**FEP Worksheet – NYSERDA Data Collection Data Definitions and Explanations**

**Consultant Name: [Consultant Name]**

**School District Name: [School district name], any district nicknames**

**Date of Data Input: [Date that this form was completed]**

**Version: If the inputs were edited based on a round of comments from NYSERDA or the district, please record the version of data and use Track Changes for us to easily identify where changes were made to the inputs**

***\*For all edits to values in cells, use Track Changes\****

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| CAPACITY DATA |  |
| Peak Demand (without CMS) - Unit: kW | This number should represent the average daily peak demand in kW if the district were to plug in their buses without using a charge management software (CMS). |
| Peak Demand (with CMS) - Unit: kW | This number should represent the average daily peak demand in kW if the district were to utilize CMS and reduce their peak usage. |
| Peak Demand (without CMS) - Unit: kVA | This number should represent the average daily peak demand in kVA if the district were to plug in their buses without using a CMS. This number is utilized by the utilities to determine service needs. This number is OPTIONAL |
| Peak Demand (with CMS) - Unit kVA | This number should represent the average daily peak demand in kVA if the district were to utilize CMS and reduce their peak usage. This number is utilized by the utilities to determine service needs. This number is OPTIONAL |
| % Reduction in Peak Demand | This number should reflect the % reduction in peak demand if the school district were to utilize CMS. |
| Current Capacity on Property (specify units) | This number should be the current electrical capacity on property, gathered during the site assessment, to determine how many buses could be supported without doing any utility or infrastructure upgrades. We expect this number in kVA, please specify if other units are used. |
| How many buses can be supported with current capacity? | This is based on the current capacity; how many buses could the district reasonably bring into their fleet, considering charger power ratings necessary to support the buses. These buses would likely be supporting the easiest routes, so the chargers should be some of the small ones being recommended. |

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| CURRENT FLEET INFORMATION |  |
| # of district owned buses | This should be the # of buses owned and operated by the school district themselves. |
| # of district leased buses | This should be the # of buses that the district leases but operates themselves. **NOTE: Leased buses do not qualify for NYSBIP funding.** If the district leases any buses, this should flagged for them in the report. |
| # of contracted buses | This should be the # of buses that are owned/operated by a bus contracting company that is under contract with the school district. For contracted buses, the bus contractor would be the one applying for NYSBIP vouchers because they purchase/own the vehicles. |
| # of contractors | # of bus contracting companies that have contracts with the district and are providing buses for student transportation. |
| Contractor Name(s) | List of bus contracting companies that have contracts with the district and are providing buses for student transportation. |
| # of buses stored indoors | # of buses in the current fleet that are stored indoors/inside a bus garage. |
| # of buses stored outdoors | # of buses in the current fleet that are stored outside/in a parking lot with no shelter. |

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| RECOMMENDED FLEET  (add more rows if necessary) | | # of Bus | Cost per bus |
| Total # of ESBs for Purchase (now-2035) | Total number of buses to be electrified (including spares) |  |  |
| Bus OEM, Bus Type, Battery Size #1 | *Ex: Microbird Type A 88 kWh* | *Ex: 6* | *Ex: $400,000* |
| Bus OEM, Bus Type, Battery Size #2 | Bus manufacturer, Type, and battery size | # of that specific bus | Cost per bus |

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| CHARGER DATA  (add more rows if necessary) | | # of Chargers | Cost per charger (hardware only) | # of ports per charger |
| # of Chargers in FEP | # of chargers being recommended for the full transition |  |  |  |
| Charger Power Rating #1 | *Ex: 24kW* | *Ex: 10* | *Ex: $20,000* | *Ex: 1 (single port)* |
| Charger Power Rating #2 | Charger size | # of that specific charger size | Price per charger | # of ports on each of these chargers |

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| PROJECT ADD-ONS | Yes/No |
| Solar Component | If this report included a task to study the impact of installing a solar array on vehicle charging, please put “Yes.” If not, please put “No.” |
| Battery Energy Storage Solution | If this report included a task to study the impact of installing a BESS to support vehicle charging, please put “Yes.” If not, please put “No.” |
| Fire Safety | If this report included a task to study the current fire safety equipment on property and recommend changes for the fully electrified fleet, please put “Yes.” If not, please put “No.” |
| Vehicle to Grid | If this report included a task to study the technology needed and/or the financial benefit of utilizing vehicle-to-grid or vehicle-to-building technology, please put “Yes.” If not, please put “No.” |

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| ROUTE INFORMATION |  |
| # of Feasible Routes (Cold Scenario) | This should be the # of routes that are feasible with today’s technology in the cold weather scenario. |
| # of Infeasible but expected to become feasible (Cold Scenario) | This should be the # of routes that are not feasible with today’s technology, but the **required battery sizes are equal to or under the threshold** of what we expect to become available before 2035 (600kW for Type C and D buses, 400kW for Type A buses). This number is based on the cold weather scenario. |
| # of infeasible with no anticipated ESB by 2035 (Cold Scenario) | This should be the # of routes that are not feasible with today’s technology and the required battery sizes are **above the threshold** of what we expect to become available before 2035 (600kW for Type C and D buses, 400kW for Type A buses). This number is based on the cold weather scenario. |
| % of routes feasible (Cold Scenario) | This should be the % of routes that are feasible with today’s technology in the cold weather scenario. |
| % of routes feasible (Temperate Scenario) | This should be the % of routes that are feasible with today’s technology in the temperate scenario. This number will allow us to compare what is possible on a typical day for the district with what is possible on a worst-case-scenario day |
| % of routes that require midday charging | This should be the % of routes that require midday charging based on the cold weather scenario. |
| % of extracurricular routes feasible with NO opportunity charging | This should be the % of the district’s extracurricular routes that are feasible with today’s technology WITHOUT opportunity charging, meaning the whole trip would need to be completed on one charge. This is intended to help us determine how important opportunity charging will be for the districts to successfully meet the mandate requirements. |
| Average standard daily route distance | This should be an average of all their daily route distances. This does not need to include extracurricular routes, just daily routes. |
| Standard deviation of daily route distance | This should be the standard deviation of all daily route distances. This does not include extracurricular routes, just daily routes. |

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| DEPOT INFORMATION |  | # of Buses |
| # of District Owned Depots | # of depots owned and operated by the district. |  |
| # of District Leased Depots | # of depots that the district leases but operates themselves |  |
| # of Contractor Owned Depots | # of depots owned/leased and operated by a bus contracting company. |  |
| Depot Address #1 | *Ex: 123 Main St New York, NY 11111* | *7* |
| Depot Address #2 (insert more rows if needed) | Depot street address | # of buses at this depot location |

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| Project Costs |  |
| Total Costs for Electrification Project | This # should reflect the total cost of the transition for the district (buses/chargers/customer side infrastructure/CMS costs/etc.) Please list what is included in this calculation so we have it on record. |
| Total Labor Costs for Charger Installation | This # would be labor costs for installing all the chargers for the full fleet. If this number was not included in the report, please write “N/A” or leave blank. |
| Differential TCO w/o Incentives | This should be the differential TCO between the business-as-usual diesel fleet and the fully electrified fleet. If TCO was not included in the report, please write “N/A” or leave blank. |
| Differential Bus Cost w/o incentives | This should be the differential cost of buses between the full business-as-usual diesel fleet and the fully electrified fleet. **This should be included in ALL reports moving forward.** |
| Utility Side Costs (if applicable) | This should be the total utility-side infrastructure costs for the full fleet. If utility-side costs were not included in cost estimates, please put “N/A” or leave it blank. |
| Customer Side Costs | This should be total customer-side infrastructure costs for the full fleet. **Customer-side cost estimates should be included in every report.** |
| Fire Protection Costs | If a task studying fire protection for the fleet was included in the report, this # should reflect the cost of fully installing the fire suppression system. If fire protection was not studied, please write “N/A” or leave this cell blank. |
| CMS Costs | This # should be the estimated cost of purchasing CMS for the full fleet. **This number should NOT include the annual fee associated with CMS.** CMS should be considered in every report. |
| Solar Costs | If this report included a task to study the impact of installing a solar array on vehicle charging, this # should reflect the hardware and installation cost estimates for the solar project. If solar was not included in this study, please write “N/A” or leave this cell blank. |
| V2G Costs | If this report included a task to study the technology needed and/or the financial benefit of utilizing vehicle-to-grid or vehicle-to-building technology, this # should reflect the cost of integrating this technology into the fleet. If V2G was not included in this study, please write “N/A” or leave this cell blank. |

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| ISSUES TO FLAG | Yes/No/Unknown |
| Multi-tiered Routes | If the district operates multi-tiered routes (meaning multiple routes with the same bus in the AM and/or PM). **This cell should NOT be unknown, this should be evident from the route analysis portion of the study.** |
| Substation Upgrades Required | If the utility provider has indicated that the new load from electrifying buses will exceed the current feeder capacity and will require substation upgrades, write “yes.” Otherwise, write “no.” **This cell should NOT be unknown, this should be evident from the utility coordination portion of the study.** |
| Site exceeds service limits, high tension service required | If the charging demand will exceed the site limit for the school districts utility provider (typically 2.5MW), then confirm with utility if high tension service would be required and write “yes.” Otherwise, write “no.” |
| Any routes that are not expected to be feasible by 2035? | If any routes have battery size requirements above our threshold of what we expect to become available before 2035 (600kWh for Type C and D, 400kWh for Type A). **This cell should NOT be unknown, this should be evident from the route analysis portion of the study.** |
| Parking lot constraints | If the parking lot is too small to accommodate charging/electrical infrastructure and the district will have to make changes to their parking lot in order to house their fully electrified fleet. **This cell should NOT be unknown, this should be evident from the conceptual site planning portion of the study.** |
| Maintenance facility or garage size restraints? | If the maintenance facility or bus garage are too small to house and/or service the electric buses once they are integrated into the fleet. **This cell should NOT be unknown, this should be evident from the conceptual site planning portion of the study.** |
| Easement Issues? | If the district has already begun working with the utility and it is clear that easements will be needed in order to get the necessary service, and the district will have difficulty procuring them, mark "yes.” If easements will not be difficult for the district to procure, mark “no.” If the district is not far enough along in their planning to know if this will be an issue, please mark “unknown.” |
| Will the district need opportunity charging? (BOCES routes, extracurricular routes, etc.) | If the district is using their buses to run BOCES routes, extracurricular routes, or any other routes and will require charging at their destinations in order to meet the routes needs. If marked “no,” this signifies that all BOCES and extracurricular routes can be completed on one charge without needing to charge in the middle. **If the district uses their own buses to run BOCES and extracurricular routes, this should not be “unknown” because these buses would be included in the fleet study.** |