Creating a Clean Energy Roadmap for Your Community

Joe Crimi
Senior Program Manager
New York Power Authority
NYPA: One of the Largest State-Owned Utilities in the Nation

- **1900 Employees**
  - 16 Operating facilities
  - 3 Corporate offices

VISION2030: A thriving, resilient New York powered by clean energy

5 Strategic Priorities
Partner with our customers and the state to meet their energy goals

- Local governments
- State agencies
- Higher Education
- K-12
- Hospitals and not-for-profits
- Businesses
NYPA: A National Leader in Power Programs and Clean Energy Solutions

Transmission and power generation

25% of the State’s Electricity
80% is hydropower

ST LAWRENCE-FDR | NIAGARA | CLARK | ZELTMANN | JARVIS | BLENHEIM-GILBOA | FLYNN | VISCHER FERRY

Power programs & Economic Development

430K+ jobs supported
$30B+ capital invested

RECHARGE NY
PRESERVATION POWER (NNY)
WESTERN NY HYDROPOWER
BLENDED POWER

Clean energy solutions

$325M/yr invested in NY State

- Advisory, Planning and implementation
- Full portfolio of products
- Engineers & project management

BUILDING EFFICIENCY | LED LIGHTING | SMART STREET LIGHTING NY | EV INFRASTRUCTURE | SOLAR + STORAGE | ENERGY MANAGEMENT | MORE

August 2022
Ambitious Climate Goals for NY State

- Climate Leadership and Community Protection Act (CLCPA - New York State)
  - Reduce GHG **40%** by 2030 and **85%** by 2050
  - **100%** zero-emission electricity by 2040
  - **70%** renewables by 2030
  - **3,000 MW** of energy storage by 2030
  - **22 MTons** of carbon reduction through EE and electrification

- Voluntary sustainability initiatives

It can be challenging to manage and track to these goals
Challenges for Local Governments

• Constantly being asked to do **more with less**

• **Competing priorities** (financial green vs environmental green)

• **Low-hanging** energy efficiency projects have been **implemented already**

• Need for **innovative, sustained energy savings measures on a budget**

• **Managing and tracking** state and local carbon and energy reduction **goals and mandates**

• Managing in a **challenging rate environment**
Where Should I Look for Energy Project Opportunities?

**Government Buildings**
- Audits, opportunity assessments, benchmarking
- HVAC efficiency
- Energy master plan

**Wastewater Treatment Plants**
- Optimize high-energy processes
- Process efficiency, commissioning, maintenance

**LED Lighting Upgrades**
- Cost savings
- Improved visibility
- Interior, street lighting
- Smart controls

**Community Spaces**
- Garages, landfills, parks and rec, stadiums, police precincts
- Solar, fleet electrification, battery storage, resilience

We recommend a managed approach, rather than doing on a siloed project-by-project basis.
ENERGY MASTER PLAN

Prioritized, comprehensive list of actionable energy projects tailored to your community’s budget and goals

- Creates **economies of scale and cost efficiencies** by synchronizing similar projects and interdependencies
- Facilitates **coordination across departments**
- Guides **application, budgeting, and bonding** process
- Ladders **funding pools and incentives**
- Prepares for **new technologies**

Energy Master Plans support your community’s needs, goals, and priorities

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Comprehensive Energy Master Plan: Your Roadmap for a Clean Energy Community

Planning for and managing interdependencies can mean reaching your goals more efficiently and cost-effectively:

- Quick wins first
- Cost savings deployed to future projects
- Economies of scale achieved
- Projects aligned and coordinated
- CLCPA requirements met and tracked
- Application process, deadlines, requirements managed and tracked (NYSERDA, DEC, etc.)
Clean Energy Opportunities

Comprehensive Energy Master Planning
- Energy Efficiency
- Energy Management
- Interior LED Lighting
- Exterior LED Lighting
- Community Solar/Storage
- Fleet Electrification

Retail Power Purchase Alternatives
- Blended Power
Master Planning

Guiding you to comprehensive solutions and optimized cost reduction

40
Energy master plan projects completed

18
Energy master plan projects in progress

CITY OF ALBANY
CITY OF BUFFALO
CITY OF NEW YORK
TOWN OF GILBOA
TOWN OF HARTWICK
MONROE COMMUNITY COLLEGE
NIAGARA FRONTIER TRANSPORTATION AUTHORITY (NFTA)
NYC DEPT OF ENVIRONMENTAL PROTECTION
NYP A WHITE PLAINS
ROCHESTER & GENESEE REGIONAL TRANSIT AUTHORITY
CITY OF ROCHESTER
COUNTY OF ROCKLAND
STATE OF NEW YORK (OGS, SUNY, ALL STATE AGENCIES)
COUNTY OF SUFFOLK
SUNY, STATE UNIVERSITY OF NEW YORK
CITY OF SYRACUSE
COUNTY OF WESTCHESTER
CITY OF YONKERS
Energy Efficiency + Energy Management

The first place to look for cost savings

$3.6B
IN PROJECTS

$27M+
ANNUAL TOTAL
CUSTOMER ENERGY
OPERATING SAVINGS

MONROE COUNTY
WESTCHESTER COUNTY
SULLIVAN COUNTY
NYC HEALTH + HOSPITALS
NYC METROPOLITAN TRANSIT AUTHORITY
NYS DOCCS
CITY OF ALBANY
CITY OF WHITE PLAINS
SUNY ALFRED
SUNY BROCKPORT
SUNY STONY BROOK

2,500+
PROJECTS COMPLETED

$100,000+
YEAR ONE BILL SAVINGS
PER PROJECT ON
AVERAGE

$27M+
ANNUAL TOTAL
CUSTOMER ENERGY
OPERATING SAVINGS
Clean Energy Opportunities

2500+ Projects to date

**INTERIOR LED LIGHTING**

NYPA Partners with Bellevue Hospital to Energy Efficiency and Cost Savings

- **28,000** LED Light fixtures installed
- **$1M** annual energy cost savings
- **2,500** Occupancy Sensors

**LED STREET LIGHTING**

NYPA Partners with City of Utica to Pave the Road to Revitalization

- **7,100** LED Streetlights
- **$1.5M** annual energy and maintenance cost savings
- **2,300 TONS** annual CO2 reduction, equal to removing 500 cars
NYPA Teams Up with SUNY Fredonia to Implement Comprehensive Solar Energy Measures

- **1.7 GWh**
  - Gigawatt-hours of clean energy produced annually

- **216 TONS**
  - Annual CO2 reduction

NYPA Helps City of White Plains Go Solar – installing above landfill space and as parking canopies

- **8,100 MWh**
  - Megawatt-hours of clean energy produced annually

- **3X**
  - Solar energy produced in the County

- **700 HOMES**
  - Solar energy can now power up to 700 homes
Fleet Electrification

Moving New York State towards electric vehicles

590+
total EV chargers installed to date

3,000,000
electric vehicles miles traveled (eVMTs) enabled

800+
New chargers to be installed by 2026

3,000,000
electric vehicles miles traveled (eVMTs) enabled

METROPOLITAN TRANSIT AUTHORITY
NIAGARA FRONTIER TRANSPORTATION AUTHORITY
ROCHESTER-GENESEE REGIONA TRANSIT AUTHORITY
PORT AUTHORITY NEW YORK NEW JERSEY

WESTCHESTER COUNTY
BROOME COUNTY
CITY OF NIAGARA FALLS
CITY OF JAMESTOWN BOARD OF PUBLIC UTILITIES
CITY OF YONKERS
NYS DOT

NYS THRUWAY AUTHORITY
ALBANY PARKING AUTHORITY
Green power with the right rate options for you

• Competitively-priced
• Choose from standard, 51% or 100% green power
• Fixed and variable pricing options provide flexibility today and price stability tomorrow
• Meets local government procurement requirements

WHAT YOU NEED TO KNOW

• Greater transparency in pricing
• Objective advice so you lock in your rate when price is right
• Alternative to traditional market power
NYPA streamlines the process of implementing clean energy projects

**Navigation and advisory services based on your needs**

- **Streamlined Procurement**, funding applications, & financing
- **Full portfolio** of clean energy products
- **Deep experience** with local governments and state agencies
- **Understand regulatory needs**

**Support for the future**

- **Technologies** -- R&D and exposure to leading technologies
- **Regulatory knowledge** and understanding of CLCPA and how to get there
- **Deep engineering** bench

**Trustworthy Partner**

- **Unbiased** provider of information
- **Not-for-profit state authority**
- **Customer-focused** service delivery
- **Project management** excellence
State and Regional Resources

NYSERDA
- FlexTech – 50% of audit/study cost
- Clean Energy Communities Certification
  - Regional Clean Energy Coordinators
  - Incentives for completing action items

Department of Environmental Conservation (DEC)
- Zero-Emission Vehicle (ZEV) grants
- Climate Smart Communities Certification / Grants
- Administrator of federal EV funding

Investor-Owned Utilities
- Direct-install lighting
- Commercial & industrial incentive programs
We Can Help Move Your Clean Energy Initiatives Forward

Contact NYPA to learn more about how we can help you save money and improve your community through clean energy:

✉️ EnergySolutions@nypa.gov
🌐 nypa.gov/services

Joe Crimi
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NYPA Clean Energy Solutions
✉️ Joseph.Crimi@nypa.gov
📞 716-842-3210
Electric Vehicles and Charging Stations

September 20, 2022
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INTRODUCTION

PURPOSE

- Report on current state of electric vehicle market penetration
- Highlight recent Fed/NYS stated EV objectives and initiatives
- Review charging station types and infrastructure
- Discuss site selection factors
- Propose several EV related issues to follow in coming months/year

Source: 2022 F-150 Ford Lightning
Reports appeared in the *Wall Street Journal*, in trade magazines and in newspapers as far away as New Zealand regarding Ford’s foray into EVs. Henry Ford confirmed the rumors in *The New York Times* on January 11, 1914:

“Within a year, I hope, we shall begin the manufacture of an electric automobile. I don’t like to talk about things which are a year ahead, but I am willing to tell you something of my plans. The fact is that Mr. Edison and I have been working for some years on an electric automobile which would be cheap and practicable. Cars have been built for experimental purposes, and we are satisfied now that the way is clear to success. The problem so far has been to build a storage battery of light weight which would operate for long distances without recharging. Mr. Edison has been experimenting with such a battery for some time.”
INTRODUCTION

NOT A ‘NEW’ IDEA

1915 Baker Electric Car

25

nypa.gov/services

"The Royal Swedish Academy of Sciences on Wednesday awarded the 2019 Nobel Prize in Chemistry to three scientists who developed lithium-ion batteries, which have revolutionized portable electronics and are very likely powering a device you’re using now to read this article. Larger examples of the batteries have given rise to electric cars that can be driven on long trips, while the miniaturized versions are used in lifesaving medical devices like cardiac defibrillators." Source: NY Times, Oct 09, 2019

"This year’s Nobel Prize in Chemistry rewards the development of lithium-ion batteries. We have gained access to a technical revolution. The laureates developed lightweight batteries of high enough potential to be useful in many applications: truly portable electronics, mobile phones, pacemakers, but also long-distance electric cars. The ability to store energy from renewable resources—the sun, the wind—opens up for sustainable energy consumption."

—Sara Snogerup Linse, Nobel committee for chemistry
INTRODUCTION
DEFINITIONS

- Electric Vehicles (EV)
- **Hybrid electric vehicles** (HEV) combine a gasoline or diesel engine with an electric motor and rechargeable battery
- **Plug-in hybrids** (PHEV) combine a gasoline or diesel engine with an electric motor and larger rechargeable battery
- **Battery electric vehicles** (BEV) are powered by electricity stored in a battery pack

- **Fuel cell vehicles** split electrons from hydrogen molecules to produce electricity to run the motor

- "Range anxiety" occurs when EV owners are concerned about the range of their vehicle

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Source: nypa.gov/services
INTRODUCTION

IMPETUS

• Different shades of ‘green’
  • Environment & Economics

“Money saving and environment saving are now both intrinsically entwined and are a combined result by the tweaks to the design and performance of low emission, hybrid and electric cars.”

MARKET TRENDS
MARKET TRENDS

FORCES AT PLAY

“The great electric car race is just beginning”

(CNN Business Article)

Build it and they will come

• While the electric car has a checkered past, there is a consensus among auto industry executives and analysts that a tipping point is approaching where mass adoption will become unavoidable because of falling battery costs, pressure from regulators and generous government subsidies. “These factors have come together to force the traditional industry to take electrification seriously—faster than we had previously expected” said Max Warburton, an analyst at research firm Bernstein. “This is now really happening.”

• According to Bernstein, dramatic declines in the price of batteries will allow leading automakers to sell fully electric vehicles for less than cars powered by gasoline and diesel as soon as 2022. Electric cars, they argue, are already gaining traction: As recently as 2010, annual sales were close to zero. There’s just such an incredible amount of money being poured into electric cars,” said Al Bedwell, the director of global powertrain at LMC Automotive. “I’ve been looking at this industry for 20 years, and my real gut feeling is that it’s kind of unstoppable now.”

MARKET TRENDS – BATTERY PRODUCTION COSTS

• The average price of lithium-ion battery packs fell to $132 per kilowatt-hour in 2021, down 6 percent from $140 per kilowatt-hour in the previous year, according to the annual battery price survey from BloombergNEF. The new average is a step closer to the benchmark of $100 per kilowatt-hour, which researchers say is the approximate point where EVs will cost about the same as gasoline-powered vehicles.

• While prices declined in 2021, the decrease was not as much as BloombergNEF had projected, because of increases in costs for key materials like lithium, cobalt and nickel. The rising costs of materials are leading the research firm’s analysts to say that battery prices appear to be poised for a slight increase next year. But the same analysts expect that battery prices will soon resume their decline, as EV production ramps up and the companies find savings in economies of scale.

Red line depicts the “$100-per-kilowatt-hour mark at which EVs are expected to reach parity with internal combustion engine vehicles on an upfront cost basis”

GOVERNMENT POLICY GOALS & INITIATIVES
Biden Calls for All Federal Fleet Purchases to be ZEVs by 2035

December 8, 2021 • by Government Fleet Staff

• On Wednesday (Dec 8, 2021), President Joe Biden signed an executive order directing the federal government to acquire 100% zero-emission vehicles (ZEVs) by 2035 including 100% zero-emission light-duty vehicle acquisitions by 2027—among other commitments to achieve zero emissions by 2050.

• The federal government will work with American vehicle, battery, and charging equipment manufacturers and installers to transform the federal fleet into the largest zero-emission vehicle fleet in the nation, according to a White House fact sheet.

• As federal vehicles are driven about 4.5 billion miles each year and use almost 400 million gallons of gasoline, electrifying the federal fleet could not only help accelerate EV adoption, but play a significant role in decarbonizing the transportation sector by way of reducing billions of pounds of greenhouse gas emissions per year.

Biden Administration Goal: 50% Electric by 2030

- And Washington hopes to lend a hand. In August, President Joe Biden signed an executive order that calls for plug-based vehicles— including BEVs and plug-in hybrids, or PHEVs— to generate half of all U.S. new vehicle sales by 2030. To add some teeth to that plan, Congress is working up a new round of incentives that could grow to as much as $12,500— though there’s been pushback on a provision that would specifically benefit models built in the U.S. using union labor...

- The Biden administration wants 50% of vehicles to be electric— zero-emission— by 2030. There is pressure on the administration to order all vehicles by electric by 2035. If not, California, New York and other states might require 100% zero-emission by 2035. The path to 50% and 100% would both be reached if sales increase each year by 5% over the previous year’s EV sales.

Not Enough Public Charging Plugs

- There are still obstacles to overcome. The biggest, most experts agree is the lack of a ubiquitous public charging network. (That and current costs and range.) “More than 80% of today’s EV owners charge at home and are likely to continue doing that,” said Pasquale “Pat” Romano, the CEO of ChargePoint, one of the largest EV charging providers. But there’s still the need to create a readily accessible public network of fast chargers for those who travel long distances, whether for work or play, he said.

- As of now, there are about 43,000 public EV charging stations in the U.S., with around 120,000 charging ports, according to the U.S. Department of Energy. But the network is concentrated along the coasts, especially in California — which is by far the largest market for BEVs today.

- In comparison, there are about 150,000 gas stations in the U.S. and an estimated 1.0-1.5 million pumps. The numbers aren’t comparable because gas/diesel cars outnumber EVs 98-2, a gasoline fill-up takes less than 10 minutes— but it can’t be done at home— while EV charging is 20-45 minutes for the fastest charge at a public facility.
Inflation Reduction Act of 2022
https://afdc.energy.gov/laws/inflation-reduction-act

• Enacted August 16, 2022
The Inflation Reduction Act of 2022 (Public Law 117-169) amends the Qualified Plug-in Electric Drive Motor Vehicle Credit (IRC 30D), now known as the Clean Vehicle Credit, and adds a new requirement for final assembly in North America that takes effect on August 16, 2022. Additional provisions will go into effect on January 1, 2023. Further guidance on these provisions is forthcoming. Find more information about the credit from the Internal Revenue Service.

• The Inflation Reduction Act establishes “Make it in America” provisions for the use of American-made equipment for clean energy production. The law provides expanded clean energy tax credits for wind, solar, nuclear, clean hydrogen, clean fuels, and carbon capture,

Source: https://www.governmentfleetc.com/10157528/bidencalls-for-federal-fleet-to-purchase-all-zevs-by-2035
EV Tax Credits Are Changing: What’s Ahead

• EVs placed into service after December 31, 2022, the Inflation Reduction Act extends the up to $7,500 EV tax credit for 10 years
  • Vans, pickup trucks, and SUVs with a manufacture’s retail suggested price (MSRP) of more than $80,000, won’t qualify for the credit. For clean cars to qualify for the EV tax credit, the MSRP can’t be more than $55,000
• Used EVs (i.e., previously owned clean vehicles that are at least two years old) will now have a separate tax credit of either up to $4,000 or 30% of the price of the vehicle, whichever is less
• When buying a “clean” vehicle, buyers have the option, beginning in 2024, to take the EV tax credit as a discount at the time of purchase
• Revives a homeowner’s tax credit for electric vehicle chargers that initially expired on Dec 31, 2021
• Increased tax incentive for business that installs EV chargers in 2023 and later, from $30K-$100K (up to 30% of costs)

Source: https://www.governmentfleet.com/10157528/bidencalls-for-federal-fleet-to-purchase-all-zevs-by-2035
NYS Leadership on Electric Vehicles

Since its inception in 2016, the DEC Municipal ZEV Program has awarded more than $7.5 million towards the purchase of 144 plug-in hybrid vehicles, 106 all-electric vehicles, 622 Level 2 charging ports, 16 fast charge pedestals, and three hydrogen fueling nozzles. For more information, visit https://www.dec.ny.gov/energy/109181.html#ZEV.

As announced in Governor Hochul's 2022 State of the State Agenda on Jan. 5, New York will accelerate the adoption of electric zero-emissions vehicles with a proposed $1 billion investment to support electric vehicle adoption and infrastructure, electrifying the State fleet by 2035, achieving 100 percent electric school buses by 2035, and transforming Hunts Point into a Clean Distribution Hub.

The New York Power Authority has now installed 90 high-speed charging stations in its cross-state Evolve NY network, which is bringing high-speed open access charging to key locations along primary travel corridors and in urban areas to encourage the adoption of EVs.

To further support the decarbonization of the transportation sector, New York State has already implemented several key programs to accelerate the transition to zero-emission vehicles. In September, Governor Hochul signed legislation setting a goal for all new passenger cars and trucks sold in New York State to be zero-emissions by 2035. Governor Hochul also recently announced DEC's finalization of the Advanced Clean Truck Rule that will phase in the sales and use of zero-emission trucks and will reduce their harmful pollutants, which disproportionately impact the health and well-being of disadvantaged communities.

Source: https://www.nyserda.ny.gov/About/Newsroom/2022-Announcements/2022-01-19-Governor-Hochul-Adds-12-Million-to-Program
GOVERNOR HOCHUL ANNOUNCES NEARLY $114 MILLION IN FEDERAL AND STATE FUNDING TO CREATE FIRST-CLASS BATTERY-NY CENTER AT BINGHAMTON (Sep 2, 2022)

• Governor Kathy Hochul today announced Binghamton University will receive a combined investment of $113.7 million to support the creation of Battery-NY, a cutting-edge technology development, manufacturing, and commercialization energy storage hub. In addition to $50 million in state funding first announced by Governor Hochul in her 2022 State of the State address, Binghamton University was selected by the U.S. Commerce Department's Economic Development Administration to receive $63.7 million in federal funding from the American Rescue Plan's Build Back Better Regional Challenge, a national competition that is providing transformative investments to develop and strengthen regional industry clusters across the country, that also enhance economic equity, create good-paying jobs, and further the United States' global competitiveness. Binghamton University was one of 21 chosen out of more than 500 applications originally which were narrowed to sixty applicants in round two of the challenge. Yesterday, Governor Hochul announced Western New York was awarded $25 million to spark local innovation, strengthen inclusive workforce development programs, and develop needed infrastructure in region.

• Led by Distinguished Professor and 2019 Nobel Prize Winner M. Stanley Whittingham and Binghamton Associate Vice President Per Stromhaug, Binghamton University's Battery-NY will research and develop next generation batteries and other clean energy technologies that have the potential to transform the transportation, military and energy sectors. The center will also help establish a robust manufacturing infrastructure within the Southern Tier capable of supporting multiple industries and their supply chains, leading the creation of thousands of good-paying advanced manufacturing jobs over the next decade.
MARKET TRENDS

"In economics, things take longer to happen than you think they will, and then they happen faster than you thought they could."

Rudi Dornbusch, German Economist
INFRASTRUCTURE CHARGING STATIONS
“REFUELING” ELECTRIC VEHICLES

CHARGER TYPES

- **Level 1 Charging:** Using a standard wall outlet, any electric vehicle can be charged at around 3–5 miles of range gained per hour. Despite this slow speed, around a quarter of the EV population uses Level 1 because outlets are common in garages, and all EVs come with a cord that can let them use it. Think of Level 1 as dial-up internet of yore.

- **Level 2 Charging:** Using a 240V outlet (think electric dryer plug), Level 2 steps up the power and delivers 15–30 miles an hour of charge. This works well for overnight and workplace charging. This is like broadband internet service in terms of speed.

- **DC Fast Charging (Level 3):** Using a charging station that charges your vehicle’s battery using DC current at high power allows for fast charging in minutes instead of hours. This is perfect for extending your driving range during road trips and enables those who do not have home charging to have an electric vehicle. This is the revolutionary technology that allows for EVs to truly replace internal combustion engine vehicles. Think of fiber internet – very high speed!

Source: [https://www.evgo.com/blog/charging-basics-fast-charging-and-the-ev-revolution/](https://www.evgo.com/blog/charging-basics-fast-charging-and-the-ev-revolution/)
As of February 2022, there were 47,279 public EV charging stations in the U.S. with a total of 116,900 ports.

**Level 1:** 1,169 ports  
**Level 2:** 93,287 ports  
**DCFC:** 22,402 ports  
(Source: energycenter.org)
INFRASTRUCTURE

FUEL CORRIDORS

Figure 4.1. Map of EV corridors under FHWA’s Alternative Fuel Corridors Program. (Source: FHWA)
ELECTRIC VEHICLE REGISTRATIONS
As of August 1st, 2022

(Increase of 11,898 since May 1st, 2022)

(Increase of 17,186 EVs since Feb 1st, 2022. That’s 15%)
LOCAL REGISTRATION DATA
CHEMUNG COUNTY

As of August 1st, 2022
(Increase of 25 from May 1st, 2022)
(Increase of 46 EVs since Feb 1st, 2022. That’s 19%)

Source: https://www.nyserda.ny.gov/All-Programs/ChargeNY/Support-Electric/Map-of-EV-Registrations
SITE SELECTION ASSESSMENT FACTORS
Initial candidate locations for EVSE installation shown on next slide.
Initial candidate locations for EVSE installation
Assessment Factors for EV Charging Station Site Selection

- Location of existing EV Charging Station
- Population density & Zoning considerations
  - Proximity to Interstate/State Highways (traffic counts?)
  - Closeness to Elmira Downtown District/Local attractions
    - Dedicated parking, but competition for limited slots?
  - Electric Grid availability/hardware/installation/connection costs for DCFC
  - Residential areas/Large work centers/County facilities (potential for multiple categories of users)
  - Suitable County/City owned property available
  - Expansion potential for “future proofing”
  - Suitability for a 24/7/365 operation (plowing, seasonal parks, nighttime use, etc.)
  - Safety/Security/Ease of maintenance considerations
  - Political interest/concerns
  - Electrical contractor assessment/recommendation
  - Best practices identified via crosstalks, literature reviews

Assessment factors are not in a strict priority order.
Contractor/NYSEG would install new utility pole w/separate meter to feed (2) contractor installed EV charging stations. And also build in expansion capability for ‘futureproofing’.

Chemung County Human Resource Center
415 Pennsylvania Ave, Elmira, NY 14904

John Mills Electric Company
Jeremy Ackerman, 607-734-4111
(VP, Project Management)
PLANNING CONSIDERATIONS
PLANNING CONSIDERATIONS

- Local building codes and zoning regulations
- Potential for more pedestrian/bicyclist accidents
- First responder training
- Potential for long run lower gasoline sales w/corresponding sales tax revenue loss
- Equity considerations
- Public-Private charging options
- Pressure to transition public fleet to EV models
- Federal/State incentives or potential future mandates
- Opportunities to promote tourism & economic development
“A comprehensive breakdown of steps to achieve a robust regional EV network is identified in Table 5.” (from page 13)
## SELECTED REFERENCES

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<td>NY State Energy Research and Development Agency</td>
<td><a href="https://www.nyserda.ny.gov/">https://www.nyserda.ny.gov/</a></td>
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<td>NYS DEC Climate Smart Communities Grant Program</td>
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<tr>
<td>Herkimer-Oneida Counties Transportation Council 2021 EV Charging Station Plan</td>
<td><a href="https://ocgov.net/oneida/sites/default/files/planning/EV_ChargingStationPlan_0.pdf">https://ocgov.net/oneida/sites/default/files/planning/EV_ChargingStationPlan_0.pdf</a></td>
</tr>
<tr>
<td>Ulster County Green Fleet Policy</td>
<td><a href="https://ulstercountyny.gov/environment/sustainability-energy/green-fleet-initiative">https://ulstercountyny.gov/environment/sustainability-energy/green-fleet-initiative</a></td>
</tr>
<tr>
<td>Plug Share – EV Charging Station Map</td>
<td><a href="https://www.plugshare.com/">https://www.plugshare.com/</a></td>
</tr>
</tbody>
</table>
Beyond Power: Lessons Learned

NYSAC
Buffalo, NY
September 2022
About Gravity

- Owner, operator and developer of small hydroelectric power plants in the U.S.

- 40 megawatts of operating projects including five in New York

- Management team with over 200 years of experience with renewable energy and project finance

- Focus on community-oriented projects with municipalities, colleges and universities
New York is 3rd largest generator of hydropower in United States
MEGA Partnership

- Group piggy-back procurement
- 7 municipal off-takers
- 160 million kwh generated to date
- Millions in regional re-investment
- Supporting local jobs, taxes, economic activity for 20+ years
Attracting Community Investment
Case Study: Waterloo Hydro

Waterloo Plant Performance w New Rake

- Actual Output w New Rake
- Est Output with Old Rake

Plant Output (KW)

Lessons Learned & Opportunities

- The power of group buying
- Traditional vendor vs. long-term partner
- Capturing long-term community benefits
- Comprehensive energy planning
Gravity Renewables, Inc.

Omay Elphick
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