

On-site Renewables in Healthcare

Offsetting building energy costs and environmental impact

The following provides an indepth comparison of two different approaches to using photovoltaics to provide clean energy on site.

Project 1 – Chase Gardens Medical Center



Chase Gardens Medical Center is a 54,500 square foot medical office building located on a brownfield site. Facility services include Outpatient Surgery Center, Imaging Suite with CT and future MRI, Medical Clinic, Outpatient Laboratory, Physical

Therapy, General Surgery Offices, and ENT Office.

The site is located in Chase Node, a special zoning district within the City of Eugene designed to encourage mixed use, pedestrian friendly development.

The building is owned by MLK, LLC. The interior spaces are leased.

The Solar PV system installed by Advanced Energy Systems of Eugene, Oregon, and is owned by the building owner.

Project 2 – Tebo Family Medical Pavilion



The 42,000 square-foot Tebo Family Medical Pavilion in Boulder, Colorado offers cancer patients traditional treatment options as well as comprehensive holistic therapies.

This innovative facility for US Oncology consolidates previously fragmented treatment services into a fully integrated

outpatient cancer center treating patients through surgery, medical oncology, radiation oncology, integrative therapies, and education. The services available include yoga, massage therapy, acupuncture, healing touch/Reiki therapy, nutritional therapy and art therapy.

The project is located on Boulder Community Foothills Hospital property. The building is owned by Boulder Community Hospital.

The Solar PV system was installed and is owned by Namaste Solar Electric, Inc. of Boulder, Colorado.

System Attributes

	Project 1 Chase Gardens Medical Center	Project 2 Tebo Family Medical Pavilion
System size (kW)	25.2 kW Sunpower A300 PV modules used to make Open Energy Solar Save units	27.95 kW Sunpower SPR-215-BLK PV Modules
# of panels	56	130
Panel size	8' x 4' x ¼" thick pre-assembled modules	32" x 62"
Installation	Panels heat-welded down to flat PVC roof	Customized mounting system from Unirac; Panels mounted at a 15° angle on flat roof
Panel warranty	20 years	25 years
Inverter	SatCon 3-phase inverter converts 380VDC to 480VAC	SatCon Powergate AE-30-60PV 3-Phase Inverter – converts 477 DC Max VOC to 480/277 VAC
Inverter warranty	5 years	10 years
Power destination	Eugene Water & Electric Board (EWEB) transformer adjacent to building.	Boulder Community Hospital 30kVA WYE/WYE 208VAC Isolation Transformer

Carbon Reduction

	Project 1 Chase Gardens Medical Center	Project 2 Tebo Family Medical Pavilion
Estimated annual electricity production	25,200 kWh	38,000 kWh
Annual CO ₂ emissions reduced	37,800 lbs	78,098 lbs
Annual equivalent reduction in vehicle miles driven	44,520 miles	85,425 miles
Equivalent number of trees planted	1935 total	3004 total

NOTE: While the system sizes are comparable between the two projects the carbon offset is significantly lower in Eugene, OR. Carbon offsets are calculated based on the region's electrical generating portfolio and therefore the offsets are lower in areas where nuclear, hydro, solar and wind power are more prevalent. While Colorado is served primarily by coal-fired power plants, Oregon uses a significant amount of hydropower.

System Advantages

Project 1 Chase Gardens Medical Center	Project 2 Tebo Family Medical Pavilion
<ul style="list-style-type: none"> • Low weight < 2 lbs/square foot, no structural reinforcement required • Low installation cost • Minimizes roof penetrations to one per group of modules (system is divided into 3 groups) • Entire system can be installed after the roof is in place, but membranes must be compatible (currently PVC, testing on TPO) • Efficient cells (20%) help compensate for flat orientation 	<ul style="list-style-type: none"> • Visible to public • Black module is visually appealing • Anti-reflective coating reduces reflections • The hospital has the option to purchase the system after year 10

System Financing and Payback

	Project 1 Chase Gardens Medical Center	Project 2 Tebo Family Medical Pavilion
Building owner	For-profit MLK, LLC of Eugene, OR	Non-profit Boulder Community Hospital (BCH) of Boulder, CO
PV system owner	For-profit MLK, LLC of Eugene, OR	For-profit Namaste Solar Electric, Inc. (NSE)
PV system cost	\$185,000	\$176,245
Estimated annual PV electricity production	25,200 kWh	38,000 kWh
Tax credits	30% Federal income tax credit and 35% Oregon state income tax credit accrue to MLK	30% Federal income tax credit accrues to NSE
Estimated savings from depreciation expense	\$65,000 accrues to MLK = 35% of system cost	\$60,000 accrues to NSE = 34% of system cost
Power recipient and costs	Eugene Water & Electric Board (EWEB) receives power directly to their transformer at the property line; EWEB pays MLK \$0.15/kWh for the clean power to sell; MLK buys power from EWEB for \$0.05/kWh.	BCH receives power directly to their building; BCH pays NSE \$0.04/kWh = \$1,520/year, locked in at a fixed rate for 20 years. Xcel Energy also pays NSE \$2/watt rebate = \$55,900
Electricity cost savings	\$37,800 over ten years accrues to MLK	Increases from 20% to 68% over 20 years on these kWh (assuming 5% annual inflation in market electricity price) accrues to BCH
Renewable energy credits (RECs)	Eugene Water & Electric Board (EWEB) gets RECs from Bonneville Power Administration	NSE receives RECs from Xcel Energy

Boulder Associates

Boulder, CO
Sacramento, CA
Orange County, CA

contact us
1.800.499.7796

visit us
boulderassociates.com