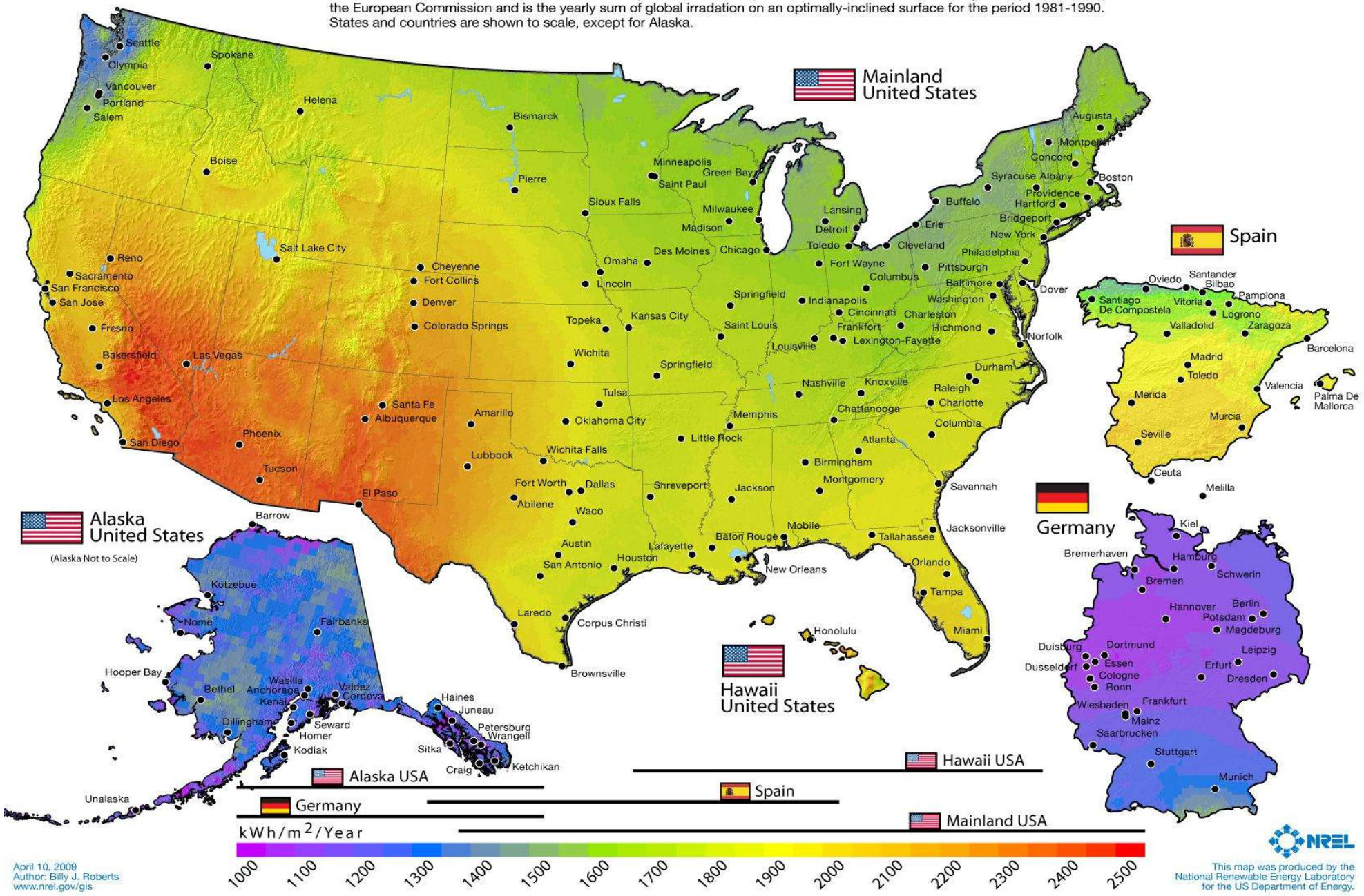
SOLAR OPTIONS

PARK DISTRICT
of OAK PARK


In a single hour, the amount of power from the sun that strikes the **Earth** is more than the entire world consumes in a year.

Photovoltaic Solar Resource: United States - Spain - Germany

Annual average solar resource data are for a solar collector oriented toward the south at a tilt = local latitude. The data for Hawaii and the 48 contiguous states are derived from a model developed at SUNY/Albany using geostationary weather satellite data for the period 1998-2005. The data for Alaska are derived from a 40-km satellite and surface cloud cover database for the period 1985-1991 (NREL, 2003). The data for Germany and Spain were acquired from the Joint Research Centre of the European Commission and is the yearly sum of global irradiation on an optimally-inclined surface for the period 1981-1990.
States and countries are shown to scale, except for Alaska.



April 10, 2009
Author: Billy J. Roberts
www.nrel.gov/gis

NREL

This map was produced by the National Renewable Energy Laboratory for the US Department of Energy.

Solar Installations Are Adaptable

Mounting Styles –

- Flat Roof (Fastened/Ballasted) Slanted South
- Sloped Roof (Asphalt, Tile, Metal, etc.) Facing South
- Wall Mount (Awning) Facing South
- Ground Mount South Facing

** Ideal angle for solar is about 30 degrees facing south*

Things to consider: barriers to solar exposure, roof condition, structural load

Flat Roof Ballasted System

- No roof penetrations, less probability of leaks
- Simple install- Easy working conditions
- Increased weight load over fastened system.

Sloped Roof Standing Seam

Racking system clamps to the standing seam

Quicker install

Lower labor costs

Wall Mounted Awning Type

Visible to public

Simple install

Provide shade and weather protection

Ground Mounted System

- Need open land with no structures or shade.
- Can be ballasted system or with ground penetrating supports

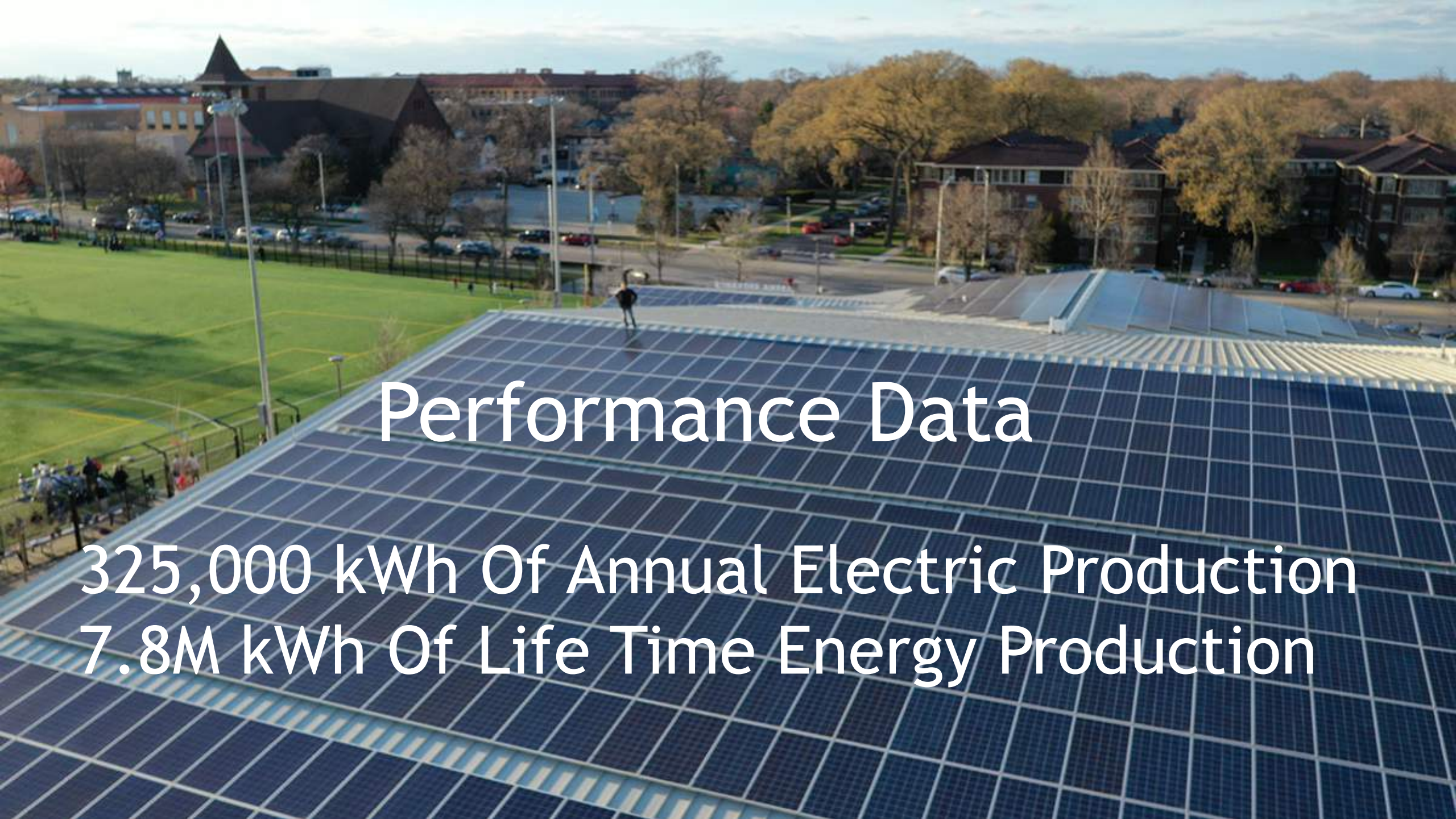
Solar Lease Option & Case Study

Ridgeland Common Solar System

REALGY NO COST SOLAR PROGRAM

- Realgy is a licensed third party energy supplier in Illinois
- Realgy is looking to lease the hosts roof for a 24 year period in 8-year increments
- Realgy installs and operates the solar system. There is NO COST TO THE HOST
- The new solar system offsets a percentage of the facilities energy use
- The economic benefits to the host are lower electrical costs and displaced delivery costs

260,000 WATT SOLAR SYSTEM



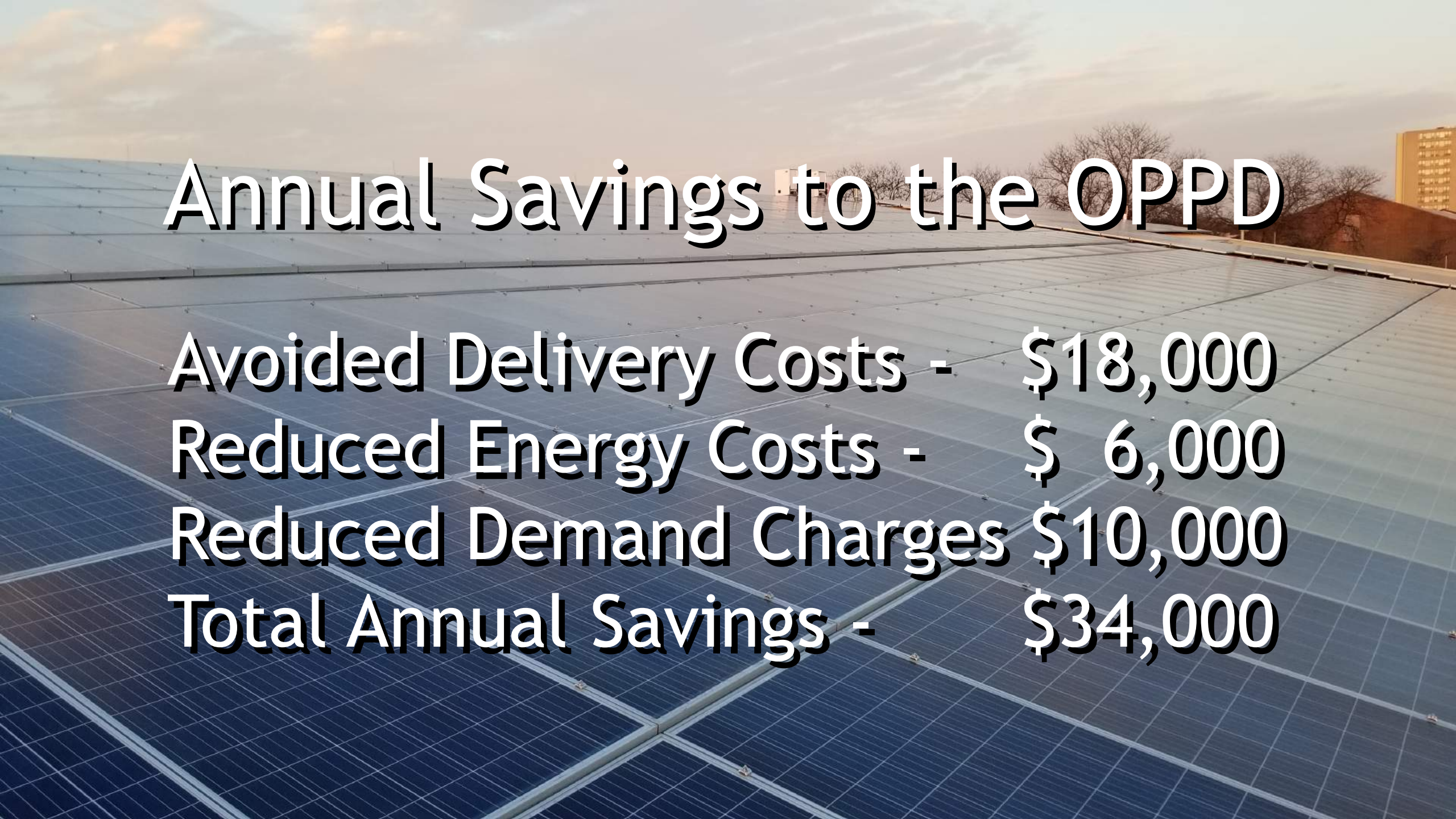
Performance Data

325,000 kWh Of Annual Electric Production

7.8M kWh Of Life Time Energy Production

Benefits To The Community

182,000lbs Of Annual CO2 Reduction
Equal To Planting 16,834 Trees A Year



Annual Savings to the OPPD

Avoided Delivery Costs -	$18,000
Reduced Energy Costs -	$ 6,000
Reduced Demand Charges	$10,000
Total Annual Savings -	$34,000


Websites
www.realgyenergyservices.com
www.eco-solar-solutions.com

THE REALGY PROCESS

- Newer roof surface
- Provide electric bills for the past year
- Have a site evaluation
- Sign the **Letter Of Intent**
- Contact and meet with host managers

Keys to the Realgy Program

- Realgy owns, operates and maintains the solar system
- Realgy receives all the incentives associated with the solar plant
- This is a 24 year program with 3-8 year renewable term lengths
- Possible early opt-out is available to the host at the end of the first 8 year term

Aurora Shade Report

Customer
Skokie Park District

Designer
Paul Szczesny

Organization
Eco-Solar Solutions, LLC

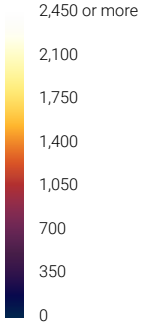
Address
9300 Weber Park Pl
Skokie, IL 60077, USA

Coordinates
(42.048840, -87.749780)

Date
31 October 2019

Annual irradiance

kWh/m^2/year



Summary

Array	Panel Count	Azimuth (deg.)	Pitch (deg.)	Annual TOF (%)	Annual Solar Access (%)	Annual TSRF (%)
1	436	215	10	92	97	90
2	696	215	12	93	97	90
3	107	215	10	92	96	89
4	223	215	10	92	95	87
Weighted average by panel count	-	-	-	-	96.9	89.6

Monthly solar access (%) across arrays

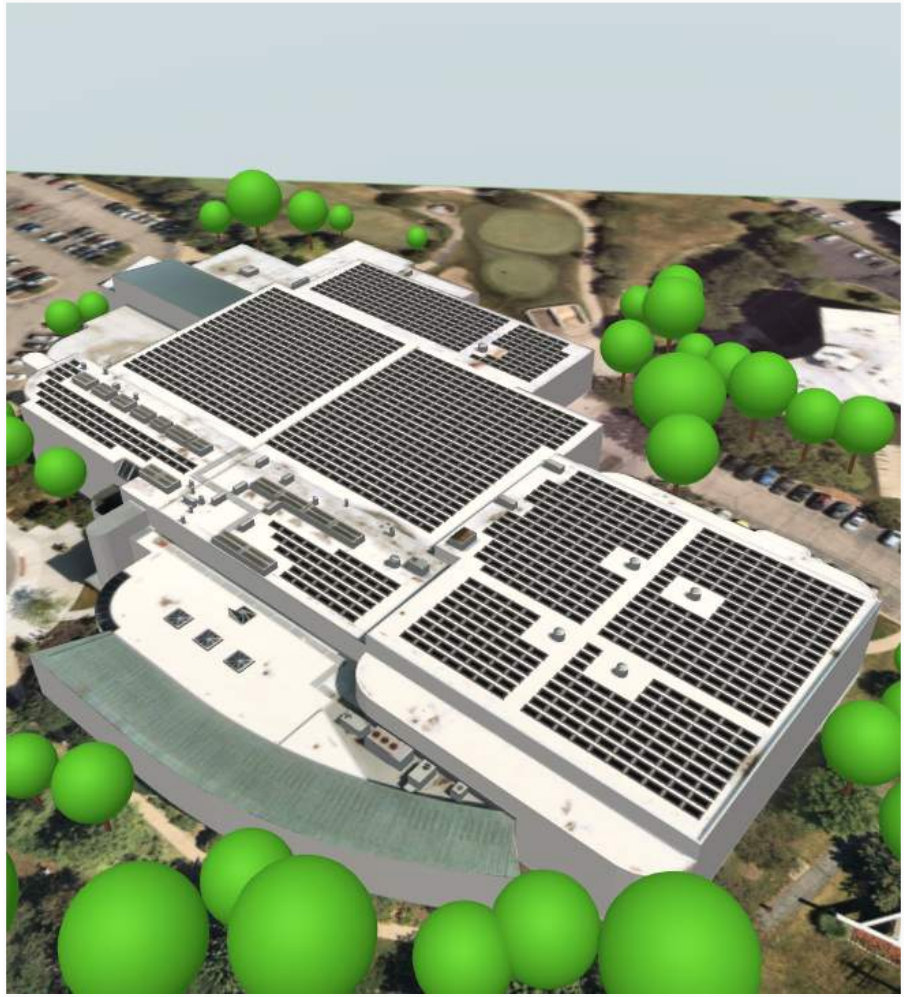
Array	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	94	96	97	98	98	98	98	98	98	97	95	94
2	94	96	97	98	98	98	98	98	98	97	95	93
3	92	94	96	97	97	97	97	97	97	96	93	92
4	88	91	95	96	97	97	97	96	96	93	90	87

ECO SOLAR

Site Assessment

Customer: Skokie Park District
Address: 9300 Weber Park Pl
Skokie, IL 60077

System size: 548.25 kW
Yr 1 Production: 664,792 kWh
Designer: Paul Szczesny
Date: October 31st, 2019



Green Mountain Energy's Sun Club Grant

- We have received $100,000 funding from Green Mountain Energy's Sun Club from our pledge grant.
- Over 1,000 sustainable pledges for 18 action items!!!!!!
- $55,000 – Solar
- $35,000 – Rain Water Collection
- $ 5,000 – Bees
- $ 5,000 – Tea Composting
- *Article written in NRPA Magazine

24.5 kW Solar PV Array

- 63 Panels installed on both flat roof areas
- 7 Panels installed on the building awning style
- This system offsets 37,000 pounds of carbon dioxide from the atmosphere annually

Rain Water Harvesting System

- 4500 Gallon Capacity
- System Designed for year-round operation
- Rain water is also much better for the plants inside the Conservatory than treated city water.
- Visible cisterns to the public through the Desert Room.

BEEEEEEEEES!

- Observation hives installed
- Two Langstroth Hives
- Designing interpretive signage in house
- New bee programs this year
- Honey to be sold in Conservatory gift shop

Tea Composting

- Install system last Spring
- Will be used in our greenhouses on plants for our parks
- Promotes plant health in absence of fertilizers and pesticides
- Increased soil microorganisms
- Improved soil structure, water retention, rooting depth and plant growth

Q & A