NJ TRANSITGRID

Resilience Program • Building Stronger

RELIABLY POWERING THE FUTURE

Briefing to the
NJ TRANSIT Board of Directors

October 21, 2020

NJTRANSIT
The Way To Go.

TODAY'S SPEAKERS

Lenora Isaac
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Resilience Program

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Chief
Project Management

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Senior Director
Environment, Energy & Sustainability

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Chief
Capital Compliance, Budget & Administration

PROJECT OVERVIEW

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Initiated by the Christie Administration after Superstorm Sandy, NJ TRANSITGRID was originally envisioned as a natural gas turbine powered facility, prior to advancements in renewable technologies

The Murphy Administration is committed to a process that re-envisions the design of this project to prioritize green technology and will deliver power that aligns with Governor Murphy's clean energy priorities

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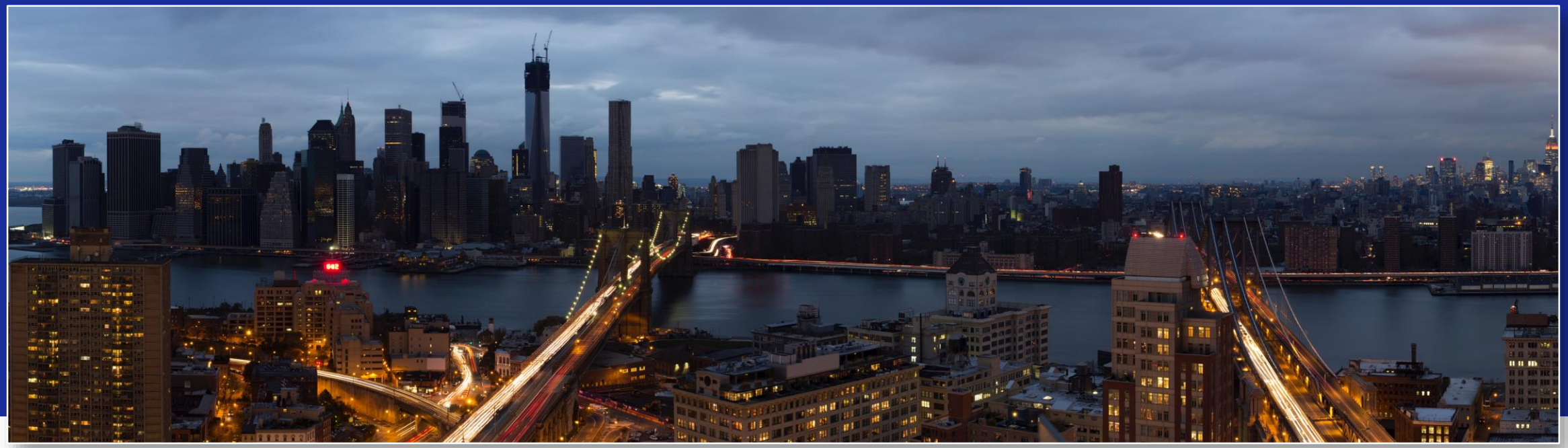
EVENTS AFFECTING NJ TRANSIT & OUR REGION

YEAR:	EVENT:	SCOPE:
2003	**Northeast Blackout** Single Power Line Failure in Ohio	50M people lost power from Ohio to New York and Canada. **Largest Blackout in North America**
2011	**Hurricane Irene** Category 1 Hurricane Tropical Storm	North Carolina to New York. **Significant Power Failures and Storm Surge**
2012	**Superstorm Sandy** Category 2 Hurricane Tropical Storm	North Carolina to Vermont. **Catastrophic Power Failures and Storm Surge**
2019	**Summer Outages** July 13, 2019 – Manhattan Blackout July 22-26, 2019 – NJ Storm Outage	Closed stations; cancelled, limited & delayed service; **Hundreds of thousands without power and mobility**
2020	**Tropical Storm Isaias** Category 1 Hurricane Tropical Storm	Caribbean to East Coast of United States. **Catastrophic Power Failures and Storm Surge**



PREPARING FOR THE FUTURE

- Without decisive action, more outages are expected in the future
- The Rutgers University Center for Energy, Economic, and Environmental Policy (Rutgers CEEP) concluded that “[t]here are real and significant threats to New Jersey and the nation’s power systems including but not limited to severe weather,” and predicted “1.2 hurricanes or tropical storms per year…”

IMPACT OF AN EXTENDED POWER OUTAGE

>53 MILLION

Commuter Rail Trips In and Out of New York City Each Year

Any loss of power can severely constrain the regional economy

A Regional Power Outage Would Impact

200,000

NJ TRANSIT and Amtrak Customers

Costing **$42 million** in lost wages each day

RELIABLE TRANSIT NEEDS POWER

Energy Resilience is Key to Transportation

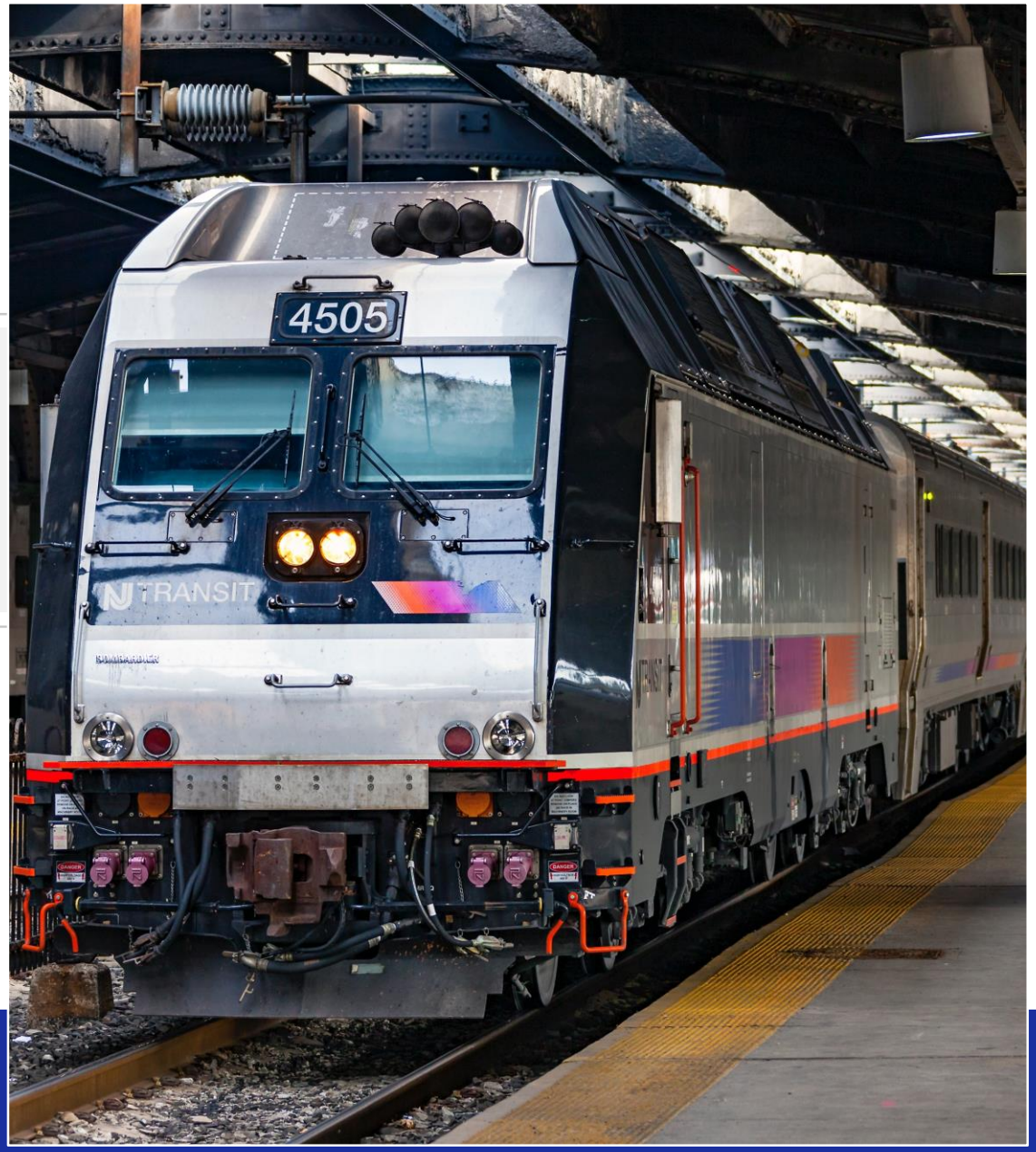
- After floodwater subsides, electric power is needed to resume service

Energy Speeds Recovery

- Electrical outages serve only to complicate the path to recovery, forcing reliance on emergency generators to energize key equipment, pump stations, and facilities

Diesel Generators are NOT the Solution

- Diesel fuel supply risks following major events
- Diesel generators provide temporary backup power
- Diesel generators raise air quality and emissions concerns



In 2014, the Federal Transit Administration

ALLOCATED $410 MILLION

Out of the estimated **$577 Million** to build the NJ TRANSITGRID Project

- Inspired by President Obama's *Hurricane Sandy Rebuilding Strategy*
- Originally developed in conjunction with Sandia National Laboratories and the U.S. Department of Energy
- NJ TRANSITGRID is a microgrid providing highly reliable power to a core segment of NJ TRANSIT and Amtrak's critical service territory during extreme weather or outages in the commercial power grid

HIGHLY RELIABLE POWER

The facilities will operate 24/7 and be sized to handle limited operations during grid outages on:

- The Northeast Corridor between New York's Penn Station and NJ TRANSIT's Jersey Avenue Station in New Brunswick
- The Morris & Essex line between Hoboken Terminal and Maplewood Station
- A portion of the Main Line, for signal systems
- The Hudson-Bergen Light Rail (HBLR) Transit System

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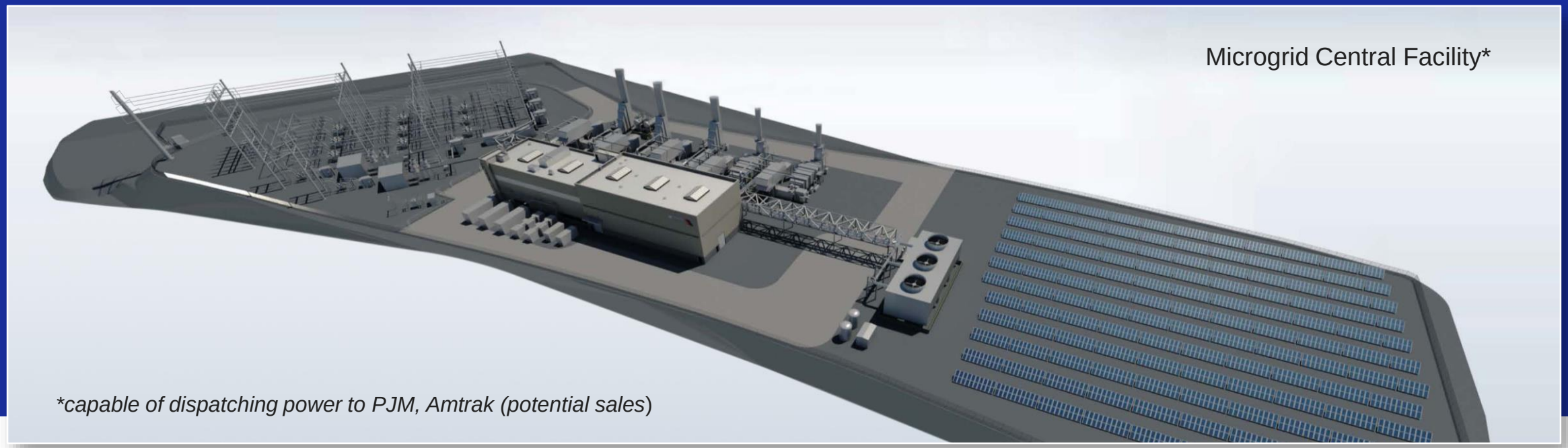
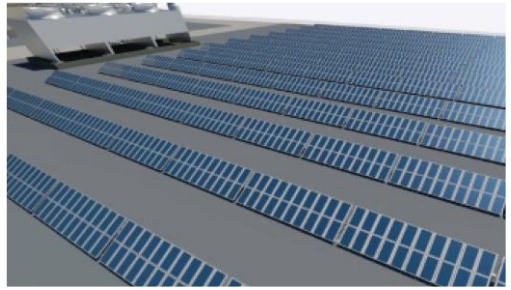


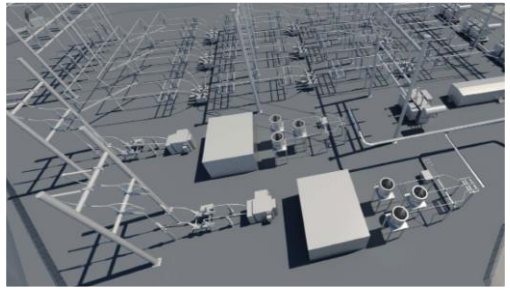
*capable of dispatching power to PJM, Amtrak (potential sales)

FACILITIES IN THE FTA-APPROVED RECORD OF DECISION



Solar & Energy Storage

Combined-Cycle Technology



Hardened Substation

Distribution & Critical Infrastructure

PROJECT BENEFITS

Reliability

- Prepares NJ TRANSIT to better withstand, and recover from, extreme **weather and other events**
- Ensures NJ TRANSIT is not subject to broader **cyber security threats** that could otherwise disrupt transit service
- Eliminates single point of failure at existing interconnection points to reduce cascading impacts of service issues and mitigates **commercial grid vulnerability**
- As a critical infrastructure operator that customers depend on, NJ TRANSIT must provide reliable service; energy is critical to this mission

PROJECT BENEFITS

Ensures communities have access to transit when they need it most

Will provide a reliable transportation resource serving our communities, allowing those who rely on mass transit as their only mobility option to travel locally to work, school, and other venues that would otherwise be inaccessible during a commercial grid outage

Creates Jobs

Will create employment opportunities in facility operations, maintenance, and ancillary services

Will create operating revenue via power sales

One-time economic impact on the New Jersey economy of **$749 million**

Creation of **4,200 jobs**; **$291 million in earnings**

Ongoing economic impact to the New Jersey economy of **more than $20 million** annually

SOURCE
December 10, 2019, Rutgers University – Center for Advanced Infrastructure and Transportation (CAIT)
"*Economic and Fiscal Impacts of NJ TRANSITGRID's Construction and Operations*"

MAKING THE PROJECT BETTER

Development

- **Initiated by the Christie Administration after Superstorm Sandy, NJ TRANSITGRID will deliver power that aligns with Governor Murphy's clean energy priorities**
- Since the project was conceived by Sandia National Laboratories in 2014, there have been advancements in technology that the market is best positioned to identify that allow NJ TRANSITGRID to deliver even cleaner power than contemplated

AN EYE TOWARD THE FUTURE: CLEAN ENERGY GOALS

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NJT2030: A 10-YEAR STRATEGIC PLAN
KEY GOAL: "PROMOTE A MORE SUSTAINABLE FUTURE FOR OUR PLANET"

NJ TRANSIT is already advancing toward meeting this goal:

- Investing in a cleaner rail and bus fleet
- Producing a first-ever Sustainability Plan
- Expanding and optimizing solar energy assets
- Implementing energy efficiency and conservation measures
- **Investing in cleaner power**

NJ TRANSITGRID: RELIABILITY *AND* SUSTAINABILITY

2014

NJ TRANSIT proposes to be the first transit agency in the nation to invest in its own reliable electric power supply through NJ TRANSITGRID

2018-2019

NJ TRANSIT refines project design to now include solar, flywheel storage, efficient turbine engines, and control systems to provide the critical infrastructure necessary for NJ TRANSITGRID to allow for further use of **green** technology

Today

NJ TRANSIT announces ambitious, multi-point plan to reimagine the NJ TRANSITGRID project to increase the project's renewables and zero-emissions profile

Tomorrow and Beyond

Challenge the global design community to increase planned investment in solar, storage, and other **green** technologies to power our system with reliable and sustainable power consistent with the Energy Master Plan and the governor's clean energy vision

NJ TRANSITGRID: NEXT STEPS AND PROPOSED PATH FORWARD

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PROPOSED NEXT STEPS

Consistent with Governor Murphy's Energy Master Plan and Clean Energy Goals, NJ TRANSIT intends to solicit an updated review of renewable or other zero emissions energy technologies that may supplement or replace the current power generation design for the proposed Microgrid Central Facility

To accomplish this goal, NJ TRANSIT proposes taking the following steps:

Hire a renewables energy consultant

In progress

Host a Microgrid Market Outreach event in

October 2020

Release a Request for Qualifications (RFQ) on

November 25, 2020

Release a Request for Proposal (RFP) that encourages new, thoughtful renewables integration

December 2021

Select a project option and award contract to developer

December 2022

And to facilitate this plan, today we are seeking authorization to develop a stipend program

NJ TRANSIT The Way To Go.

Hire a renewables energy consultant

In progress

- Hire a consultant to review the renewables elements of the NJ TRANSITGRID project
- Will assist in maximizing renewables scope of project
- Will conduct a review of recent utility scale renewables and storage projects of similar capabilities
- Support NJ TRANSIT in evaluating renewables team experience in response to the Request for Qualifications
- Assist NJ TRANSIT in drafting the Request for Proposals where renewables energy generation alternative designs will be required to be submitted by potential developers, to the extent technically feasible

Host a Microgrid Market Outreach event

October 2020

- Hosting a Microgrid Market Outreach event will encourage developers to rethink plans and add substantial renewables team support, consistent with the RFQ
- The event will review the project's renewables energy strategy, allowing time for potential bidders to form a renewables team
- Disadvantaged business enterprise firms will be invited to this event to learn about opportunities to partner with developers
- NJ TRANSIT is planning separate outreach opportunities to solicit input and update the public

Release a Request for Qualifications (RFQ)

November 25, 2020

NJ TRANSIT plans to require:

- Experience in “at least 140 megawatts in renewables deployment”
- Experience with “long-duration energy storage projects greater than 5 megawatts,” including design, construction, and commissioning of alternative energy technologies/ generation of power, *e.g.*, solar, storage

NJ TRANSIT is utilizing a two-step competitive process to procure design / build / finance / operation / maintenance services

Step One: Prequalification of up to 4 respondents through the RFQ process ensures respondents have the necessary qualifications and experience. Qualified respondents will be invited to proceed to the next step

Release a Request for Proposal (RFP) that encourages new, thoughtful renewables integration

December 2021

- Request for Proposals (RFPs) is **Step Two** in the two-step competitive process to procure design / build / finance / operation / maintenance services
- **Qualified proposers will be invited to submit comprehensive technical proposals** outlining their plans for a long-term contractual agreement
- The RFP is anticipated to require bidders to submit alternative clean energy options, including a 100% renewables option, to the extent technically feasible

Select a project option and award contract to developer

December 2022

- Begin construction on a resilient and sustainable microgrid that will support 4,200 good-paying jobs and propel New Jersey's energy economy
- Creating a reliable transit system for all
- Ensuring all federal dollars secured are expended

Proposed Board Action:

Demonstrate commitment to process and encourage innovation through design stipends

A stipend program should result in innovative ideas that challenge the marketplace

- A stipend value of $1 million will be assigned to all eligible submissions
- The total anticipated value of the stipend program will not exceed $3 million

The stipend program will:

- Solicit the best possible technical design and construction solutions from industry experts
- Increase market competition and retain participant interest
- Demonstrate NJ TRANSIT's commitment to building the project
- Purchase intellectual property included in the proposal (including designs, architectural drawings, and other concepts)

FOR MORE INFORMATION VISIT WWW.NJTRANSITRESILIENCEPROGRAM.COM