Preface

The Federal Transit Administration (FTA) and New Jersey Transit Corporation (NJ TRANSIT) issued a Notice of Intent (NOI) to prepare a draft Environmental Impact Statement (DEIS) on January 7, 2016, for construction of a reliable electric power generation system (microgrid) for the NJ TRANSITGRID TRACTION POWER SYSTEM (proposed Project). The NOI provided a project overview, information on the Project scoping process and advertised the public meeting which was held on February 3, 2016, in Jersey City, New Jersey. The NOI also announced the availability of the *Draft Scoping Document* on the project website (http://njtransitresilienceprogram.com) and requested written comments to be sent to NJ TRANSIT by February 29, 2016.

Since the publication of the *Final Scoping Document* (also available on the project website) in May 2016, the engineering/design phase of the project has progressed, which has resulted in design progression for the proposed Project, as described below.

- **Power output requirements:** The Final Scoping Document stated that the proposed Project would include an approximate 104 megawatts (MW) natural gas-fired electric power generating plant and presented a general description of the Main Facility, indicating that the size and arrangement would depend in part on the selected power plant technology. After consideration of nine equipment and housing configurations during engineering concept validation, and power requirements for the proposed energized assets, it has been determined that the best design option is one that generates approximately 104MW to 140MW.
- **Plant type and Alternatives:** The *Final Scoping Document* stated that two engine technologies and two types of power plants would be evaluated, alone or in combination, as design options—reciprocating engine options (simple-cycle or combined-cycle) and gas turbine options (simple-cycle or combined cycle). As engineering studies progressed and the project details were refined, the design options for the microgrid were reduced from four (4) possible build scenarios, as discussed in the *Final Scoping Document*, to one (1) Build Alternative. The reciprocating engine options were not advanced because sufficiently sized equipment could not be sourced domestically, as required by Buy America (49 C.F.R. § 661 [2012]) requirements. Also, the simple-cycle gas turbine was not as fuel-efficient as the combined-cycle option. Therefore, only one Build Alternative utilizing gas turbines was evaluated in the DEIS. Additionally, the gas turbine option has been studied and refined to include five gas turbines and one steam turbine as the optimal configuration to most effectively meet NJ TRANSIT power generation needs. Two emergency "black start" reciprocating engines would also be included in the Build Alternative.
- **Electrical line installation:** As engineering design has progressed, the use of existing catenary structures was determined to be infeasible, and all connections would require new electrical lines. The preferred design option for new electrical lines is installation through a combination

of overhead lines, underground duct banks and attachment to existing transportation infrastructure along current rail right-of-way.

- **Routing of electrical lines:** The preliminary routing options presented in the *Final Scoping Document* were refined using information gathered during the design phase to better meet the purpose and need of the project and provide optimal connections between project elements while minimizing environmental impacts. The alternative electrical line routing through an existing Conrail tunnel has been screened from consideration. The proposed electrical line routes are detailed in Chapter 2, "Project Alternatives." The utility corridor from the Main Facility to a new Kearny Substation is highly congested with existing infrastructure; therefore, two route options (one preferred route option and one alternative route option) are under consideration, both of which are within property owned by NJ TRANSIT and are evaluated in the DEIS.
- **Connection to the southern portion of Hudson-Bergen Light Rail (HBLR):** Because of potential impacts to existing infrastructure and environmental impacts, the proposed Project would include two approximately 2MW natural gas-fired emergency generators (a "nanogrid") capable of producing the necessary power for the HBLR south loads. These would be installed on NJ TRANSIT-owned property at the HBLR Headquarters on Caven Point Avenue in Jersey City. Additional equipment to store energy to help smooth out the instantaneous load profile of the HBLR traction loads would also be required, in the form of batteries or flywheels.
- **Main Facility:** The proposed layout of the Main Facility has been re-configured to include five gas turbines, one steam turbine and two emergency "black start" reciprocating engines. The five gas turbines and two emergency "black start" reciprocating engines would be housed in outdoor enclosures rather than in one large Main Facility building. The smaller Main Facility building would house the steam turbine, control rooms, offices, maintenance facilities, etc. In addition, a 4-acre parcel of the Main Facility site would be utilized to construct a solar panel facility, generating approximately 0.6MW of clean energy.
- **HBLR:** New electrical lines along the HBLR route were not anticipated to be required at the time of publication of the *Final Scoping Document*, as only sections of the HBLR were anticipated to be energized by the microgrid. Since publication of the *Final Scoping Document*, engineering studies indicated the most feasible option (in terms of cost and efficiency) was to install new electrical lines along the entire corridor of the HBLR, within NJ TRANSIT's right-of-way, providing power to the entire 17-mile route of the HBLR.

Each of the above-mentioned project elements is described in detail in the NJ TRANSITGRID TRACTION POWER SYSTEM DEIS. Since publication of the *Final Scoping Document,* NJ TRANSIT has completed extensive engineering studies and concept validation reviews that included cost analysis and operating scenario studies, as well as the 20% engineering design of the project. The results of these engineering studies have better defined the proposed Project for review in accordance with the National Environmental Policy Act (NEPA) of 1969. The details of the proposed Project and the analysis of the potential environmental effects are presented in this DEIS.