



NY Power  
Authority

# **DIGITIZATION STRATEGY**

**Delivering a Secure, Clean and Reliable Distributed Energy Future**

A FOUNDATIONAL PILLAR OF **VISION2030**





# INTRODUCTORY MESSAGE

## FROM THE PRESIDENT AND CEO – GIL C. QUINIONES

More than a century after the introduction of commercial electricity in downtown Manhattan in New York, the electric grid – and the role of the utility – is being reimagined as the need for cleaner energy resources and decarbonization heightens.

NYPA is well positioned to partner with our customers to make the most of what this exciting new era offers. We generate and transmit over 20 percent of the state’s electricity needs and are the only energy services company with the ability to provide both comprehensive and customized energy solutions. We are a key enabler of New York State’s goal of 70% renewable energy by 2030, with 6 GW of distributed solar and 3 GW of storage as targets.

As we move toward a cleaner, decentralized grid with new technologies and more intermittent energy resources, digitization is a critical lever that will allow us to respond in real time to evolving grid conditions and ensure low-cost, reliable and resilient power.

In addition, digitization allows us to redesign how we manage, safeguard and optimize our assets and our operations, as well as proactively plan for the future, to help our customers stay one step ahead of the evolving energy landscape.

In summary, NYPA is leading this digital transformation in concert with our customers to realize a flexible, distributed, consumer-driven energy system.



“The benefits of innovation and digitization will be immense. In fact, our efforts so far are already paying off through more efficient and streamlined operations, ensuring system reliability and cost stability for our customers.”

**Gil C. Quiniones** | President and CEO



# ACCELERATING OUR END-TO-END DIGITAL UTILITY VISION

As we continue the next chapter in our journey to becoming the first all-digital utility, NYPA is building upon a successful track record of technology innovation and staying ahead of the curve.

From field-based technologies and infrastructure connectivity to data analytics, machine learning, process automation and cyber security, NYPA’s digital journey has maintained a strategically broad footprint since it began in 2013.

This Digitization Strategy booklet outlines our plan towards achieving our 2030 digitization goals so that we can partner with our customers and stakeholders to innovate and achieve our digital utility future.



“We believe NYPA is well positioned to achieve the digital agenda. The Digital Transformation Office will drive NYPA’s digital transformation, establish a strategy and enable execution through partnership with IT and the business units.”

**Daniella Piper** | Regional Manager, Western New York and Chief Transformation Officer



# NYPA VISION2030

## VISION

Create a thriving, resilient New York State powered by clean energy.

## MISSION

Lead the transition to a carbon-free, economically vibrant New York through customer partnerships, innovative energy solutions and the responsible supply of affordable, clean and reliable electricity.

## STRATEGIC PRIORITIES



Preserve and enhance the value of our hydropower assets as a core source of carbon-free power, as well as flexibiity and resilience as the state’s grid evolves



Be the leading transmission developer, owner and operator for New York State and its changing needs



Pioneer the path to decarbonization by acting as a test-bed for innovation while ensuring grid reliability, resilience and affordability



Partner with our customers and the state to meet their energy goals in alignment with CLCPA through clean and affordable energy, and customer solutions



Repurpose the New York State Canal System for the economic and recreational benefit of New Yorkers while driving operational efficiency

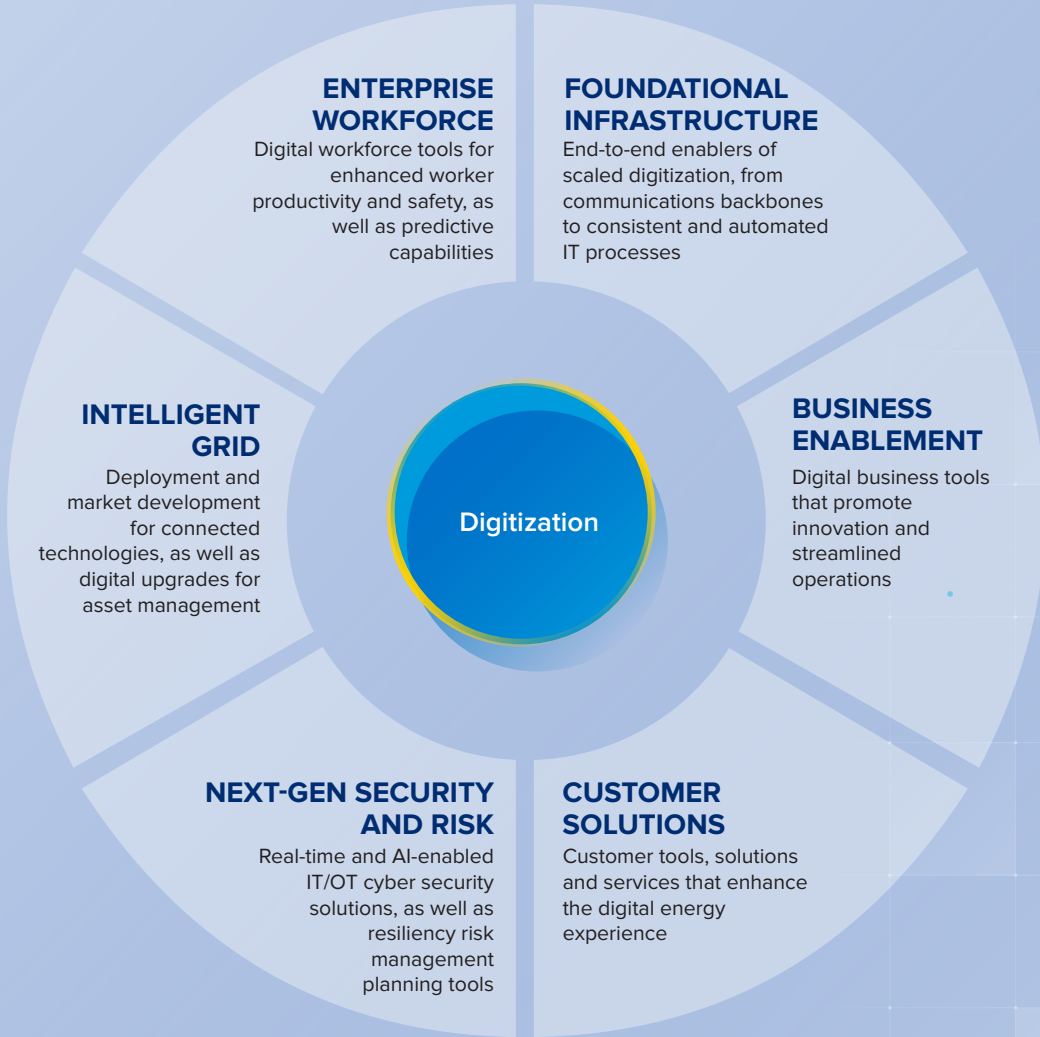
## FOUNDATIONAL PILLARS



# DIGITIZATION. A VISION2030 FOUNDATIONAL PILLAR

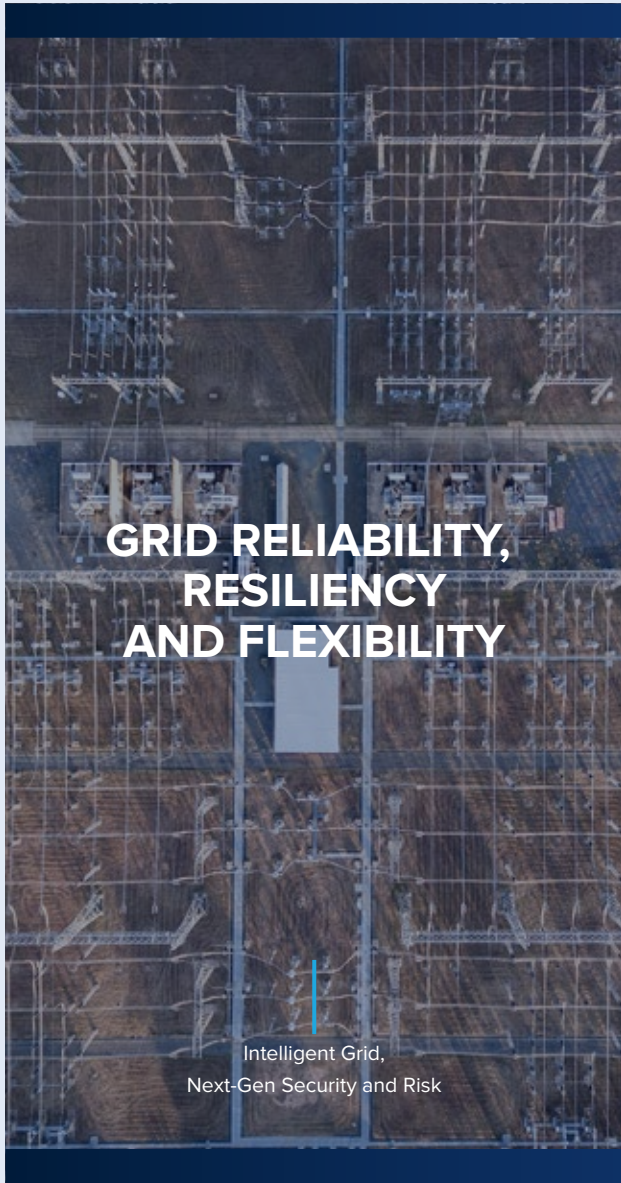
## DIGITIZATION VISION

Leverage connectivity, analytics and cutting-edge digital infrastructure to optimize our physical and data assets, enable our workforce and empower our customers.





# WHY DIGITIZE? IT IS THE BACKBONE OF OUR EVOLVING OPERATIONS



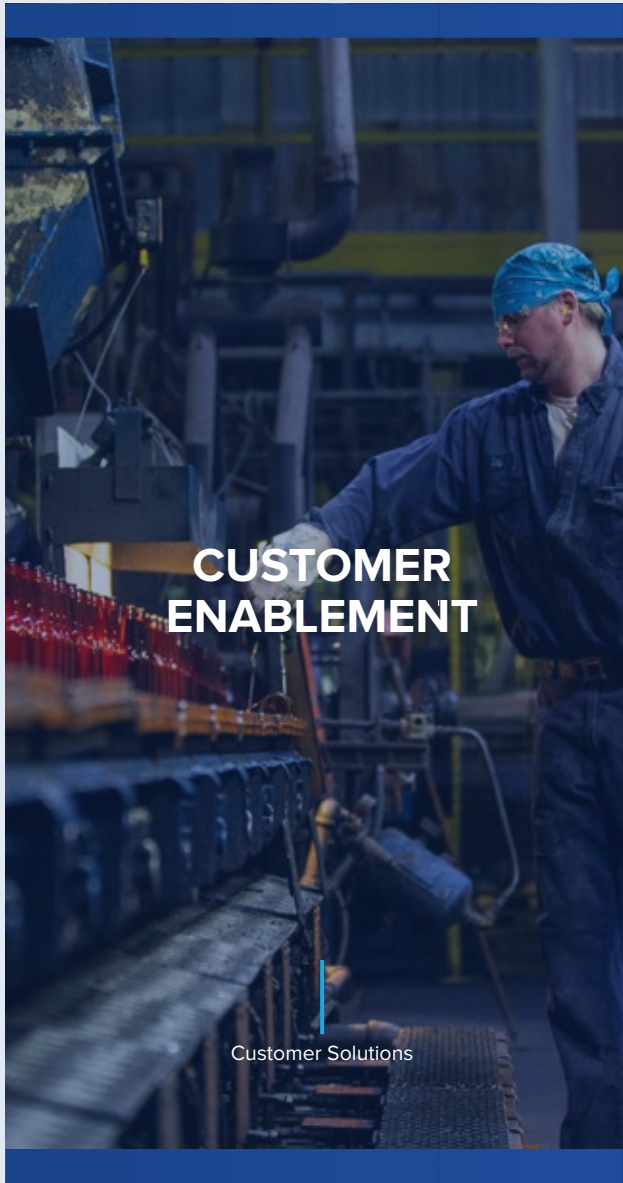
**GRID RELIABILITY,  
RESILIENCY  
AND FLEXIBILITY**

Intelligent Grid,  
Next-Gen Security and Risk



**OPERATIONAL  
PRODUCTIVITY  
AND EFFICIENCY**

Enterprise Workforce,  
Foundational Infrastructure,  
Business Enablement



**CUSTOMER  
ENABLEMENT**

Customer Solutions



**NEXT-GEN  
IT/OT SECURITY**

Next-Gen Security and Risk



**Rob Piascik**  
Chief Information and  
Technology Officer

“**No utility can afford not to digitize. But we chose to be a leader.**

NYPA is harnessing the power of data and cutting-edge technology, applying analytics and artificial intelligence to gain insights that inform our decision making and empower our workers with tools to optimize our assets, increase efficiency and safety to deliver the greatest value to our customers.”



OUR APPROACH: WE PARTNER AND INNOVATE TO ENABLE A DIGITIZED ECOSYSTEM





# 01 NYPA PARTNERS ACROSS THE ENTIRE DIGITIZATION ECOSYSTEM

## CARBON-FREE ELECTRICITY GENERATION

Ensures a carbon-free future for the state through multiple, innovative clean power sources (hydroelectric, solar, wind) and large-scale storage solutions (batteries, pumped hydroelectric)

## INTELLIGENT MICRO GRID

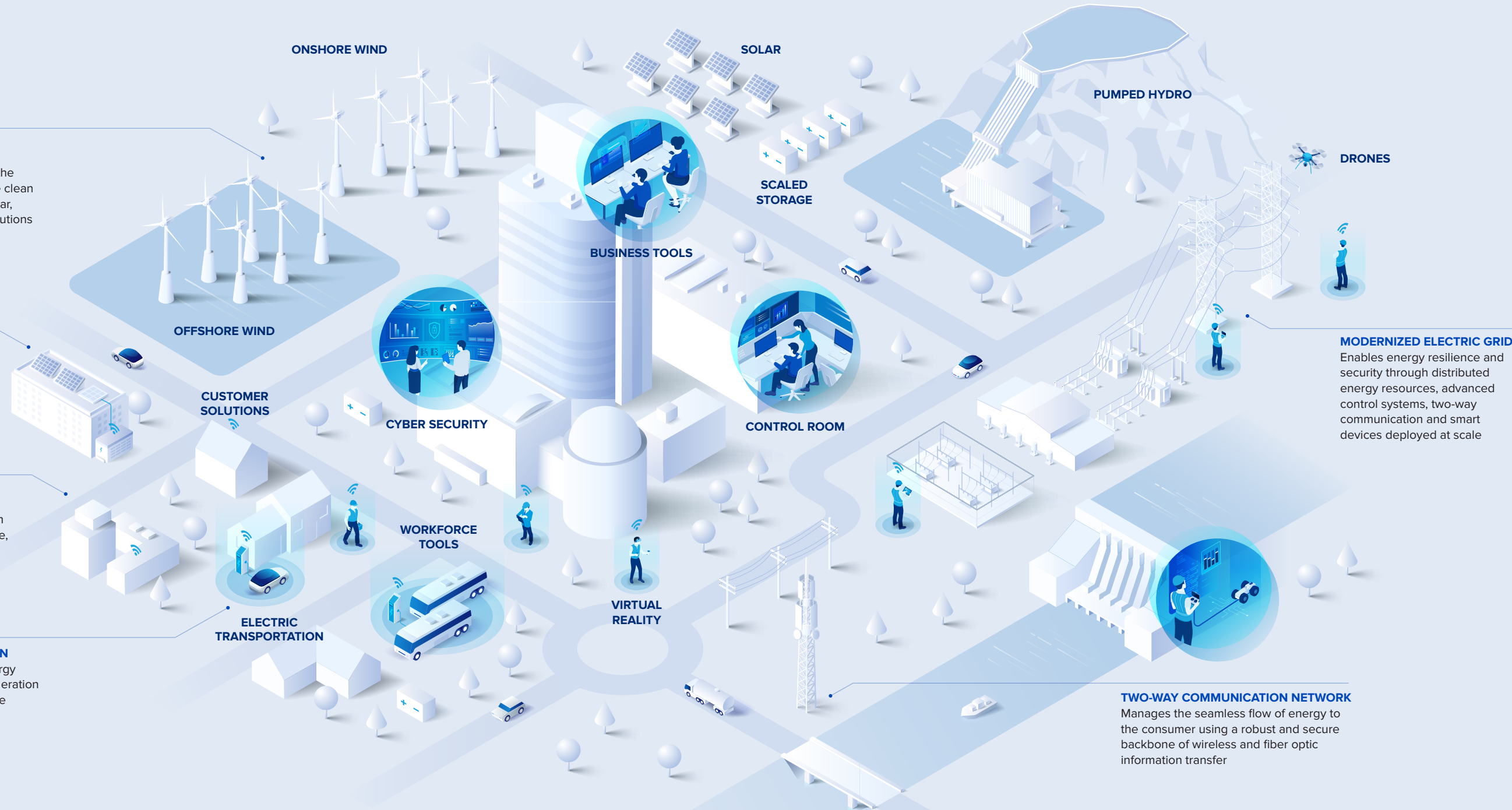
Builds energy self-sufficiency and supports affordability during periods of price volatility

## SMART CITY

Enables efficient and responsive interaction with the power system by integrating urban infrastructure, customers and information flows

## VEHICLE-TO-GRID INTEGRATION

Supports real-time customer energy management and renewable generation by acting as an integrated storage system for the broader grid



## NYPA PARTNERS WITH

- Technology companies
  - Software companies
  - Utilities
  - Communications providers
  - Policy makers
  - Standards organizations
  - Customers
  - Local governments
  - Local businesses
  - The public
- and more

## NYPA'S ROLE WITH PARTNERS

- Unites critical skills and capabilities
- Integrates business and technology
- Develops digital products and services
- Governs execution
- Leads the change



# NYPA INNOVATES ACROSS ALL LEVELS OF ITS OPERATIONS

## EXISTING INITIATIVES

### Asset Performance Management (APM)

NYPA's APM software is a major step in asset management by allowing for the implementation of standardized tools, roles and processes that optimize asset performance, risk and cost. To date, our APM software is streaming 115,000 data points and has resulted in avoided-cost savings over \$18 million.



### AGILE

The Advanced Grid Innovation Laboratory for Energy (AGILE) is a world-class power systems laboratory, with a simulation and testing facility. AGILE enables real-time simulations of New York State's transmission grid to accelerate and streamline deployment of new equipment and technologies, analyze peak demand stress, incorporate intermittent resources, and improve reliability and bulk system control.



### New York Energy Manager

Serving almost 20,000 state and government facilities, New York Energy Manager helps customers manage energy use by using data to improve building energy performance, reduce environmental impact and manage energy costs. This is accomplished by designing customizable energy management strategies for individual facilities or entire building portfolios.



### Communications Backbone

NYPA is building out a secure, reliable and robust communication network for sharing operational data between sites, including nearly 700 miles of Optical Ground Wire (OPGW), 1000 miles of leased dark fiber and a 400-mile microwave network. NYPA is also piloting P-LTE technology (4G LTE, 5G) to support operations and programs, such as workforce mobility applications and drones.



### CDEx

CDEx is transforming the customer journey into an end-to-end digital experience with tools that track customers' carbon emissions reductions and the status of energy efficiency projects. The program also streamlines related services like bill payment and contract management, to ensure a productive and efficient digital experience with NYPA.



### Digital Workforce Program

The Digital Workforce Program is untethering and empowering all NYPA and Canals employees to help them work more safely, efficiently and effectively, via advanced digital capabilities. Our Digital Engineering Tools complement this goal by applying our operational and engineering subject matter expertise to digital tools that enable the advanced computation, simulation and visualization of our assets.



## EMERGING INITIATIVES

### Cybersecurity Center of Excellence

The Cybersecurity Center of Excellence (CoE) addresses the industrial cyber skills gap, provides innovative expert cyber services, and incubates solutions to benefit critical infrastructure operators in the state of New York. This initiative is powered by a coalition of critical infrastructure owners, operators, university partners, and founding organizations led by NYPA.



### Innovation Lab

NYPA is building out an innovation lab to provide enterprise-level incubation capabilities that will drive innovation, develop prototype solutions and demonstrate the business value of new technologies.



### Artificial Intelligence/Machine Learning

NYPA is leveraging data to apply business intelligence that will transform our approach to asset management by optimizing infrastructure and the supply-demand balance.





## NYPA ENABLES A DIGITIZED UTILITY ECOSYSTEM IN NYS AND BEYOND

### WE ENABLE



OUR WORKFORCE



OUR CUSTOMERS



OUR PARTNERS

**Together, we accelerate our journey to a clean and thriving energy future through digitization**



**Ali Mohammed**  
Senior Director, Digital  
Innovation & Transformation  
Office

**“NYPA is serving as a testbed for technology and innovation. Through partnerships, we will research, develop and implement the emerging technologies that will transform the power grid – an example for utilities across the nation.”**





NEW YORK  
STATE OF  
OPPORTUNITY.

**NY Power  
Authority**

Smart  
Center

Authority

“Massena Electric is excited to partner with NYPA on this project. NYPA’s Integrated Smart Operating Center allows us to harness the power of our equipment data and analytics, to gain insights into the health and performance of our equipment so that we can prevent failures and keep the lights on.”

**Andy McMahon** | Superintendent, Massena Electric Department

