person or private entity, such as a corporation, partnership, limited liability company, or association;
    b. any nonprofit corporation (including any 501(c)(3) organization); or
    c. the federal governmental (including any federal department or agency).
8. Is any portion of the project or asset, or rights to any portion of the project or asset, expected to be sold to any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
9. Will any portion of the Bond/COP proceeds be loaned to nongovernmental entities or loaned to other governmental entities that will use the loan for nongovernmental purposes? ☐ Yes ☒ No
10. Will any portion of the Bond/COP proceeds be used for staff costs for tasks not directly related to a financed project(s)? ☐ Yes ☒ No

If all of the answers to the questions above are "No," request tax-exempt funding. If the answer to any of the questions is "Yes," contact your OFM capital analyst for further review.

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601 W First Ave, Ste 1300
Spokane, WA 99201, USA
509.838.9020
mwengineers.com

MEMORANDUM

DATE: September 8, 2023
PROJECT: CWU Science GeoEco Plant Feasibility Evaluation
MW REP: Anthony Schoen, PE

TO: Delano Palmer
SUBJECT: CWU Science GeoEco Plant Feasibility Evaluation

NOTE: This is a record of the above transaction. Please inform us immediately of any omissions or discrepancies.

Overview

MW was engaged by Central Washington University to evaluate the feasibility of converting the building heating source from fossil fuel generated campus steam to an all-electric heating system for three existing buildings within their Science Neighborhood. The three existing buildings evaluated within CWU's Science Neighborhood were constructed over the last 10-years and include Discovery Hall (120,000 SF), Samuelson (142,000 SF), and Health Sciences (81,000 SF).

This document will outline the feasibility and benefits of installing a second geothermal central utility plant to service the Science Neighborhood with a new all-electric heating and cooling system.

Feasibility

The proposed conversion to an all-electric heating system for the three buildings evaluated would utilize a similar system to the GeoEco Plant that is starting construction in the fall of 2023, which will service upwards of 500,000 square feet (SF) of buildings with the first connected building being the new North Academic Complex. This GeoEco Plant is referred to in this document as the NAC GEP. The NAC GEP utilizes a geothermal open loop ground source heat pump. This type of system is one of the most efficient methods of generating all-electric heating and cooling water. One of the major limitations to geothermal heat pump systems is that heating water temperatures are limited to an upper end of approximately 125F. Many existing buildings at CWU and around the country were designed to use 160-180F heating water, which presents major cost and feasibility challenges when looking to convert the existing systems to utilize equipment that generates lower temperature heating water such as a geothermal heat pump.

Discovery Hall, Samuelson, and Health Sciences receive heating water using steam-to-heating water converters back at the existing central utility plant. Steam is provided from the existing fossil fuel steam boilers also located within the existing central utility plant. Unlike most of the existing buildings on CWU's campus, each of the three evaluated buildings were designed to use low temperature heating water, with a temperature of 120F. The design of these buildings to use lower temperature heating water with piping routed from the existing central utility plant will allow the conversion to an all-electric geothermal heating water system without modifications within the three buildings.

MW Engineers

601 W First Ave, Ste 1300
Spokane, WA 99201, USA
509.838.9020
mwengineers.com

In addition to the ability of the buildings to be serviced by a low temperature geothermal heating water system, the feasibility of providing multiple connections to the Ellensburg aquifer for geothermal energy to service the entirety of CWU's campus was validated as part of McKinstry Campus Geothermal Assessment completed on June 10, 2022. The McKinstry report coupled with continued validation for the NAC GEP provides a high degree of certainty that a second geothermal central plant to service Discovery Hall, Samuelson, and Health Sciences, referred to in this document as the Science GEP, is feasible.

Carbon Reduction

The existing steam boilers within the central utility plant are the primary contributors of carbon emissions at Central Washington University. CWU is the City of Ellensburg's largest natural gas customer. All efforts to shift heating loads off the existing steam boilers to all-electric heating systems will immediately reduce the campus' carbon emissions.

The new proposed Science GEP would be sized to service, at a minimum, the three buildings studied within this report, totaling approximately 343,000 SF of high energy intensity Science buildings. Using the same 50-year timeline that the Energy Life Cycle Cost Analysis (ELCCA) uses, the Science GEP would be roughly equivalent to removing 4,800 cars from the road, or a CO2 reduction of approximately 22,000 metric tons.

Additionally, the NAC GEP is connected to the existing steam plant so that in the event of a failure of equipment, CWU can provide heating to the buildings serviced by the NAC GEP using the existing steam boilers. Adding a second node to the geothermal low temperature heating water system will allow the backup of the NAC GEP and Science GEP to occur using one another, or an all-electric heating system. This further reduces the dependency of CWU on natural gas.

Community Benefits

The NAC GEP was designed to not only functionally service the campus' heating and cooling needs, but also as a demonstration and education tool for students, faculty, the local Ellensburg community, and anyone that is interested in how the campus is reshaping their energy generation systems. The Science GEP would add a second node to a potential campus wide system that supports CWU's carbon reduction goals and further strengthens the educational opportunities for all other institutions and individuals interested in a model to reduce carbon emissions in their energy generation.

Summary

With the campus' current commitment to geothermal energy at the NAC GEP, MW recommends the conversion of the primary heating source for Discovery Hall, Samuelson, and Health Sciences from fossil fuel generated steam to an all-electric geothermal heat pump system. This system reduces the campus' carbon footprint, provides an educational tool for CWU and Washington State, and provides maintenance continuity on campus.

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Geothermal Plant

	Quantity	Unit	Rate	Total
Structure	**4,937**	**SF**	**443.84**	**2,191,257**
Clear and grub	5,000	SF	1.00	5,000
Remove tree	4	EA	1,000.00	4,000
Excavation	183	CY	38.00	6,948
Base aggregates	91	CY	55.00	5,028
Continuous footings				
60" x 18"	14.78	CY	890.00	13,152
24" x 16"	3.56	CY	890.00	3,173
Spread footings				
4' x4'x 14"	4.98	CY	890.00	4,430
SOG 8" (with thickened edge at panels)	4,937	SF	16.88	83,337
Utilidor access ways (frame and panel)	282	SF	78.00	21,996
Housekeeping pads	1,880	SF	18.55	34,874
1.5' stem wall	560	SF	74.00	41,403
Timber package				
GL beams and columns				
GL 6-3/4 x12	40	LF	92.16	3,686
GL 10 3/4 x 33	459	LF	136.24	62,534
GL 10 3/4 x 12	54	LF	112.80	6,091
FSC - certification	1	LS	175,000.00	175,000
HSS steel	2.69	TN	12,960.00	34,906
5' d pipe column	126	LF	182.14	22,950
Ties and hangers	4,937	SF	3.30	16,292
CLT - visual grade	1,656	SF	33.00	54,648
Hardware	4,937	SF	29.21	144,210
Detailing and delivery	4,937	SF	8.60	42,458
Wood framing- infill	4,937	SF	16.33	80,621
Holddowns	28	EA	168.00	4,704
Exterior wall assembly				
Shearwall assemblies- 5 ply	4,806	SF	36.00	173,016
Insulation	4,806	SF	5.40	25,952
Weather/air barrier	4,806	SF	6.10	29,317
Screening and frame	702	SF	70.00	49,140
Standing seam metal panel - varying widths	4,806	SF	68.00	326,808
Curtainwall	1,093	SF	128.00	139,904
Coiling door	1	EA	12,350.00	12,350
Roof assembly				
TPO	4,937	SF	22.90	113,057
Taper insulation, spray foam	4,937	SF	7.21	35,596
Vapor barrier	4,937	SF	2.33	11,503
CLT - visual grade	4,937	SF	33.00	162,921

Geothermal Plant

	Quantity	Unit	Rate	Total
Steel PV frame, finished	12.58	TN	13,250.00	166,681
Roof hatch and ladder	1	EA	4,338.00	4,338
Flashing and coping	722	LF	15.50	11,191
Doors w/ controlled access	3	EA	2,890.00	8,670
Interior painting, signage and graphics	4,937	SF	10.00	49,370
Mechanical	**4,937**	**SF**	**1,146.17**	**5,658,627**
Note 1: Mechanical equipment installed in the primary building is included with the building cost estimate and excluded from the Geothermal Plant costs.				
Note 2: All items noted as "Future" are excluded from this study.				
Heat recovery chiller 165 TN - HRC-1 (3 at 165 T)	495	TN	1,823.00	902,385
Heat recovery chiller 165 TN - HRC-2 - future				*NIC*
HW Generator - GEP Backup	1	EA	49,300.00	49,300
Fan coil unit, 3000 CFM	1	EA	5,500.00	5,500
Heat exchangers condenser	1	EA	48,500.00	48,500
Heat exchangers CW	1	EA	46,750.00	46,750
Air separators	3	EA	6,580.00	19,740
Exhaust fan, 3500 CFM	1	EA	3,430.00	3,430
Air/in out	6	EA	192.00	1,152
VFDs	11	EA	15,620.00	171,820
Venturis	6	EA	31,040.00	186,240
Roof cowls	2	EA	3,980.00	7,960
CW filter vessel	2	EA	76,200.00	152,400
CW Buffer tanks - 2000 GAL	3	EA	71,890.00	215,670
LTWH expansion tanks	1	EA	8,500.00	8,500
Chilled water expansion tank	3	EA	8,500.00	25,500
Campus chilled water filter vessel	2	EA	76,200.00	152,400
POU instant hot	1	EA	2,660.00	2,660
Pumps				
HWP	4	EA	10,745.00	42,980
CWP	4	EA	11,182.00	44,728
Condenser pump	2	EA	12,266.00	24,532
Trap primers	3	EA	5,440.00	16,320
Distribution piping, valves and ancillaries	1,521	LF	128.00	194,688
Gas piping to generator	100	LF	72.00	7,200
Geofield				
Test well - per GeoEngineer's, Inc. quote	1	LS	1,380,000.00	1,380,000
Large bore heat exchange well, 1 each use test well widened	2,000	LF	900.00	1,800,000
Controls	4,937	SF	19.50	96,272
TAB	400	HR	130.00	52,000

Central Washington University

Geothermal Plant

	Quantity	Unit	Rate	Total
Electrical	**4,937**	**SF**	**292.39**	**1,443,529**
Trench and cover primary feeder and ductbank to existing service	226	LF	542.00	122,492
Trench and cover primary feeder	406	LF	438.00	177,828
Line switch - MV connection	1	EA	70,000.00	70,000
Transformer - TB 60	1	EA	141,310.00	141,310
MSB	3,000	AMP	60.00	180,000
Secondary feeders and connections	426	LF	62.00	26,412
Distribution panels	4	EA	6,990.00	27,960
Submetering	11	EA	2,450.00	26,950
Secondary transformer 45KVA	1	EA	48,700.00	48,700
ATS	1	EA	39,800.00	39,800
Generator	250	kW	635.00	158,750
Generator enclosure, NEMA 3R	1	LS	29,480.00	29,480
NEMA 3 tap box and docking for portable generators	1	LS	52,000.00	52,000
Lighting and controls	4,937	SF	14.50	71,587
Fire alarm	4,937	SF	3.00	14,811
Fiber optic cabinet	1	EA	8,340.00	8,340
Fiber optic connections to MDF				*w/ building*
Wiring and conduit	4,937	SF	18.90	93,309
Solar photovoltaic system	40	kW	3,290.00	131,600
Connection to mechanical equipment	35	PT	440.00	15,400
Service and distribution for well pump remote from building	1	LS	6,800.00	6,800
Cost Before Markups				**9,293,412**
Design Contingency	3.00%			278,802
Contractor Contingency	4.00%			382,889
General Requirements	5.70%			567,441
General Conditions	6.80%			715,533
Office Overhead & Profit	4.00%			449,523
Bonds & Insurance	2.00%			233,752
Permits & Free - By Owner	0.00%			
Escalation to Start Date (Sep 2023)	1.60%			190,742
Cost After Markups	**4,937**	**SF**	**2,453.33**	**12,112,093**

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375 - Central Washington University
Capital Project Request

2023-25 Biennium

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Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 4:51PM

Project Number: **40000162**
Project Title: **Science Building Carbon Reduction**

Description

Starting Fiscal Year: 2025
Project Class: Preservation
Agency Priority: 2

Project Summary

Central Washington University seeks funding to aggressively help bring our Science 1 building in closer in compliance of the Clean Building Standard Performance (HSB 1257) for our campus. The facility currently has an estimated Energy Use Intensity (EUI) 245.5 while the target for our institution is 102. Improving the Science building, which has the 2nd highest EUI rating on our campus; is a critical step in our efforts for campus compliance with Clean Building Performance standards.

Project Description

What is the problem/opportunity? Identify: priority, underserved people/communities,operating budget savings, public safety improvements & clarifying details.Preservation projects: include information about the current condition of thefacility/system.

CWU conducted an energy audit of the Science building in 2022 and identified 11 systems in need of system or component modification which could dramatically reduce the carbon foot print of the building and EUI. As the academic building with the largest energy usage with multiple scientific laboratories, many inefficiencies were identified for reduction. In its current operation or engineers estimated and excess of 1,900 tons of carbon and potential $150k in annual savings.

This request is a priority because, along with being a cornerstone of CWU's Climate Action Plan strategy; recent legislation such as the Clean Building Performance Standard (1257), Decarbonization (1390) have an aggressive time table associated with university compliance. The implementation and completion of this project would result in closer campus wide compliance of the Clean Building Performance Standard.

What will the request produceor construct (predesign/design of a building, additional space, etc.)? When will the project start/end? Identify if the project can be phased, and if so,which phase is included in the request. Provide detailed cost backup.

Per the recommendation of CWU consultant engineers the following systems would be updated as part of this carbon reduction:

- Air Cooled Chiller Replacement (Estimated Cost $75k) EUI reduction estimate 0.6
- Heat recovery run around loop for Air HandlingUnits 1-4 (Estimated Cost $278k) EUI reduction 47.6
- Lab Exhaust Nightime turndown (Estimated Cost $10k) EUI reduction 16.4
- Lab Exhaust retrofit phoenix valves (Estimated Lab Exhaust $2.9 Million) EUI reduction 8.4
- Low flow fume hoods (Estimated Cost $1.26 Million) EUI reduction 4.1
- VAV retrofit for Air handling unit 5 (Estimated Cost $165k) EUI reduction4.4
- LED lighting and controls (Estimated Cost $1.02 Million) EUI reduction 7.7
- Filter updates (Estimated Cost $1k) EUI reduction 14.6
- Revision of building set points and schedules (Estimated Cost $73k) EUI reduction 13.2

The summation of these activities will result in approximately 1,900 tons of carbon reduction, $150k inannual energy savings, and reduction in 117 EUI for the building. The project can be phased. The estimate is representative of only completing the Lab Exhaust Retrofit of phoenix valves

How would the request address the problem or opportunity identified in question #1? What would be the result of not taking action?

375 - Central Washington University
Capital Project Request

2023-25 Biennium

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Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 4:51PM

Project Number: **40000162**
Project Title: **Science Building Carbon Reduction**

Description

The project will be one of the preliminary steps of our Decarbonization plans, Climate Action Plan and closer compliance to campus wide EUI standards. Without the implement of this project, inflation is expected to increase project costs over time and postpone partial compliance of the Clean Building Performance standard.

What alternatives were explored? Why was the recommended alternative chosen? Be prepared to provide detailed cost backup. If this project has an associated predesign, please summarize the alternatives the predesign considered.

As the evaluation of or buildings are part of legislative requirements for energy efficiency and carbon reduction this project is required as is a matter of time in terms of implementation. This estimate for this project is broken down on the attached C100 estimate.

Which clientele would be impacted by the budget request? Where and how many units would be added, people or communities served,etc.

The proposed project would benefit all citizens of Washington State with cleaner air to breathe as a product of more energy efficient buildings systems generating less carbon emissions.

Does this project or program leverage non-state funding? If yes, how much by source? If the other funding source requires cost share, also include the minimum state (or other) share OF project cost allowable and the supporting citation or documentation.

Possibly. CWU is looking to supplement this project with federal funding from the Inflation Reduction Act surrounding energy efficiencies and carbon fuel reduction along with any other funding opportunities that would allow a financial match of state funding.

Describe how this project supports the agency's strategic master plan or would improve agency performance. Reference feasibility studies, master plans, space programming, and other analyses as appropriate.

This project supports the CWU Capital Master Plan by reducing deferred maintenance and proactively solving a problem before a critical failure occurs; doing so protects the integrity of operations and avoids repair costs. This project supports every aspect of CWU's Strategic Plan by emphasizing student success, engagement, belonging and stewardship with the integration of sustainable physical facilities use to illustrate and educate the importance of environmentally concise designs and operations.

Does this project include IT-related costs, includinghardware, software,cloud-based services, contracts or IT staff? If yes, IT Addendum

No

If the project is linked to the Puget Sound Action Agenda, describe the impacts on the Action Agenda, including expenditure and FTE detail. See Chapter 12 Puget Sound Recovery) in the 2021-23 Operating Budget Instructions.

This project is not linked to the Puget Sound Action Agenda.

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375 - Central Washington University
Capital Project Request

2023-25 Biennium

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Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 4:51PM

Project Number: 40000162
Project Title: Science Building Carbon Reduction

Description

How does this project contribute to meeting the greenhouse gas emissions limits established in RCW70A.45.050, Clean Buildings performance standards in RCW 19.27A.210, or other statewide goals to reduce carbon pollution and/or improve efficiency?

Yes, because this project is a necessary as part of our compliance with the Clean Building Performance standard. If funded for all phases of the project it will result in the EUI compliance of Health Science and reduction of 1,900 metric tons of CO2.

How is your proposal impacting equity in the state? Which communities are impacted by this proposal? Include both demographic and geographic communities. How are disparities in communities impacted?

CWU is one of the most diverse public four-year university in Washington. Along with increasing the number of students of color, CWU has expanded strategies for keeping students enrolled and on-track to graduate. CWU's efforts to support student success has earned six Higher Education Excellence in Diversity Awards from INSIGHT Into Diversity magazine over the last seven years. CWU is the only institution in the state that can boast this record of achievement. This project ensures that these students are executing academic course work in laboratory buildings that promote sustainability and innovation in energy efficiency.

Location
City: Ellensburg **County:** Kittitas **Legislative District:** 013

Project Type
Facility Preservation (Minor Works)

Growth Management impacts
Central Washington University (CWU) is required to adhere to the State Environmental Policy Act (SEPA). The SEPA process is where growth management act impacts are considered. CWU coordinates planning efforts with all applciable city and county jursidictions.

Funding

Acct Code	Account Title	Estimated Total	Expenditures Prior Biennium	Expenditures Current Biennium	2023-25 Fiscal Period Reapprops	2023-25 Fiscal Period New Approps
26C-1	Climate Commit Accou-State	4,509,000				4,509,000
	Total	**4,509,000**	**0**	**0**	**0**	**4,509,000**

Acct Code	Account Title	Future Fiscal Periods 2025-27	2027-29	2029-31	2031-33
26C-1	Climate Commit Accou-State				
	Total	**0**	**0**	**0**	**0**

Schedule and Statistics

Start Date	End Date

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375 - Central Washington University
Capital Project Request

2023-25 Biennium

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Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 4:51PM

Project Number: **40000162**
Project Title: **Science Building Carbon Reduction**

Schedule and Statistics

	Start Date	End Date
Predesign		
Design	7/1/2024	9/1/2024
Construction	10/1/2024	6/1/2025

	Total
Gross Square Feet:	158,177
Usable Square Feet:	110,000
Efficiency:	69.5%
Escalated MACC Cost per Sq. Ft.:	22
Construction Type:	College Classroom Facilities
Is this a remodel?	Yes
A/E Fee Class:	B
A/E Fee Percentage:	12.21%

Cost Summary

		Escalated Cost	% of Project
Acquisition Costs Total		**0**	**0.0%**
Consultant Services			
Pre-Schematic Design Services		0	0.0%
Construction Documents		289,706	6.4%
Extra Services		0	0.0%
Other Services		133,310	3.0%
Design Services Contingency		22,576	0.5%
Consultant Services Total		**445,590**	**9.9%**
Maximum Allowable Construction Cost(MACC)	**3,424,640**		
Site work		0	0.0%
Related Project Costs		0	0.0%
Facility Construction		3,424,640	76.0%
GCCM Risk Contingency		0	0.0%
GCCM or Design Build Costs		0	0.0%
Construction Contingencies		97,311	2.2%
Non Taxable Items		0	0.0%
Sales Tax		295,844	6.6%
Construction Contracts Total		**3,817,795**	**84.7%**
Equipment			
Equipment		0	0.0%
Non Taxable Items		0	0.0%
Sales Tax		0	0.0%

OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

*

Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 4:51PM

Project Number: 40000162
Project Title: Science Building Carbon Reduction

Cost Summary

	Escalated Cost	% of Project
Equipment Total	**0**	**0.0%**
Art Work Total	**0**	**0.0%**
Other Costs Total	**0**	**0.0%**
Project Management Total	**245,913**	**5.5%**
Grand Total Escalated Costs	**4,509,298**	
Rounded Grand Total Escalated Costs	**4,509,000**	

Operating Impacts

No Operating Impact

Narrative

The installation of the new phoenix valves will result in operational efficiency that won't require any additions to our operational FTE.

Capital Project Request

2023-25 Biennium

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Parameter	Entered As	Interpreted As
Biennium	2023-25	2023-25
Agency	375	375
Version	3B-A	3B-A
Project Classification	*	All Project Classifications
Capital Project Number	40000162	40000162
Sort Order	Project Priority	Priority
Include Page Numbers	Y	Yes
For Word or Excel	N	N
User Group	Agency Budget	Agency Budget
User Id	*	All User Ids

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STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Updated May 2023

Agency	Central Washington University
Project Name	Science Carbon Reduction Project
OFM Project Number	40000162

Contact Information	
Name	Steve Dupont
Phone Number	509-201-0528
Email	Steve.Dupont@cwu.edu

Statistics			
Gross Square Feet	158,177	MACC per Gross Square Foot	$20
Usable Square Feet	110,000	Escalated MACC per Gross Square Foot	$21
Alt Gross Unit of Measure			
Space Efficiency	69.5%	A/E Fee Class	B
Construction Type	College classroom faciliti	A/E Fee Percentage	12.19%
Remodel	Yes	Projected Life of Asset (Years)	30
Additional Project Details			
Procurement Approach	DBB	Art Requirement Applies	No
Inflation Rate	3.33%	Higher Ed Institution	Yes
Sales Tax Rate %	8.40%	Location Used for Tax Rate	Ellensburg, WA
Contingency Rate	5%		
Base Month (Estimate Date)	September-23	OFM UFI# (from FPMT, if available)	
Project Administered By	Agency		

Schedule			
Predesign Start		Predesign End	
Design Start	July-24	Design End	September-24
Construction Start	October-24	Construction End	June-25
Construction Duration	9 Months		

Green cells must be filled in by user

Project Cost Summary

Total Project	$4,306,908	Total Project Escalated	$4,508,873
		Rounded Escalated Total	$4,509,000

Amount funded in Prior Biennia	**$0**
Amount in current Biennium	**$4,509,000**
Next Biennium	**$0**
Out Years	**$0**

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$0		
Design Phase Services	$282,613		
Extra Services	$0		
Other Services	$126,971		
Design Services Contingency	$20,479		
Consultant Services Subtotal	**$430,063**	**Consultant Services Subtotal Escalated**	**$445,551**

Construction			
Maximum Allowable Construction Cost (MACC)	$3,200,000	Maximum Allowable Construction Cost (MACC) Escalated	$3,353,920
DBB Risk Contingencies	$0		
DBB Management	$0		
Owner Construction Contingency	$160,000		$167,696
Non-Taxable Items	$0		$0
Sales Tax	$282,240	Sales Tax Escalated	$295,816
Construction Subtotal	**$3,642,240**	**Construction Subtotal Escalated**	**$3,817,432**

Equipment			
Equipment	$0		
Sales Tax	$0		
Non-Taxable Items	$0		
Equipment Subtotal	**$0**	**Equipment Subtotal Escalated**	**$0**

Artwork			
Artwork Subtotal	**$0**	**Artwork Subtotal Escalated**	**$0**

Agency Project Administration			
Agency Project Administration Subtotal	$234,605		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$234,605**	**Project Administration Subtotal Escalated**	**$245,890**

Other Costs			
Other Costs Subtotal	**$0**	**Other Costs Subtotal Escalated**	**$0**

Project Cost Estimate			
Total Project	**$4,306,908**	Total Project Escalated	**$4,508,873**
		Rounded Escalated Total	**$4,509,000**

Funding Summary

	Project Cost (Escalated)	Funded in Prior Biennia	Current Biennium 2023-2025	2025-2027	Out Years
Acquisition					
Acquisition Subtotal	$0				**$0**
Consultant Services					
Consultant Services Subtotal	$445,551		$445,551		**$0**
Construction					
Construction Subtotal	$3,817,432		$3,817,432		**$0**
Equipment					
Equipment Subtotal	$0				**$0**
Artwork					
Artwork Subtotal	$0				**$0**
Agency Project Administration					
Project Administration Subtotal	$245,890		$245,890		**$0**
Other Costs					
Other Costs Subtotal	$0				**$0**
Project Cost Estimate					
Total Project	**$4,508,873**	**$0**	**$4,508,873**	**$0**	**$0**
	$4,509,000	**$0**	**$4,509,000**	**$0**	**$0**
	Percentage requested as a new appropriation		**100%**		

What is planned for the requested new appropriation? (*Ex. Acquisition and design, phase 1 construction, etc.*)
This appropriation is targeted to use Climate Commiment Act appropriations in the reduction in building EUI for our Science 1 building that is primary laboratory space. These funds will result in the selective retrofit of Phoenix valves at fume hood locations
Insert Row Here

What has been completed or is underway with a previous appropriation?
Nothing has been completed or underway
Insert Row Here

What is planned with a future appropriation?
No appropration is planned beyond the current biennium.
Insert Row Here

Cost Estimate Details

Acquisition Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Consultant Services				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0269**	**$0**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$282,613			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	**$282,613**	**1.0297**	**$291,007**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)				
Geotechnical Investigation				
Commissioning				
Site Survey				
Testing				
LEED Services				
Voice/Data Consultant				
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)				
Landscape Consultant				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0297**	**$0**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$126,971			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Other				
Insert Row Here				
Sub TOTAL	**$126,971**	**1.0481**	**$133,079**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$20,479			
Other				
Insert Row Here				
Sub TOTAL	**$20,479**	**1.0481**	**$21,465**	Escalated to Mid-Const.

CONSULTANT SERVICES TOTAL	**$430,063**		**$445,551**	

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Cost Estimate Details

Construction Contracts					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work					
G10 - Site Preparation					
G20 - Site Improvements					
G30 - Site Mechanical Utilities					
G40 - Site Electrical Utilities					
G60 - Other Site Construction					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0354**	**$0**	
2) Related Project Costs					
Offsite Improvements					
City Utilities Relocation					
Parking Mitigation					
Stormwater Retention/Detention					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0354**	**$0**	
3) Facility Construction					
A10 - Foundations					
A20 - Basement Construction					
B10 - Superstructure					
B20 - Exterior Closure					
B30 - Roofing					
C10 - Interior Construction					
C20 - Stairs					
C30 - Interior Finishes					
D10 - Conveying					
D20 - Plumbing Systems					
D30 - HVAC Systems					
D40 - Fire Protection Systems					
D50 - Electrical Systems					
F10 - Special Construction					
F20 - Selective Demolition					
General Conditions					
· Air Cooled Chiller Replacement					$75,000
· Heat recovery run around loop for Air Handling Units 1-4					$276,756
· Lab Exhaust Nightime turndown					$10,000

· Lab Exhaust retrofit phoenix valves	$3,200,000			$3,200,000
· Low flow fume hoods				$1,266,552
· VAV retrofit for Air handling unit 5				$164,868
· LED lighting and controls				$1,022,196
· Filter updates				$320
· Revision of building set points and schedules				$73,014
Insert Row Here				
Sub TOTAL	**$3,200,000**	**1.0481**	**$3,353,920**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$3,200,000**		**$3,353,920**	
	$20		*$21 per GSF*	
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7) Owner Construction Contingency				
Allowance for Change Orders	$160,000			
Other				
Insert Row Here				
Sub TOTAL	**$160,000**	**1.0481**	**$167,696**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0481**	**$0**	
9) Sales Tax				
Sub TOTAL	**$282,240**		**$295,816**	
CONSTRUCTION CONTRACTS TOTAL	**$3,642,240**		**$3,817,432**	

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Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Equipment					
E10 - Equipment					
E20 - Furnishings					
F10 - Special Construction					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0481**	**$0**	
2) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0481**	**$0**	
3) Sales Tax					
Sub TOTAL	**$0**			**$0**	
EQUIPMENT TOTAL	**$0**			**$0**	

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Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Artwork					
Project Artwork	$0				0.5% of total project cost for new construction
Higher Ed Artwork	$22,544				0.5% of total project cost for new and renewal construction
Art Deduct	-$22,544				
Insert Row Here					
ARTWORK TOTAL	**$0**		**NA**	**$0**	

Green cells must be filled in by user

Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Agency Project Management					
Agency Project Management	$234,605				
Additional Services					
Other					
Insert Row Here					
Subtotal of Other	*$0*				
PROJECT MANAGEMENT TOTAL	**$234,605**		**1.0481**	**$245,890**	

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Cost Estimate Details

Other Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs					
Hazardous Material Remediation/Removal					
Historic and Archeological Mitigation					
Other					
Insert Row Here					
OTHER COSTS TOTAL	**$0**		**1.0354**	**$0**	

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C-100(2023)
Additional Notes

Tab A. Acquisition
Insert Row Here

Tab B. Consultant Services
Insert Row Here

Tab C. Construction Contracts
Insert Row Here

Tab D. Equipment
Insert Row Here

Tab E. Artwork
Insert Row Here

Tab F. Project Management
Insert Row Here

Tab G. Other Costs
Insert Row Here

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Expected Use of Bond/COP Proceeds

Agency No:	**375**	**Agency Name**	**Central Washington University**
Contact Name:	**Steve Dupont**		
Phone:	**509-201-0528**	**Fax:**	
Fund(s) Number:	**26C**	**Fund Name:**	**Climate Commitment Account**
Project Number:	**40000162**	**Project Title:**	**Science Building Carbon Reduction**

Agencies are required to submit this form for all projects funded with Bonds or COPs, as applicable. OFM will collect and forward the forms to the Office of the State Treasurer.

1. Will any portion of the project or asset ever be owned by any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
2. Will any portion of the project or asset ever be leased to any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
3. Will any portion of the project or asset ever be managed or operated by any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
4. Will any portion of the project or asset be used to perform sponsored research under an agreement with a nongovernmental entity (business, non-profit entity, or the federal government), including any federal department or agency? ☐ Yes ☒ No
5. Does the project involve a public/private venture, or will any entity other than the state or one of its agencies or departments ever have a special priority or other right to use any portion of the project or asset to purchase or otherwise acquire any output of the project or asset such as electric power or water supply? ☐ Yes ☒ No
6. Will any portion of the Bond/COP proceeds be granted or transferred to nongovernmental entities (businesses, non-profit entities, or the federal government) or granted or transferred to other governmental entities which will use the grant for nongovernmental purposes? ☐ Yes ☒ No
7. If you have answered "Yes" to any of the questions above, will your agency or any other state agency receive <u>any payments</u> from any nongovernmental entity, for the use of, or in connection with, the project or assets? A nongovernmental entity is defined as ☐ Yes ☒ No
    a. any person or private entity, such as a corporation, partnership, limited liability company, or association;
    b. any nonprofit corporation (including any 501(c)(3) organization); or
    c. the federal governmental (including any federal department or agency).
8. Is any portion of the project or asset, or rights to any portion of the project or asset, expected to be sold to any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
9. Will any portion of the Bond/COP proceeds be loaned to nongovernmental entities or loaned to other governmental entities that will use the loan for nongovernmental purposes? ☐ Yes ☒ No
10. Will any portion of the Bond/COP proceeds be used for staff costs for tasks not directly related to a financed project(s)? ☐ Yes ☒ No

If all of the answers to the questions above are "No," request tax-exempt funding. If the answer to any of the

questions is “Yes,” contact your OFM capital analyst for further review.

Central Washington University

Energy Efficiency Measures - Summary

Science

Wendell | Hogue | Science | SURC | Bouillon

Navigate to the buildings using the **buttons to the above**.
Select measures in the **slicer to the right**. Ctrl click to select multiple measures.

EEM Selection

SC: Lab Exhaust Retrofit - Phoenix Valves (scheduled)

EEM Category	EEM	Net Project Cost ($)	Simple Payback	Carbon Reduction (Tons)	Annual Utility Savings $	EUI Reduction
HVAC	SC: Air-Cooled Chiller Replacement	$75,000	56.5	7	$1,326	0.6
HVAC	SC: Heat Recovery Run Around Loop - AHUs 1 & 3	$138,378	14.0	174	$9,891	8.0
HVAC	SC: Heat Recovery Run Around Loop - AHUs 2 & 4	$138,378	2.7	766	$51,235	39.6
HVAC	SC: Lab Exhaust Nighttime Turndown	$10,000	0.4	262	$24,943	16.4
HVAC	SC: Lab Exhaust Retrofit - Phoenix Valves (scheduled)	$4,200,000	374.5	133	$11,216	8.4
HVAC	SC: Low Flow Fume Hoods	$1,266,552	237.5	62	$5,332	4.1
HVAC	SC: VAV Retrofit for AHU-5	$164,868	25.5	77	$6,474	4.4
Lighting	SC: LED Lighting and Controls	$1,022,196	93.4	49	$10,949	6.8

Building Specific: 249.0
College/Univ: 102
Existing EUI: 245.5

$4,200,000
Net Project Cost ($)

$27.04
Net Project Cost ($/sf)

$501,444
$ / EUI Reduction

$11,216
Cost Savings

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OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

*

Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 5:12PM

Project Number: **40000163**
Project Title: **Emergency Backup Power System**

Description

Starting Fiscal Year: 2025
Project Class: Preservation
Agency Priority: 3

Project Summary

Central Washington University seeks funding to establish a dedicated emergency back-up system for our Ellensburg Washington campus. The network of electrical systems would ensure the safety of our on campus students in case of an extended power outage in winter months that pose serious life and safety risk to students that call our campus home during their collegiiate experience. This request was developed to prioritize the life and safety of the student body by ensuring emergency protocols for major risk situations are established.

Project Description

What is the problem/opportunity? Identify: priority, underserved people/communities, operating budget savings, public safety improvements & clarifying details. Preservation projects: include information about the current condition of the facility/system.

After a major power outage in May 2021, CWU identified the source of the failure as two feeder lines in the northwest sector of campus that were vulnerable to catastrophic electrical outage. While the implementation of feeder redundancy is currently being implemented to reduce the electrical load of feeders, we lack full time dedicated emergency power for the campus posing a major risks to students. Experiencing a extended facility outage during late fall or winter resulting in the loss of heating poses a risk to our student body and critical infrastructure to maintain heating and campus safety.

Using recent seasonal experiences as the basis of this emergency situation, during a power outage of 48 hours in the middle of winter critical services that would need to be maintained would include our Boiler Heat plant, Jongeward facilities maintenance building, University Police building and the Student Union recreation center as a “Shelter-In” facility with students.

This request is a priority because, CWU serves primarily a residential campus and ensuring the continuity of critical life & safety systems in the protection of our students during high risk months.

What will the request produce or construct (pre-design/design of a building, additional space, etc.)? When will the proje start/end? Identify if the project can be phased, and if so,which phase is included in the request. Provide detailed cost backup.

Per the recommendation of MW engineers the following buildings and systems would be automatically serviced by a back up 3 Megawatt generator and support equipment in an extended winter power outage. The full details of their Generator Upgrade Study is enclosed with this capital request.

- Boiler Heat Plant - this is the primary source of heating for campus using our steam distribution lines to residence halls, academic buildings and the student union recreational facility.
- Jongeward Facilities Building – This building houses the resources for campus maintenance and emergency repair including power and water distribution and clearing of central sidewalks and malls for emergency campus egress.
- University Police Building – Our campus police play a critical role in emergency response and their building is the central communication point to ensure safety protocols are implemented and maintained
- Student Union & Recreation Center (SURC) –As the largest facility of campus, the SURC serves as the designated “shelter-in” facility on campus in power shedding scenario in which the limited electrical or other utility services are dedicated

Description

to a facility posing the best safety scenario for students.
•Student Medical Center Facility – This facility is the on campus medical support facility offering a multitude of health services year round.
•Central mall & sidewalk lighting to provide safe lighting of pathways for students to the designated shelter-in facility ofthe SURC.

How would the request address the problem oropportunity identified in question #1? What would be the result of not taking action?

This request would allow CWU to establish dedicated emergency power for buildings and systems for the protection of the student body during high risk weather months. Without this, back up is power is serverly limited and partial dependent on facility personnel to load shed if roads are passable.

What alternatives were explored? Why was the recommended alternative chosen? Be prepared to provide detailed cost backup. If this project has an associated predesign, please summarize the alternatives the predesign considered.

Manual power load shedding is the only option for our campus at this stage and would only be dedicated to the facility Boiler Heating plant for a couple hours and be dependent on the availability of additional diesel fuel.

Which clientele would be impacted by the budget request? Where and how many units would be added, people or communities served, etc.

The proposed facilities that would benefit from this project serve the residential students of CWU that average 1,900 on an annal basis and establish emergency protocol for “sheltering – in” for an extended outage.

Does this project or program leverage non-state funding? If yes, how much by source? If the other funding source requires cost share, also include the minimum state (or other) share OF project cost allowable and the supporting citation or documentation.

No leveraging of non-state funding is expected for this project.

Describe how this project supports the agency’s strategic master plan or would improve agency performance. Reference feasibility studies, master plans, space programming, and other analyses as appropriate.

This project supports the CWU Capital Master Plan by proactively solving a problem before a critical failure occurs; doing so protects the integrity of operations and protect students. This project supports every aspect of CWU’s Strategic Plan by emphasizing student success,engagement, belonging and stewardship with the integration of sustainable physical facilities use to illustrate and educate the importance of environmentally concise designs and operations.

Does this project include IT-related costs, including hardware, software,cloud-based services, contracts or IT staff? If yes, IT Addendum
No

Does this project contribute to statewide goals toreduce carbon pollution and/or improve energy use? If yes, please elaborate.

No. This is an emergency protocol system.

OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

*

Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 5:12PM

Project Number: 40000163
Project Title: Emergency Backup Power System

Description

If the project is linked to the Puget Sound Action Agenda, describe the impacts on the Action Agenda,including expenditure and FTE detail. See Chapter 12 Puget Sound Recovery) in the 2021-23 Operating Budget Instructions.

This project is not linked to the Puget Sound Action Agenda.

How does this project contribute to meeting the greenhouse gas emissions limits established in RCW 70A.45.050, Clean Buildings performance standards in RCW 19.27A.210, or other statewide goals to reduce carbon pollution and/or improve efficiency?

This project is intended to serve emergency life and safety conditions for our student occupants which relies on diesel fuel generators for the multiple building loads it is intended to serve.

How does this project impact equity in the state? Which communities are impacted by this proposal? Include both demographic and geographic communities. How are disparities in communities impacted?

CWU is one of the most diverse public four-year university in Washington. Along with increasing the number of students of color, CWU has expanded strategies for keeping students enrolled and on-track to graduate. Equity in on campus housing is important to our strategic value of belonging by ensuring emergency power and protocols are in place.

Location
City: Ellensburg **County:** Kittitas **Legislative District:** 013

Project Type
Infrastructure Preservation (Minor Works)

Growth Management impacts
Central Washington University (CWU) is required to adhere to the State Environmental Policy Act (SEPA). The SEPA process is where growth management act impacts are considered. CWU coordinates planning efforts with all applicable city and county jurisdictions.

Funding

Acct Code	Account Title	Estimated Total	Expenditures Prior Biennium	Expenditures Current Biennium	2023-25 Fiscal Period Reapprops	2023-25 Fiscal Period New Approps
063-1	CWU Capital Projects-State	4,316,000				4,316,000
	Total	**4,316,000**	**0**	**0**	**0**	**4,316,000**

Acct Code	Account Title	Future Fiscal Periods 2025-27	2027-29	2029-31	2031-33
063-1	CWU Capital Projects-State				
	Total	**0**	**0**	**0**	**0**

OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

*

Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 5:12PM

Project Number: **40000163**
Project Title: **Emergency Backup Power System**

Schedule and Statistics

	Start Date	End Date
Predesign		
Design	7/1/2024	9/1/2024
Construction	10/1/2024	6/1/2025

	Total
Gross Square Feet:	1
Usable Square Feet:	0
Efficiency:	0.0%
Escalated MACC Cost per Sq. Ft.:	3,333,673
Construction Type:	Emergency Generator Facilities
Is this a remodel?	Yes
A/E Fee Class:	C
A/E Fee Percentage:	10.82%

Cost Summary

		Escalated Cost	% of Project
Acquisition Costs Total		**0**	**0.0%**
Consultant Services			
Pre-Schematic Design Services		0	0.0%
Construction Documents		249,907	5.8%
Extra Services		0	0.0%
Other Services		114,996	2.7%
Design Services Contingency		19,394	0.5%
Consultant Services Total		**384,297**	**8.9%**
Maximum Allowable Construction Cost(MACC)	**3,333,673**		
Site work		0	0.0%
Related Project Costs		0	0.0%
Facility Construction		3,333,673	77.2%
GCCM Risk Contingency		0	0.0%
GCCM or Design Build Costs		0	0.0%
Construction Contingencies		94,727	2.2%
Non Taxable Items		0	0.0%
Sales Tax		287,986	6.7%
Construction Contracts Total		**3,716,386**	**86.1%**
Equipment			
Equipment		0	0.0%
Non Taxable Items		0	0.0%
Sales Tax		0	0.0%

OFM

375 - Central Washington University
Capital Project Request

2023-25 Biennium

*

Version: 3B CWU 2024 Supplemental SUBMITTED Ver

Report Number: CBS002
Date Run: 9/9/2023 5:12PM

Project Number: 40000163
Project Title: Emergency Backup Power System

Cost Summary

	Escalated Cost	% of Project
Equipment Total	0	0.0%
Art Work Total	0	0.0%
Other Costs Total	31,065	0.7%
Project Management Total	184,735	4.3%
Grand Total Escalated Costs	4,316,483	
Rounded Grand Total Escalated Costs	4,316,000	

Operating Impacts

No Operating Impact

OFM

Capital Project Request

2023-25 Biennium

*

Parameter	Entered As	Interpreted As
Biennium	2023-25	2023-25
Agency	375	375
Version	3B-A	3B-A
Project Classification	*	All Project Classifications
Capital Project Number	40000163	40000163
Sort Order	Project Priority	Priority
Include Page Numbers	Y	Yes
For Word or Excel	N	N
User Group	Agency Budget	Agency Budget
User Id	*	All User Ids

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STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Updated May 2023

Agency	Central Washington University
Project Name	Campus Emergency Back-up Power
OFM Project Number	40000163

Contact Information	
Name	Steve Dupont
Phone Number	509-201-0528
Email	Steve.Dupont@cwu.edu

Statistics			
Gross Square Feet	1	MACC per Gross Square Foot	$3,115,000
Usable Square Feet	0	Escalated MACC per Gross Square Foot	$3,264,832
Alt Gross Unit of Measure			
Space Efficiency	0.0%	A/E Fee Class	C
Construction Type	Emergency generator fac	A/E Fee Percentage	10.80%
Remodel	Yes	Projected Life of Asset (Years)	30
Additional Project Details			
Procurement Approach	DBB	Art Requirement Applies	No
Inflation Rate	3.33%	Higher Ed Institution	Yes
Sales Tax Rate %	8.40%	Location Used for Tax Rate	Ellensburg, WA
Contingency Rate	5%		
Base Month (Estimate Date)	September-23	OFM UFI# (from FPMT, if available)	
Project Administered By	Agency		

Schedule			
Predesign Start		Predesign End	
Design Start	July-24	Design End	September-24
Construction Start	October-24	Construction End	June-25
Construction Duration	9 Months		

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Project Cost Summary

Total Project	$4,122,635	Total Project Escalated	$4,316,071
		Rounded Escalated Total	$4,316,000

Amount funded in Prior Biennia	**$0**
Amount in current Biennium	**$4,316,000**
Next Biennium	**$0**
Out Years	**$0**

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$0		
Design Phase Services	$243,736		
Extra Services	$0		
Other Services	$109,505		
Design Services Contingency	$17,662		
Consultant Services Subtotal	**$370,903**	**Consultant Services Subtotal Escalated**	**$384,260**

Construction			
Maximum Allowable Construction Cost (MACC)	$3,115,000	Maximum Allowable Construction Cost (MACC) Escalated	$3,264,832
DBB Risk Contingencies	$0		
DBB Management	$0		
Owner Construction Contingency	$155,750		$163,242
Non-Taxable Items	$0		$0
Sales Tax	$274,743	Sales Tax Escalated	$287,958
Construction Subtotal	**$3,545,493**	**Construction Subtotal Escalated**	**$3,716,032**

Equipment			
Equipment	$0		
Sales Tax	$0		
Non-Taxable Items	$0		
Equipment Subtotal	**$0**	**Equipment Subtotal Escalated**	**$0**

Artwork			
Artwork Subtotal	**$0**	**Artwork Subtotal Escalated**	**$0**

Agency Project Administration			
Agency Project Administration Subtotal	$176,239		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$176,239**	**Project Administration Subtotal Escalated**	**$184,717**

Other Costs			
Other Costs Subtotal	**$30,000**	**Other Costs Subtotal Escalated**	**$31,062**

Project Cost Estimate			
Total Project	**$4,122,635**	Total Project Escalated	**$4,316,071**
		Rounded Escalated Total	**$4,316,000**

Funding Summary

	Project Cost (Escalated)	Funded in Prior Biennia	Current Biennium 2023-2025	2025-2027	Out Years
Acquisition					
Acquisition Subtotal	$0				**$0**
Consultant Services					
Consultant Services Subtotal	$384,260		$384,260		**$0**
Construction					
Construction Subtotal	$3,716,032		$3,716,032		**$0**
Equipment					
Equipment Subtotal	$0		$0		**$0**
Artwork					
Artwork Subtotal	$0		$0		**$0**
Agency Project Administration					
Project Administration Subtotal	$184,717		$184,717		**$0**
Other Costs					
Other Costs Subtotal	$31,062		$31,062		**$0**
Project Cost Estimate					
Total Project	**$4,316,071**	**$0**	**$4,316,071**	**$0**	**$0**
	$4,316,000	**$0**	**$4,316,000**	**$0**	**$0**
	Percentage requested as a new appropriation		**100%**		

What is planned for the requested new appropriation? (*Ex. Acquisition and design, phase 1 construction, etc.*)

The funding will be used to establish a dedicated emergency back-up system for our Ellensburg campus by installing a 3 megawat generator to key campus facilities. The back up electrical system would enhance the safety of the campus in case of an extended power outage in winter months *that could pose serious life and safety risk.*

What has been completed or is underway with a previous appropriation?

nothing has been completed previous appropriation.

Insert Row Here

What is planned with a future appropriation?

We anticipate all work being complete in the same biennium.

Insert Row Here

Cost Estimate Details

Acquisition Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Consultant Services				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0269**	**$0**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$243,736			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	**$243,736**	**1.0297**	**$250,976**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)				
Geotechnical Investigation				
Commissioning				
Site Survey				
Testing				
LEED Services				
Voice/Data Consultant				
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)				
Landscape Consultant				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0297**	**$0**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$109,505			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Other				
Insert Row Here				
Sub TOTAL	**$109,505**	**1.0481**	**$114,772**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$17,662			
Other				
Insert Row Here				
Sub TOTAL	**$17,662**	**1.0481**	**$18,512**	Escalated to Mid-Const.

CONSULTANT SERVICES TOTAL	**$370,903**		**$384,260**	

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Cost Estimate Details

Construction Contracts					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work					
G10 - Site Preparation					
G20 - Site Improvements					
G30 - Site Mechanical Utilities					
G40 - Site Electrical Utilities					
G60 - Other Site Construction					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0354**	**$0**	
2) Related Project Costs					
Offsite Improvements					
City Utilities Relocation					
Parking Mitigation					
Stormwater Retention/Detention					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0354**	**$0**	
3) Facility Construction					
A10 - Foundations					
A20 - Basement Construction					
B10 - Superstructure					
B20 - Exterior Closure					
B30 - Roofing					
C10 - Interior Construction					
C20 - Stairs					
C30 - Interior Finishes					
D10 - Conveying					
D20 - Plumbing Systems					
D30 - HVAC Systems					
D40 - Fire Protection Systems					
D50 - Electrical Systems	$3,115,000				
F10 - Special Construction					
F20 - Selective Demolition					
General Conditions					

Insert Row Here				
Sub TOTAL	**$3,115,000**	**1.0481**	**$3,264,832**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$3,115,000**		**$3,264,832**	
	$3,115,000		*$3,264,832 per GSF*	
This Section is Intentionally Left Blank				
7) Owner Construction Contingency				
Allowance for Change Orders	$155,750			
Other				
Insert Row Here				
Sub TOTAL	**$155,750**	**1.0481**	**$163,242**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0481**	**$0**	
9) Sales Tax				
Sub TOTAL	**$274,743**		**$287,958**	
CONSTRUCTION CONTRACTS TOTAL	**$3,545,493**		**$3,716,032**	

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Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Equipment					
E10 - Equipment					
E20 - Furnishings					
F10 - Special Construction					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0481**	**$0**	
2) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.0481**	**$0**	
3) Sales Tax					
Sub TOTAL	**$0**			**$0**	
EQUIPMENT TOTAL	**$0**			**$0**	

Green cells must be filled in by user

Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Artwork					
Project Artwork	$0				0.5% of total project cost for new construction
Higher Ed Artwork	$21,580				0.5% of total project cost for new and renewal construction
Art Deduct	-$21,580				
Insert Row Here					
ARTWORK TOTAL	**$0**		**NA**	**$0**	

Green cells must be filled in by user

Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Agency Project Management					
Agency Project Management	$176,239				
Additional Services					
Other					
Insert Row Here					
Subtotal of Other	*$0*				
PROJECT MANAGEMENT TOTAL	**$176,239**		**1.0481**	**$184,717**	

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Cost Estimate Details

Other Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs					
Hazardous Material Remediation/Removal					
Historic and Archeological Mitigation					
Shop support	$30,000				
Insert Row Here					
OTHER COSTS TOTAL	**$30,000**		**1.0354**	**$31,062**	

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C-100(2023)
Additional Notes

Tab A. Acquisition
Insert Row Here

Tab B. Consultant Services
Insert Row Here

Tab C. Construction Contracts
Insert Row Here

Tab D. Equipment
Insert Row Here

Tab E. Artwork
Insert Row Here

Tab F. Project Management
Insert Row Here

Tab G. Other Costs
Insert Row Here

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Expected Use of Bond/COP Proceeds

Agency No:	**375**	**Agency Name**	**Central Washington University**
Contact Name:	**Steve Dupont**		
Phone:	**509-201-0528**	**Fax:**	
Fund(s) Number:	**057**	**Fund Name:**	**State Building Account**
Project Number:	**40000163**	**Project Title:**	**Emergency Back-up Power**

Agencies are required to submit this form for all projects funded with Bonds or COPs, as applicable. OFM will collect and forward the forms to the Office of the State Treasurer.

1. Will any portion of the project or asset ever be owned by any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
2. Will any portion of the project or asset ever be leased to any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
3. Will any portion of the project or asset ever be managed or operated by any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
4. Will any portion of the project or asset be used to perform sponsored research under an agreement with a nongovernmental entity (business, non-profit entity, or the federal government), including any federal department or agency? ☐ Yes ☒ No
5. Does the project involve a public/private venture, or will any entity other than the state or one of its agencies or departments ever have a special priority or other right to use any portion of the project or asset to purchase or otherwise acquire any output of the project or asset such as electric power or water supply? ☐ Yes ☒ No
6. Will any portion of the Bond/COP proceeds be granted or transferred to nongovernmental entities (businesses, non-profit entities, or the federal government) or granted or transferred to other governmental entities which will use the grant for nongovernmental purposes? ☐ Yes ☒ No
7. If you have answered "Yes" to any of the questions above, will your agency or any other state agency receive <u>any payments</u> from any nongovernmental entity, for the use of, or in connection with, the project or assets? A nongovernmental entity is defined as ☐ Yes ☒ No
    a. any person or private entity, such as a corporation, partnership, limited liability company, or association;
    b. any nonprofit corporation (including any 501(c)(3) organization); or
    c. the federal governmental (including any federal department or agency).
8. Is any portion of the project or asset, or rights to any portion of the project or asset, expected to be sold to any entity other than the state or one of its agencies or departments? ☐ Yes ☒ No
9. Will any portion of the Bond/COP proceeds be loaned to nongovernmental entities or loaned to other governmental entities that will use the loan for nongovernmental purposes? ☐ Yes ☒ No
10. Will any portion of the Bond/COP proceeds be used for staff costs for tasks not directly related to a financed project(s)? ☐ Yes ☒ No

If all of the answers to the questions above are "No," request tax-exempt funding. If the answer to any of the questions is "Yes," contact your OFM capital analyst for further review.

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GENERATOR UPGRADES STUDY
FINAL REPORT

DATE September 8, 2023

PROJECT Central Washington University,
Generator Updates Study
Ellensburg, Washington

CONTACTS

OWNER REPRESENTATIVES:

Delano Palmer – Director | Capital Planning & Projects

Gary Gleason – Construction Project Coordinator

400 East University Way
Ellensburg, WA 98926

REPORT PREPARED BY:

Dean Algeo, PE – Engineer

MW Engineers
601 West First Avenue, Suite 1300
Spokane, WA 99201

TABLE OF CONTENTS

SECTION 1

EXECUTIVE SUMMARY

MW was engaged by CWU to evaluate the feasibility of increasing the amount of backup generation capacity on campus. CWU indicated the campus currently has 1 Megawatt(MW) of backup generation capacity and would like to increase that to 3 to 6 MW in the short term and as much as 10 MW in the long term. With the upgrade to 3 to 6MW of capacity CWU would like to provide backup generator power to the following locations throughout campus:

1. SURC (Student Union & Rec. Center)
2. Jongeward Bldg
3. Police and Parking
4. Lights along Walnut and Chestnut Mall areas
5. The Boiler House

CWU takes medium voltage electrical service from the city of Ellensburg at 3 substations located throughout campus and distributes that service using a system of medium voltage cable and pad mounted switches which feed grade-level pad mounted transformers, which in-turn serve individual campus buildings and loads.

It was determined that using (1)3MW units as the basic unit of generation is the most economical approach to achieve the desired goals. The proposed new generator system makes use of the existing generator system paralleling switchgear to avoid the lead time and cost of new switchgear and controls. CWU requested 48 hours of runtime for the new generation system. The basis of design generators include an integral sub-base tank to provide the required amount of generator runtime and avoid the cost of a separate fuel system and associated piping, controls, pumping, etc. Each sub-base tank will also include a fuel-polishing system to prevent fuel gelling, algae growth and water accumulation due to condensation.

It is understood that CWU is in the process of revising their current campus emissions plan. For the purposes of this report, it is assumed that emissions are not a limiting factor.

The estimated probable cost to install (2)3MW generators for a total of 6MW of onsite generation capacity as described herein is $5,706,000. MW also evaluated the cost of installing (1) 3MW generator. The estimated probable cost to install (1)3MW generators for a total of 3MW of onsite generation capacity but allow for the addition of (1)3MW generator in the future as described herein is $3,115,000. Refer to Exhibit 3.03 for more details on estimated probable costs. It is recommended that both generators be installed at the same time where budget to avoid redundant costs for additional mobilizations, crane and equipment rentals, etc.

SECTION 2

INTRODUCTION

MW was engaged by CWU to evaluate the feasibility of increasing the amount of backup generation capacity on campus. CWU indicated the campus currently has 1Megawatt(MW) of backup generation capacity and would like to increase that to 3 to 6 MW in the short term and as much as (10)MW in the long term. With the upgrade to 3 to 6 MW of capacity CWU would like to provide backup generator power to the following locations throughout campus:

1. SURC (Student Union & Rec. Center)
2. Jongeward Bldg
3. Police and Parking
4. Lights along Walnut and Chestnut Mall areas
5. The Boiler House

It was noted that backup power need not include the blue lights throughout campus. This brings up an important point: the intent of this generator system is to provide NEC-702 Optional Standby Backup power to the campus. This is a key distinction because other branches of power such as NEC-700 Emergency branch have different requirements for wiring and interconnection of systems and would therefore require a different approach than described herein. It is understood that the general intent of this generation system is to minimize discomfort and maintain important facility operations in the event of a utility outage but not to power any code-required equipment or facilities.

CWU takes medium voltage electrical service from the city of Ellensburg at (3) substations located throughout campus and distributes that service using a system of medium voltage cable and pad mounted switches which feed grade-level pad mounted transformers, which in-turn serve individual campus buildings and loads.

MW made a site visit to survey existing conditions and identify potential issues. Specifically, the site visit focused on the existing generator equipment yard located at substation #3 and the lighting at the Walnut and Chestnut mall areas. Refer to Exhibits 3.01, 3.02 and 3.11 through 3.14 for details on these topics.

Refer to Section 3 for a discussion of recommendations and estimated associated costs. Refer to the Exhibits section for diagrams and information which illustrate the intended modifications to the system.

Throughout this report, specific terminology is used to discuss equipment, some of which is unique to the electrical industry and not widely used elsewhere, refer to Section 4 for definitions of technical terms used throughout this report.

SECTION 3

DISCUSSION

Existing Conditions

CWU takes medium voltage electrical service from the city of Ellensburg at (3) substations and distributes that service throughout campus using a system of medium voltage cable and pad mounted switches which feed grade-level pad mounted transformers, which in-turn serve individual campus buildings and loads. Of the (3) substations that serve campus, (2) are presently providing power to campus from the utility. Substations 1 and 3 presently power campus and substation 2 is backfed from substation 1 due to an issue on the utility side with the feeder that serves substation 1. It is understood that there are efforts to mitigate this issue and substation 2 may be reactivated at some future date.

The campus has (2) existing 500kW generators for a total of 1000kW of backup generation at present. These generators are 480V and connect to the campus MV system at 12.47kV via step-up pad mounted transformers and currently provide backup power for Feeder #32 only.

New Generator System

The use of pad mounted transformers adds complexity and cost as well as an additional point of failure. Pad mounted transformers are also experiencing very-long lead times due to the ongoing supply chain issues. Given these considerations, the recommendation for the new generators is that they generate natively at 12.47kV such that step-up transformers are not required.

In selecting generator sizes, MW worked with the Caterpillar representative and looked at adding (2)1.5MW versus adding (1)3MW. It was determined that the (1)3MW approach was the better alternative for the following reasons: The cost for (2)1.5MW units is approximately 15% higher than (1)3MW unit for just the generator. When you add in the cost for additional MV breakers in the switchgear, added fuel piping, controls, commissioning/startup, the (2)1.5MW units approach becomes cost prohibitive. In addition, given the goal at buildout is to have 10MW of generation, it would take (7)1.5MW units to achieve this and only (3) MW units plus (1)1.5MW unit (CAT does not make a 1MW unit at 12.47kV). The cost of constructing and maintaining a system with (7) generators versus (4) is significant and not recommended. Therefor a system using 3MW units as the basic unit of generation has been evaluated herein. Refer to Exhibits 3.01 and 3.02 for oneline diagram markups showing the proposed connection of the new generators to the system.

The owner has expressed a desire for the transfer to backup generators to be automatic. This may be challenging as the existing pad mounted switches are manual as are most of the building main CB's. However, the proposed approach provides a mostly automatic transfer. Of the desired loads to be added to the generator system(See Section 2), the following loads are on feeder #33 and will be automatically connected to the generator system during an outage:

Rec center, Jongeward Bldg, Police station & parking, the Boiler House. The student union building is connected to Feeder #16 but can be manually connected to feeder #33 at switches LS-F4 and LS-F3. Please note it is presently unknown how the lights along Walnut and Chestnut Mall areas are served, however it is likely they are fed from multiple sources given the wide area of deployment. The recommendation is to re-feed the existing lights from new branch circuits in the SUB and REC buildings in order to connect them to the generation system. Should load shedding be required on the Boiler Bldg, it is suggested that the paralleling controls system be connected to the BMS to turn off the Chillers when normal power is not available. In order to provide complete automatic backup of the desired loads, pad switch #LS-F4 which feeds the SUB would need to be replaced with a new pad mounted switch which includes automatic throwover. This would provide automatic connection of this load to the generation system. Refer to Exhibit 3.09 for details on the automatic throwover pad switch should the owner wish to consider this option at a future date.

The proposed new generator system makes use of the existing generator system paralleling switchgear to connect the desired loads and avoid back feeding the utility. The following sequence of operations is proposed for the existing paralleling gear upon utility failure:

1. Both Generators Immediately start and ramp up to rated voltage and speed.
2. Open Breaker 52N1 to isolate the generator switchgear from the utility
3. Open Breakers 52D1 and 52D2
4. The first generator to reach rated voltage and speed closes to the generator switchgear bus
5. The second generator syncs to the first generator and closes to the generator switchgear bus
6. Close TIE breaker 52T1
7. Close Breaker 52D1 (Feeder #32)
8. (5) Second delay to allow system voltage and frequency to recover
9. Close Breaker 52D2 (Feeder #33)
10. The system is now running on generator and feeders #32 and #33 are powered from the generator system.

Use of the existing paralleling switchgear avoids the lead times and cost of new switchgear and paralleling controls. The existing switchgear will be modified as necessary to support the new generators and the existing paralleling control system will be reprogrammed to control the new generators. Refer to Exhibit 3.02 for details on the existing paralleling switchgear.

Future Buildout

This report seeks to evaluate the feasibility of adding 3 to 6 MW of generation to the campus distribution system. In order to support the loads identified under section 2 within a specific budget amount. However, the owner conceives of full buildout of the system to be on the order of 10MW. MW recommends that future generators be installed at substations 1 and 2 with the associated new paralleling switchgear installed at each substation. This is because the existing paralleling switchgear will be full at the completion of the 6MW buildout at substation 3. Also,

substations 1 and 2 are located far from substation 3 as are their associated feeders. As such, feeding substation 1 and 2 loads from substation 3 would be cost prohibitive and require more physical space than is readily available at the substation 3 site.

Fuel System

CWU requested 48 hours of runtime for the new generation system. The proposed generators are large and consume significant amounts of fuel. The required amount of fuel for each (3) MW generator to allow for 48 hours is 11,000 usable gallons. This fuel amount accounts for the code required 95% fuel cut-off for filling of fuel tanks as well as the 5% unusable fuel at the bottom of the tank due to the dip tube depth. The basis of design generators include an 11,000 gallon sub-base tank to provide the required amount of fuel. The existing generator system includes an above ground 1500 gallon tank. Due to the relatively small size of the existing fuel tank compared to the required amount of fuel as well as the added complexity and controls required to interconnect multiple fuel tanks, it is not recommended to interconnect the existing fuel tank to the new generator sub-base tanks. The cost estimate includes the cost of fuel required to completely fill both generator tanks at project completion.

Diesel fuel has a relatively short shelf life of approximately 100 days. Further it is crucial that the on-site fuel storage be ready to power the generator when called upon. Fuel which has gelled, developed algae growth or has water in it due to condensation may cause generator failure and could damage the generator. Adding a fuel polishing system would help minimize these points of failure in the system and protect the significant investment in the stored fuel. For this reason, a fuel polishing system for each generator is included in the cost estimate.

It should be noted that the sub-base fuel tank will raise the generator several feet off the ground. Access stairs/platforms will be required adjacent to the generator to provide working space at the access doors. These are included in the cost estimate.

Refer to Exhibit 3.05 for generator fuel calculations. Refer to Exhibits 3.07 for examples of access stairs about generator

EPA / Emissions

It was discussed during the kick-of meeting that CWU is in the process of revising their current emissions plan with a separate consultant, Landau Associates. The timetable for this is not fully developed yet. For the purposes of this report, it is assumed that emissions are not a limiting factor. The generators were quoted with a Tier 2 emissions system. Should Tier 4 emissions be required, this will add cost to the generators and may require additional space for the extra equipment.

Estimate of Probable Costs

The estimated probable cost to install (2)3MW generators for a total of 6MW of onsite generation capacity as described herein is $5,706,000. MW also evaluated the cost of installing (1) 3MW generator. The estimated probable cost to install (1)3MW generators for a total of 3 MW of onsite generation capacity but allow for the addition of (1)3MW generator in the future as described herein is $3,115,000. Refer to Exhibit 3.03 for more details on estimated probable costs.

SECTION 4

DEFINITIONS

kVA – Kilo-volt-amperes, is a unit of apparent electrical power. 1 kilo-volt-ampere is equal to 1,000 volt-ampere: 1kVA = 1,000VA. kVA equals kW divided by the power factor.

kW – Kilowatt, is a unit of power. 1 kilowatt is equal to 1,000 watts: 1 kW = 1000 W. kW equals kVA times power factor.

MV – Medium Voltage. The NEC defines Medium Voltage as those voltages rated at 2001 volts or higher.

MW – Megawatt, is a unit of power. 1 megawatt is equal to 1,000,000 watts. 1 megawatt is equal to 1,000 kilowatts.

601 West First Avenue, Suite 1300
Spokane, WA 99201, USA

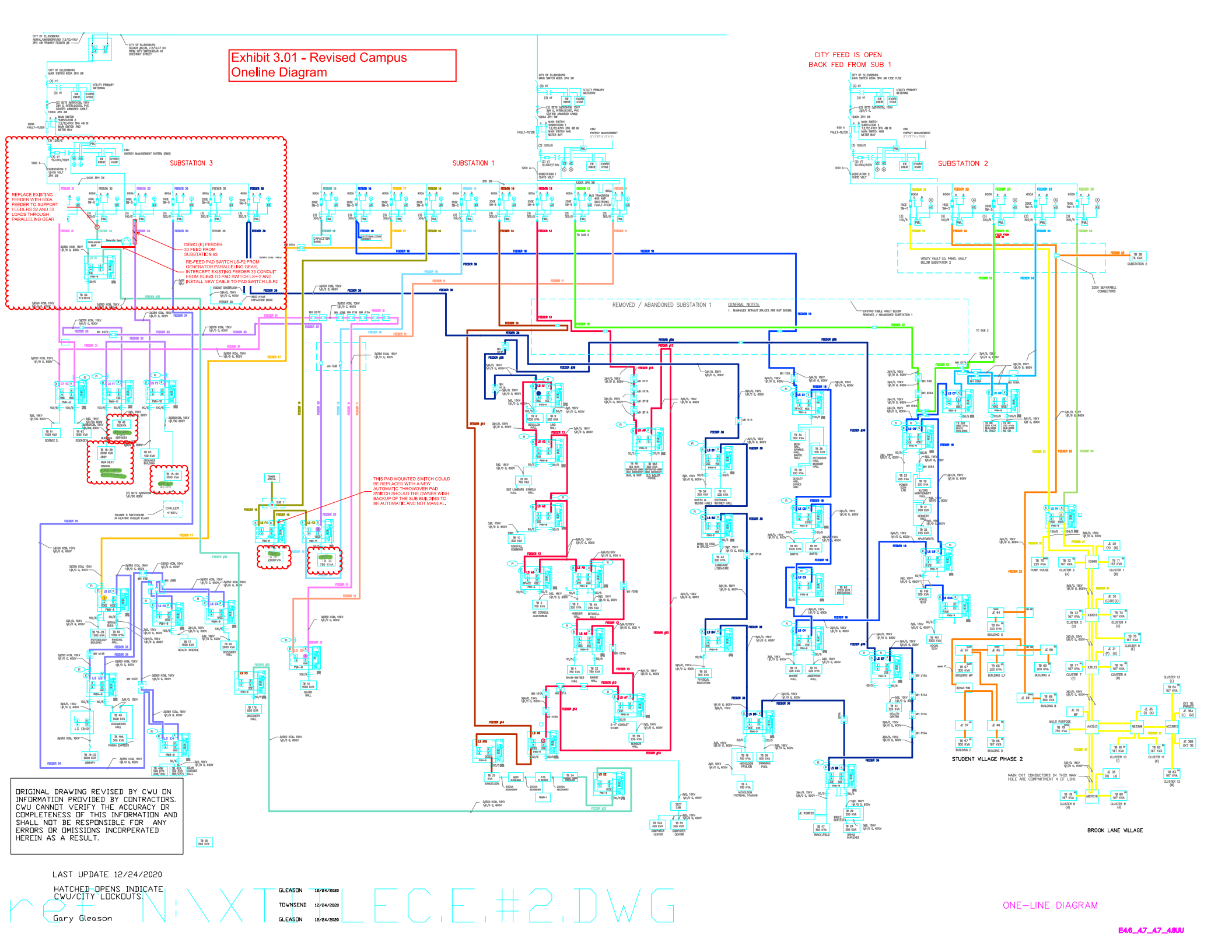


Exhibit 3.01 - Revised Campus Oneline Diagram
CITY FEED IS OPEN
BACK FED FROM SUB 1
SUBSTATION 3
SUBSTATION 1
SUBSTATION 2
REPLACE EXISTING FEEDER WITH 600A FEEDER TO SUPPORT FEEDERS 32 AND 33 LOADS THROUGH PARALLELING GEAR
DEMO (E) FEEDER 33 FEED FROM SUBSTATION #3
RE-FEED PAD SWITCH LS-F2 FROM GENERATOR PARALLELING GEAR, INTERCEPT EXISTING FEEDER 33 CONDUIT FROM SUBS TO PAD SWITCH LS-F2 AND INSTALL NEW CABLE TO PAD SWITCH LS-F2
REMOVED / ABANDONED SUBSTATION 1
GENERAL NOTES:
1. MANHOLES WITHOUT SPLICES ARE NOT SHOWN.
THIS PAD MOUNTED SWITCH COULD BE REPLACED WITH A NEW AUTOMATIC THROWOVER PAD SWITCH SHOULD THE OWNER WISH BACKUP OF THE SUB BUILDING TO BE AUTOMATIC AND NOT MANUAL.
STUDENT VILLAGE PHASE 2
BROOK LANE VILLAGE
ORIGINAL DRAWING REVISED BY CWU ON INFORMATION PROVIDED BY CONTRACTORS. CWU CANNOT VERIFY THE ACCURACY OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS INCORPERATED HEREIN AS A RESULT.
LAST UPDATE 12/24/2020
HATCHED OPENS INDICATE CWU/CITY LOCKOUTS.
Gary Gleason
GLEASON 12/24/2020
TOWNSEND 12/24/2020
GLEASON 12/24/2020
ONE-LINE DIAGRAM
E4.6_4.7_4.7_4.8UU

Exhibit 3.02 - Revised Generator System Oneline Diagram

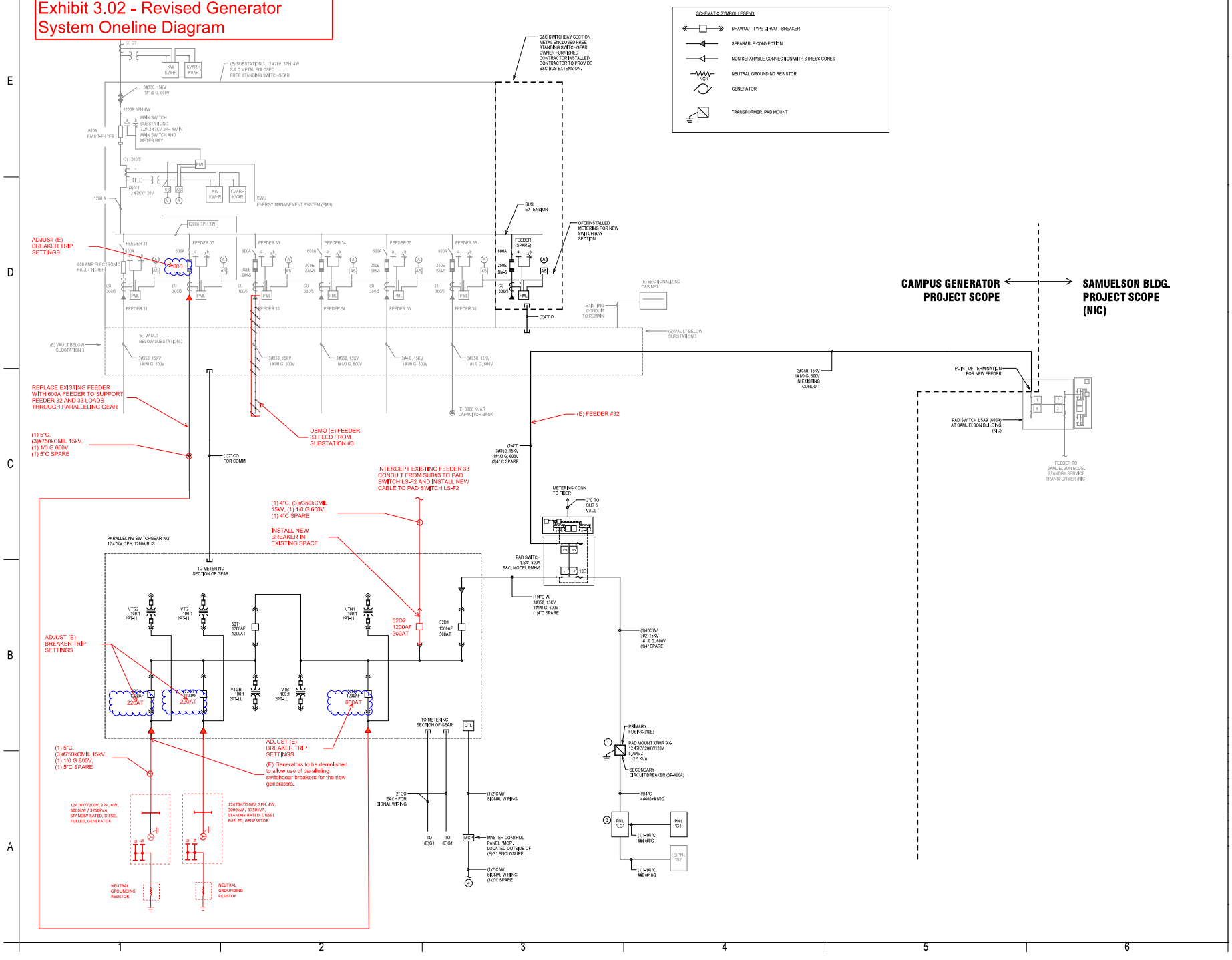


Exhibit 3.03 - Estimate of Probable Cost

MW Engineers

CWU Generator Upgrade

Estimate of Probable Cost - Final Report

Date Prepared: 9/5/2023

	Total
Prepared By: D. Algeo	
Option #1: Install (1) 3MW Generator and Switchgear Modifications	
General Conditions (Bonds, Permit, Supervision, Rentals, etc)	$425,480
Equipment (Generator, MV Breaker, Startup, Testing, etc)	$2,027,910
Site (Trenching & Patch, JE's, Ductbank, MV cable, etc)	$254,860
Subtotal Building - Electrical	$2,708,250
Electrical Contractor OH&P(15%)	$406,237
Total - Electrical	$3,115,000
Option #1: Install (2) 3MW Generators and Switchgear Modifications	
General Conditions (Bonds, Permit, Supervision, Rentals, etc)	$735,103
Equipment (Generator, MV Breaker, Startup, Testing, etc)	$3,927,870
Site (Trenching & Patch, JE's, Ductbank, MV cable, etc)	$297,985
Subtotal Building - Electrical	$4,960,957
Electrical Contractor OH&P(15%)	$744,144
Total - Electrical	$5,706,000

Notes:

1. **Excludes Washington state sales tax**
2. **Excludes General Contractor markups**
3. **Includes Estimated design fees**

Exhibit 3.04 - Buildings and Associated Feeders

Buildings and Associated Feeders			
Building	Associated Switch	Feeder	Method of Gen. Transfer
Police Station	LS F1	33 (SUB#3)	Automatic
Jongeward	LS F1	33 (SUB#3)	Automatic
Boiler Plant (New Heat)	LS F2	33 (SUB#3)	Automatic
REC	LS F3	33 (SUB#3)	Automatic
SUB	LS F4	16 (SUB#1)	Manual at LS F4 & LS F3

Exhibit 3.05 - Generator Fuel Calculations

Generator Fuel Calculations (3000kW / 3750kVA)

Device	Fuel Consumption (GPH)	Runtime in Hours	Minimum Useable Gallons	Notes
Essential Generator(s)				
Generator #1	204	48	9806	
Minumum Useable Gallons of Fuel			**9806**	
Minimum tank size less 5% shutoff and %5 unusable fuel at bottom of tank			**10896**	1
(E) Fuel Tank Capacity			**1500**	2

Notes:

1. Per NFPA 30 Section 22.11.4.5 fuel supply to the tank shall be automatically shut off at 95% of the tanks
2. Fuel system shall be equipped with a fuel polishing system.

Updated 8/29/2023

Exhibit 3.06 - Example Fuel Polishing System

STS 6030

Enclosed Fuel Maintenance System

The STS 6030 is a programmable, fully automated, fuel maintenance system that removes water, sludge, and other contaminants from fuel storage tanks. Once installed, the STS 6030 system operates independently to ensure fuel reliability through routine fuel filtration. The system's fuel polishing process stabilizes diesel and bio-fuels, eliminates microbial contamination, and ensures fuel remains clean. The STS system's NEMA 4 rated enclosure allows for both outdoor and indoor installations by protecting the system from windblown dust and rain, hose directed water, and ice formations.

STS 6030 SPECIFICATIONS:

Nominal Flow Rate	30 GPM/1800 GPH (113.6 LPM/6,814 LPH)
Strainer	20 Mesh Wye-Strainer
Primary Filter	1, 5, 10 or 25µ Particulate or Water Block Filter Element
Secondary Filter	1, 5, 10 or 25µ Coalescing Filter Element
Fuel Conditioner	LG-X 4000 Inline Magnetic Conditioner
Pump	2 HP Spur Gear Pump
System Controller	SFC80 Smart Filtration Controller with Safety and Alarm Features
Power	240V/60Hz/3Ph, 480V/60Hz/3Ph, 208-230V/60Hz/1Ph, 230V/50Hz/1Ph
Plumbing	Black Iron
Ports	2" NPT In, 1.5" NPT Out
Enclosure Cabinet	NEMA 4 Rated Powder Coated or NEMA 4X Rated Stainless Steel
Dimensions	≈ 56" x 72" x 17" (H x W x D) (142 x 183 x 43 cm)
Weight	≈ 760 lbs (345 kg)
Not for use with fluids that have a flash point below 100°F (37.8°C).	

STS 6030 FEATURES:

- Smart Filtration Controller
- Fully Automated and Programmable Operation
- Integration with External Monitoring Systems
- Unique Safety & Alarm Features
- Continuous-Duty Pump, Viton Seals
- System Upgrade Options

For safe operation, the STS 6030 is equipped with an automatic pump shut-down feature and alert indication to notify users of when the system requires servicing.

REPLACEMENT FILTER OPTIONS:

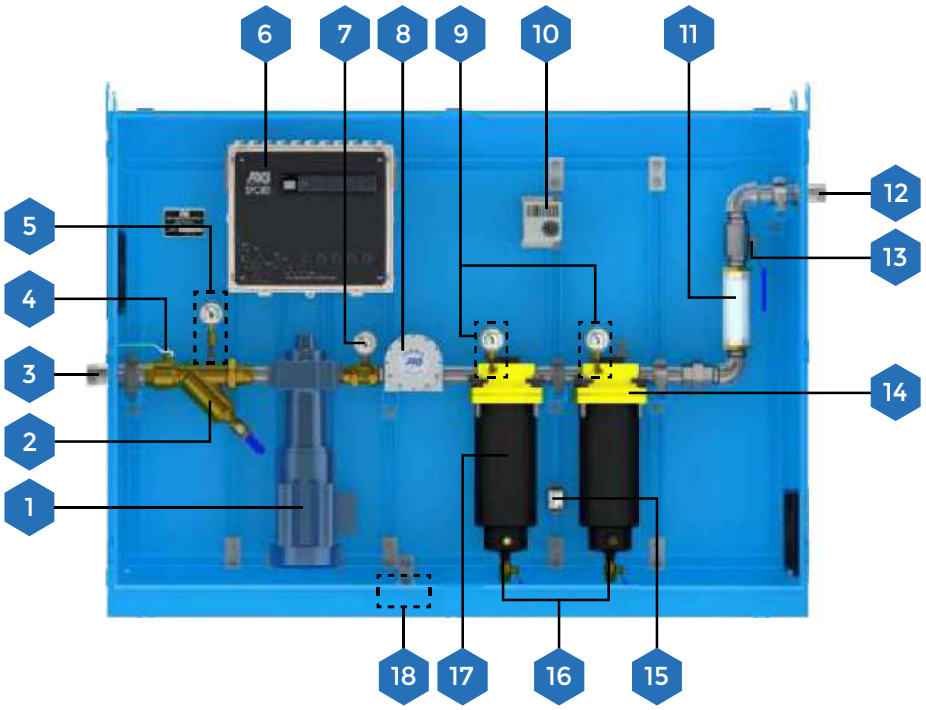
Primary Filter	Particulate Part No.	Water Block Part No.
1µ Filter Cartridge	FBO-60339	FBO-60342
5µ Filter Cartridge	FBO-60340	FBO-60343
10µ Filter Cartridge*	FBO-60357*	FBO-60358
25µ Filter Cartridge	FBO-60341	FBO-60344

Secondary Filter	Part No.
1µ Coalescing Filter Cartridge	FBO-60336
5µ Coalescing Filter Cartridge	FBO-60337
10µ Coalescing Filter Cartridge*	FBO-60356
25µ Coalescing Filter Cartridge	FBO-60338

**Standard-issue filter element unless requested otherwise*

1.239.690.9589
1.877.425.4239 Toll Free
www.AXI-International.com

STS 6030
Enclosed Fuel Maintenance System



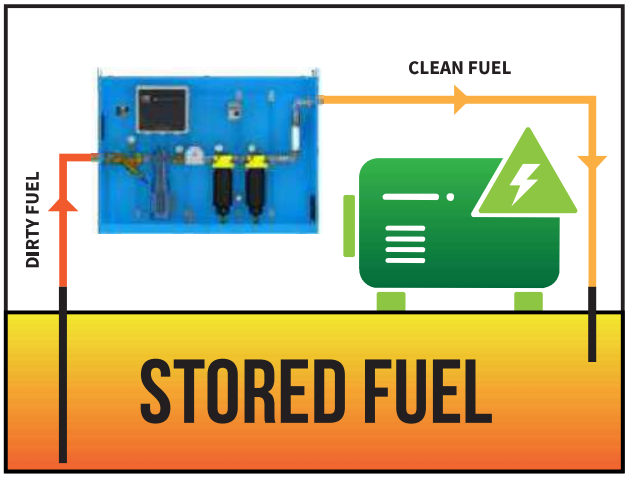
1. Motor with Coupled Gear Pump
2. Wye Strainer
3. Fuel Inlet (From Tank)
4. Inlet Ball Valve
5. Vacuum Gauge & Switch
6. Smart Filtration Controller
7. Pressure Gauge
8. Fuel Conditioner
9. Pressure Gauges & Transducers
10. Enclosure Heater (Option)
11. Flow Switch
12. Fuel Outlet (Discharge)
13. Outlet Ball Valve
14. Secondary Filter Housing
15. Water Detection Alarm Module
16. Filter Housing Drain Valves
17. Secondary Filter Housing
18. Leak Detector

STS 6030 SYSTEM OPTIONS:

NEMA 4X Rated Enclosure	Gain additional protection against corrosion with a stainless steel enclosure
Manual Additive Injection	Manually draw additive into the polisher with a dedicated supply port and ball valve
Enclosure Heater	Prevent the build up of condensation inside the system enclosure due to temperature changes
Auto Water Drain (AWD)	Automatically drain water separator of collected water for decreased frequency of maintenance
Pressure Transmitter	Replace standard pressure switch for detailed monitoring of pressure levels in the system
Flow Transmitter	Replace standard flow switch for detailed monitoring of flow rate in the system
Multi-Tank Polishing/Transfer	Polish and transfer fuel between multiple fuel storage tanks
Fuel Heater	Warm up circulated fuel to resist gelling in freezing temperatures

System upgrade may be required for certain combinations of options - See controller specification sheet for more details

STS SYSTEM INTEGRATION:



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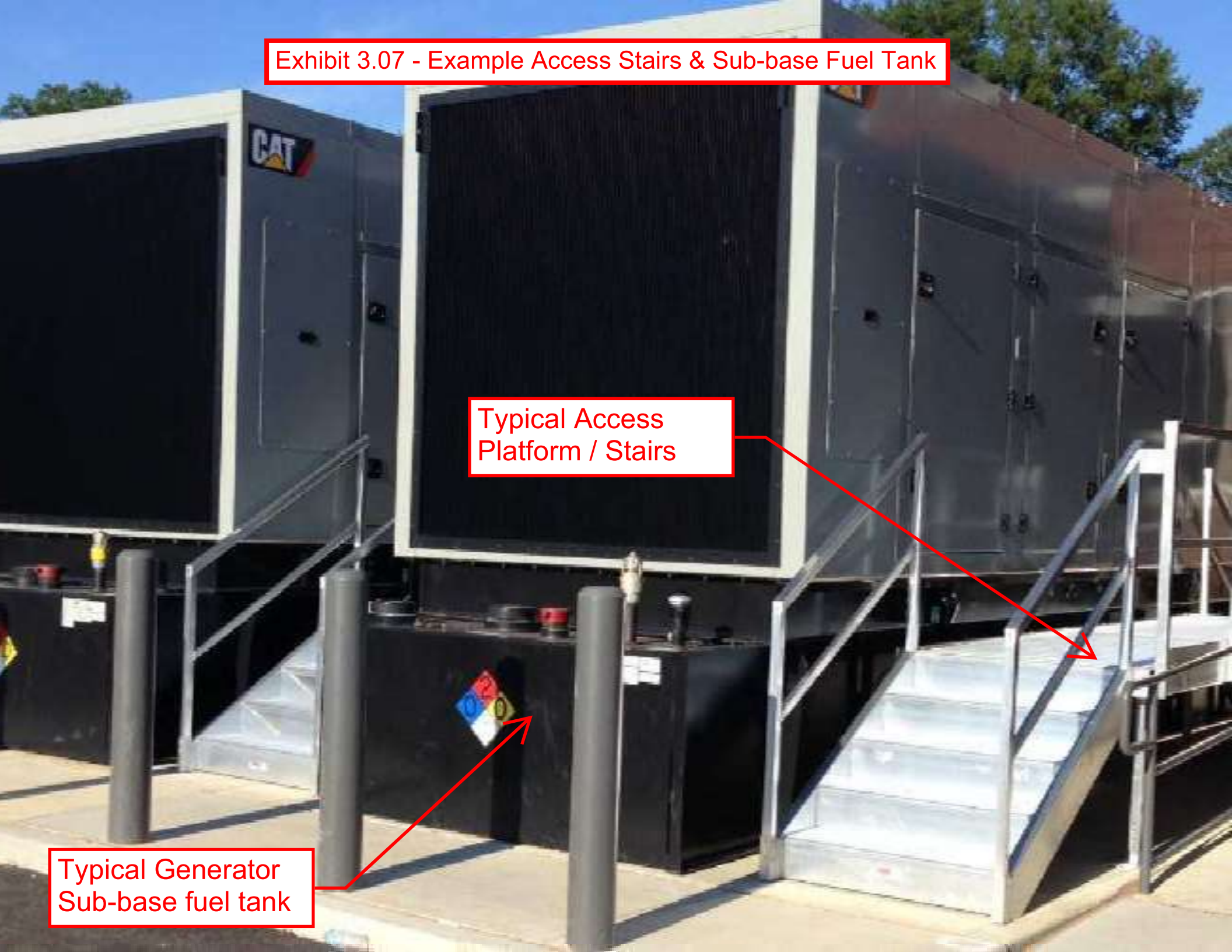


Exhibit 3.07 - Example Access Stairs & Sub-base Fuel Tank
Typical Access Platform / Stairs
Typical Generator Sub-base fuel tank

Okoguard-Okoseal Type MV-105

15kV Shielded Power Cable
One Okopact (Compact Stranded)
Copper Conductor/ 105°C Rating
100% and 133% Insulation Level
For Cable Tray Use - Sunlight Resistant

Exhibit 3.08 - MV Cable Ampacity

Catalog Number (1)	Conductor size AWG or kcmil	Conductor Size -mm²	Approx. Dia. over Insulation (in.)	Approx. Dia. over Screen (in.)	Jacket Thickness - mils	Jacket Thickness - mm	Approx. O.D. -Inches	Approx. O.D. -mm	Approx. Net Weight lbs./1000'	Approx. Ship Weight lbs./1000'	Ampacities (2) Conduit in Air	Ampacities (3) Underground Duct	Ampacities (4) Cable Tray	Conduit Size Inches (5)*
Okoguard Insulation: 175 mils (4.45mm), 100% Insulation Level														
115-23-3064	1/0	53.5	0.74	0.80	80	2.03	0.98	24.8	760	825	215	215	290	3
115-23-3066	2/0	67.4	0.78	0.84	80	2.03	1.02	25.8	870	935	255	245	335	3
115-23-3067	3/0	85.0	0.83	0.89	80	2.03	1.07	27.1	1005	1070	290	275	385	3
115-23-3069	4/0	107.0	0.88	0.94	80	2.03	1.12	28.4	1160	1240	330	315	445	3
115-23-3074	250	127.0	0.93	0.98	80	2.03	1.17	29.7	1330	1415	365	345	495	3½
115-23-3076	350	177.0	1.03	1.07	80	2.03	1.26	32.0	1700	1800	440	415	610	3½
115-23-3090	500	253.0	1.14	1.19	80	2.03	1.38	35.1	2230	2275	535	500	765	4
115-23-3091	750	380.0	1.32	1.37	80	2.03	1.55	39.4	3105	3340	655	610	990	5
115-23-3092	1000	507.0	1.47	1.52	80	2.03	1.71	43.4	3960	4215	755	690	1185	5
Okoguard Insulation: 220 mils (5.59mm), 133% Insulation Level														
▲115-23-3479**	2	33.6	0.76	0.81	80	2.03	0.99	25.2	682	742	165	165	–	3
▲115-23-3230	1/0	53.5	0.83	0.88	80	2.03	1.10	28.0	905	975	215	215	290	3
▲115-23-3232	2/0	67.4	0.87	0.92	80	2.03	1.11	28.2	970	1030	255	245	335	3
115-23-3234	3/0	85.0	0.92	0.98	80	2.03	1.16	29.4	1170	1185	290	275	385	3½
▲115-23-3236	4/0	107.0	0.96	1.02	80	2.03	1.21	30.7	1280	1370	330	315	445	3½
▲115-23-3238	250	127.0	1.01	1.07	80	2.03	1.26	32.0	1435	1520	365	345	495	3½
▲115-23-3240	350	177.0	1.11	1.17	80	2.03	1.35	34.3	1810	1940	440	415	610	4
▲115-23-3242	500	253.0	1.22	1.28	80	2.03	1.47	37.3	2350	2535	535	500	765	4
▲115-23-3243	750	380.0	1.40	1.46	80	2.03	1.65	41.9	3240	3480	655	610	990	5
▲115-23-3244	1000	507.0	1.55	1.60	110	2.79	1.86	47.1	4220	4490	755	690	1185	6

Okonite's web site, www.okonite.com contains the most up to date information.

▲**Authorized Stock Item.** Available from our Customer Service Centers. Minimum Manufacturing Quantity for non-stock items is 5000'.

Aluminum Conductors

(1) Aluminum conductors are available on special order. To order aluminum conductors, change the first three digits of the catalog number from 115 to 135.

Ampacities

(2) Ampacities are in accordance with Table 315.60(C)(7) of the NEC for three single Type MV-105 conductors, or single conductors twisted together (triplexed) and installed in an isolated conduit in air at an ambient temperature of 40°C and a conductor temperature of 105°C.

(3) Ampacities are in accordance with Table 315.60(C)(11) of the NEC for three single conductors or triplexed cable in one underground raceway, three feet deep with a conductor temperature of 105°C, 100% Load Factor, an ambient earth temperature of 20°C, and thermal resistance (RHO) of 90.
Refer to the NEC, IEEE/ICEA S-135 Power Cable Ampacities, or the Okonite Engineering Data Bulletin EHB for installation in duct banks, multiple point ground shields, other ambient temperatures, circuit configurations or installation requirements.

(4) Ampacities for cable in cable tray are in accordance with the NEC, Section 392.80(B)(2)(2), Table 315.60(C)(3) (copper), for single conductor cables installed in a single layer, in uncovered tray, with a maintained spacing of 1 cable OD or more at 105°C conductor temperature and 40°C ambient temperature and single point grounding.

(5) Recommended size of rigid or nonmetallic conduit for three conductors based on 40% maximum fill.

* The jam ratio, conduit I.D. to cable O.D. should be checked to avoid possible jamming.

**This cable is not recognized by UL for Cable Tray Use, FT4, -40°C, or CSA.

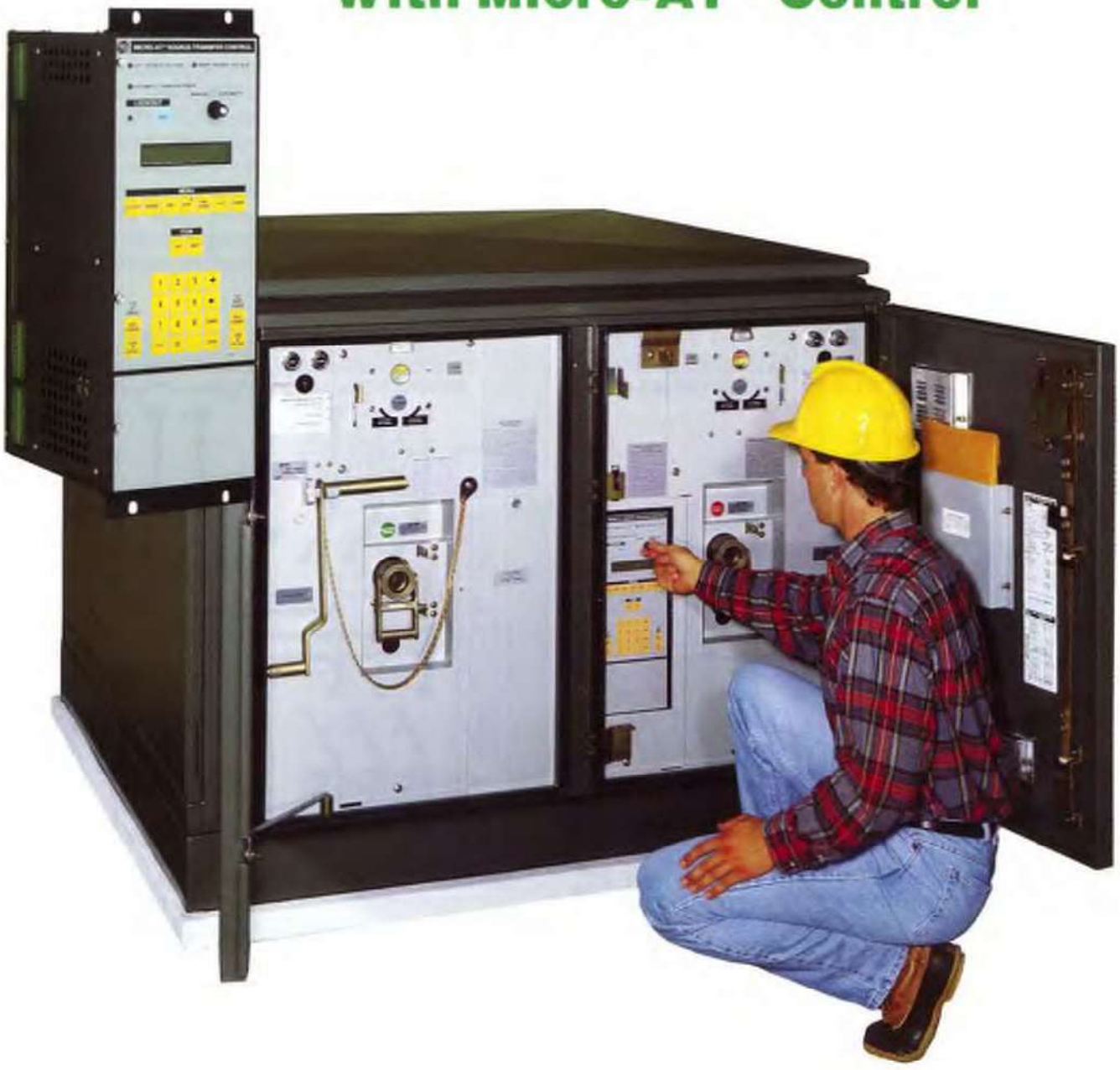
THE OKONITE COMPANY
Ramsey, New Jersey 07446

Exhibit 3.09 - Example Automatic Throwover Pad Mounted Switch

S&C Source-Transfer PMH Pad-Mounted Gear

Outdoor Distribution (14.4 kv and 25 kv)

With Micro-AT™ Control



New Publication ©1991

DESCRIPTIVE BULLETIN 663A-30

S&C ELECTRIC COMPANY • Chicago
S&C ELECTRIC CANADA LTD. • Toronto

Page 1 of 20
September 23, 1991

GENERAL

S&C Source-Transfer PMH Pad-Mounted Gear . . . totally self-contained switching and protection packages that provide fully automatic source transfer and fault protection for distribution systems serving small- to medium-sized industrial, commercial, and institutional complexes.

In the past, many small- to medium-sized installations desiring automatic source transfer for critical loads had to choose between overhead automatic transfer schemes and power-operated metal-enclosed switchgear. Overhead transfer schemes, however, require considerable equipment and space, compromising the aesthetics of the installation, and are vulnerable to the various outages typically associated with overhead equipment. And the simple medium-voltage systems of these small industrial, commercial, and institutional installations often do not require the use of metal-enclosed switchgear with its additional construction features, range of ratings, and design and operating flexibility. For these locations, it is therefore difficult to justify power-operated metal-enclosed switchgear, with its premium, solely to provide automatic source transfer. Accordingly, for these installations, users often had to choose manual switching equipment such as S&C's Manual PMH Pad-Mounted Gear.

Today, there's a better alternative—S&C Source-Transfer PMH Pad-Mounted Gear. S&C has solved the aesthetic, reliability, and economic problems by offering two Source-Transfer PMH Models. These compact, low-profile, pad-mounted packages achieve the outstanding reliability demanded by automatic source-transfer applications through the use of advanced electronics and field proven components in uniquely rugged, corrosion-resistant enclosures. And through pre-engineering of standardized designs suited to repetitive manufacture, plus a commitment to capital equipment

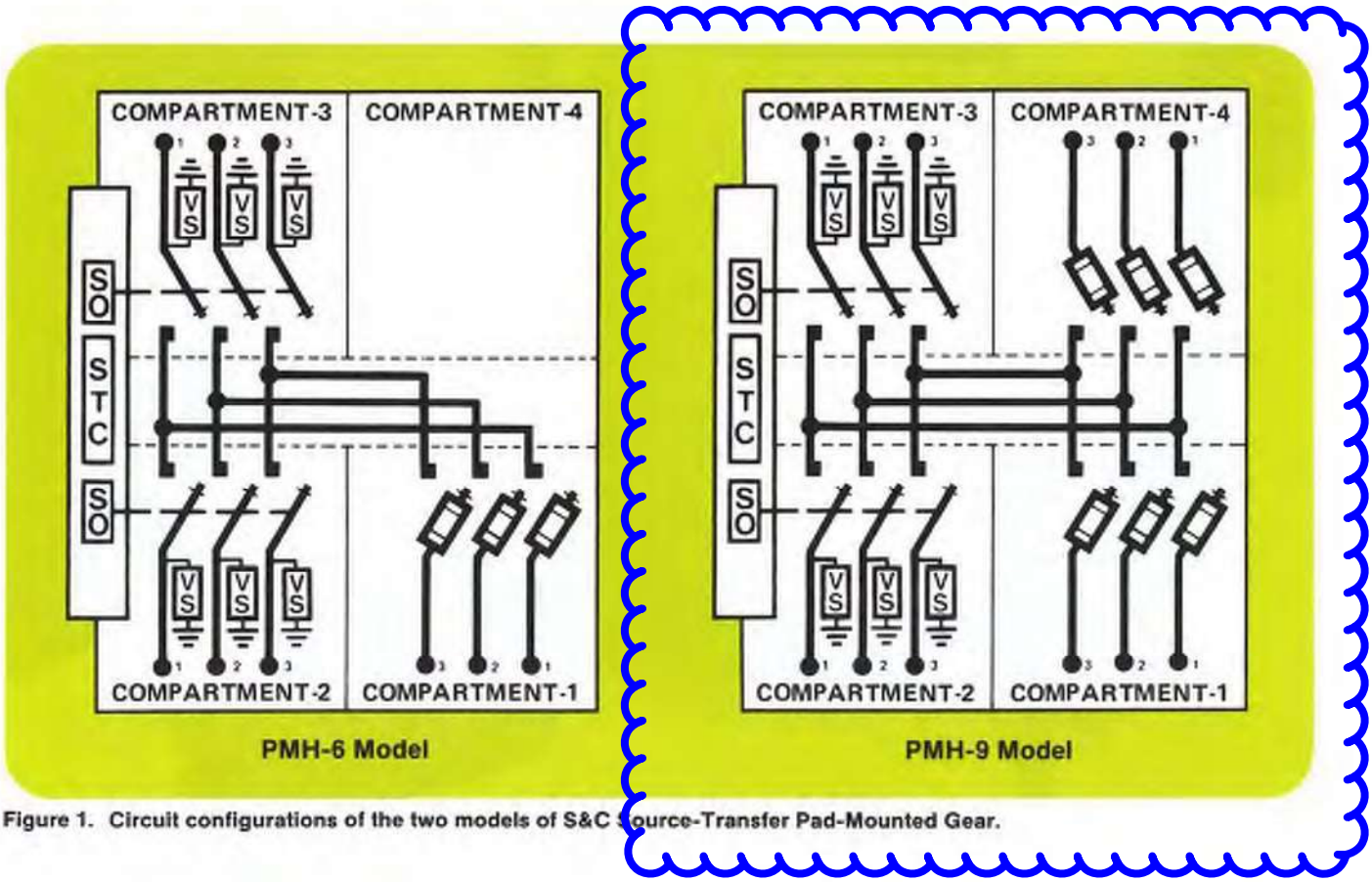


Figure 1. Circuit configurations of the two models of S&C Source-Transfer Pad-Mounted Gear.

to maximize manufacturing efficiencies, these top-quality packages are available at a cost suited to the economics of smaller automatic source-transfer applications. Source-Transfer PMH Pad-Mounted Gear is designed with an attention to detail available only from S&C, with its nearly 50 years of experience in manufacturing metal-enclosed gear.

S&C Source-Transfer PMH Pad-Mounted Gear provides both fault protection and automatic primary-selective service on underground distribution systems for small- to medium-sized critical loads requiring a high degree of service continuity. These source-transfer models are completely self-contained switching and protection packages. Each model has built-in voltage sensing, control power, automatic controls, interrupter switches, stored-energy switch operators, and fuse mountings. They are available in two basic circuit configurations (see Figure 1) that provide reliable and flexible three-pole automated switching of source circuits rated up through 600 amperes, and single-pole switching and fault protection for either one or two load feeders rated up through 400 amperes.

Source-Transfer PMH Models are completely factory-assembled, thoroughly checked and tested, and ready for installation. There is no external wiring or control power required. Installation is easy and straightforward—just connect the power cables and program the operating characteristics and parameters, and the gear is ready for service—minimizing the installed cost.

S&C Voltage Sensors, three for each source, provide all the voltage inputs required by the source-transfer scheme. These devices produce an output voltage that is the sensing input to the Micro-AT Source-Transfer Control. They also supply control power for operation of the source-transfer control and stored-energy switch operators.

The S&C Micro-AT Source-Transfer Control continuously monitors the output of the voltage sensors to determine the condition of the two power sources serving the gear. If the source serving the load fails, the control initiates switching to transfer to the alternate source, restoring power to the load. This advanced, microprocessor-based, electronic control is field programmable to permit the implementation of source-transfer applications that maximize power service to the loads, while conforming to the serving utility's system switching practices. It offers field selection of either power source as the preferred, lets you select automatic or manual return to the preferred source when normal voltage returns, and allows either paralleling or nonparalleling of sources when in the automatic return mode. The source-transfer control also features field adjustable loss-of-source and return-of-source voltage levels, as well as adjustable time delays for coordination.

S&C Mini-Rupter® Switches are three-pole group-operated interrupter switches specifically designed to handle all live-switching duties on incoming source circuits, including full-load and associated transformer-magnetizing and cable-charging currents, with no external arc or flame. They afford maximum operating flexibility because of their exceptional two-time duty-cycle fault-closing ratings—22,400 amperes rms asymmetrical at 14.4 kv, 20,000 amperes rms asymmetrical at 25 kv. These fault-closing ratings represent the available fault currents into which the switches can be closed twice, remaining operable and able to carry and interrupt rated currents. This exceptional ability permits quick restoration of service following a fault—without the need for an extended outage for replacement of switch parts or for temporary restoration of service through an alternate switch until replacement parts can be obtained.

These outstanding duty-cycle fault-closing ratings make S&C Mini-Rupters superior to ordinary switches with simple "fault-closing" or "make-and-latch" ratings which, following an initial fault-closing operation, offer no assurance of an ability to subsequently carry or interrupt rated current—much less any expectation of tolerating a second fault closing. The ability to open following a fault-closing operation is of especial importance where automatic control is utilized for primary-selective service.

GENERAL — Continued

Stored-energy switch operators provide high-speed power operation of the Mini-Rupter Switches. The operators incorporate a quick-make quick-break mechanism that is motor-charged, and opens and closes the Mini-Rupter swiftly and positively when solenoid tripped in response to signals initiated by the source-transfer control, or when manually tripped using either pushbuttons or the dual-purpose manual handle. This high-speed operation contributes to Mini-Rupter's duty-cycle fault-closing ratings and reduces the period of time the load is without power—transfer is achieved in 10 cycles plus any intentional time delay for coordination.

Load feeders are switched and protected using S&C Power Fuses with Uni-Rupter™ (accommodating a choice of S&C Type SML-20 or SML-4Z Power Fuses, Fault Fiter® Electronic Power Fuses, or a variety of single-barrel current-limiting fuses). With S&C's time-tested SML Power Fuses, you can select from a wide variety of ampere ratings and time-current characteristics (TCCs) to achieve close fusing for maximum protection and optimum coordination. These TCCs are precise, with only 10% total tolerance in melting current, compared to the 20% tolerance of many fuses (20% and 40% respectively, in terms of time). And the design and construction features of the fusible elements assure that SML Power Fuses will conform to their TCCs not only initially, but on a sustained basis . . . neither age, corrosion, vibration, nor surges that heat the element nearly to the severing point will affect the characteristics of S&C SML Power Fuses.

S&C Fault Fiter Electronic Power Fuses combine an innovative high-technology electronic control module with a unique interrupting module to solve difficult protection and coordination applications. The control module incorporates a current transformer and electronic circuitry to provide current sensing and the TCC of the fuse, as well as the energy to initiate the interrupting process. By using electronics, Fault Fiter offers an unprecedented variety of unique TCCs that provide superior protection and precise coordination in a wide range of applications. Moreover, since the fusible elements do not determine the TCC of the fuse, Fault Fiter is not susceptible to the protection vagaries of other types of fuses where the elements are subjected to load cycling or repeated current surges that can alter the TCC.

S&C's Uni-Rupter lets you perform single-pole live switching of fuses on transformers, lines, and cables, with no external arc or flame. Uni-Rupter can carry and interrupt load currents up to and including the emergency peak-load capability of the fuse. Furthermore, S&C Power Fuses with Uni-Rupter have a one-time duty-cycle fault-closing capability equal to the short-circuit rating of the pad-mounted gear and a two-time capability of 13,000 amperes rms asymmetrical. The duty-cycle fault-closing capability is the level of available fault current into which the fuse can be closed the specified number of times with the Uni-Rupter remaining operable and able to carry and interrupt currents up to the emergency peak-load capabilities of the fuse.

Specify S&C Source-Transfer PMH Pad-Mounted Gear for all your small- to medium-sized critical loads requiring primary-selective service. It is the simple and economical solution to automatic source-transfer application problems on your power distribution system. The gear is a totally self-contained switching and protection package . . . it has the features you need to achieve a high degree of service reliability and operating flexibility and provides the ultimate in installation and operation simplicity.

Cat® 3516E

High Power Density (HPD) Diesel Generator Sets

Exhibit 3.10 - Generator

Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.69)
Stroke – mm (in)	215 (8.46)
Displacement – L (in³)	78.1 (4766)
Compression Ratio	13.9:1
Aspiration	TA
Fuel System	MEUI
Governor Type	ADEM™ A5

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Emissions Performance
3000 (3750)	3000 (3750)	2725 (3406)	U.S. EPA Certified for Emergency Stationary Applications (Tier 2)

Features

Cat® Diesel Engine

- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emissions standards
- Reliable performance proven in thousands of applications worldwide

Generator Set Package

- Accepts 100% block load in one step
- Meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators

- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System

- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

EMCP 4 Control Panels

- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

Warranty

- 24 months/1000-hour warranty for standby ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support

- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing

- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

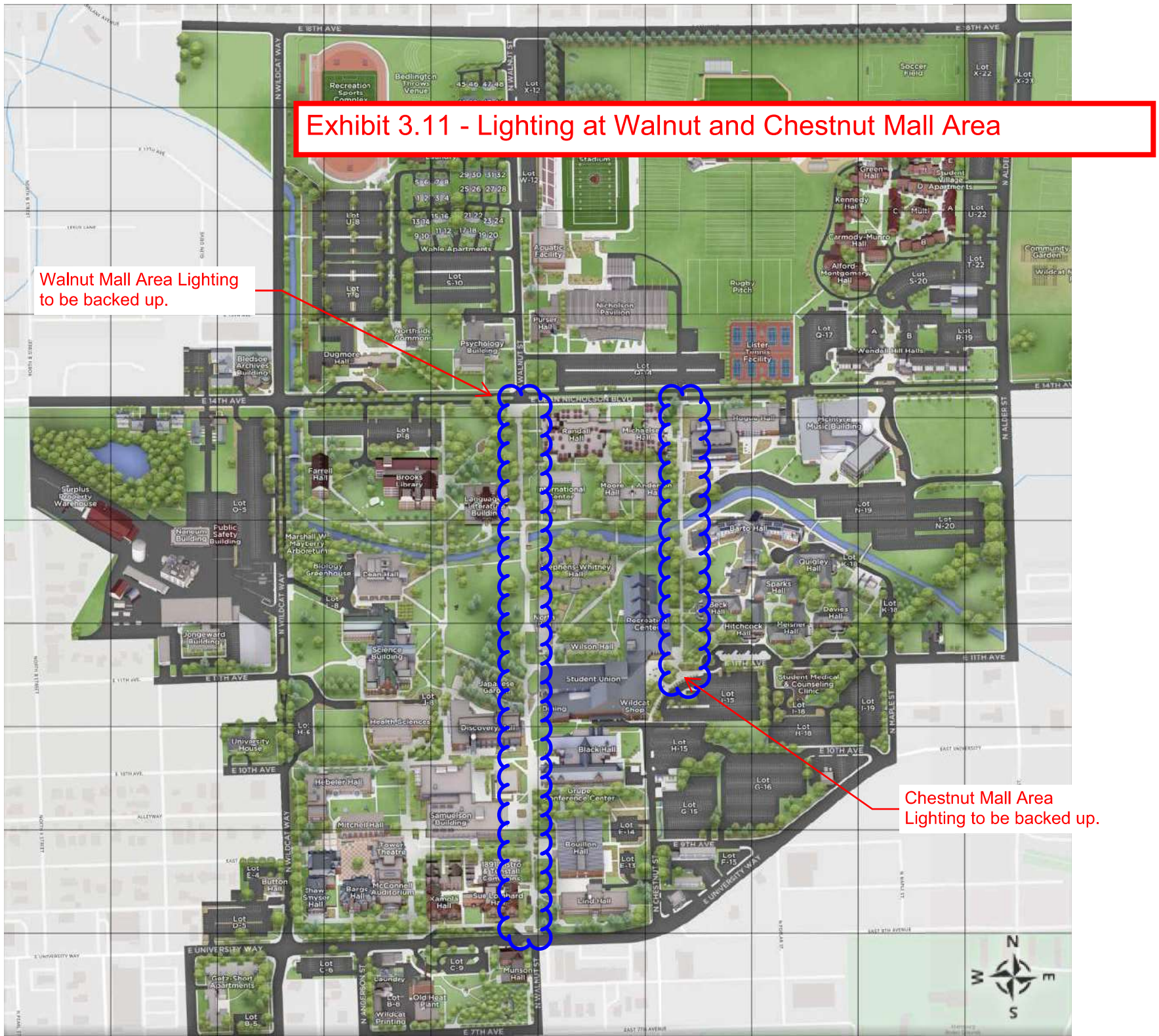

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Exhibit 3.11 - Lighting at Walnut and Chestnut Mall Area
Walnut Mall Area Lighting to be backed up.
Chestnut Mall Area Lighting to be backed up.
E 18TH AVE
N WILDCAT WAY
N WALNUT ST
E 14TH AVE
E 11TH AVE
E 10TH AVE
E 9TH AVE
E 7TH AVE
E UNIVERSITY WAY
N CHESTNUT ST
N MAPLE ST
N ALDER ST
Recreation Sports Complex
Bedlington Throws Venue
Soccer Field
Stadium
Wahle Apartments
Aquatic Facility
Rugby Pitch
Nicholson Pavilion
Lister Tennis Facility
Wendell Hill Halls
Kennedy Hall
Carmody-Munro Hall
Alford-Montgomery Hall
Student Village Apartments
Community Garden
Dugmore Hall
Psychology Building
Purser Hall
Northside Common
Bledsoe Archives Building
Farrell Hall
Brooks Library
Randall Hall
Haggett Hall
Helmicke Music Building
Surplus Property Warehouse
Nanaimo Building
Public Safety Building
Marshall W. Mayberry Arboretum
Biology Greenhouse
Dean Hall
Language and Literature Building
Moore Hall
Barto Hall
Quigley Hall
Sparks Hall
Beck Hall
Hitchcock Hall
Davies Hall
Risley Hall
Jongeward Building
Science Building
Wilson Hall
Student Union
Wildcat Shop
Student Medical & Counseling Clinic
Health Sciences
Discovery Hall
University House
Black Hall
Grupe Conference Center
Heckeler Hall
Mitchell Hall
Samuelson Building
Tower Theatre
McConnell Auditorium
Barge Hall
Shaw-Smyser Hall
Button Hall
Bouillon Hall
Lind Hall
Sue Lombard Hall
Xanadu Hall
Getz-Short Apartments
Laundry
Old Heat Plant
Wildcat Printing
Munson Hall
Lot U-8
Lot S-10
Lot T-8
Lot W-12
Lot X-12
Lot X-22
Lot X-23
Lot U-22
Lot T-22
Lot S-20
Lot Q-17
Lot R-19
Lot P-18
Lot O-5
Lot L-8
Lot J-8
Lot H-6
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Lot E-14
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Lot F-15
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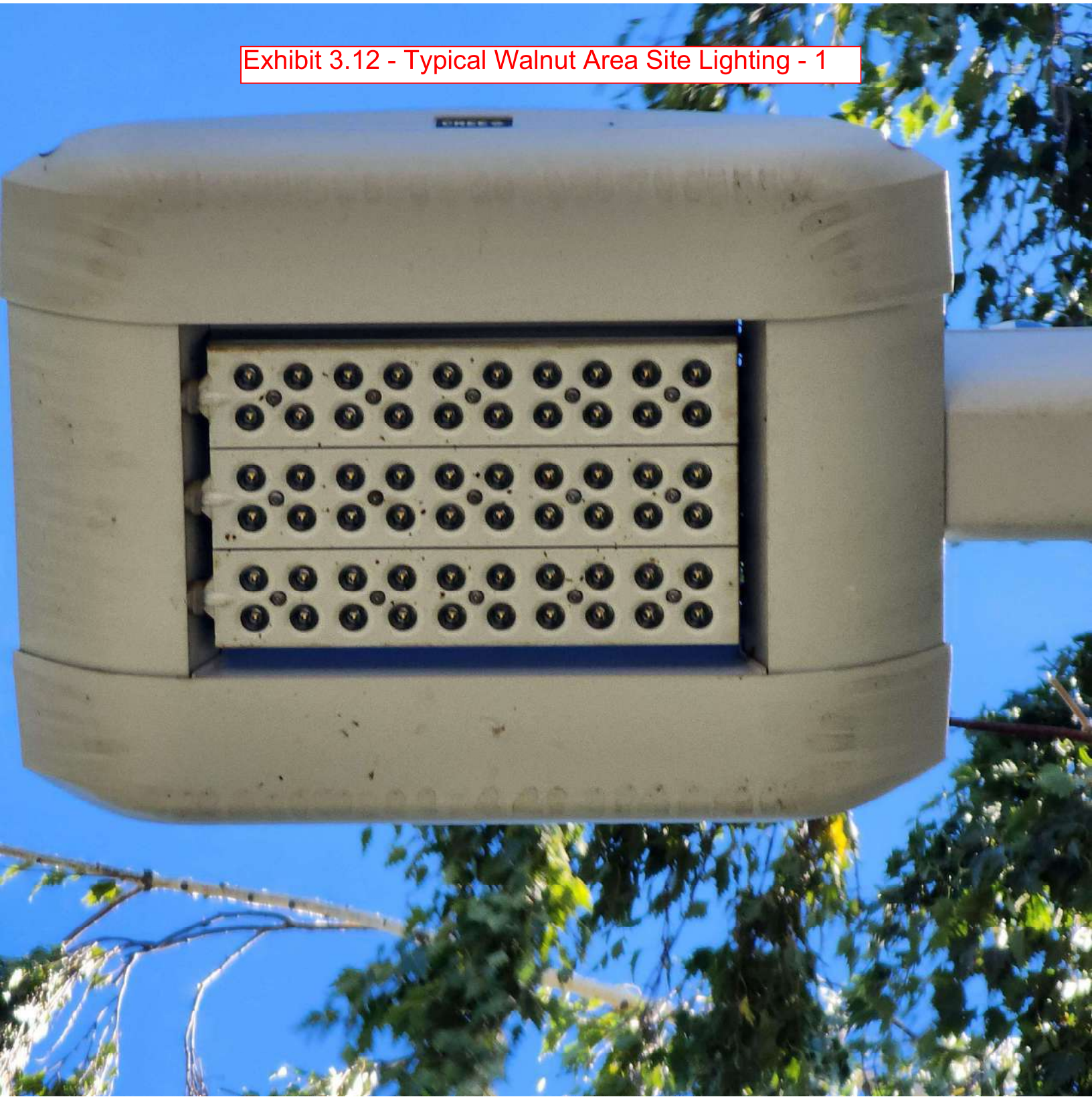

Exhibit 3.12 - Typical Walnut Area Site Lighting - 1

Exhibit 3.13 - Typical Walnut Area Site Lighting - 2


Exhibit 3.14 - Typical Walnut Area Site Lighting - 3

FINAL PAGE OF CENTRAL WASHINGTON UNIVERSTITY'S
2024 SUPPLEMENTAL CAPITAL BUDGET REQUEST

Thank you for your consideration!