



WOODSTOCK, N.Y.
COLONY OF THE ARTS

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Ulster County Climate Smart Committee Town of Woodstock Report for January 27, 2020

In March 2007, the Woodstock town board committed that town governmental operations would be carbon neutral by year-end 2017. The town achieved carbon neutrality in 2015 and was recognized for its accomplishment at the 2017 annual meeting of the New York State Association of Conservation Commissions. Many of actions taken by the town to achieve carbon neutrality qualify for points under the Climate Smart certification process, and the yearly carbon emissions report for 2019 will be formatted for submission to the Certification Portal. A quick review of the action elements suggests Woodstock has completed work required for about 180 points.

Review of 2019 Electrical Usage

Completed review of the town's electric usage during 2019. Total usage was a little less than 810,000 kWh, essentially the same as in 2018. And except for the Rock City Rd. restrooms with the EV charging station, there were no anomalies in the usage.

Natural Power Group

In 2018, the Woodstock Town Board signed contracts with the Natural Power Group (NPG) for power sourced from the Wappingers Falls and Wallkill hydroelectric generating facilities under the terms of Community Distributed Generation (CDG).

The Woodstock Town Board and several Woodstock residents enrolled as subscribers to the project. When NPG injects electricity into Central Hudson's distribution system, credits that represent Central Hudson's avoided cost of purchasing electricity are applied to member utility bills. Members then pay Natural Power Group 90 percent of the credits received, reducing the overall cost of electricity by up to ten percent.

The advantage of this arrangement is that the town obtains zero-carbon, hydroelectric electricity at a cost no higher than grid electricity from Central Hudson. The tables below show the results of membership in the Natural Power Group CDG during 2019 for three residential accounts.

		Panza Residence		Woodstock Youth Center 3342-0100-00		Supervisor's Cottage 3346-2190-00	
		Quantity	Cost	Quantity	Cost	Quantity	Cost
kWh Used		10,499		10,216		19,705	
Basic Service Charge			\$250.30		\$250.20		\$252.20
CH kWh Delivery Charges	Delivery Service Charge						
	MFC Admin Charge						
	Transition Adj						
	Bill Credit						
	SBC/RPS Charge						
	Misc. Charges						
	RDM Charge						
	Sum of Volumetric Delivery Charges ^Σ	0.07915	\$830.95	0.07901	\$807.19	0.07859	\$1,548.54
Total CH Delivery Charges		\$1,081.25		\$1,057.39		\$1,800.74	
CH kWh Supply Charges	MFC Supply Charge						
	Market Price						
	Market Price Adj.						
	Sum of Supply Charges ^Σ	0.05753	\$604.02	0.05861	\$598.72	0.05833	\$1,149.34
Total Volumetric Charges	0.13668	\$1,434.97	0.13762	\$1,405.91	0.13691	\$2,697.88	
NYS & Local Taxes			\$23.66		\$0.59		\$0.95
Central Hudson Monthly Charges		0.16277	\$1,708.93	0.16217	\$1,656.70	0.14976	\$2,951.03
CDG Credit		-65%	(\$1,102.32)	-84%	(\$1,398.13)	-73%	(\$2,160.80)
Reduced CH Billing			\$606.61		\$258.57		\$790.23
NPG Billing of CDG Credit			\$992.09		\$1,258.32		\$1,944.72
Total Cost of Electricity			\$1,598.69		\$1,516.89		\$2,734.95
Hydroelectric Premium (Benefit)		8%	(\$110.23)	10%	(\$139.81)	8%	(\$216.08)

**2019 Year End, Central Hudson Electric Bills
Community Distributed Generation**

The highlighted line (Central Hudson Monthly Charges) is the total amount that would have been paid to Central Hudson in 2019 without enrolment in the Natural Power Group CDG. The line titled “CDG Credit” is the amount applied to the Central Hudson bill for generation received from the CDG project. This amount, which is calculated using VDER, is the avoided cost by Central Hudson of not having to purchase electricity for CDG members. The CDG credit reduces the amount owed to Central Hudson by 70 to 80 percent. During some months, nothing is owed to Central Hudson.

CDG subscribers are then billed by the Natural Power Group for 90 percent of the credit received from Central Hudson. The amounts paid to Central Hudson and to the Natural Power Group result in a reduction of between 8 to 10 percent in the total cost of electricity.

The results confirm the value of the CDG program. These residential accounts received zero-carbon, hydroelectric energy at a cost a little less than would have been paid to Central Hudson for grid electricity.

Carbon Emissions from Electricity

In June 2019, the penstock directing water to the Wappinger Falls hydroelectric generator ruptured, causing an interruption in the delivery of hydroelectric power. Although Woodstock continued to receive power from the Wallkill facility, the town received no electric power from Wappingers Falls in 2019. For 2020, we’re assuming we will receive our

full allocation. With these contracts, Woodstock will receive an estimated 90% of its electric power from zero-carbon, hydroelectric sources.

kWh		2018	2019	2020 (est)
Woodstock Usage		806,055	807,988	810,000
Wallkill Hydro	(Note 1)	18,500	44,000	70,000
Wappinger Falls Hydro	(Note 2)			678,000
Total Hydroelectric		18,500	44,000	748,000
Central Hudson (Grid)	(Note 3)	787,555	763,988	62,000
Metric Tons CO2	(Note 4)	105	102	8

Note 1: Only six months of the contracted 37,000 kWh was delivered in 2018. Credit for the full 44,000 kWh contracted amount was received in 2019. To cover usage by the EV charging station at the Rock City Rd Restrooms in 2020, the town increased its Wallkill subscription to 70,000 kWh.

Note 2: Because of a rupture in the penstock at Wappingers Falls, no power was delivered in 2019.

Note 3: Amount of electricity sourced from the grid after deducting hydroelectric power.

Note 4: Hydroelectric power has zero carbon dioxide content. Power sourced from the grid has a carbon dioxide content of 294.7 lbs./MWh, based on EPA’s upstate New York region eGRID2016.

Woodstock Climate Smart Task Force

The Woodstock Climate Smart Task Force held its second meeting. Documentation for the following action items was submitted to the CSC Portal.

PE1: CSC Coordinator – A certified town board resolution appointing Erin Moran as the Woodstock Climate Smart Task Force coordinator.

PE1: National/Regional Climate Program – Documentation identifying Project Drawdown and the Omega Institute as national/regional climate programs Woodstock has subscribed.

PE1: Partnerships with Other Entities – Documentation identifying the Ulster County Climate Smart Committee as a local partner for Woodstock’s climate actions.

Natural Resource Inventory

A Natural Resource Inventory is a major new initiative being launched with the Environmental Commission. Ingrid Haeckel, NYSDEC, Hudson River Estuary Program/Cornell University, presented a proposal to the Environmental Commission and the Task Force about how best to proceed with developing a Natural Resource Inventory.

Community Solar

Town of Kingston

The Cypress Creek Renewables’ 2 MW solar array off Hallihans Hill Road in the town of Kingston has gone online despite not having a certificate of occupancy. Cypress Creek applied for a 2-megawatt solar power system on 13 acres of a 49-acre property in the town of Kingston in 2017. The town granted site plan approval, but rescinded it after nearby properties reported drainage problems.¹

¹ William J. Kemble, “Solar array online in town of Kingston despite lacking occupancy certificate,” Daily Freeman, December 24, 2019

Town of Red Hook

A 1.73-megawatt solar power array behind the town highway garage became fully operational on Dec. 31, 2019 and will provide electricity to the town and village of Red Hook and the village of Tivoli. It's expected to reduce the municipalities' electric bills by 10 percent. The developer, SunCommon, installed the array of solar panels on about 8.7 acres between South Broadway (U.S. Route 9) and Glen Pond Drive. The solar array will provide enough electricity for the three municipalities and about 250 residences.²

Events

Catskill Conversation with Dr. James Hansen

Columbia University Climatologist and former NASA astronomer Dr. James Hansen will lead a Catskill Conversation, alerting students and community members to the present day climate emergency, and inaugurating the Ashokan Youth Empowerment and Sustainability Summit (YESS!).



7pm talk with Q&A to follow

Thursday, February 6, 2020, 7:00 PM – 9:30 PM EST

Kingston High School, 403 Broadway, Kingston, NY 12401

**** This event is at KINGSTON HIGH SCHOOL (not at the Ashokan Center) ****

\$10 suggested donation for adults, \$5 for children & students

Dr. James Hansen, formerly Director of the NASA Goddard Institute for Space Studies, is Adjunct Professor at Columbia University's Earth Institute, where he directs a program in Climate Science, Awareness and Solutions.

He was trained in physics and astronomy in the space science program of Dr. James Van Allen at the University of Iowa. His early research on the clouds of Venus helped identify their composition as sulfuric acid. Since the late 1970s, he has focused his research on Earth's climate, especially human-made climate change. Dr. Hansen is best known for his testimony on climate change to congressional committees in the 1980s that helped raise broad awareness of the global warming issue.

Dr. Hansen was elected to the National Academy of Sciences in 1995 and was designated by Time Magazine in 2006 as one of the 100 most influential people on Earth. He has received numerous awards including the Carl-Gustaf Rossby and Roger Revelle Research Medals, the Sophie Prize and the Blue Planet Prize.

<https://ashokancenter.org/youth-environmental-sustainability-summit-yess/>

² William J. Kimble, "Solar array powers up in Red Hook, serves town and two villages," Daily Freeman, January 14, 2020

Climate Action Film Festival

Sponsored by SunCommon

The first annual Climate Action Film Festival is a celebration of short films with a focus on solutions to the climate crisis. It is the first festival of its kind to exclusively feature storytelling around solutions rather than simply the impacts of climate change. CAFF 2020 will be a touring, single-night event featuring approximately 90 minutes of short films. The festival will tour the Northeast U.S. in its inaugural year, with additional screenings to be added. Proceeds from screenings will be donated to local climate action groups.



Rhinebeck – Upstate Films, Wednesday, February 12, 2020, 7:30 PM

Woodstock – Upstate Films, Sunday, February 16, 2020, 1:30 PM

<https://suncommon.com/climate-action-film-festival/>

2020 Local Solutions: Eastern Climate Preparedness Conference

Antioch University New England, in partnership with NOAA and the Island Institute, is convening the 2020 Local Solutions Conference:

Eastern Climate Preparedness Conference

May 11-12, 2020, Portland, Maine

Climate Leadership and Community Protection Act

New York enacted the Climate Leadership and Community Protection Act (CLCPA) that includes requirements to:

- Procure 70% of the state's electricity from renewable sources by 2030;
- 9,000 MW of offshore wind by 2040;
- 6,000 MW of photovoltaic solar by 2025;
- 3,000 MW of energy storage by 2030;
- Overall 85% reduction in statewide greenhouse gas emissions by 2050;
- 100% carbon free electricity generation by 2040.

CLCPA Goals Compared to CES

	CES (Aug. 1, 2016)	CLCPA (July 18, 2019)	Change
Renewable Sources	50% by 2030	70% by 2030	20% Increase
Carbon Free Electricity		100% by 2040	
PV Solar	3,000 MW by 2023	6,000 MW by 2025	3,000 MW, 2 years
	934 MW PV Solar Installed as of September 30, 2019		
Reduction in Greenhouse Gas Emissions	40% by 2030	40% by 2030	
	80% by 2050	85% by 2050	5% Difference
Energy Storage		1.5 GW by 2023	
		3.0 GW by 2030	
Upstate Nuclear Power	Maintain Zero-Emission Nuclear Power		

CES – Clean Energy Standard, adopted August 1, 2016



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Ulster County Climate Smart Committee Town of Woodstock Report for February 24, 2020

Summary

- Woodstock Climate Smart Task Force Phase I actions submitted to the CSC portal.
- Held the initial meeting of the joint Olive and Woodstock Natural Resource Inventory (NRI) working group.
- Net Crediting for Community Distributed Generators available January 1, 2021.
- Completed an evaluation of Hudson Valley Community Power.
- Community Solar at Saugerties Landfill.
- Events

Woodstock Climate Smart Task Force

In March 2007, the Woodstock town board committed that town governmental operations would be carbon neutral by year-end 2017. The town achieved carbon neutrality in 2015 and was recognized for its accomplishment at the 2017 annual meeting of the New York State Association of Conservation Commissions.

Many of actions taken by the town to achieve carbon neutrality qualify for points under the CSC certification process. Documentation for the following actions was submitted this month to the CSC Portal.

PE1: Pledge Element 1 Complete

PE4: Renewable Energy Feasibility Studies – Completed

PE4: Geothermal Systems – Completed. Documentation on the town's geothermal systems at the highway garage and town hall submitted.

PE4: Solar Energy Installations – Completed. Documentation about the town's PV solar systems at the highway garage and town hall submitted.

PE8: Farmers Market – Completed. Woodstock Farm Festival in operation since 2008.

Pledge Elements completed as part of NYSERDA's High Impact Action Items program.

PE6: Unified Solar Permit,

PE6: Alternative Fuel Infrastructure,

PE8: Solarize Campaign

Several action items related to the Woodstock governmental GHG emissions will be delayed until the town releases its 2019 energy usage statistics. This data is included in the town's annual report to the Office of the State Comptroller, which is due April 1, 2020.

PE2: Government Operations GHG Inventory

PE10: GHG Tracking System

PE10: Annual Progress Report

PE10: Update to Strategies & Plans

PE6: Natural Resource Inventory

Creating a Natural Resource Inventory is a major new initiative launched with the Environmental Commission. Ingrid Haeckel, NYSDEC, Hudson River Estuary Program/Cornell University, presented a proposal to the Environmental Commission and the Task Force about how best to proceed with developing a Natural Resource Inventory. Woodstock and Olive will be cooperating with NYSDEC, Ulster County Department of the Environment, and the Ashokan Watershed DEP to develop the inventory.

Net Crediting for Community Distributed Generation (CDG)

On December 12, 2019 the Public Service Commission ordered the consolidation of utility bills for Community Distributed Generation (CDG) customers so that CDG customers would no longer receive two separate monthly bills: one from their utility company and another from the solar developer.

Central Hudson has 18 active CDG projects with about 5,600 subscribers. Of the 18 projects, 8 are compensated volumetrically and 10 by Value Stack (VDER). Central Hudson proposes an interim process until Net Crediting is fully implemented in its updated Customer Information System (CIS).

Timeline proposed by Central Hudson:

Process	Timeline
CDG credits reflected for budget billing customers	August 1, 2020
Manual Implementation of Net Crediting	January 1, 2021
Full Automation of Net Crediting	September 30, 2021

Under Net Crediting, credits for distributed generation will appear directly on the subscribers' utility bills. The subscription charges will be automatically deducted from the renewable energy credits by the utility, sent to the CDG sponsor, and the resulting Net Credit would appear as a credit entry on the subscriber's utility bill.

Central Hudson proposes to limit Net Crediting participation to those CDG hosts compensated by VDER until Net Crediting is fully automated in the new CIS.

Community Distributed Generation (CDG) Community Choice Aggregation (CCA)

In 2018, the Woodstock Town Board signed contracts with the Natural Power Group for hydroelectric power under the terms of Community Distributed Generation (CDG) sourced from the Wappingers Falls and Wallkill generating facilities. Several Woodstock residents also enrolled as subscribers to the project.

When electricity is injected into Central Hudson's distribution system, credits that represent Central Hudson's avoided cost of purchasing electricity are applied to member utility bills. Members then pay Natural Power Group 90 percent of the credits received, reducing the overall cost of electricity by up to ten percent. The advantage is that subscribers obtain zero-carbon, hydroelectric electricity at a cost no higher than grid electricity from Central Hudson.

Hudson Valley Community Power

Hudson Valley Community Power (HVCP), a Community Choice Aggregator (CCA), is a partnership with Joule Community Power and six communities that contract for electricity. The participating communities include Beacon, Cold Spring, Fishkill, Marbletown, Philipstown, and Poughkeepsie. The CCA enables the communities to pool local electricity demand and leverage the collective buying power of residents and small businesses to secure favorable energy supply rates and designate renewable generation sources.

Below are the rates that were announced for Marbletown, one of the participating communities.

RATE COMPARISON (\$ per kWh):

Customer Class	Average Central Hudson Supply Rate	HVCP 100% NYS Renewable Fixed Rate (default)	HVCP Standard Fixed Rate
Residential and Small Commercial	\$.0687	\$.0636	\$.0608

Average Central Hudson Supply Rate: The 12-month average of Central Hudson rates per kWh over the period April 2018 to March 2019.

HVCP 100% NYS Renewable Fixed Rate: As of July 1, 2019, the fixed rate, set for 24 months, for 100% renewable energy, sourced from New York State clean energy facilities.

HVCP Standard Fixed Rate: As of July 1, 2019, the fixed rate, set for 24 months, for standard energy supply.

Residential Accounts

The tables below compare the two programs for three residential accounts. The table shows the amount Central Hudson would charge for kWh usage for each account. The following lines show what Natural Power Group and Hudson Valley Community Power charge for the same power compared with Central Hudson.

The Details – Hudson Valley Community Power and Natural Power Group

	Panza Account	Woodstock Youth Center	Supervisor's Cottage
2019 kWh Used	10,449	10,216	19,705
2019 Central Hudson Cost of Electricity	\$1,708.93	\$1,656.70	\$2,951.03
2019 Cost of Electricity with Natural Power Group Hydroelectric	\$1,598.69	\$1,516.89	\$2,734.95
	(\$110.23)	(\$139.81)	(\$216.08)
2019 Cost of Electricity with Hudson Valley Community Power 100% Renewable Fixed Rate	\$1,772.75	\$1,707.82	\$3,055.13
	\$63.82	\$51.12	\$104.10

Central Hudson bills with the HVCP 100% Renewable Fixed Rate be 3 to 4% higher than what Central Hudson charged for the same power. On a cost per kWh, HVCP appears to be charging about 10% more than Central Hudson.

	Panza Residence		Woodstock Youth Center 3342-0100-00		Supervisor's Cottage 3346-2190-00	
	Quantity	Cost	Quantity	Cost	Quantity	Cost
kWh Used	10,499		10,216		19,705	
Basic Service Charge		\$250.30		\$250.20		\$252.20
CH kWh Delivery Charges	Delivery Service Charge					
	MFC Admin Charge					
	Transition Adj					
	Bill Credit					
	SBC/RPS Charge					
	Misc. Charges					
	RDM Charge					
Sum of Volumetric Delivery Charges [±]	0.07915	\$830.95	0.07901	\$807.19	0.07859	\$1,548.54
Total CH Delivery Charges		\$1,081.25		\$1,057.39		\$1,800.74
CH kWh Supply Charges	MFC Supply Charge					
	Market Price					
	Market Price Adj.					
	Sum of Supply Charges [±]	0.05753	\$604.02	0.05861	\$598.72	0.05833
Total Volumetric Charges	0.13668	\$1,434.97	0.13762	\$1,405.91	0.13691	\$2,697.88
NYS & Local Taxes		\$23.66		\$0.59		\$0.95
Central Hudson Monthly Charges	0.16277	\$1,708.93	0.16217	\$1,656.70	0.14976	\$2,951.03
CDG Credit	-65%	(\$1,102.32)	-84%	(\$1,398.13)	-73%	(\$2,160.80)
Reduced CH Billing		\$606.61		\$258.57		\$790.23
NPG Billing		\$992.09		\$1,258.32		\$1,944.72
Total Cost of Electricity		\$1,598.69		\$1,516.89		\$2,734.95
Hydroelectric Premium (Benefit)	8%	(\$110.23)	10%	(\$139.81)	8%	(\$216.08)
HVCP Fixed Renewable Rate	0.06361	\$667.84	0.06361	\$649.84	0.06361	\$1,253.44
HVCP Total Cost		\$1,772.75		\$1,707.82		\$3,055.13
HVCP Premium (Benefit)	-4%	\$63.82	-3%	\$51.12	-4%	\$104.10

2019 Year End Electric Bills

Central Hudson, Natural Power Group (NPG), Hudson Valley Community Power (HVCP)

The highlighted line (Central Hudson Monthly Charges) is the total amount Central Hudson billed in 2019 for each account. The line titled “CDG Credit” is the credit applied to the Central Hudson bill for power received from the Natural Power Group. This amount, calculated using VDER, is the cost avoided by Central Hudson by not having to purchase electricity for CDG members. The CDG credit reduces the amount owed to Central Hudson by 70 to 80 percent. During some months, nothing is owed to Central Hudson.

CDG subscribers are then billed by the Natural Power Group for 90 percent of the credit received from Central Hudson. The amounts paid to Central Hudson and to the Natural Power Group result in a reduction of between 8 to 10 percent in the total cost of electricity.

The Hudson Valley Community Power cost is calculated on Central Hudson’s bills using HVCP’s 100% Renewable Fixed Cost of \$0.06361 /kWh.¹

Saugerties Landfill Solar Array Operational

A 2.8 MW solar array at the Town of Saugerties capped landfill should be online in a month according to East Light Solar, the developers. The array was erected in three months beginning in November.



Jamie Fordyce, managing director of East Light Partners, said “The town had what I’d characterize as a welcoming and fair solar law for projects like this one. We also went through the study process with Central Hudson to study the connection of the project to the grid and that came out favorably as well. Saugerties is doing really great things on the energy and sustainability front and it’s been great working with the town.”

The company signed a 25-year lease with the town; according to Fordyce, the lease agreement costs the company \$30,000 annually and \$15,000 of taxes per year from the project will go toward the county, town and local school system. The Town of Saugerties will purchase 40 percent of the project’s total output. Approximately 800,000 kilowatt hours will power 80 percent of the town’s facilities, and the remainder will be sold to Saugerties homes and businesses.²

¹ Although HVCP started charging its 100% Renewable Fixed Rate on July 1, 2019, these calculations assume the rate was available for the entire year.

² Christian Coulter, “New solar array at old Saugerties landfill ready to start generating,” HV1, February 7, 2020, Available at <https://hudsonvalleyone.com/2020/02/07/new-solar-array-at-old-saugerties-landfill-ready-to-start-generating/?fbclid=IwAR1A7rr36-8HbFJ9IFupY8vMpN3hgzirEqGzMSgkx6qJvoEKNM4uo8wNIg0>

2020 Local Solutions: Eastern Climate Preparedness Conference

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Eastern Climate Preparedness Conference

May 11-12, 2020, Portland, Maine

Bard LLI (Lifelong Learning Institute) SummerFest 2020

Four Hudson River Films and Discussion by Jon Bowermaster

June 5, June 12, June 19, June 26

Climate Leadership and Community Protection Act

- Procure 70% of the state’s electricity from renewable sources by 2030;
- 9,000 MW of offshore wind by 2040;
- 6,000 MW of photovoltaic solar by 2025;
- 3,000 MW of energy storage by 2030;
- Overall 85% reduction in statewide greenhouse gas emissions by 2050;
- 100% carbon free electricity generation by 2040.

CLCPA Goals Compared to CES

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Carbon Free Electricity		100% by 2040	
PV Solar	3,000 MW by 2023	6,000 MW by 2025	3,000 MW, 2 Years
	934 MW PV Solar Installed as of September 30, 2019		
Off-Shore Wind	1,700 MW by 2024	9,000 MW by 2035	7,300 MW, 11 Years
Reduction in Greenhouse Gas Emissions	40% by 2030	40% by 2030	
	80% by 2050	85% by 2050	5% Difference
Energy Storage		1.5 GW by 2023	
		3.0 GW by 2030	
Upstate Nuclear Power	Maintain Zero-Emission Nuclear Power		
New York Energy Solution	A 54-Mile, Upgraded Transmission Line through Rensselaer, Columbia, and Dutchess Counties Expected In-Service, Year End 2023		

CES – Clean Energy Standard, adopted August 1, 2016



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Ulster County Climate Smart Committee Town of Woodstock Report for March 30, 2020

Summary

Climate Smart Task Force Submissions

Carbon Dioxide Emissions Attributed to Electric Usage

Natural Resource Inventory

Aquifer Protection Plan

Woodstock Climate Smart Task Force

Climate Smart action items submitted by the Woodstock Climate Smart Task Force in March.

PE2: Governmental GHG Inventory

GHG inventory reports for 2017 and 2018, along with preliminary data for 2019.

PE10: GHG Tracking System

GHG tracking report showing yearly carbon dioxide emissions for Woodstock governmental operations starting with 2011. Preliminary 2019 data provided.

PE10: Annual Progress Report

Woodstock's annual carbon neutrality reports for 2018, 2017, and 2016.

PE3: LED Street Lights

Central Hudson has been replacing failing streetlights with LED fixtures since 2015. The percent of LED municipal streetlights now exceeds 25%, making Woodstock eligible for points under the Climate Smart Program.

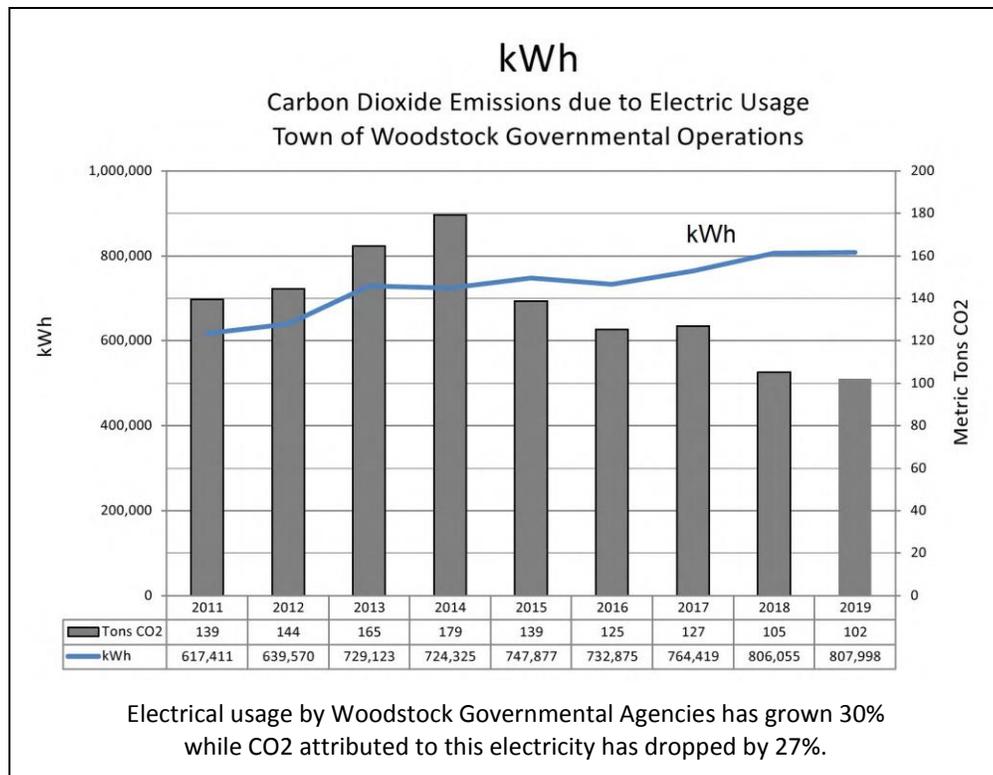
Woodstock’s streetlights used 59,759 kWh in 2019, a 10,000 kWh reduction since 2013. Carbon dioxide emissions attributed to streetlights dropped from 16 metric tons in 2013 to 8 metric tons, a 50% reduction. Some of this reduction was due to increased LED efficiency and some because of lower CO2 content in the electricity supply.

Town of Woodstock
LED Streetlights
February 2020

Mercury & Sodium Vapor	7000 Mercury Vapor	6
	5800 Sodium Vapor	48
	16000 Sodium Vapor	41
	27000 Sodium Vapor	2
	Sum of Mercury & Sodium Vapor Fixtures	Σ 97
LED Fixtures	2900 LED	14
	3600 LED	9
	6800 LED	2
	7200 LED	7
	Sum of LED Fixtures	Σ 32
Utility Owned Fixtures		129
Percent LED		25%
lbs CO2/MWh		
CO2 Emmisions (Metric Tons)		

2019 Electrical Usage

Since 2011, the town’s electrical usage for governmental operations has grown by 30%, and is expected to reach 900,000 kWh by 2021. This increased usage is attributed to the conversion to ground-based geothermal and air source heat pumps for heating and cooling in town buildings. Carbon dioxide emissions attributable to electrical usage have dropped by about 27%. The closures of the upstate coal-fired power plants resulted in reduced emissions. With the town’s agreement for hydroelectric power, it’s expected that electricity related emissions will be less than 5 metric tons by 2021.



PE6: Natural Resources Inventory

Reviewed draft topography and geology maps to be included in the natural resources inventory. Maps reviewed included: topology, steep slopes, bedrock geology, and surficial geology with glacial deposits. A soil survey map will not be provided – the inventory of soil types is provided in the soil survey documentation.

Wetlands & Watercourse Map

An updated Wetlands & Watercourse map is not included in the inventory. Peter Cross, chair of the Woodstock Planning Board, explained the need for a GIS based wetlands and watercourse map. As land use maps and planning documents become available on-line, Woodstock's wetlands and watercourse boundaries are missing from the new sources.

The recommended sources for planning information, the Ulster County Parcel Viewer and Hudson Valley Natural Resource Mapper, fail to identify protected areas in Woodstock. Developers and planners that depend on these sources receive incorrect information. A GIS based wetlands and watercourse map, which could be incorporated into the land use planning tools, would insure developers are receiving accurate information.

Aquifer Protection Plan

The Drinking Water Source Protection Working Group met with Larry Allen, Water Superintendent, and Grant Jiang, NYS Dept. of Health, to review data on nitrate concentrations in Woodstock's water supply. It is important to note that based on the available information, nitrate concentrations in the aquifer are not of and have never been high enough to be of concern.

The working group obtained 100 years of rainfall statistics from the Kingston Water Department and 10 years of pumped water volumes from wellfields 1 & 2. The conclusion, in spite of nearby septic system, is there is minimal presence of nitrates in Woodstock's water supply.

Background

In January 2019, the town board began making assignments and assigning responsibility for many of the actions in the recently adopted Comprehensive Plan. At this time, DOH and DEC announced the Drinking Water Source Protection Program (DWSP2), which was available to support work on the proposed water supply protection law. In June 2019, the Supervisor approved reestablishing the aquifer protection working group and participating in DWSP2 with an objective of proposing a revised aquifer protection law.

In late September 2019, Grant Jiang, the metropolitan area regional Source Water Protection Coordinator for the NYS Department of Health based out of Monticello, was assigned to provide Woodstock with technical assistance for source water protection activities.

Events

Woodstock Land Conservancy Vernal Fling

Vernal Fling 2020
May 23rd, 5-7:30pm
Bearsville Theater

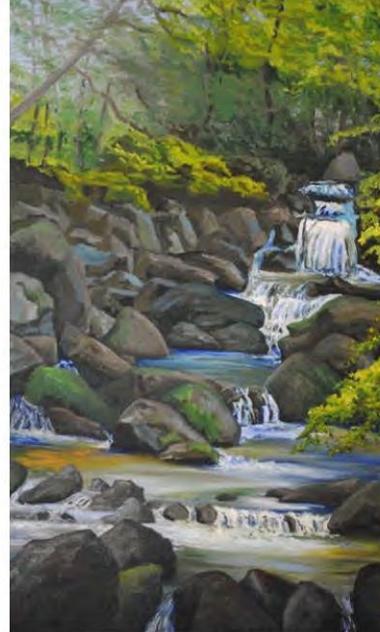
**William R. Ginsberg Stewardship
Honorees**
Mary McNamara & Mike Reynolds
for their Watershed work

**Special Tribute to
Longtime Board Member
David Marell**

**Wine, Food and Bubbly
Music by Perry Beekman Trio**

**Thanks to Lizzie Vann, her team
and Laurie Ylvisaker for this newly
refurbished venue**

**Mailed Invites to Follow. If not on
our list email ellier.wlc@gmail.com**



Linda Lynton, In the Wilderness: Hidden Falls (2019),
Oil on canvas

2020 Local Solutions: Eastern Climate Preparedness Conference

Antioch University New England, in partnership with NOAA and the Island Institute, is convening the 2020 Local Solutions Conference:

Canceled and rescheduled for 2021

Climate Leadership and Community Protection Act

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- 3,000 MW of energy storage by 2030;
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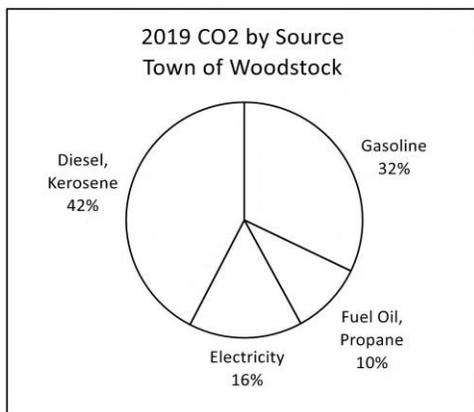
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Ulster County Climate Smart Committee Town of Woodstock Report for April 27, 2020

Summary

- Woodstock's Carbon Footprint
- Climate Smart Application
- Natural Resource Inventory
- Renewable Energy Siting Law
- Indian Point Retirement
- Danskammer Update

Woodstock's 2019 Carbon Footprint



On April 1, the town filed its annual financial report for fiscal year 2019 with the Office of the New York State Comptroller. Included in this report is the town's energy usage and cost for the year, and it's from this data that carbon dioxide emissions are calculated.

Compared to 2011, carbon emissions from town governmental operations have dropped by 18%, and by 2021, it's expected the town will lower emissions by 30%.

Ground-based geothermal systems and air-sourced heat pumps reduced the town's use fossil fuels needed for heating, and the planned renovation of the town offices on Comeau will further

reduce the need for heating oil and propane. Electricity consumption has increased by 30% since 2011, but carbon dioxide emissions attributed to electricity generation have dropped by 37%. This reduction is the result of the closure of upstate coal-fired power plants and the acquisition of local hydroelectric power.

There's no good alternative for diesel fuel used by the highway department and there are limitations on how much gasoline consumption can be reduced by the police department. Recently available, pursuit rated, hybrid police cars could significantly reduce gasoline use by the department.

In March 2007, the Woodstock town board committed that town governmental operations would be carbon neutral by year-end 2017. The town achieved carbon neutrality in 2015 and was recognized for its accomplishment at the 2017 annual meeting of the New York State Association of Conservation Commissions. But there's a fundamental limit to what can be accomplished with existing technology, and Woodstock has reached that limit.

Climate Smart Task Force

Woodstock's Climate Smart Task Force submitted its application to the DEC's 2nd quarter review cycle for consideration of Bronze Certification.

PE6: Natural Resource Inventory

The Natural Resource Inventory is a joint project with Woodstock and Olive under the direction of the Hudson River Estuary Program with technical assistance from the Ulster County Department of the Environment, the Ulster County Cornell Cooperative Extension, and the Ashokan Watershed Stream Management Program.

This month, the working group reviewed draft versions of the water resource maps that document Woodstock's watersheds, stream conditions, aquifers, and the water district.

PE7: Watershed Assessment

The water resources documentation created for the Natural Resources Inventory appears to meet most of the requirements for the Climate Smart Watershed Assessment action item.

- Create or update a watershed assessment document that identifies areas vulnerable to flooding, erosion and/or water quality or quantity problems that covers 75% or more of the community area.
- Create or update a list of specific priority projects that identifies responsible parties

Renewable Energy Siting Law in Ulster County

The New York State legislature passed sweeping reforms to the siting of large-scale renewable energy projects. The law establishes fast-track siting for renewable projects of 25 MW and above, requiring a final siting decision to be issued within one year of a completed application. It allows projects between 20 and 24 MW to opt into the new process.

There are two large scale solar projects in Ulster County that could conceivably benefit from the new siting law. In March, 2018, Governor Cuomo announced that four large-scale solar farms producing a combined 85 megawatts of capacity could be operating in Ulster and

Orange counties within four years.¹ The projects in the mid-Hudson valley that received awards were:

- Blue Stone Solar, Ulster County: Geronimo Energy will build a 19.99 MW solar facility in the town of Saugerties.
- Daybreak Solar, Ulster County: Geronimo Energy will build a 25 MW solar facility in the town of Shawangunk.
- Magruder Solar, Ulster County: Granada Solar will build a 19.99 MW solar facility in the town of Gardiner.
- Little Pond Solar, Orange County: Cypress Creek Renewables will build a 19.99 MW solar facility in the town of Deerpark.

Of the three Ulster County projects, two were suspended because of local zoning regulations. Shawangunk’s zoning law prohibits large-scale solar arrays and the Town of Gardiner imposed a moratorium on solar projects. Blue Stone Solar in Saugerties has successfully moved forward and is awaiting interconnection approval from the NYISO and FERC.

The new law creates an Office of Renewable Siting that has the authority to override local laws that are deemed “unduly burdensome” in light of the CLCPA goals and the environmental benefits of a project, an authority that could be used to restart the delayed Ulster County solar projects.

Indian Point Retirement

New York will retire the 1,028 MW Indian Point Nuclear Plant Unit 2 on April 30, 2020. Indian Point’s April retirement follows the March 31 retirement of the 675 MW, coal-fired Somerset Plant, the NYISO’s last coal generator.

Several new gas plants built throughout the Northeast have started contributing generation in anticipation of these retirements, according to Genscape, a market intelligence firm. These include the 1,100 MW Cricket Valley Plant on the Iroquois Pipeline, the 680 MW CPV Valley Plant on Millennium Pipeline and the 350 MW Canal Unit 3 on Algonquin Gas Transmission. Older, less efficient gas generators no longer contribute baseload generation, but are capable of assisting with peak demand.²

Environmental advocacy groups launched a website to explain the closure of Indian Point
<http://beyondindianpoint.com/>



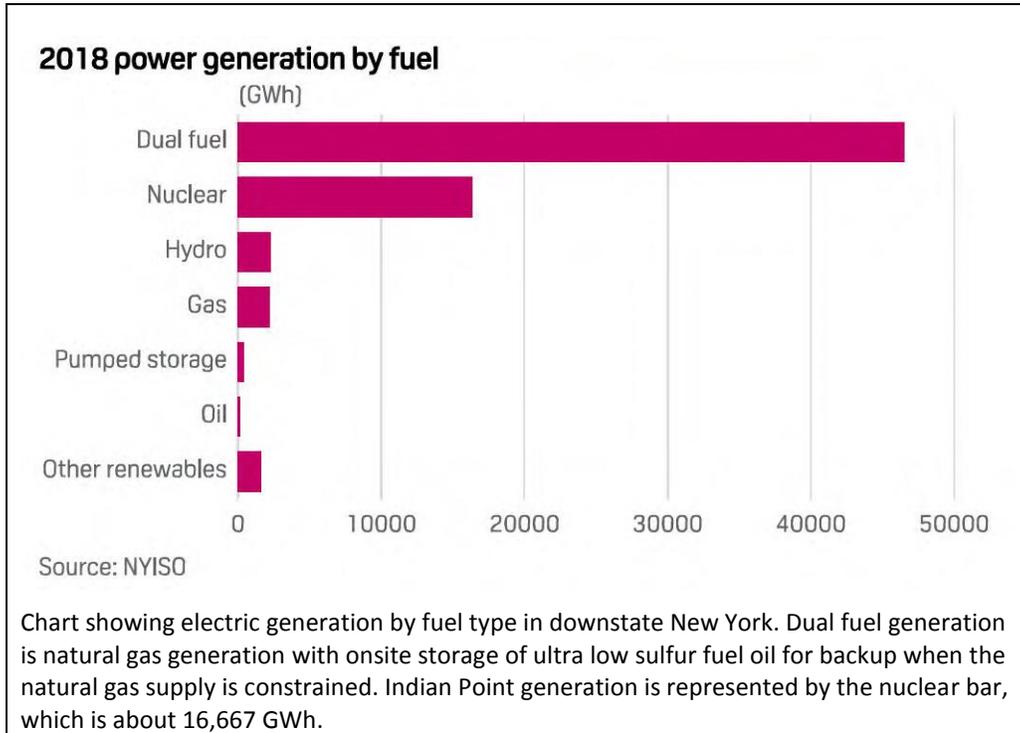
Map Showing Zones F - K

¹Press Release, “Governor Announces \$1.4 Billion in Awards for 26 Large-Scale Renewable Energy Projects, the Largest Single Commitment to Renewable Energy by a State in U.S. History,” March 9, 2018,

²Leticia Gonzales, “Late-Session Rally Boosts Natural Gas Futures as Weather Models Turn Chillier,” NGI, Natural Gas Intelligence, April 3, 2020, available at <https://www.naturalgasintel.com/articles/121569-late-session-rally-boosts-natural-gas-futures-as-weather-models-turn-chillier>

Downstate New York (Zones F-K) Power Generation Fuel Mix

Indian Point contributes about 25% of downstate New York’s electric power requirements. When Indian Point shuts down, its lost generation will be replaced by new natural gas generators: 680 MW CPV Valley, 1,100 MW Cricket Valley, and the 120 MW Bayonne, N.J. plants. On Friday, April 20, Cricket Valley commenced commercial operation. There is no shortage of new generation to replace Indian Point.



Danskammer Power Plant, 1Q2020

Last year, Danskammer Energy filed a petition with the PSC to repower its Danskammer power plant, which is a 50-year old, coal fired generator that had been converted to burn natural gas. From the beginning, the Ulster County Environmental Management Council (EMC) has been a stakeholder and participant in the process. It’s unclear when the EMC will meet again, so I’m using this report to summarize the project’s current status.

So far in 2020, Danskammer filed and amended its application. Funding was approved for interveners participating in the Article 10 process. At the end of March, Danskammer issued its quarterly public participation document. With meetings now shut down by the pandemic, it’s unclear what additional meetings will be held. Some of the Ulster County stakeholders that met with Danskammer since the beginning of the year include: Town of Marlborough, Marlboro Central School District, Marlborough and Milton Fire Departments, Ulster County Executive Chief of Staff Evelyn Wright, and Ulster County Executive Patrick Ryan.

The Siting Board received an amended application from Danskammer in response to its notification of deficiencies, but the Siting Board has not yet announced that Danskammer’s

application is complete. Danskammer’s intention was to complete the Article 10 process and begin construction by the end of 2020, but the process is at least six months behind schedule.

Some Article 10 Milestones

Feb. 8, 2019	Danskammer Energy, LLC, (Danskammer Energy) filed a Preliminary Scoping Statement (PSS) with the PSC to repower the Danskammer generating station with a new combined cycle power generation facility.
April 24, 2019	Kick-off of stipulation negotiations with stakeholders and Danskammer.
June 26, 2019	Presentation by William Reid, President and CEO, Danskammer Energy, LLC and Michelle Hook, Danskammer Vice President of Public Affairs, to the Ulster County Environmental Management Council.
Sept. 6, 2019	Proposed stipulations were released, beginning a 30-day, public comment period. Any person, agency, or municipality was able to submit comments concerning the stipulations. The comment period was extended to October 23, 2019.
Dec. 11, 2019	Danskammer Energy filed its application, including stipulations, with the New York Siting Board. Danskammer Energy also announced the availability of \$400,000 in intervenor funding, which will allow stakeholders participating in the Article 10 review to pay for legal and consulting services.
Feb. 10, 2020	The Siting Board notified Danskammer Energy of deficiencies in its application. Danskammer Energy responded to the Siting Board’s notice of deficiencies on March 11, 2020, by filing a supplement to its application. A second supplement was filed April 21, 2020.
Feb. 11, 2020	Funding was awarded to stakeholders that requested funds to support their participation in the next stage of the Article 10 proceeding.
March 30, 2020	Danskammer released its tracking report of meetings with government officials and stakeholders. Some of the Ulster County stakeholders that met with Danskammer during the first quarter of 2020 include: Town of Marlborough, Marlboro Central School District, Marlborough and Milton Fire Departments, Ulster County Executive Chief of Staff Evelyn Wright, and Ulster County Executive Patrick Ryan.

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Ulster County Climate Smart Committee Town of Woodstock Report for May 25, 2020

The Ulster County Climate Smart Committee (CSC) meets once a month to review progress on achieving the County's environmental goals. Each town is asked to report on its activities with New York's Climate Smart Communities program, and the County asked that these reports be submitted in electronic form as a convenience for including them in the minutes of the meetings. A written format is also more effective within the constraints imposed by Zoom video conferencing.

Summary

Climate Smart Task Force

Natural Resource Inventory

NY Power Prices Drop 46%, Usage by 13%

Events

Climate Smart Task Force

DEC will complete its review of Woodstock's application for Bronze status by the end of the month. The June 3, 2020 meeting of the task force will consider the results and next actions. Revisions, updates, and corrections can be submitted, if needed, for the July 3, 2020 DEC review cycle.

PE3 LED Streetlights

The Woodstock Town Board authorized by resolution to finalize the paperwork with Central Hudson to upgrade the remaining sodium vapor and mercury vapor streetlights to LED. The town will remain a Rate "A" customer; Central Hudson will own and maintain the new LED streetlights.

Remaining value of the non-LED cobra head lights is \$15,473, and with a rebate of \$2873, the total cost to the town is \$12,600. Expected annual savings is \$5,800 with payback in approximately 28-30 months. Woodstock has 129 streetlights, of which 32 are already LED.

Central Hudson has been replacing failed streetlights with LED fixtures since 2015. The percent of LED municipal streetlights now exceeds 25%, which made Woodstock eligible for points under the Climate Smart Program. Woodstock was approved for 7 CSC points.

PE6 EV Charging Stations

The Woodstock Town Board voted to impose a \$2/hour parking fee on the use of the EV charging stations. Woodstock installed two, Level-2 EV charging stations, each with two ports, for public use. Woodstock was approved for 8 CSC points.

Natural Resources Inventory

Completed a review of the draft water resources maps. A status report and summary of work will be presented by Ingrid Haeckel, NYSDEC, to the Woodstock Town Board at its June 16, 2020

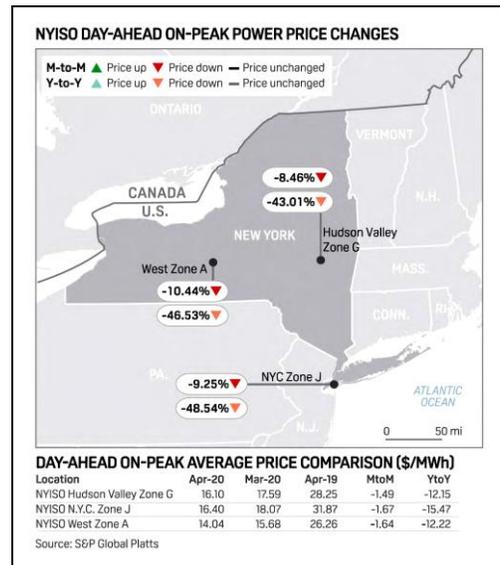
The Natural Resource Inventory is a major new initiative launched by the Environmental Commission. Ingrid Haeckel, NYSDEC, Hudson River Estuary Program/Cornell University, presented a proposal at a joint meeting of the Environmental Commission and Climate Smart Task Force about how best to proceed with a Natural Resource Inventory. Woodstock and Olive will be cooperating with NYSDEC, Ulster County Department of the Environment, and the Ashokan Watershed DEP on the inventory.

NY Power Prices Drop 46%

Pandemic reduced power usage and lower natural gas prices depressed New York Independent System Operator’s (NYISO) on-peak wholesale power prices, compared to last year, by 46%.¹

"Nearly all of the price plunge in New York is due to COVID-19, which has brought business and social activity to a halt, an extraordinary development," said Matthew Cordaro, a former Midcontinent Independent System Operator president and CEO now residing in New York.

"Last Thursday's shutdown of the 1,026-MW Indian Point nuclear power plant's Unit 2, NYISO is likely to have some upward pressure," Cordaro said in an email. "However, New York will be dealing with COVID-19 and its after effects for at least the coming months, which will continue to put significant downward pressure on demand and prices."



¹ Mark Watson, "NYISO Tracker: Power prices plunge on pandemic-weakened loads, gas prices," S&P Global Platts, May 4, 2020

Electricity Usage Drops 13 Percent

As a result of business shutdowns and changes brought about by state initiatives to combat the COVID-19 pandemic, New York State has seen its weekday electricity demand tumble nearly 13 percent over the last two months.²

This number was reached by the U.S. Energy Information Administration’s (EIA) Hourly Electric Grid Monitor by tracking the New York Independent System Operator (NYISO) and comparing each weekday’s electricity demand through May 1. By taking the average demand of all weekdays and the daily average temperature in previous years, it recorded an average temperature-comparable historical demand until the end of February. At that point, demand began to drop. It rapidly picked up speed as COVID-19 mitigation efforts went into effect, with the 13 percent average drop recorded by late March. It has remained there since.

Clean Energy, Rate Relief on Collision Course

POLITICO’s Marie J. French: The economic devastation wrought by the coronavirus shutdown has led advocates for businesses, hospitals and universities to request breaks on their utility bills — threatening a key source of revenue for New York’s clean energy programs. A large chunk of the state’s clean energy programs are funded through surcharges on electric and gas bills.

Big energy users argue those programs are temporarily on hold and there’s more than a billion in unspent funds. But clean energy groups say the money will be needed to help support investments as soon as construction can resume — and that other forms of relief should be tapped instead. Environmental justice groups and advocates for renewable energy are pushing for “green” projects to be a major piece of the state’s recovery once some parts of the economy start moving again. A key Democratic lawmaker raised concerns about the petitions to return clean energy funds to ratepayers.

Carbon Tax

NY Renews is calling for passage of a bill to tax carbon, methane and other pollutant emissions and use the money to transition off fossil fuels as part of a green recovery following the coronavirus pandemic.

Catskill Environmental Research & Monitoring Conference 2020

Mark your calendar for another Catskill Environmental Research & Monitoring (CERM) conference! The conference is an opportunity for researchers, resource man-agers, and others working on environmental management in the Catskills to network and collaborate. Because of the rapidly changing COVID-19 situation, the conference may go on as scheduled, be held virtually, or be rescheduled for a later date.

Tues., October 27 - Thur., October 29

Full Moon Resort, Big Indian, NY

<http://cermconference.org/>

² Chris Galford, “New York daily electricity demands fell about 13 percent due to COVID-19 prevention efforts,” Daily Energy Insider, May 8, 2020

Confirmed conference sessions include:

- Catskill Recreation Trends & Projections
- Old Growth Catskill Northern Hardwood Forest
- Evolution of Forests in the Catskills
- Climate Change & Water Supply
- Ecosystem Research
- Environmental Management Success Stories
- Education & Outreach Success Stories
- Social Trends, Ecosystem Response, and the Evolution of Environmental Management

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Woodstock Climate Smart Task Force

Woodstock's April 3, 2020 application for Climate Smart Bronze status was not approved. The task force has updated and revised the documentation for submission in the July 3, 2020 application review cycle.

Woodstock submitted GHG inventory and tracking reports based only on carbon dioxide emissions. The CSC moderator asked that Woodstock include methane, nitrous oxide, and carbon dioxide equivalents in its reports.

Natural Resource Inventory

The NRI working group completed a review of the draft natural inventory maps in preparation for a presentation to the Woodstock Town Board.

Ingrid Haeckel, NYSDEC Hudson River Estuary Program and NRI working group leader, reviewed the NRI maps with the Woodstock Town Board at its June 16, 2020 meeting. The next phase, as Ingrid explained, is to write the NRI document. The intention is to complete the NRI by the end of the year.

The Natural Resource Inventory is a major initiative launched with the Environmental Commission; Ingrid Haeckel, NYSDEC Hudson River Estuary Program/Cornell University; Ashokan Watershed Stream management Program; Ulster County Department of the Environment; NYS Department of Health; and Woodstock's Climate Smart Task Force.

Several important water resources maps were created during this project:

Drinking Water Resources

Created a map showing Woodstock’s water district, source drinking water wells, critical wellhead protection area, and aquifer protection areas. This map will be used in the town’s ongoing efforts to create an aquifer protection law, and it fulfills requirement number four, Update the Drinking Water Source Protection Map, on the DWSP2 Framework.

Special Flood Hazard Areas

A map showing all the FEMA flood zones in Woodstock. Flood maps for single properties are easily accessible, but a map showing all the flood zones is necessary for hazard mitigation planning. The special flood hazard areas in all of Woodstock’s watersheds are identified.

Stream Management Units

Ashokan Stream Management Program completed a feature inventory of the Beaver Kill and Little Beaver Kill. This data is presented in two substantive reports that organize the streams’ features by management units. Several years ago, Woodstock completed an inventory of the Sawkill and has much of the necessary data to define management units. The Woodstock Comprehensive Plan calls for a stream management study of the Sawkill, and an attempt will be made to organize the existing data by stream management units in preparation for a full study.

NYISO Power Trends 2020

The New York Independent System Operator (NYISO) released *Power Trends 2020: The Vision for a Greener Grid*. The NYISO’s annual publication provides information and analysis on how technology, economic forces, and public policies are shaping New York’s complex electric system. This year’s Power Trends focuses on how the grid is being shaped by the state’s Climate Leadership and Community Protection Act (CLCPA).

<https://www.nyiso.com/power-trends>

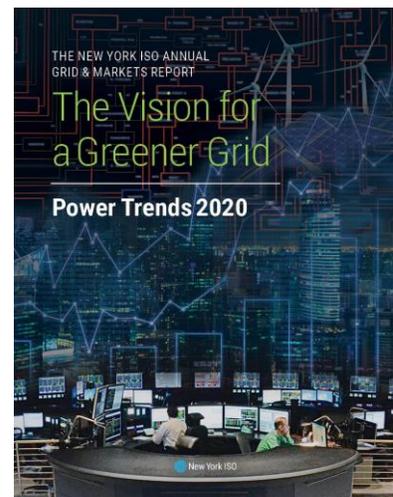
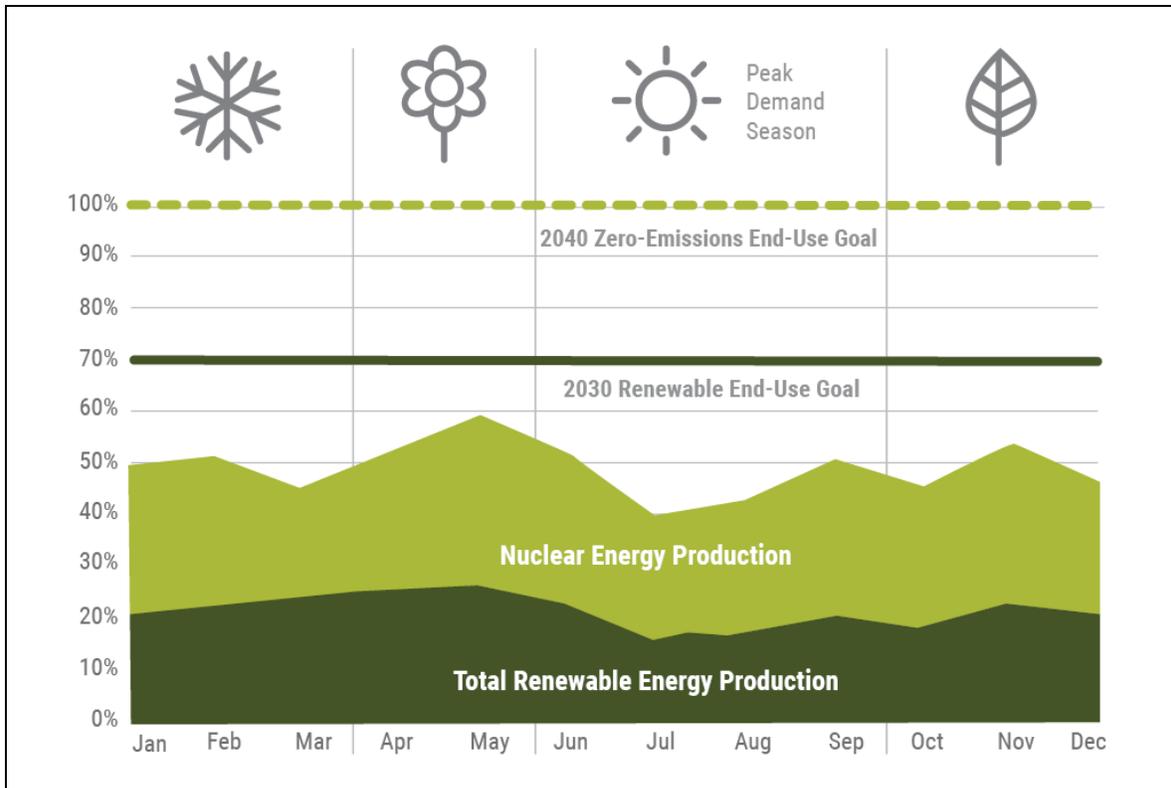


Figure 12: Production of In-State Renewables and Zero-Emission Resources Relative to 2019 Load

Last year’s Climate Leadership and Community Protection Act (CLCPA) calls for getting 70 percent of the state’s electricity from renewables by 2030, up from 26.8 percent in 2018, and hitting 100 percent zero-carbon emissions by 2040. That leaves a massive gap. More than half of the state’s carbon-free emissions come from nuclear power, as shown in the chart below. CLCPA seek greater gains in renewable energy in the next 10 years than have been realized in the past 20 years.



The chart shows monthly production of in-state renewable and nuclear generation in 2019 and highlights the gap from the state's goals. The chart also shows seasonal variation. The contribution from wind tends to wane in the summer, when load typically increases, and solar production is lower in the winter. The goals for 2030 and 2040 are in terms of end-use energy consumed, which would also include behind the meter solar and community solar.

Nuclear resources contribute significantly to zero-emission generation in New York State. Nuclear resources accounted for roughly 56% of all zero-emission generation in 2019, but this level of contribution will be impacted by the deactivation of the Indian Point nuclear power plant units in 2020 and 2021. The loss of output from Indian Point will create challenges for achieving carbon dioxide emissions reduction goals.¹



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of New York's zero-emission generation in 2019 was from nuclear resources

¹ NYISO, Power Trends 2020, Pages 25, 26

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