**PROJECT CONTROLS AND REPORTING REQUIREMENTS**

1. DEFINITIONS and terminology
	1. **Definitions**

In addition to terms defined elsewhere in the Contract, the definitions in this section 1.1 are applicable to these Project Controls and Reporting Requirements (“**PCRRs**”). To the extent of a conflict between a term defined in both the Contract and these PCRRs, the definition provided in the Contract shall prevail.

“**Business Day**” means a day other than a Saturday, Sunday, or a statutory holiday in the Province of Ontario.

“**Close-out Report**” has the meaning set out in section 8.1.1 of these PCRRs.

“**Commencement Date**” means the date on which Supplier is required to commence the Work on the date set out in the Contract Documents.

“**Contract**” means each undertaking by the parties to perform their respective duties, responsibilities, and obligations in respect of the Work as prescribed in a purchase order. This includes any underlying legal terms and conditions, and any other documents referenced therein as forming part of the Contract.

“**Cost, Progress & Person-Hours Baseline**” has the meaning set out in section 3.1.1 of these PCRRs.

“**CPI**” means, for the Work performed during a period, the ratio determined by dividing the Earned Value by the Incurred Costs in respect of such Work during such period of time. Similarly, “Cumulative CPI” refers to the ratio determined by dividing the Earned Value to date by the Incurred Costs to date in respect of such Work.

“**Critical Path Activities**” means the longest logically tied sequence of activities that have zero (0) days of float for completion.

“**Current Schedule**” means Supplier’s most up-to-date working schedule, including changes in the Work pursuant to the Contract, originally prepared by Supplier in accordance with section 4.2 (baseline) and updated as per section 4.3 of these PCRRs.

“**Current Schedule Report**” has the meaning set out in section 4.3 of these PCRRs.

“**Date Constraints**” means any limitation placed on the Work Schedule that overrides schedule logic, including:

* + - 1. “start-no-earlier than” (SNET).
			2. “finish-no-earlier-than” (FNET);
			3. “start-no-later-than” (SNLT);
			4. “finish-no-later-than” (FNLT);
			5. “must-start-on” (MSON); and
			6. “must-finish-on” (MFON).

“**Deliverables**” means any item to be generated, furnished or otherwise delivered or provided by the Supplier to Bruce Power as part of the Work.

“**Earned Value**” means the value of the Work performed during the period of time commencing from the Commencement Date in accordance with the Work Breakdown Structure and cost breakdown structure and is equal to:

* + - 1. in the case of fixed price Work, the percentage of the such Work performed during such period of time multiplied by the Contract fixed price;
			2. in the case of time and material Work – target cost, the percentage of such Work performed during such period of time multiplied by the sum of the Contract target cost plus the Contract target cost fee; and
			3. in the case of time and material Work – reimbursable, the percentage of such Work performed during such period of time multiplied by the Contract estimated reimbursable value.

“**Effective Date**” means the effective date first set out in the relevant purchase order.

“**Expected Finish Constraint**” means a limitation of the Work Schedule that prevents any change to the end date of an activity in the Work Schedule.

“**Incurred Costs**” means cost for which services are rendered, physical work has been accomplished, materials have been delivered, equipment is under fabrication yet to be invoiced, also known as Value of Work Done (VOWD).

“**Key Work Milestones**” means the major milestones for the performance of the Work, and associated payment dates, as set out in the Contract, and as may be adjusted in accordance with the Contract.

“**Level 3 Schedule**” means a Work Schedule that identifies all Key Work Milestones and clearly defines and identifies all Critical Path Activities and Near-Critical Path Activities and which defines each activity in a time scale of one (1) week to a maximum of one (1) month (indicative).

“**Level of Effort Activities**” means the portion of the Work for which progress cannot be determined by measuring physical percent complete of discrete or measurable portions of the Work performed, and for which all costs or person-hours attributable to such portions of the Work are deemed to be indirect costs or indirect person-hours. Level of Effort Activities include supervision, construction management, document control, quality assurance and project controls and reporting.

“**Native Format**” means the default file format that the application software uses to create or save files.

“**Near-Critical Path Activities**” means activities in a logical sequence that have less than fifteen (15) days of float for completion and, if delayed by more than the number of days of float, may result in such activities becoming Critical Path Activities.

“**OPEX**” means project management, construction and operating experience provided by Bruce Power or that is, or has, been collected during the performance of the Work or work for third parties.

“**Planned Value**” means the portion of the Contract estimated reimbursable value applicable to the Work planned to be spent on the performance of such work during the period of time commencing from the Commencement Date in accordance with the Work Breakdown Structure and cost breakdown structure.

“**Progress Reporting**” has the meaning set out in section 6.4 of these PCRRs.

“**P6**” means Oracle Primavera P6 R15.1 scheduling software, or such other scheduling software accepted by Bruce Power.

“**Required Practices**” means the standard of care, skill and diligence that would be provided by a qualified, prudent, and independent person with significant knowledge and experience in providing services and work similar to that required by the Contract.

“**SPI**” means in respect of a period of time, the ratio determined by dividing the Earned Value applicable to such Work by the Planned Value applicable to such Work.

“**Substantial Completion**” means the Work has met the threshold of substantial completion under the Agreement.

“**Supplier**” means the counterparty to the Contract with Bruce Power.

“**Total Completion**” means the Work has met the threshold of total completion under the Agreement.

“**Work**” means the supply of goods and services to be provided by the Supplier under the Contract, including all Deliverables and the provision of all supervision, labour, supplier equipment and all other things necessary to complete the work to be performed by Supplier as set out in, required by, reasonably inferable from or described in the Contract.

“**Work Breakdown Structure**” is a hierarchical decomposition of scope of work (project or contract) in manageable components referred to as “deliverable” or “work package” to accomplish the objective of scope of work execution.

“**Work Schedule**” means the schedule, developed, and prepared by Supplier in accordance with the applicable requirements of the Contract, and reviewed and accepted by Bruce Power.

1. Work Breakdown Structure
	* 1. The scope of the Work shall be planned, to the extent practical, around an engineering, procurement, construction, management (EPCM) phase execution model, each as applicable, where construction (or C) refers to the fabrication/assembly phase.
2. Payment Milestones
	1. **Cost, Progress and Person-Hours Baseline**
		1. Supplier shall prepare and deliver the cost, progress and person hours at each Key Work Milestone (the “**Cost, Progress & Person-Hours Baseline**”) to Bruce Power within five (5) Business Days of the Effective Date.
		2. The Cost, Progress and Person-Hours Baseline shall be prepared by the Supplier and shall include the relevant information in the template cost and person-hours baseline as set out in Exhibit 1 to these PCRRs, and shall be reviewed and accepted by Bruce Power.
		3. Each planned Key Work Milestone payment shall have an associated cumulative planned person-hours and a cumulative percent physical progress.
		4. All Key Work Milestone shall be tied to the attainment of key work deliverables or the completion of measurable quantities and/or schedule activities that can be easily verified.
3. Schedule Development
	1. **Systems & Tools**
		1. Bruce Power’s preference is for schedule development using the Primavera P6 Rev 18.8 or older scheduling software. Alternative compatible scheduling software should have the capability to export to an **.XER** (for P6 users) and .**XLS** (for Microsoft Project or other scheduling software users) Native Format for import into P6. Scheduling software shall be used to:
			1. develop and maintain the Work Schedule;
			2. develop and maintain the Current Schedule; and
			3. track all deviations from the Work Schedule.
		2. In addition to the requirements of the Contract, Supplier shall comply with Required Practices and OPEX to develop the Work Schedule and develop and maintain the Current Schedule.
	2. **Work Schedule**
		1. The Work Schedule (schedule baseline) shall be a Level 3 Schedule as described by AACEI RP37R-06, accepted by Bruce Power and shall comprise:
			1. identification of all Key Work Milestones payment milestones;
			2. identification of all interface points between the Supplier and Bruce Power or a third party;
			3. identification of all Critical Path Activities and Near-Critical Path Activities:
			4. all activities, including Level of Effort Activities, provided that Level of Effort Activities are coded to ensure that the logic of the CPI and SPI calculation of the activities that result in Deliverables is not impacted by these Level of Effort Activities;
			5. the review period of each document and its start date and completion date; and
			6. such other detail as is customary in the circumstances to ensure Supplier is able to manage and monitor the Work Schedule in accordance with the Contract and as is otherwise required in accordance with Required Practices.
		2. The Work Schedule shall:
			1. not include any Date Constraints, provided that the Work Schedule may include mandatory finish dates and completion dates; and
			2. otherwise comply with the requirements of the Contract.
		3. Supplier shall:
			1. store a copy of the Work Schedule **.XER** (for P6 users) and .**XLS** (for Microsoft Project or other scheduling software users) Native Format and;
			2. five (5) Business Days after Bruce Power’s acceptance of the Work Schedule, submit a copy of such Work Schedule to Bruce Power by electronic file transfer in **.XER** (for P6 users) and .**XLS** (for Microsoft Project or other scheduling software users) Native Format.
	3. **Current Schedule**
		1. Supplier shall submit to Bruce Power a Current Schedule report which satisfies the requirements of this section 4.3 (“**Current Schedule Report**”) in accordance with the reporting schedule set out in section 7.0 to these PCRRs.
		2. If applicable, Supplier shall reflect any recovery plan in the Current Schedule, shown in comparison to the Work Schedule.
		3. Supplier shall not apply an Expected Finish Constraint to any activity in the Work Schedule that has not begun.
		4. The Current Schedule Report shall include a Current Schedule in **.XER** (for P6 users) and .**XLS** (for Microsoft Project or other scheduling software users) Native Format and shall include the following information:
			1. in respect of all activities:
4. physical percent complete;
5. baseline start date and baseline completion date;
6. actual start date and actual completion date;
7. remaining duration; and
8. current or forecast start date and completion date;
	* + 1. delineation of Critical Path Activities and Near-Critical Path Activities within fifteen (15) days of float;
			2. total float of all unfinished or pending activities;
			3. Gantt chart presentation of activities, including Critical Path Activities; and
			4. any other information requested by Bruce Power acting reasonably.

The Current Schedule Report shall include a proper title box, revision box and legend box located at the bottom of the Current Schedule Report. The Gantt chart shall clearly identify the currency date of the data included therein.

* + 1. Each activity in the Current Schedule Report shall comply with the following parameters:
			1. in the case of an activity that does not have an identified actual start date, the physical percent complete must be 0%;
			2. in the case of an activity that has an actual start date but is not complete, the physical percent complete must be greater than 0% but less than 100%; and
			3. in the case of an activity that is complete and has an actual completion date, the physical percent complete must be 100%.
1. PROJECT CONTROLS REPORTING AND PROGRESS MEETINGS
	1. **Progress Meeting Attendance**
		1. Supplier shall attend progress meetings at the times and places to be agreed upon by the Parties from time to time, acting reasonably. Such requirement shall be in addition to any other meetings which Supplier may be required to attend pursuant to the provisions of the Contract.
2. Progress reporting & PERFORMANCE METRICS
	1. Supplier shall submit its progress measurement procedure within fifteen (15) Business Days of contract award for Bruce Power acceptance. The procedure shall include the progress measurement methodology and the means by which Supplier shall report on physical percent complete for each of the listed deliverables and payment milestones.
	2. The overall progress measurement shall be based on direct discipline execution hours only. Supplier shall not include in the overall progress measurement any level of effort for indirect person-hours in progress calculation or progress tracking reporting.
	3. Earned Value Reporting shall exclude the impact of Level of Effort Activities (i.e. earned person-hours exclude indirect person hours).
	4. “**Progress Reporting**” shall comprise the following information, as applicable:
* Cumulative Physical % Complete;
* Baseline Compliance Index (BCI) = (# of baseline activities completed) / (# of baseline schedule activities planned for completion);
* Estimated Value of Cancellation Costs;
* Cumulative Person-Hours expended.

See Exhibit 2 and 3 for reporting templates.

1. WORK REPORTING REQUIREMENTS
	1. **Monthly Reporting Requirements**
		1. Supplier shall prepare and deliver to Bruce Power the following monthly reports as per EXHIBIT 1 - Reporting Requirements
			1. Current Schedule Report;
			2. a two (2) week and four (4) week look-ahead schedule;
			3. Critical Path and Near-Critical Path analysis;
			4. general safety statistics for the location(s) where the Work is performed by the Supplier and any subcontractors;
			5. Supplier’s project manager’s statement as to the status of the Work including areas of concern;
			6. Progress Reporting (section 6.4)
			7. updated risk register;
			8. the estimated value of cancellation costs, as per contractual terms and conditions, as of the end of each reporting period (see section 6.4);
			9. summary of initial purchase order value, approved changes, pending changes in tabular format;
			10. change log summary of all approved schedule baseline changes;
			11. a summary of all non-conformance reports issued by Supplier or its subcontractors under their respective Quality Program; and

such other information as identified in the Contract as being required to be included in the monthly reports.

* + 1. Supplier shall deliver the reports described in section 7.0 of these PCRRs to Bruce as per EXHIBIT 1 - Reporting Timelines.
	1. **Bi-Weekly Reporting**
		1. Supplier shall prepare and deliver to Bruce Power the following information in accordance with EXHIBIT 1 – Reporting Timelines:
			1. a Current Schedule;
			2. in respect of each activity in the Current Schedule:

physical percent complete

actual start dates and actual completion dates; and

remaining duration;

* + - 1. summary of any changes to Critical Path Activities with explanation;
			2. identification of any activities with negative float with explanation; and
			3. such other information as identified in the Contract as being required to be included in the bi-weekly reports.
		1. The reports described in sections 7.2 of these PCRRs shall be current to the last Business Day of the two week period to which such reports pertain.
1. PROJECT CONTROLS CLOSE-OUT
	1. **Project Close-Out Deliverables and Reports**
		1. Prior to Total Completion, Supplier shall submit to Bruce Power a close-out report (the “**Close-out Report**”). The Close-out Report shall include the following (in each case current to Substantial Completion):
			1. a description of all major changes in the Work against the original scope of the Work, the original Work Schedule and the original purchase order value;
			2. lessons learned associated with the changes in the Work;
			3. an actualized Current Schedule with progress or percent complete of each deliverables and milestone progress
			4. a copy of all change registers/logs, all unapproved and approved purchase order change requests and change directives; and
			5. a copy of Supplier’s risk register comprising all recorded and processed risks.
		2. Each component of the Close-out Report shall be submitted to Bruce Power by electronic file transfer in Native Format and PDF form.

**EXHIBIT 1**

**Reporting Timelines**



**EXHIBIT 2**

**Fixed Price Contract/PO, Monthly Progress and Milestone Payment Tracking Template**



**EXHIBIT 3**

**Time & Material Monthly Incurred Cost, Forecasting and Invoice Submission Reporting Template**



**EXHIBIT 4**

**Time Phased Spend and Forecast Profile**

