

Plainfield Park District

PRAIRIE ACTIVITY & RECREATION CENTER (PARC)

November 2024



Net Zero

**Net
Zero**

**How PARC
Operates**

**Annual
Overview**

**Monthly
HVAC**

**Monthly
Lighting**

**Monthly
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Monthly PV

**Monthly
Net Totals**

Net Zero Energy

The PARC has been designed as a Net-Zero Energy building, incorporating the latest energy-efficient construction materials and an 18,000-sf series of solar roof panels which will generate enough energy to offset the building's utilities. It was the first Net Zero Energy park district designed building in Illinois.

1 Harvest energy onsite



662 solar panels – 542 on the roof, 68 on the parking lot canopy, and 52 on the solar awning – capturing clean, renewable energy that is converted to 391,972 kWh of energy per year.



Energy-producing treadmills that turn up to 74% of user-generated energy into clean, renewable energy.

2 Maximize energy efficiency through a high-performance building envelope



Airtight insulation with R-values R-28.25 to R-60 – the higher the R-value, the higher the insulating effectiveness.



Triple pane windows to keep the heat in on cold days and out on hot days.

3 Conserve energy inside with mechanicals and devices



High-efficiency VRF HVAC System that heats and cools only the spaces that need it.



LED lighting throughout the building that uses 75% less energy and lasts up to 25x longer than incandescent lighting.



Daylight and occupancy sensors that provide only the amount of artificial light needed for each space.



Power sensors that eliminate "phantom loads" by cutting off the flow of electricity to appliances, equipment, etc. not in use.

The Plainfield Park District received a grant of \$1.0 million from the [Illinois](#) Clean Energy Community Foundation to help make PARC a Net Zero facility.

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1

The windows in this building are special! They're small, so they let light in, but not too much when it's hot outside. They're also "coated" to protect the interior of the building from the heat of the sun.

2 Using "used air" to pre-treat outside air saves energy!

Used air leaving the building

Fresh air being drawn into the building (We need fresh air to be healthy!)

Heat Exchanger

Preheated fresh air entering the building

Used air leaving the building

3 A lifetime of energy savings...

1 LED Light Bulb lasts 25 years!

2½ CFL Light Bulbs

25 Incandescent Light Bulbs

4

Extra insulation in the walls and on the roof is like putting a blanket around the building...

The roof has 10" of insulation!

...keeping it warmer in the winter and cooler in the summer.

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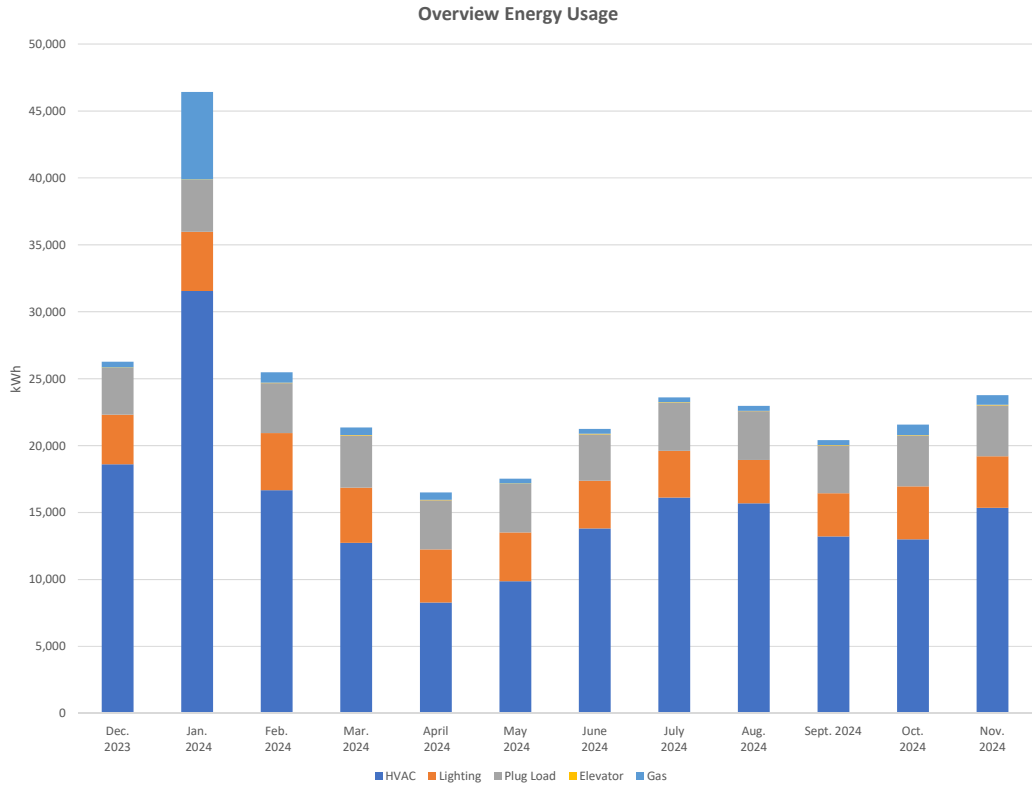
Monthly HVAC

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Monthly HVAC

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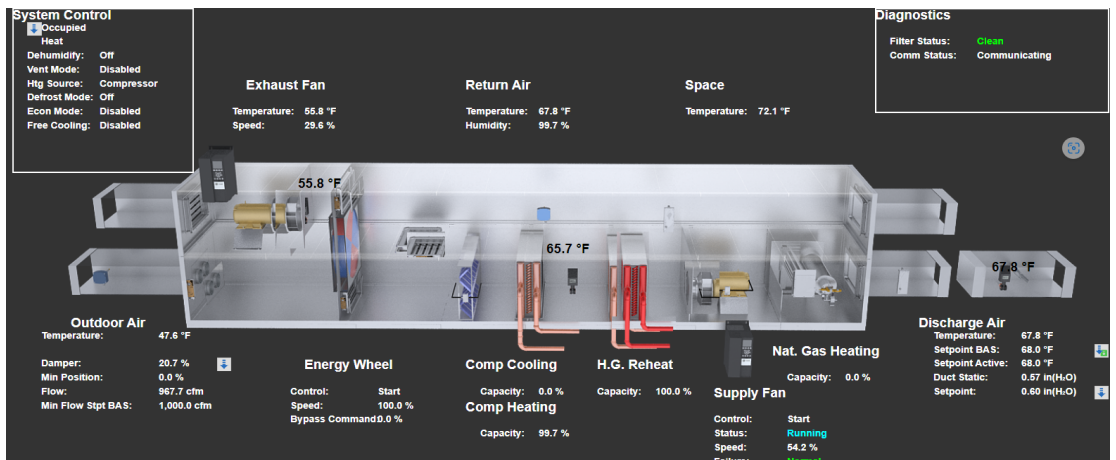
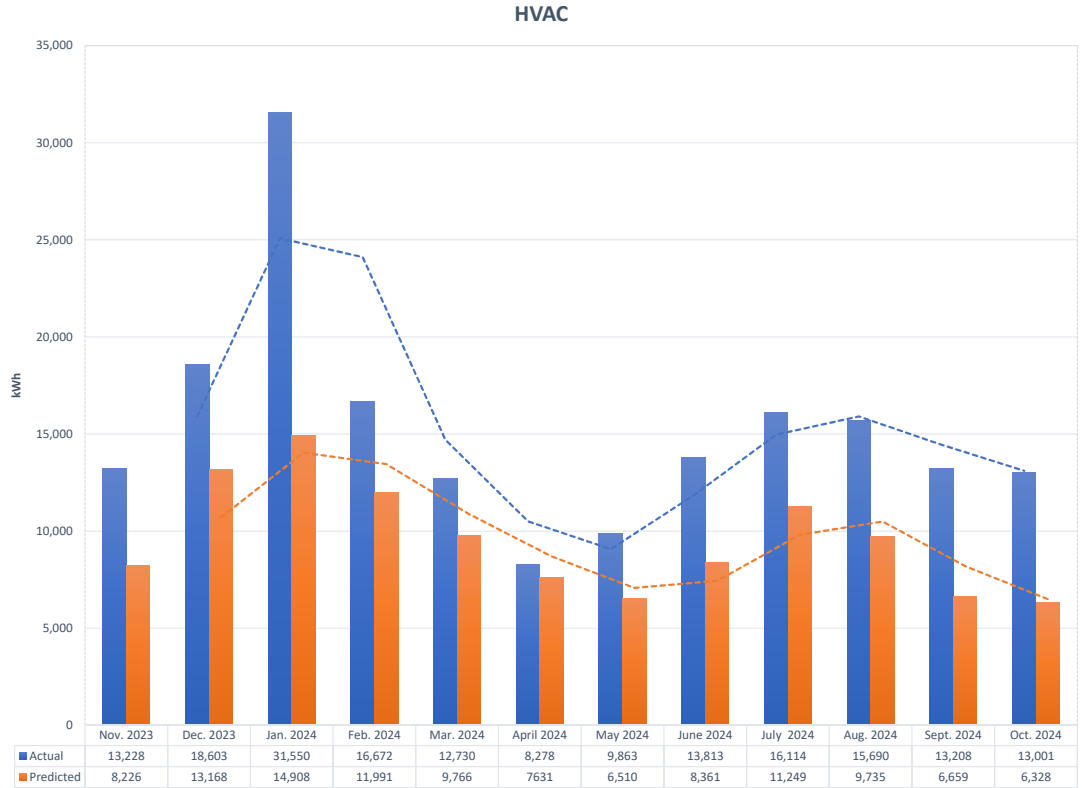
Monthly HVAC

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*HVAC = Heating, Ventilation and air conditioning

Monthly Lighting

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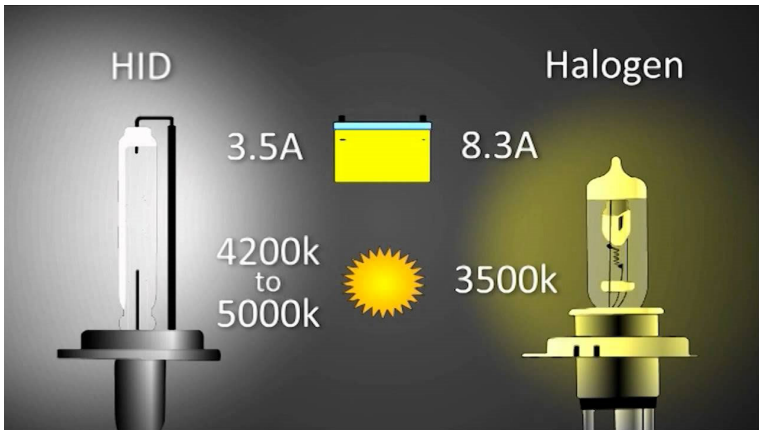
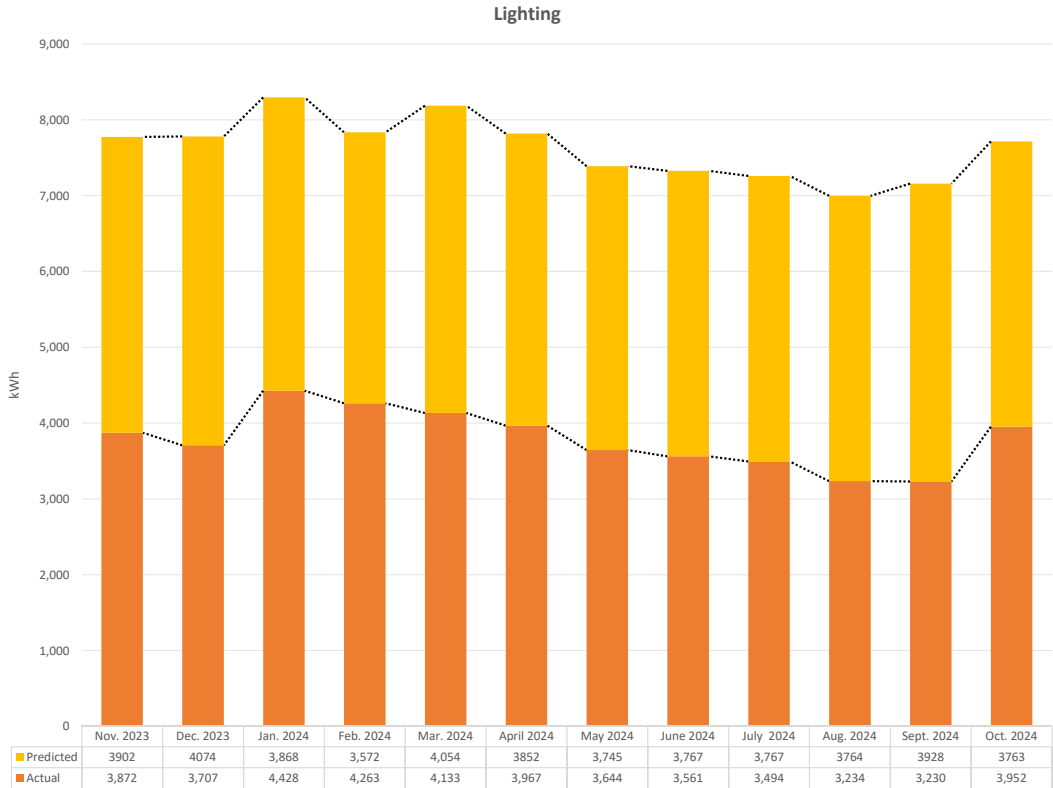
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Monthly Plug Load

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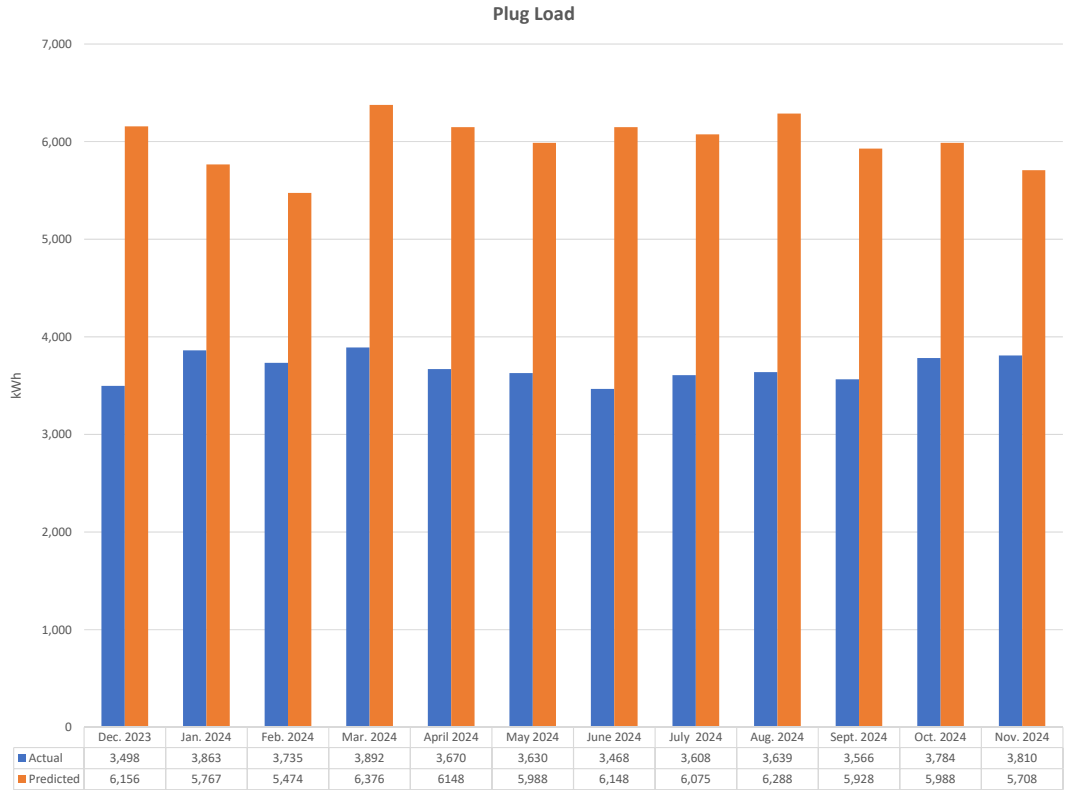
Monthly HVAC

Monthly Lighting

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Monthly PV Production

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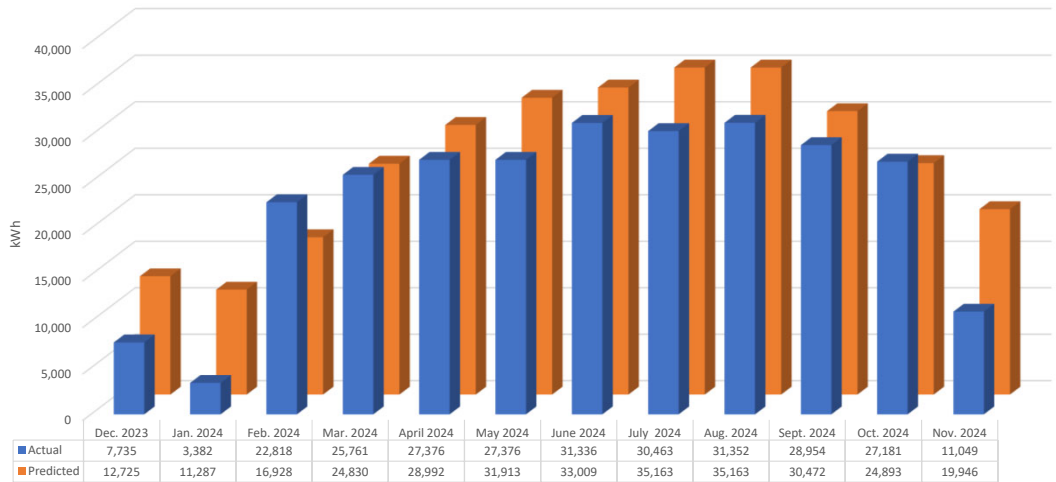
Monthly Lighting

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Monthly PV

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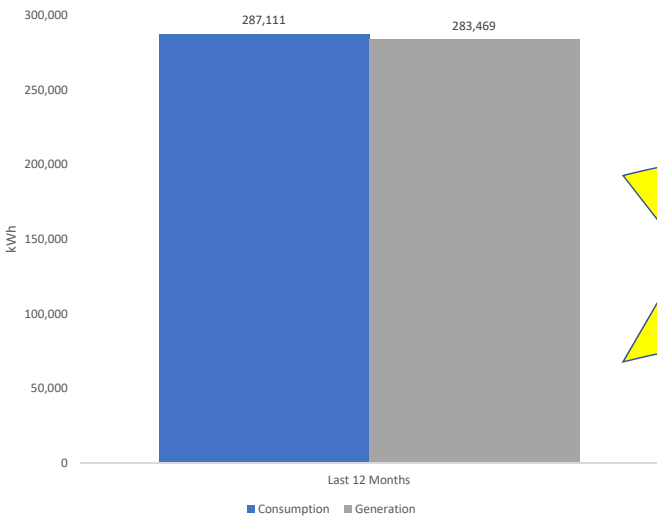
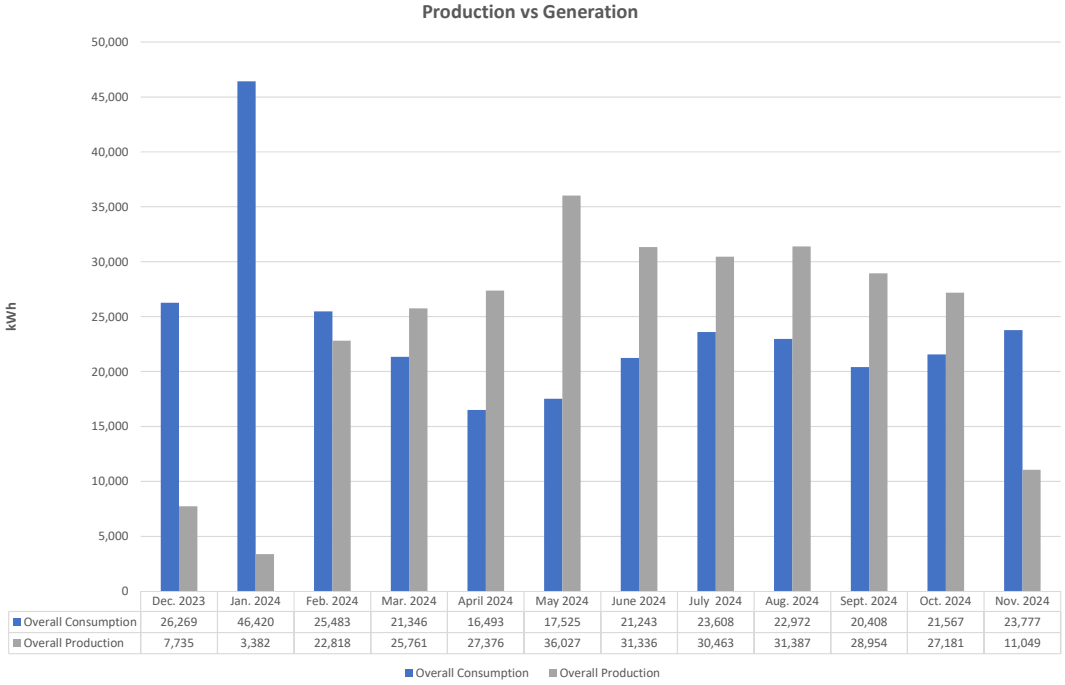
PV Production



*PV=Photovoltaics, generating electricity using solar power

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Current Status
3,642 kWh