Our mission is to create the most sustainable park system in the country.

In doing so we will:
- reduce our carbon footprint
- reduce energy costs
- reduce landfill waste
- implement water conservation programs
- help educate our patrons
Governor Cuomo announces New York's aggressive Clean Energy Standard requiring 50 percent of the state's electricity to come from renewable energy sources by 2030.

Over the next decade State Parks will create 100-130 electric energy neutral parks generating more than 50% of our electricity from solar power!
Climate Change
A path to a 40% reduction in greenhouse gas emissions by 2030

- Governor Cuomo announces ambitious Clean Energy Goal to Reduce Greenhouse Gas Emissions 40 Percent by 2030.

- State Parks will create 100-130 energy neutral parks, and convert our light duty fleet of vehicles to clean fuel over the next decade reducing emissions more than 40% by 2030!
Energy/Sustainability Program
Annual Cost Savings

• Lighting Program: $711,856
• Solar Program: $239,433
• Solar Lighting: $11,855
• Fuel Savings:
  - Electric: $91,000
  - CNG: $21,256
• Total Savings: $1,075,400
Energy and Sustainability Programs

- Energy Efficiency
- Renewable Energy
- Recycling
- Water Conservation
- Clean Fueled Vehicles
- Training
- Innovation

Keewaydin State Park
• **Mike Wise**, Director, GPRO:O&M, Solar Electric/Solar Thermal Certified, DLC Certification, BPI Certified

• **Bill Vilkelis**, Certified Energy Manager, BOC Certified, BPI Certified,

• **Rich Bruni**, GPRO:O&M/Solar Certified, BPI Certified

• **Alyx Gleason**, BPI Certified, Solar Certified

• **Caitlin Tremblay**, BPI Certified, Solar Certified
Regional Sustainability Coordinators

- Allegany: John Stefanski
- Central: Tom Hughes
- Finger Lakes: Jim Brophy
- Genesee: Doug Kelly
- Long Island: Brian Foley
- New York City: Scott Matson
- Niagara: Ron Peters
- Palisades: Bob Kuhn
- Saratoga: Kurt Kress
- Taconic: Cathy Hoppe
- Thousand Islands: Mark Spaulding
Energy Audits Completed

- Completed 30 Level II Energy Audits starting with our top 25 largest energy users including:
  - Jones Beach, Bethpage, Robert Moses, Allegany, Niagara, Letchworth, James Baird, and Bear Mountain State Parks
- The audits provide a road map for energy investment and efficiency
Energy Efficiency

Sample List of EE Funded Projects

- Boiler and Radiator Replacement – Jones Beach
  - 30-40% reduction in energy use
- LED Lighting Replacements – Various Regions
  - 65% reduction in energy use
- Furnace/Water Heater Upgrades – Central
  - 30% reduction in energy use
- HVAC Upgrades – Letchworth
  - 30% reduction in energy use
- Building Weatherproofing – Thousand Islands
  - 15% reduction in energy use
Energy Efficiency Innovation

• State Parks is in the design phase of a completely off-grid building at Buffalo Harbor to house our Park Office, Police and Comfort Stations.

• The building will be heated and cooled using solar, solar thermal, wind, geothermal and possibly a thermal battery.
Renewable Energy
Solar Generation

- In-house Installations: 17
- Contractor Installations: 11
- Pending Projects: 15

Fort Niagara Maintenance
Solar Projects
In-house Installations Totaling 1,192kW

Partial List

• Discovery Center Niagara Falls (9kW)
• Letchworth Visitors Center (25kW)
  • Allan Treman (25kW)
• Robert Moses Field Houses (34kW)
  • Grafton Lake (12kW)
  • Keewaydin (10kW)
  • Fort Niagara (50kW)
• Letchworth Nature Center (36kW)
  • Robert Moses (693kW)
  • Peebles Island (144kW)
Solar Projects
Contractor Installations Totaling 147kW

- Taconic Regional HQ: 12kW
- Thacher Park Visitors Center: 26kW
- Grafton Lake Police Station: 8kW
2018 Solar Projects

- Allan Treman Phase II: 108kW
- Bethpage Maintenance Ctr: 33kW
- Clay Pit Pond: 29kW
- Darien Lake: 124kW
- Parks/DEC Project Saratoga SP: 10kW
- Walkway Over the Hudson: 20kW
- Denning's Point: 83kW
- Thousand Islands: (5) 89kW
- Niagara Projects: (2) 90.8
- Sam’s Point: 10kW
Solar Generation to Date

<table>
<thead>
<tr>
<th>COMPLETED SOLAR PROJECTS</th>
<th>System Size (kW)</th>
<th>Annual Output (kWh)</th>
<th>Annual Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Center Lighting</td>
<td>0.30</td>
<td>358</td>
<td>$ 35.80</td>
</tr>
<tr>
<td>Discovery Center Roof</td>
<td>8.74</td>
<td>10,940</td>
<td>$ 1,094.00</td>
</tr>
<tr>
<td>Allan Treman</td>
<td>22.08</td>
<td>25,320</td>
<td>$ 2,532.00</td>
</tr>
<tr>
<td>Letchworth Visitors Center</td>
<td>25.00</td>
<td>29,200</td>
<td>$ 2,920.00</td>
</tr>
<tr>
<td>Fort Niagara</td>
<td>50.30</td>
<td>64,402</td>
<td>$ 6,440.20</td>
</tr>
<tr>
<td>Robert Moses Field 2,4,5</td>
<td>33.39</td>
<td>41,437</td>
<td>$ 7,873.03</td>
</tr>
<tr>
<td>Grafton Lake</td>
<td>11.13</td>
<td>12,978</td>
<td>$ 1,298.00</td>
</tr>
<tr>
<td>Letchworth Nature Center</td>
<td>36.20</td>
<td>38,285</td>
<td>$ 3,829.00</td>
</tr>
<tr>
<td>Keewaydin State Park</td>
<td>9.90</td>
<td>11,563</td>
<td>$ 1,157.00</td>
</tr>
<tr>
<td>Taconic Regional HQ</td>
<td>7.20</td>
<td>10,512</td>
<td>$ 1,052.00</td>
</tr>
<tr>
<td>Grafton Lake Police Station</td>
<td>7.70</td>
<td>9,556</td>
<td>$ 960.00</td>
</tr>
<tr>
<td>Robert Moses Field 4</td>
<td>693.00</td>
<td>940,000</td>
<td>$ 178,600.00</td>
</tr>
<tr>
<td>Thacher Parks Nature Ctr</td>
<td>26.30</td>
<td>33,017</td>
<td>$ 3,301.70</td>
</tr>
<tr>
<td>Lake Taghkanic State Park</td>
<td>32.48</td>
<td>37,936</td>
<td>$ 3,800.00</td>
</tr>
<tr>
<td>Grafton Lake Phase II</td>
<td>34.00</td>
<td>40,000</td>
<td>$ 4,100.00</td>
</tr>
<tr>
<td>Peebles Island</td>
<td>144.00</td>
<td>204,400</td>
<td>$ 20,440.00</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>1,141.72</strong></td>
<td><strong>1,509,904</strong></td>
<td><strong>$ 239,432.73</strong></td>
</tr>
</tbody>
</table>
## Solar Generation 2018-19

<table>
<thead>
<tr>
<th>PENDING SOLAR PROJECTS</th>
<th>Size (kW)</th>
<th>Output (kWh)</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sam's Point</td>
<td>10</td>
<td>11,000</td>
<td>2,200.00</td>
</tr>
<tr>
<td>Clay Pit Pond</td>
<td>29</td>
<td>31,527</td>
<td>6,305.00</td>
</tr>
<tr>
<td>Walkway Over the Hudson</td>
<td>20</td>
<td>22,460</td>
<td>2,700.00</td>
</tr>
<tr>
<td>Dennings Point</td>
<td>82.80</td>
<td>90,000</td>
<td>9,000.00</td>
</tr>
<tr>
<td>Darien Lake</td>
<td>124.00</td>
<td>180,000</td>
<td>18,000.00</td>
</tr>
<tr>
<td>Peerless Pool Solar</td>
<td>101.40</td>
<td>130,000</td>
<td>13,000.00</td>
</tr>
<tr>
<td>Bethpage Maintenance Ctr</td>
<td>30.00</td>
<td>38,000</td>
<td>7,200.00</td>
</tr>
<tr>
<td>Allan Treman Phase II</td>
<td>108.00</td>
<td>150,000</td>
<td>15,000.00</td>
</tr>
<tr>
<td>Parks/DEC Project</td>
<td>10.00</td>
<td>11,000</td>
<td>1,100.00</td>
</tr>
<tr>
<td>Thousand Islands Projects 5</td>
<td>89.00</td>
<td>100,000</td>
<td>10,000.00</td>
</tr>
<tr>
<td>Bennington Battlefield</td>
<td>2.40</td>
<td>3,067</td>
<td>184.00</td>
</tr>
<tr>
<td>Beaver Island</td>
<td>45.40</td>
<td>46,455</td>
<td>4,650.00</td>
</tr>
<tr>
<td>Evangola</td>
<td>45.40</td>
<td>46,455</td>
<td>4,650.00</td>
</tr>
<tr>
<td>Hallock Visitor's Center</td>
<td>15.08</td>
<td>17,834</td>
<td>3,800.00</td>
</tr>
</tbody>
</table>

**Total Pending Projects:** 712.48 763,987 $ 97,789.00

**Completed + Pending:** 1,854.20 2,273,891 $ 337,221.73
Robert Moses State Park
Largest state employee installation in the history of New York State (693kW)
Peebles Island Solar Array (144kW)
Installed by Albany Office and Peebles Island Staff
Letchworth Nature Center
The solar array provides 50% of the power for the building!
Fort Niagara State Park
50kW Array
Additional Solar Projects

- Letchworth State Park
- Grafton Lake State Park
- Moreau Lake State Park
- Wellesley Island State Park
Allan Treman SP
Solar Light Poles with Battery Storage
Discovery Center Solar Lighting
Off Grid Battery Operated System
Parks/NYPA have partnered to develop a 10 megawatt solar installation at nine different locations in the Park system. The resulting solar electric generation would account for 20-25% of the electricity used by the park system statewide. System builds will begin in the late summer of 2018.
<table>
<thead>
<tr>
<th>Parks/NYPA Solar Project</th>
<th>Potential Power Purchase Agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Robert Moses State Park</strong></td>
<td>744kW</td>
</tr>
<tr>
<td><strong>Heckscher State Park</strong></td>
<td>1,800kW</td>
</tr>
<tr>
<td><strong>Sunken Meadow State Park</strong></td>
<td>790kW</td>
</tr>
<tr>
<td><strong>Belmont Lake State Park</strong></td>
<td>30kW</td>
</tr>
<tr>
<td><strong>James Baird State Park Tobin II</strong></td>
<td>2,660kW</td>
</tr>
<tr>
<td><strong>Orphan Farm</strong></td>
<td>1,260kW</td>
</tr>
<tr>
<td><strong>Canopus</strong></td>
<td>176kW</td>
</tr>
<tr>
<td><strong>Lake Sebago State Park</strong></td>
<td>1,020kW</td>
</tr>
<tr>
<td><strong>Anthon Wayne State Park</strong></td>
<td>1,400kW</td>
</tr>
<tr>
<td><strong>Total kW</strong></td>
<td>9,880kW</td>
</tr>
</tbody>
</table>
## Annual Lighting Savings

<table>
<thead>
<tr>
<th>Region</th>
<th>Thru 2016</th>
<th>Thru 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousand Islands</td>
<td>$7,129.50</td>
<td>$9,981.30</td>
</tr>
<tr>
<td>Allegany</td>
<td>$19,186.63</td>
<td>$33,077.92</td>
</tr>
<tr>
<td>Central</td>
<td>$1,759.34</td>
<td>$3,518.68</td>
</tr>
<tr>
<td>Finger Lakes</td>
<td>$10,022.40</td>
<td>$20,044.80</td>
</tr>
<tr>
<td>Genesee</td>
<td>$13,417.71</td>
<td>$25,823.65</td>
</tr>
<tr>
<td>Long Island</td>
<td>$2,995.20</td>
<td>$11,393.80</td>
</tr>
<tr>
<td>Niagara</td>
<td>$184,003.80</td>
<td>$235,242.17</td>
</tr>
<tr>
<td>NYC</td>
<td>$81,159.44</td>
<td>$113,738.85</td>
</tr>
<tr>
<td>Palisades</td>
<td>$0.00</td>
<td>$4,968.49</td>
</tr>
<tr>
<td>Saratoga</td>
<td>$176,639.53</td>
<td>$246,709.76</td>
</tr>
<tr>
<td>Taconic</td>
<td>$3,678.34</td>
<td>$7,356.67</td>
</tr>
<tr>
<td></td>
<td><strong>$499,991.56</strong></td>
<td><strong>$711,856.10</strong></td>
</tr>
</tbody>
</table>
Recycling Goals

• Provide recycling opportunities in every park not currently a “Carry-in/Carry-out” facility
• Reduce landfill contributions
• Educate our patrons: signage, website, in-person
• Design and build our own recycling bins using in-house staff
• Blue Bag Program
• State Parks is one of the biggest users of the OGS State and Federal Surplus Program.
• To date we have acquired 7,104 items that were sent for disposal and now are operational at State Parks.
• Items acquired include: vehicles, heavy equipment, furniture, tools, office equipment, building supplies, etc
“Ugly” Recycling Bin
State Parks will add 1500 new recycling bins over the next five years!
Recycling by the Numbers

• Bulk Metals: 230 tons
• Clean Construction Materials: 788 tons
• Car/Truck Batteries: 18 tons
• Mixed Paper: 104 tons
• Corrugated Cardboard: 107 tons
• Electronics: 28 tons
• Total Recycled Materials: 2497 tons
**Additional Recycling Facts and Figures**

- **Non-Office Recycling**
  - 457 tons of single stream recycling
- **1,517 tons of Non-Office Composting**
- **1,027 boxes of 8 ½” x 11” 100% post-consumer recycled content processed chlorine free copy paper**
- **277 boxes of 8 ½” x 14” 100% post-consumer recycled content processed chlorine free copy paper**
- **6,200 cases of 100% recycled content processed chlorine free janitorial paper**
Water Conservation

- State Parks will conducted “water audits” for the first time in 2017-2018.
- Develop a comprehensive water plan.
- Our goal is to reduce water usage and costs throughout the park system.
- Pilot project at Rockland Lake State Park.
- Adopt EPA WaterSense guidelines.
Innovation – Preventing Chemical Runoff

- State Parks is working with the Pollution Prevention Institute to develop a vehicle washing system that uses recycled water to clean chemicals from the undercarriages of vehicles and equipment. Chemical runoff from washing vehicles is polluting our lakes and streams. The new innovative washing system will be available in June of 2018.
Reduced Mowing Program

Since its inception in 2009 the State Parks reduced mowing program has yielded the following results:

- Emission reductions of 1,777 metric tons of carbon dioxide
- Fuel savings exceed $200,000
- Work hours saved exceeds 100,000
Clean Fueled Vehicle Program

State Parks has driven over 14 million miles in clean fueled vehicles!

• Registered over 1,000 clean fueled vehicles.
• Displaced over 800,000 gallons of gasoline and diesel since the inception of our clean fueled vehicle program.
• Worked with major on and off road equipment manufacturers to develop clean fueled equipment (Ford, Toyota, John Deere, Toro and Jacobsen).
• Operated electric, hybrid electric, plug-in electric, propane, compressed natural gas, bi-fuel and hydrogen powered equipment.
• Installing 16 electric vehicle charging stations at parks across the state.
• State Parks will increase our plugin electric fleet by an additional 6 vehicles in 2017-2018.
Clean Fuel Vehicles in Parks
Clean Miles Traveled

- State Parks miles traveled using clean fueled vehicles
  - Electric: 1,729,247
  - Compressed Natural Gas: 4,490,377
  - Hybrid: 1,636,117
  - Bi-Fuel: 4,096,681
  - Propane: 105,378
  - Biodiesel (B5 & B20): 2,106,300

Total CFV Miles Traveled: 14,164,100
State Parks has driven over 14,164,100 miles in clean fueled vehicles. This is equivalent to:

- 1,004,817 gallons of gas
- 7,143 Metric Tons CO2
- 15,749,480 Pounds of CO2
- 1,055 Homes’ Electricity Use for One Year
- 16,540 barrels of oil
Electric Vehicle Charging Station – Niagara Falls State Park
(16 additional stations to be installed in 2018)
Staff Training

Training our employees has created a culture of energy efficiency!

- Solar Installer (66)
- Solar Thermal Installer (22)
- Green Professional (GPRO) (65)
- Construction Equipment Operator (JLG and Scissor Lift) (7)
- Building Performance Institute (BPI) Energy Auditor (10)
- High Efficiency HVAC Repair (February 2018)
Awards and Recognition

- Environmental Protection Agency Clean Air Excellence Award (2006) – for Transportation Efficiency Innovations

- Department of Energy “Beyond a Billion” Award (2008) – for displacing 360,000 gallons of diesel fuel with bio-diesel fuel


- Tour de Sol Certificate of Appreciation
SUMMARY

• Traveled over 14 million miles in clean fueled vehicles
• Over one million dollars in annual saving to the Agency operating budget
• Installed 1.14 megawatts of solar power
• Will provide recycling opportunities in all State Park facilities
• Provided sustainable training to 150 State Park employees and indirect training to many more
• Acquired over 7,000 items off of Federal and State Surplus listings for use in the State Park System