

FirstEnergy
PROJECT CONTROLS
Revised: 04-01-2021

1. SERVICE CONTRACTS

As directed by Purchaser, Contractor shall prepare, maintain and furnish to Purchaser a Critical Path Method (CPM) Schedule of the Work to be performed including all Work performed by subcontractors. Contractor shall be responsible for ensuring that performance of the Work proceeds generally in accordance with the Project Schedule and for coordinating the schedules of any Subcontractors.

1.1 PROJECT SCHEDULE – CONTENT AND FORMAT

Contractor shall prepare the Project Schedule using the Primavera project management product (Version 6 or newer) or, if agreed to in advance by Purchaser, equivalent scheduling software. The Project Schedule is defined as consisting of an "Original Agreement Schedule" (baseline) acceptable to Purchaser and a Current Schedule that is updated by Contractor and compared to the baseline as the Work progresses. All Work, including Work to be performed by Subcontractors, shall be represented in the Project Schedule, in accordance with the following:

- a. The Project Schedule shall be based on and incorporate the milestones and completion dates (1) specified in the Request for Proposal/Purchase Order Documents, or (2) as mutually established.
- b. Contractor requests for deviations and/or changes to the Project Schedule shall be subject to Purchaser approval and shall not relieve Contractor from meeting any dates or milestones (1) defined by the Request for Proposal/Purchase Order Documents, or (2) as mutually established.
- c. All activities and milestones, including payment milestones shall be logic-driven and have a predecessor and successor relationship to identify total float for each activity.
- d. The Project Schedule shall not contain the following:
 - Unspecified constrained dates,
 - Logic ties and/or sequences deemed unreasonable by Purchaser,
 - Delayed starts or lags,
 - Other float suppression techniques.
- e. Activity descriptions shall be clear, concise, descriptive and unique to the function being performed.
- f. The Project Schedule shall be in sufficient detail to assure adequate planning and execution of the Work. For non-outage Work, activities will generally range in duration from three (3) to twenty-one (21) calendar days each. For outage Work, activities will generally range in duration from one (1) to twenty-one (21) shifts each. The relationships between all activities shall be clearly defined and logically tied in the Project Schedule.
- g. The Project Schedule shall be calendar time-scaled using days as the planning unit for non-outage Work and hours as the planning unit for all outage Work unless directed otherwise by Purchaser.
- h. Contractor shall identify the activities that constitute the controlling operations or critical path.
- i. Contractor shall utilize standard activity identification numbers, descriptions, and codes. Upon the request of Purchaser, Contractor shall incorporate into the Project Schedule activity codes to facilitate sorting, formatting, organizing and reporting of Project Schedule information.
- j. Contractor shall upon Purchaser's request incorporate specific milestones or activities into Contractor's schedule.
- k. Contractor shall clearly identify any activities (using coding) for which Contractor is not responsible that may have an impact on the Project Schedule.
- l. All schedule submittals and updates by Contractor to Purchaser shall include:
 - Bar chart report showing the early/actual start and finish dates, remaining duration, percent complete (based on actual Work completed not schedule duration), total float to the planned

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completion milestone, and schedule variance to the baseline early finish dates (for updates only),

- Digital copy of the complete Project Schedule submitted via e-mail, and
 - Tabular reports requested by Purchaser.
- m. All Contractor schedules shall be resource-loaded by craft, general foreman excluded.
- n. Purchaser uses Critical Path Method Scheduling during all planned outages. Contractors performing outage Work are required to participate in the CPM scheduling process as follows:
- Firm Price Agreements – Contractor's Project Schedule will be incorporated into Purchaser's Master Schedule. Contractor shall update that schedule either electronically or via a paper turn-around document to represent progress of the firm price Work.
 - Time and Material (T&M) Agreements – Purchaser will prepare and maintain a CPM Master Schedule, which will represent the T&M Work. Contractor shall provide input to adjust the activities and logic to represent the agreed upon approach for completing the Work. Contractor shall then use and update the CPM Master Schedule to represent progress of the T&M work.

1.2 INFORMATION TO BE SUBMITTED WITH PROPOSAL (as required in the Request for Proposal Document, and as requested by the Purchaser)

Contractor shall submit, as part of its Proposal, a bar chart schedule showing Contractor's plan to complete the Agreement Work in accordance with the following:

- Identify all milestones and completion dates specified in the Request for Proposal Documents
- Identify all major tasks and activities required to complete the entire scope of the Work
- Identify any long lead times required for permits or procurements
- Identify the critical activities required to meet the Agreement milestones
- Demonstrate a complete and clear understanding of the Work

Contractor shall submit, as part of its Proposal, a Project Schedule. Items to be completed and submitted with the Proposal include:

- Project description information in the header,
- Activity number,
- Activity description,
- Dollar value for each activity,
- Weighted percentage for each activity,
- Calendar dates for each week of scheduled work,
- Cumulative "Scheduled Percent Physically Complete (SPPC)" for each week of the Agreement schedule, and,
- Cumulative scheduled percent physically complete progress curve.

Contractor shall submit, as part of its Proposal, a Manpower Loading Form. Items to be completed and submitted with the Proposal include:

- Project description information in the header,
- Activity number
- Activity description
- Total man-hours for each activity,
- Calendar dates for each week of schedule work,
- The scheduled man-hour entry for each activity for each week of the activity will be in progress,
- The scheduled "Cumulative Total Man-Hours, Manual Workers,"
- The scheduled "Average Number of Manual Workers,"
- The scheduled "Cumulative Total Man-Hours, Supervision," and
- The scheduled "Shifts/Day and number of Hours/Shift," for each week of the Agreement schedule.

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In lieu of the Project Schedule and Manpower Loading Forms, Purchaser encourages Contractor to use the resource loading forms and reports generated by Contractor's scheduling software as approved in advance by Purchaser. Contractor will furnish Purchaser with a copy, digital and/or paper, of the resource loading forms and reports generated by Contractor's scheduling software.

1.3 INFORMATION TO BE SUBMITTED AT BID CLARIFICATION MEETING (as required in the Request for Proposal Documents, and as requested by the Purchaser)

Contractor shall be prepared to discuss the Project Schedule submitted with its Proposal and how it intends to submit a detailed Project Schedule after Agreement award. This discussion will include: major activity durations, constrained dates and float.

Contractor will give evidence as applicable of the coordination of construction and erection for all systems and equipment, including: procurement, shipment, installation, component testing, cleaning, and pre-operation testing, start-up and Agreement completion.

Contractor shall submit a listing of "need dates" for all items (component by component) and services not furnished by Contractor and required to complete the Work. Such "need dates" shall be compatible with the salient dates of Contractor's construction schedule.

1.4 INFORMATION TO BE SUBMITTED AFTER AWARD/NOTICE TO PROCEED (as required in the Request for Proposal Documents, and as requested by the Purchaser)

Contractor shall submit a detailed CPM Project Schedule, which represents a realistic plan for completion of the Work, for review by Purchaser no later than fifteen (15) days after award or notice to proceed. Contractor shall address Purchaser comments within fifteen (15) days following receipt of such comments and resubmit this "Original Agreement Schedule" to Purchaser. This "Original Agreement Schedule" will become the Project baseline schedule against which future schedule updates will be monitored.

Contractor shall resubmit to Purchaser for review the Project Schedule. Contractor shall address Purchaser comments within fifteen (15) days following receipt of such comments and resubmit Project Schedule to Purchaser.

Contractor shall resubmit to Purchaser for review a Manpower Loading Form. Contractor shall address Purchaser comments within fifteen (15) days following receipt of such comments and resubmit this document to Purchaser.

In lieu of the Project Schedule and Manpower Loading Forms, Purchaser encourages Contractor to use reports generated by Contractor's scheduling software as approved in advance by Purchaser.

1.5 REPORTING REQUIREMENTS

As directed by Purchaser, Contractor shall provide the following Reports on a weekly basis:

- Contractor Weekly Field Report (CWFR); including the following:
 - Project Summary Report,
 - Project Lump Sum Invoicing,
 - Cost Tracking Forms for Time and Material Work or for Extra Work.
- Project Schedule;
- Manpower Loading;
- Scheduled vs. Actual Progress Curves Form

The Contractor Weekly Field Report shall be signed by both Purchaser's and Contractor's on-site representative. The Reports shall be the basis for any progress payments throughout the duration of the Agreement. Reports must be supplied by 12:00 noon on Monday of each week.

Contractor shall submit at the beginning of each working day the Daily Force Report Form, Form X-3993. The number of Contractor's employees, including employees of subcontractors shall be listed for each shift during that day. Contractor shall maintain and submit separate Daily Force Report Forms for each Purchase Order and/or firm price job.

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Contractor shall provide Purchaser a CPM progress update on a weekly (or as requested by Purchaser) basis for non-outage Work and a daily basis for outage Work. This update shall include a bar chart showing both the planned and actual activity dates and durations and shall be in accordance with the requirements of **PROJECT SCHEDULE – CONTENT AND FORMAT** Section detailed above.

2. MATERIAL / EQUIPMENT CONTRACTS

Contractor shall prepare and furnish Purchaser, within 30 days of award or issuance of a Purchase Order, a Production Schedule showing a breakdown of all required elements of material and the planned dates when such elements will be properly prepared and ready for shipment. In the preparation of this schedule, Contractor shall give consideration to the order in which the elements of material shall be needed for the convenient and expeditious erection by others to complete the Project. Contractor shall adhere to the aforesaid schedule in making the shipments. Contractor shall expedite the deliveries of material as required to maintain the overall progress of the entire Project. Contractor shall bear all expenses of such expediting as well as the expense of overtime required at the suppliers' shops in order to maintain the schedule of critical items.

Contractor shall furnish to Purchaser weekly updates to the Production Schedule noting any changes with regard to manufacturing progress and shipping schedules. At Purchaser's request, this may include copies of un-priced Purchase Orders for all material supplied.

Accurate reporting and measurement of Project (includes engineering, procurement, fabrication and erection) performance is of utmost importance to Purchasers. Failure by Contractor to provide proper schedules, reports, schedule updates, or other project control data, as required herein, may result in Purchaser(s) withholding a portion or all of Contractor's invoice payments.