



North Clackamas School District 2016 Capital Construction Bond Energy Programs Summary Report February 2022

Energy conservation efforts implemented during the 2016-2022 Bond (overview):

- Leveraged Energy Trust of Oregon (ETO) incentives for early design charrettes, consulting, audits, commissioning, and energy efficiency improvements meeting or exceeding ETO efficiency ratings.
- Leveraged Senate Bill 1149 (SB1149) funds for energy audits and energy efficiency improvements.
- Utilized Leadership in Energy and Environmental Design (LEED) to target green building design – Designed to 2013 LEED Silver.
- \$2.2 million in solar energy related improvements were installed at Owen Sabin-Ben Schellenberg Professional Technical Center South Campus meeting the state requirements of House Bill 2496 (1.5% of construction costs for qualified projects are required to be invested in green energy technology).
- Commissioning services were contracted for targeted projects to ensure optimization of designed systems.
- Applied sustainable requirements and practices in the project specifications (sustainable materials, green materials, targeted sustainable designs, waste management).
- Completed specific targeted bond commitments related to energy efficiency:
 - Lighting Retrofits/Replacements to LED
 - HVAC/Boiler Upgrades
 - Lighting Controls Upgrades
 - Window Replacements
 - Roof/Insulation Replacements
- Completed 41 new and existing projects (66 program applications) resulting in annual savings estimated by ETO as 3.2M kWh of electricity (equivalent to the average use of fourteen North Clackamas School District (NCSD) elementary schools per year) and 96,000 therms in natural gas (equivalent to the average use of five NCSD elementary schools per year).
- Total estimated annual utility savings of \$352,300 reported by ETO.
- Total energy reimbursement funds received and anticipated to be received is \$1,124,714 (received \$741, 863 plus anticipated \$382,851).
- The North Clackamas School District is forecasted to receive an additional \$4,067,651 in SB1149 energy incentive funds through 2022- 2036.

Energy Incentive Revenue during Capital Construction Bond 2016 - 2022			
Source of Incentive	Received Funds	Anticipated Funds	Total Funds (Received and Anticipated)
Senate Bill 1149 Reimbursement	\$192,565	\$331,579	\$524,144
Energy Trust of Oregon (ETO) for New Buildings Construction	\$453,299	\$48,032	\$501,331
Energy Trust of Oregon (ETO) for Existing Buildings Construction	\$95,999	\$3,240	\$99, 239
Total	\$741,863	\$382,851	\$1,124,714

Senate Bill 1149 Program Summary**	
Total Program Revenue to Date (1999 – 2022)	\$5,853,772
Total Approved Expenses to Date (1999 – 2022)	\$5,842,348
Total Balance Remaining to be Reimbursed (1999-2022)	\$11,424
Current Average Annual SB1149 Reimbursement Stream	\$311,000
Remaining Revenue Expected Through January 2026	\$957,652
Remaining Revenue Expected Through January 2036	\$4,067,652

House Bill 2496 Green Energy Technology (HB 2496 GET)



HB 2496 GET required \$2.2M to be invested in Green Energy Technology. Owen Sabin - Ben Schellenberg Professional Technical Center South Campus was selected as the logical choice for a singular installation of a 132.44kW photovoltaic system. The system is connected to the PGE power grid using net metering which banks usage credits in the event of net excess power generation. To date, the system has generated 153.26 MWh equaling an average monthly utility savings of approximately \$650. Power generation outputs can be viewed on the SolarEdge website at <https://monitoringpublic.solaredge.com/solaredge-web/p/kiosk?guid=c532d585-2a3d-42c4-bc7b-8882fc7c941c>

Schellenberg South Campus PV | Peak Power: 132.44 kWp

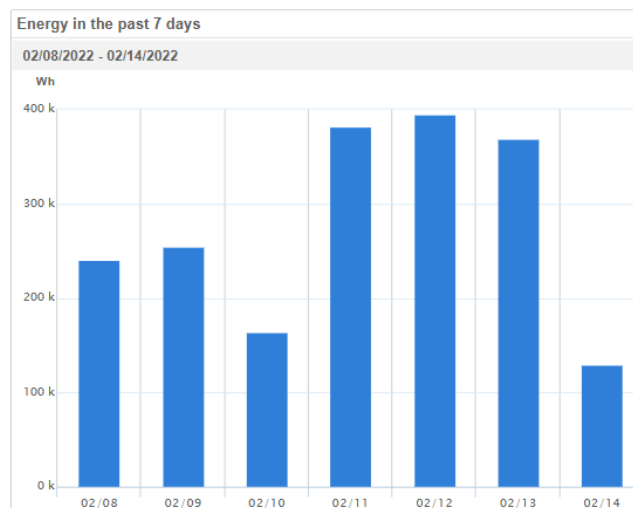


System Performance

Current Power 44.52 kW	Energy today 129.26 kWh	Energy this month 3.13 MWh	Lifetime energy 153.26 MWh
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Environmental Benefits	
	CO2 Emission Saved 237,318.8 lb
	Equivalent Trees Planted 1,793.16

Power and Energy



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During the bond construction planning phases, care was taken by design teams to utilize **Leadership in Energy and Environmental Design (LEED)** concepts and strategies to create efficient and thoughtful school buildings.

School	Architectural Firm	LEED Guidelines Rating Level
Adrienne C. Nelson High School	BORA Architects	Silver
Beatrice Morrow Cannady Elementary School	BRIC Architects	Silver
Milwaukie High School	BRIC Architects	Silver
New Urban High School	Opsis Architecture	Silver

Note: The above new buildings were designed to meet or exceed the LEED level of silver, however the district decided not to invest in having the buildings LEED certified.

Green Building and LEED Concepts

The following are just a few highlights in the applicable categories:

Sustainable Site:

- Preservation of wetlands, large trees, and additional buffering plants
- Protect or restore open space wherever possible
- Computerized (and centralized) irrigation controls, low flow fixtures
- Inclusion of public transportation access and bicycle storage

Water Efficiency

- Water efficient landscaping including storm water design and rain gardens
- Implemented or upgraded centralized computer irrigation control systems and components
- Installed low-flow plumbing fixtures and low flow flush toilets
- Applied storm water filtration principles including pervious asphalt, bioswales, sand-based fields and detention areas

Energy & Atmosphere:

- Upgraded heating, ventilation, and mechanical systems with more energy efficient equipment
- Installed and/or upgraded mechanical controls with Direct Digital Controls
- Chlorofluorocarbon (CFC) reduction in HVAC and refrigeration equipment
- High efficiency low thermal emissivity glass standards were applied for glass installations at new and remodeled buildings
- Installed improved performance energy efficient lighting
- High efficiency kitchen appliances and equipment selected and installed
- Natural daylight concepts in applied in gyms, common areas and hallways

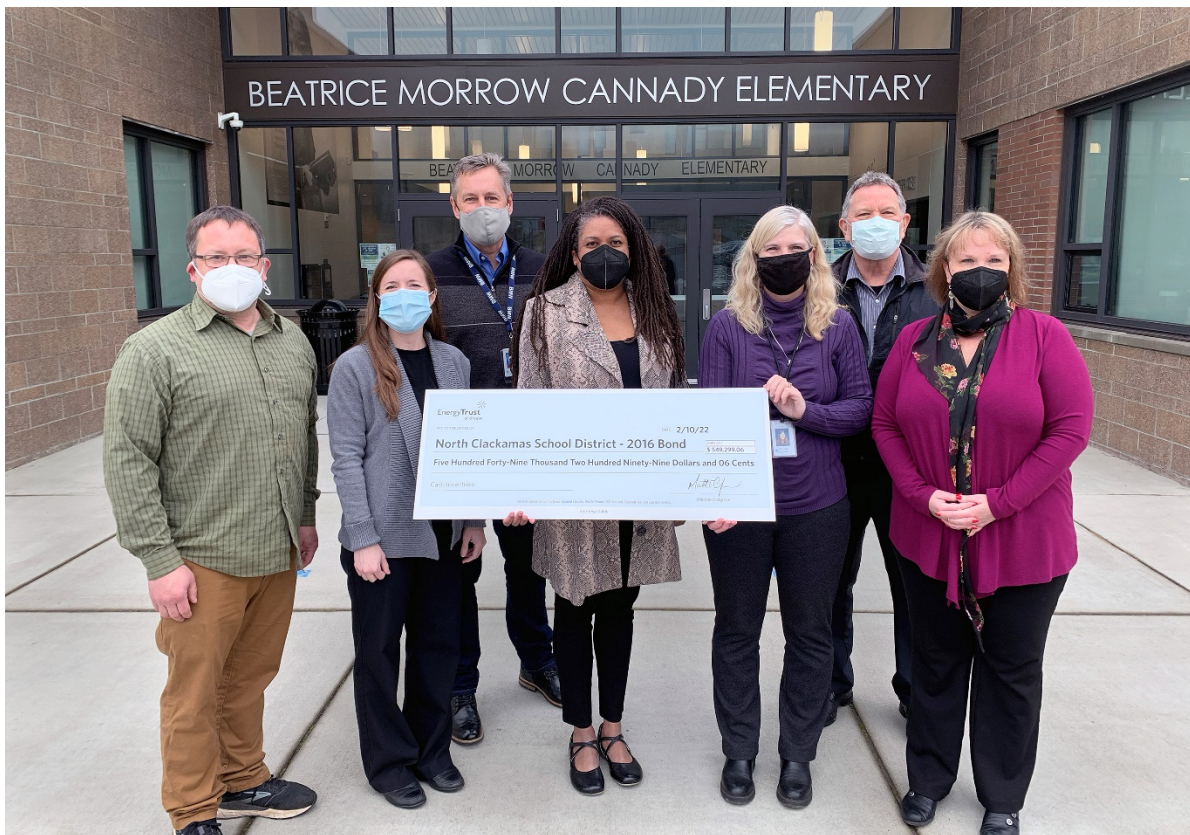
Material & Resources:

- Installed athletic turf and track materials recycled materials
- Contractor demolition materials were directed to Metro Recycling Programs
- Reuse of materials where practical and economical

- Utilized building materials such as flooring and bathroom partitions produced from minimum recycled content

Indoor Environmental Quality:

- Carbon Dioxide (CO₂) and monitoring and demand control ventilations systems
- Engineered systems for increased ventilation effectiveness
- Incorporated low volatile organic compounds (VOC) emitting and Carpet and Rug Institute (CRI) green label building materials including carpets, paints and others
- Increased ventilation effectiveness
- Thermal comfort ceiling and wall insulation in most instances exceeds minimum code requirements



Energy Trust of Oregon presentation of funds received to date during the 2016 Capital Construction Bond program. From left - Rick Flacco (ETO), Christina Skellenger (ETO), Randy Isaac (OTAK), NCSd Superintendent Shay James, Ed.D., Melinda Shumaker (NCSd), Rick Fuller (OTAK), Cindy Detchon (NCSd)