UNDERTAKING J15.4

Undertaking

To provide the terms of reference for the Asset Investment Screening Committee, both the earlier version of the Terms of Reference and the updated one.

Response

The terms of reference for the Asset Investment Screening Committee (AISC) currently in effect is provided in Attachment 1 to this response.

The AISC terms of reference in effect during the prior hearing (EB-2013-0321) was set out in an Appendix A- Business Unit Project Decision Committees to N-PROC-AS-0039, also attached to this response as Attachment 2.

ONTARIO POWER GENERATION

Guideline

Internal Use Only	
Document Number: N-GUID-00120-10016	Usage Classification: Information
Sheet Number: N/A	Revision: R000

Title:
TERMS OF REFERENCE - ASSET INVESTMENT SCREENING COMMITTEE

Terms of Reference - Asset Investment Screening Committee

N-GUID-00120-10016-R000
2016-04-19

Order Number: N/A
Other Reference Number:

Internal Use Only

Prepared By:

19 Apr 16
Dwight Zerkee — Date
Senior Manager
Investment Management

Approved By:

25APR2016
W.S. Woods — Date
Senior Vice-President - Nuclear Engineering
& Chief Nuclear Engineer

Guideline

Internal Use Only		
Document Number: N-GUID-00120-10016		Usage Classification: Information
Sheet Number: N/A	Revision Number: R000	Page: 2 of 10

Title:
TERMS OF REFERENCE - ASSET INVESTMENT SCREENING COMMITTEE

Table of Contents

Guideline	Internal Use Only		
	Document Number: N-GUID-00120-10016		Usage Classification: Information
	Sheet Number: N/A	Revision Number: R000	Page: 3 of 10

Title:
TERMS OF REFERENCE - ASSET INVESTMENT SCREENING COMMITTEE

Revision Summary

Revision Number	Date	Comments
R000	2016-04-19	Initial issue.

Guideline	Internal Use Only		
	Document Number: N-GUID-00120-10016		Usage Classification: Information
	Sheet Number: N/A	Revision Number: R000	Page: 4 of 10

Title:
TERMS OF REFERENCE - ASSET INVESTMENT SCREENING COMMITTEE

Purpose

This document provides the terms of reference for the Asset Investment Screening Committee, which assists the Chief Nuclear Engineer in managing the *Nuclear Operations OM&A, Capital, Intermediate & Low Level Waste Provision, and Used Fuel Storage Provision Project Portfolios.* The process for review and approval of individual projects and changes to the portfolios is described. Adherence to this procedure shall ensure expenditures are validated with respect to business objectives, *project* priority ranking and feasibility of success.

This procedure does not apply to Darlington Refurbishment *project portfolios*

1.0 DIRECTION

The management of the *Nuclear Operations OM&A, Capital, Intermediate & Low Level Waste Provision, and Used Fuel Storage Provision Project Portfolios* at the fleet level is the responsibility of the President, OPG Nuclear and Chief Nuclear Officer (CNO), who has delegated day-to-day management to the Chief Nuclear Engineer (CNE).

The CNE relies on the assistance the Asset Investment Screening Committee (AISC) in decision making as related to the *Nuclear Operations Project Portfolios.*

The *Asset Investment Screening Committee* (AISC) is a senior management committee with representation from the generating stations and supporting business units. The AISC provides a forum to review the project approval packages and project change approval requests in order to:

- Challenge the proposed solution and feasibility.
- Challenge the proposed cost and schedule of the proposal.
- Challenge readiness to proceed to the next project phase.
- Determine the overall fleet priority and schedule for proposals.
- Approve a recommended schedule for investments.
- Recommend approval of business cases to the appropriate approval authority.

In conducting challenges to project solutions, feasibility, cost, schedule and readiness to proceed, the committee fulfills the role of Gate Review Board as documented in N-MAN-00120-10001 Sheet GRB Nuclear Project Gated Process.

The AISC manages the *Nuclear Operations Project Portfolios* through:

- Approval of additions, including new project starts and emergent projects, for the upcoming business planning period.
- Approval of requested changes in project budgets and milestones.
- Approval of release of project contingency.
- Recommendation of project deferrals and cancellations to maintain spending within approved limits.
- Monitoring the completion of Project Closure Reports and Post-Implementation Reviews.
- Recommendation of improvements to the Project Portfolio management and processes.

Collectively, this committee shall provide the senior management review of business risk to the fleet and prioritize the project portfolio to minimize that risk.

1.1 Structure and Membership

The Senior Management sponsor for the AISC is the President, OPG Nuclear and Chief Nuclear Officer (CNO). The Senior Management representative and Chair of the committee is the Chief Nuclear Engineer (CNE). The committee membership is:

- CNE (VF)
- Vice President, Nuclear Finance (V)
- Vice President, Engineering Strategy (V)
- Vice President, Projects and Modifications (V)
- Vice President, Planning & Controls (V)
- Director Station Engineering, Pickering (V)
- Director Station Engineering, Darlington (V)
- Director Design Engineering (V)
- Director Engineering. Inspection and Maintenance Services (V)
- Director, Nuclear Waste Engineering (V)
- Director, Components Engineering (V)
- Director, Equipment Reliability (V)
- Senior Manager, Investment Management

(V) Indicates a voting member of the committee

(VF) Indicates a voting member and final decision making authority

Representatives from other organizations may be invited to participate in AISC meetings in order to address Project Portfolio additions pertinent to their organization or provide advice as needed.

1.2 Quorum

Quorum for the committee is 10 of 12 voting members or delegates being present. Delegates should be at the Band G level or if at a lower level empowered to make decisions on behalf of the representing organization. The voting committee members shall review the proposed project approval packages and recommend to the Chair the disposition of the business case (approve, approve with actions, defer or return for further development).

1.3 Meeting Frequency

Routine AISC meetings are held monthly and will be scheduled for at least three hours in duration. Additional meetings may be scheduled to address issues or higher numbers of BCS than can be handled in the regularly scheduled meetings.

A tentative schedule of meetings for the year will be published on the AISC SharePoint site. Meeting dates will be finalized three months before their scheduled dates; however, these are subject to change depending on CNE availability.

1.4 Agenda and Meeting Materials

The agenda for the routine AISC meetings will follow a standard format:

- Review of Minutes and Actions from previous meeting
- Review of AISC Operational & Financial Metrics
- Review of Project Change Requests
- Review of Project Approval Packages
- Any other business

Additionally, selected Post-Implementation Reviews will be presented to communicate important lessons-learned from completed projects.

An example of the standard agenda is found in Appendix A.

The agenda will be prepared and published on the AISC SharePoint site no later than the Friday preceding the scheduled date of the meeting. An email with a link to the SharePoint site will be sent to the Voting Members to notify them that the agenda has been published.

Meeting materials are to be submitted to Investment Management no later than Noon of the Wednesday preceding the scheduled date of the meeting.

1.5 Outputs and Deliverables

The AISC shall provide the following outputs and deliverables:

- Recommend approval of the BCS to the appropriate OAR authority. This recommendation is communicated by the CNE signing the AISC Part B: Decision Record N-FORM-10994 accompanying the BCS.
- Prioritize the OPG Nuclear Operations Project Portfolio consistent with the additions and budgetary envelope over a rolling 5 year period
- Assign the portfolio additions to the accountable execution organization
- Approve an implementation schedule for the proposal
- Approve Project Change Requests requesting changes in budget, schedule or release of contingency.

- Maintain minutes of meeting that describe the rationale of why a particular proposal was approved, approved with action(s), rejected, deferred, or returned for further development
- Provide feedback to the submitting organizations to allow continuous improvement on the quality of their submissions
- Recommend improvements to the Project Portfolio management and processes.

1.6 Dispute Resolution

If the Sponsoring Business Unit disputes the decision made by the AISC, the Business Unit may request a review by the CNO. Upon review of rationale for the decision, the CNO may overturn a decision made by the AISC by directing the CNE in writing to accept or modify the priority/schedule of the proposal including the rationale for the reversal of the decision.

2.0 DEFINITIONS AND ACRONYMS

2.1 Definitions

Business Case Summary is a summary document that provides sufficient information for decision-makers to evaluate, rank and approve or reject an investment.

Nuclear Operations Project Portfolio describes a collection of OM&A, Capital, and Provision projects that have been approved for implementation by the AISC as well as potential projects under review for cost estimating and approval. Selection criteria include consideration of current business drivers, priority, availability of resources and feasibility (in terms of time, skills and access).

Project is defined as a temporary endeavor undertaken to create a unique product or service where,

- Incremental cost per unit is greater than $200k.
- Execution duration is limited, with defined start and finish dates.
- Work is clearly incremental to ongoing work, non-repetitive in nature, recurring at an interval of less than every 6 years.
- Sponsorship and management accountabilities can be clearly defined.

Project Approval Package is defined as a collection of documents, including the Business Case Summary, which provides assurance that the project is ready to proceed to the next project phase.

2.2 Abbreviations and Acronyms

AISC - Asset Investment Screening Committee
BCS - Business Case Summary
CNE - Chief Nuclear Engineer
CNO - Chief Nuclear Officer

OAR - Organizational Authority Register
OM&A - Operation, Maintenance and Administration
OPG - Ontario Power Generation
SVP - Senior Vice President
VP - Vice President

3.0 RECORDS AND REFERENCES

3.1 Records

Record Created	Associated Form Number	QA Record? Y/N	Filing Information/Retention (PASSPORT Type/Sub-Type)
AISC Part A: Issues Characterization	N-FORM-10765	No	RRA 2005006
AISC Part B: Decision Record	N-FORM-10994	No	RRA 2005006
Project Change Request Authorization	N-FORM-10607	No	RRA 2005006
Type 1 Business Case Summary	OPG-FORM-0074	No	RRA 2005006
Type 2 Business Case Summary	OPG-FORM-0075	No	RRA 2005006
Type 3 Business Case Summary	OPG-FORM-0076	No	RRA 2005006
Forecast Over-Variance Approval	OPG-FORM-0074	No	RRA 2005006

3.2 References

3.2.1 Performance References

- N-STD-AS-0028 Project Management Standard
- N-MAN-00120-10001 Sheet GRB Nuclear Projects Gated Process
- OPG-STD-0076 Developing and Documenting Business Cases

3.2.2 Developmental References

Project Prioritization for Nuclear Plant Investments: Lessons Learned from Other Industries. EPRI, Palo Alto, CA: 2008. 1016733

Appendix A: Sample AISC Agenda

ASSET INVESTMENT SCREENING COMMITTEE			
CHAIR	CNE		
ATTENDEES	VP Engineering Strategy Director , PN Engineering Director, DN Engineering	VP Nuclear Finance Director IMS Engineering Director NWM Engineering	VP Projects & Modifications Director Components Eng Director Design Engineering
	Director Equipment Reliability	Senior Manager, Investment Management	
PURPOSE	To review the Nuclear Project Portfolio status and requested changes.		

AGENDA

Item	Topic	Duration	Lead
1.	**Review of Minutes and Actions**		CNE
2.	**AISC Operational & Financial Metrics** **a) Portfolio Health** **b) Portfolio Status** **c) PCRAF Summary**		Finance
3.	**PCRAF Review**		Finance
4.	**Project Approval Package Review**		
	DN Project		Director DN Eng
	DN Project		Director DN Eng
	PN Project		Director PN Eng
	PN Project		Director PN Eng
	Nuclear Engineering Project		VP Components Eng
	IMS Project		Director IMS Eng
5.	Any Other Business		Finance
6.	Review New Actions		Finance

DURATION	3.0 hours	TBD	08:00 – 11:00
LOCATION			

ONTARIO POWER GENERATION

Internal Use Only		
Document Number: N-PROC-AS-0039		Revision: R011
Usage Classification: Information	Sheet Number: N/A	Page: 1 of 53

Nuclear **Procedure**

TITLE

PROJECT AND PORTFOLIO MANAGEMENT

AUTHORIZATION

SINGLE POINT OF CONTACT:	R. Habib Director, Projects and Modifications
AUTHORIZATION AUTHORITY:	M. Peckham Vice President, Projects and Modifications
COMPLIANCE DATE:	Immediate

PURPOSE

The procedure provides direction for Project and Funding Release Management to the Project Sponsor and Project Manager to define the problem, and plan and execute the resolution using project management (PM) principles.

This procedure also provides direction to the Project Manager regarding PM activities which include interfacing Business Processes within the Project Life Cycle, their deliverables, and important work sequence hand-offs.

Project Funding is allocated from:

- The Nuclear Portfolio for use by Projects & Modifications (P&M) and Inspection, Maintenance & Commercial Services (IM&CS).
- Provision for use by Nuclear Waste Management Division (NWMD).
- Nuclear Refurbishment (NR) Program for use on Nuclear Refurbishment Projects.

This procedure receives its authority from N-PROG-AS-0007, Project Management.

Nuclear Procedure

Internal Use Only		
Document Number: N-PROC-AS-0039		Revision: R011
Usage Classification: Information	Sheet Number: N/A	Page: 2 of 53

Title:
PROJECT AND PORTFOLIO MANAGEMENT

EXCEPTIONS

When this procedure specifically describes steps for Portfolio funded projects, NWMD is exempt from those steps.
When this procedure specifically describes steps for NWMD, the other organizations noted in this procedure are exempt from those steps.
Projects transferred from NR for execution by P&M may have applicable exceptions as outlined in Section 1.4.

Table of Contents

1.0 DIRECTION

As each project is unique and complex in its own way, the management of a project and the approval of the funding is a graded, risk based approach in accordance with the Ontario Power Generation (OPG) Management Systems.

This procedure gives direction for the following:

(a) Projects funded from the Nuclear Operations Project Portfolio (hereafter known as Portfolio).

(b) Projects funded from other sources.

(c) Project terminal points.

(d) Project Life cycle and its phases.

(e) Role of interfacing organizations that support the project.

(f) Project schedule milestones aligned with the outputs of stakeholders.

(g) Specific PM deliverables required to be completed at the end of an individual project phase in order to satisfy the approval requirements of the associated *decision gate*. These deliverables align with the following principles:

(1) Definition Package, which defines the project's work. This is typically the Project Execution Plan (PEP). The level of rigour required to define the work in the PEP is dependent on the level of project risk and complexity.

(2) Authorization Package, typically a Business Case Summary (BCS), which recommends to the approving Organizational Authority Register (OAR) authority, the release the funds needed to perform the work defined in the PEP.

Note: Authorization Package may include a Board Memorandum if the approval of the OPG Board of Directors is required.

1.1 Project Management

For the purposes of this procedure, the Project Manager of a project is typically a Stratum III position.

1.1.1 All work performed during a project should:

(a) Implement the OPG Management systems described in N-CHAR-AS-0002, Nuclear Management System.

(b) Be executed by qualified staff.

(1) NWMD funded projects in association with W-TQD-400-00002, Nuclear Waste Management Division Engineering Support Personnel Training and Qualification Description.

(2) Portfolio funded projects in accordance with N-QG-403-00023, Nuclear Project Staff Qualification Guide.

(c) Non-conformances to the implementation of the OPG Management systems such as failures, malfunctions, deficiencies, deviations, or abnormal occurrences should be managed in accordance with N-PROG-RA-0003, Corrective Action.

(d) Be directed through Business Unit (BU) *Decision Gates* in accordance with the applicable BU Decision Committees noted below.

(1) Portfolio - Asset Investment Screening Committee (AISC).

(2) NWMD - Project Investment Screening Committee (PISC).

(3) NR - Program Scope Review Board (PSRB) or Gate Review Board (GRB).

1.2 Projects Funded By the Portfolio

1.2.1 Management of the Portfolio should be based on the following principles:

(a) Chief Nuclear Officer (CNO) has responsibility for the Portfolio at the fleet level.

(b) Day-to-day management of the Portfolio at the fleet level is delegated to the Chief Nuclear Engineer (CNE).

(c) CNE relies on the VP of P&M, as well as the Directors of Nuclear Finance - Investment Management, Plant Design, IM&CS, and P&M to assist in the Portfolio decision making process as members of the AISC.

(d) Oversight of the Portfolio at the facility level is the responsibility of the Business Unit Vice President (BU VP). BU VP may create committees within the BU to provide challenges, analysis, and advice. Such committees may be in the form of screening committees (e.g., Site Screening Committee [SC]) and approval committees (e.g., Site Project Approval Committee [PAC]).

1.2.2 Funding in the Portfolio should be divided into the following two categories:

(a) <u>Released</u>

The amount approved for expenditure through the approval of a BCS by the appropriate level of authority in accordance with OPG-STD-0017, Organizational Authority Register (OAR), as well as the amount identified to be required to complete the project. Cash flows are typically included in the Portfolio excluding contingency.

(b) Unallocated Funding

The difference between the total business plan target (ceiling) within the Portfolio and the sum of Released project amounts. The Unallocated category contains project candidates, but does not constitute a portion of the approved Portfolio until funding is released through a BCS.

1.2.3 Projects may have unique funding release strategies with corresponding *decision gates* which require different forms of management reviews and approvals.

1.2.4 The following principles apply to Projects funded by the Portfolio:

(a) Projects over $200k per unit should engage the AISC for Portfolio approval.

(b) Minor projects are under $200k per unit and the process to approve these projects should be managed by the authorizing Director.

(c) VP, P&M provides project oversight to Commercial Facility projects.

(d) Constructed Minor Fixed Assets (CMFA) with projects greater than $500k for the design and construction of engineered tools should be used to support operations and maintenance.

(1) CMFA projects executed by IM&CS are governed by I-PROC-MP-0001, Engineered Tooling Modification Process.

(2) CMFA projects executed by all other business units are governed by N-PROC-MP-0090, Modification Process.

(e) Projects that impact the Design Basis are Engineered Changes and should be processed in accordance with N-PROC-MP-0090.

1.3 Projects Funded by Provision Budget

1.3.1 Management of the Nuclear Waste Provisional Project Portfolio should be based on the following principles. For details see W-PLAN-08100-00002 Nuclear Waste Management Division Project Investment Steering Committee (PISC) Terms of Reference.

(a) CNO shall be responsible for oversight of provision funding of the Nuclear Waste Management Portfolio.

(b) Management of the NWMD project portfolio shall be delegated to the Vice President, Nuclear Waste Management Division (VP-NWMD).

(c) The VP NWMD shall rely on the NWMD Project Review Committee to provide challenge, analysis, and advice. Approval of projects and annual budget changes, including use of contingency, shall remain within limits established in the Business Plan.

(d) Conceptual funding for the Initiation phase is requested using N-FORM-10945, Cost Estimate and Request for Conceptual Funding.

(e) NWMD Operation Maintenance and Administration (OM&A) and Capital projects that are not funded from the Provision Portfolio should be brought to the AISC for disposition.

1.4 Projects Funded by Nuclear Refurbishment

NR projects executed by P&M are externally funded by the NR organization from the NR Program budget. The transfer of work from NR to P&M is in accordance with N-GUID-09701-10014-R000, NR - Transfer of Work Process. The aspects of the guide that are applicable to P&M follow either Scenario 1 or 2. Refer to the guide for full details.

1.4.1 NR projects executed by P&M should be categorized as either Non-Chartered (Scenario 1) or Chartered (Scenario 2) projects. The differences and exceptions to this procedure are listed in Table 1 below.

Table 1, Exceptions for Nuclear Refurbishment Projects executed by Projects and Modifications

Non-Chartered Project (Scenario 1)	Chartered Project (Scenario 2)
Is considered a sub-project of a larger *NR Project Bundle.*	Is considered a *NR Project Bundle* or standalone project.
Does not have a project charter however a Needs Statement shall be provided by the NR Project Manager.	Requires a formal Project Charter.
Is managed by a P&M Project Manager with additional oversight provided by the applicable NR Project Manager.	Is fully managed by a P&M Project Manager.
P&M should seek funding from the applicable NR Project Manager using N-FORM-11466, Project Authorization Package (PAP).	P&M should seek funding directly through the NR Gate Review Board (GRB) following N-INS-09701-10005, Nuclear Project - Gated Process. The authorization package is a BCS in accordance with OPG-STD-0076.
For Initiation/Conceptual Phase Funding (Gate 1), the P&M Project Manager should submit N-FORM-11454, OBU Funding Request, to the NR Project Manager for approval.	For Initiation (conceptual) Phase Funding (Gate 1), the P&M Project Manager should submit an Initiation BCS to the NR GRB. If applicable, any Identification Phase funding required by P&M should be requested with N-FORM-11392, Funding Request Form, and approved by the NR GRB (Gate 0).
For Change Management, use P&M N-FORM-10607, Project Change Request Authorization Form (PCRAF) and process (Section 1.9 of this procedure).	For Change Management, follow N-PROC-LE-0010 and N-INS-00120-10022, NR - Cost and Schedule Change Control, using N-FORM-11252, NR Change Control Form.
Change management PCRAF forms should be submitted to the applicable NR Project Manager for approval.	Change management forms should be submitted to NR for approval in accordance with N-INS-00120-10022.
The approved funding contingency should be released from NR to the VP of P&M. Contingency drawdown is controlled internally within P&M using the PCRAF process (Section 1.9).	Management of Contingency should be in accordance with N-PROC-LE-0013 - NR Contingency Management.

1.5 Projects Funded From Other Sources

Projects funded from other sources should be governed by the PM Principles described in N-PROG-AS-0007, Project Management, Appendix A – Project Management Principles.

1.6 Project Terminal Points

1.6.1 For the purposes of defining the limits of Project Scope, project terminal points should use the Engineered Change terminal points whose interfacing work may impact the site Design Basis, or non Design Basis, or Commercial Facility.

1.6.2 Interfacing Design Authorities at the site (i.e., Power plant, NWMD, or Commercial Facility) should make the terminal point agreements. Disagreements should be managed in accordance with N-PROC-HR-0018, Resolution of Differing Professional Opinions.

1.7 The Project Life Cycle Phases and Decision Gates

The Project Life Cycle should be managed through the following phases:

(i) Identification Phase

(ii) Initiation Phase

(iii) Definition Phase

(iv) Execution Phase

(v) Close Out Phase

(vi) Post Implementation Review (PIR).

The present phase deliverables and the plan for the next phase are reviewed at a specific management *Decision Gate* and typically only after Gate approval is the project allowed to advance to the next phase. *Decision gates* often include a request and approval of funding for the next project phase(s). Figure 1 illustrates the typical project phases, major *decision gates* and associated funding approvals.

Figure 2 illustrates the possible Identification Phase streams which are dependent on the type of project and executing BU. Figure 3 illustrates the balance of the typical project phases. Figures 2 and 3 also indicate the typical main *decision gate* and phase relationship.

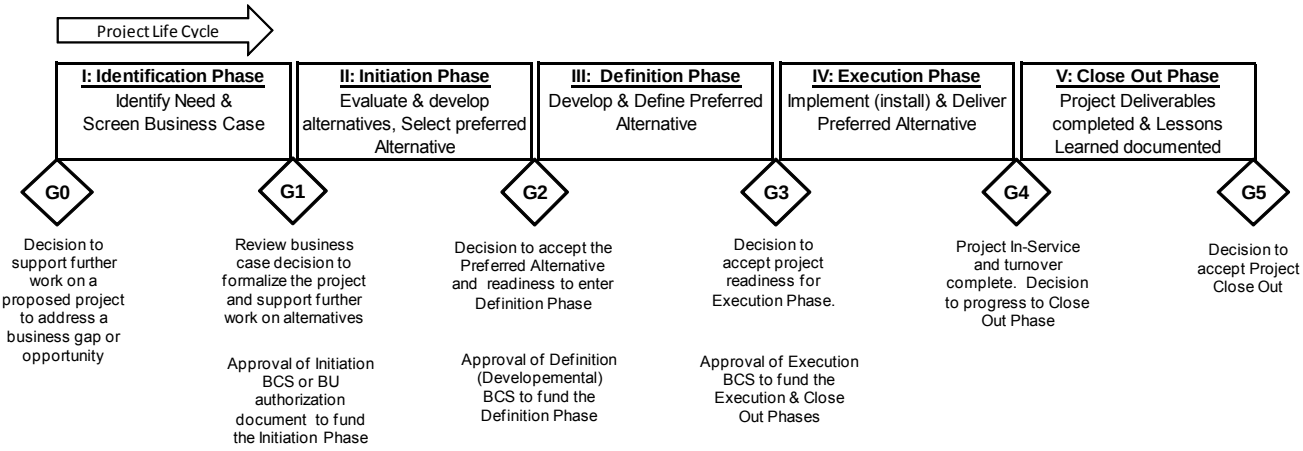


Figure 1, Typical Project Phases and Decision Gates

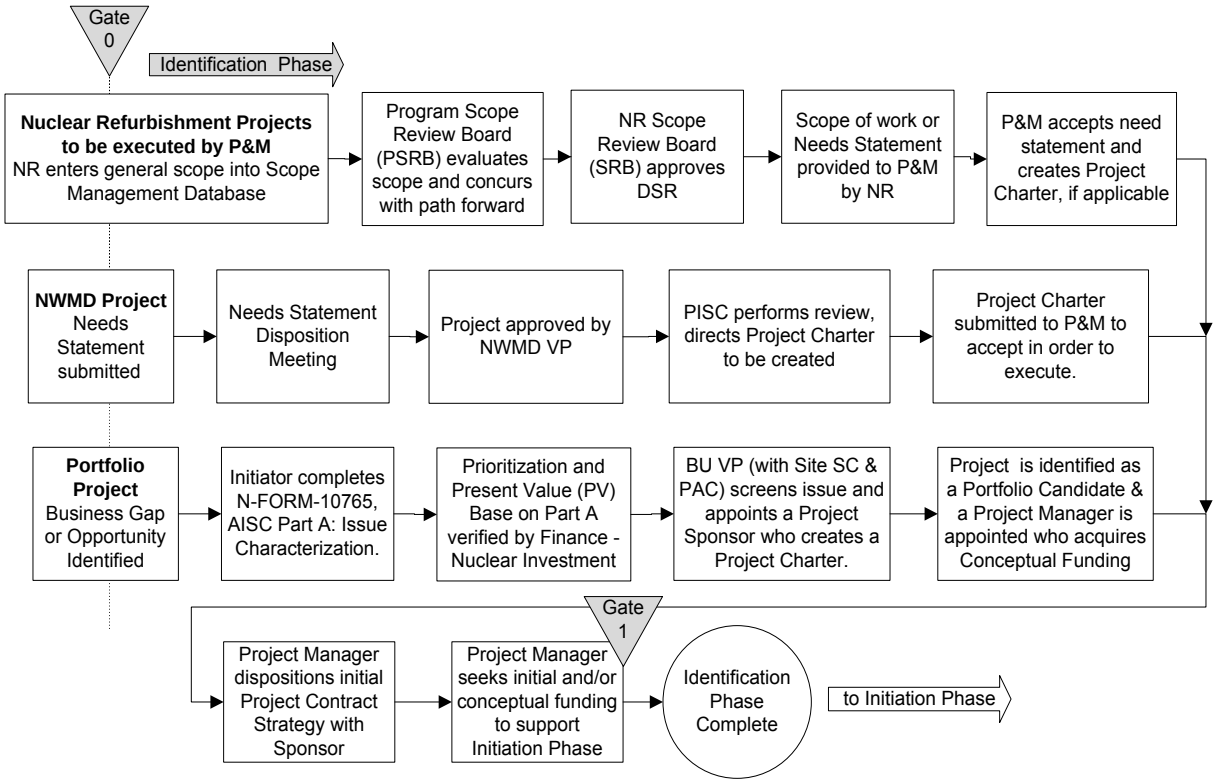


Figure 2, Project Identification Phase with potential streams.

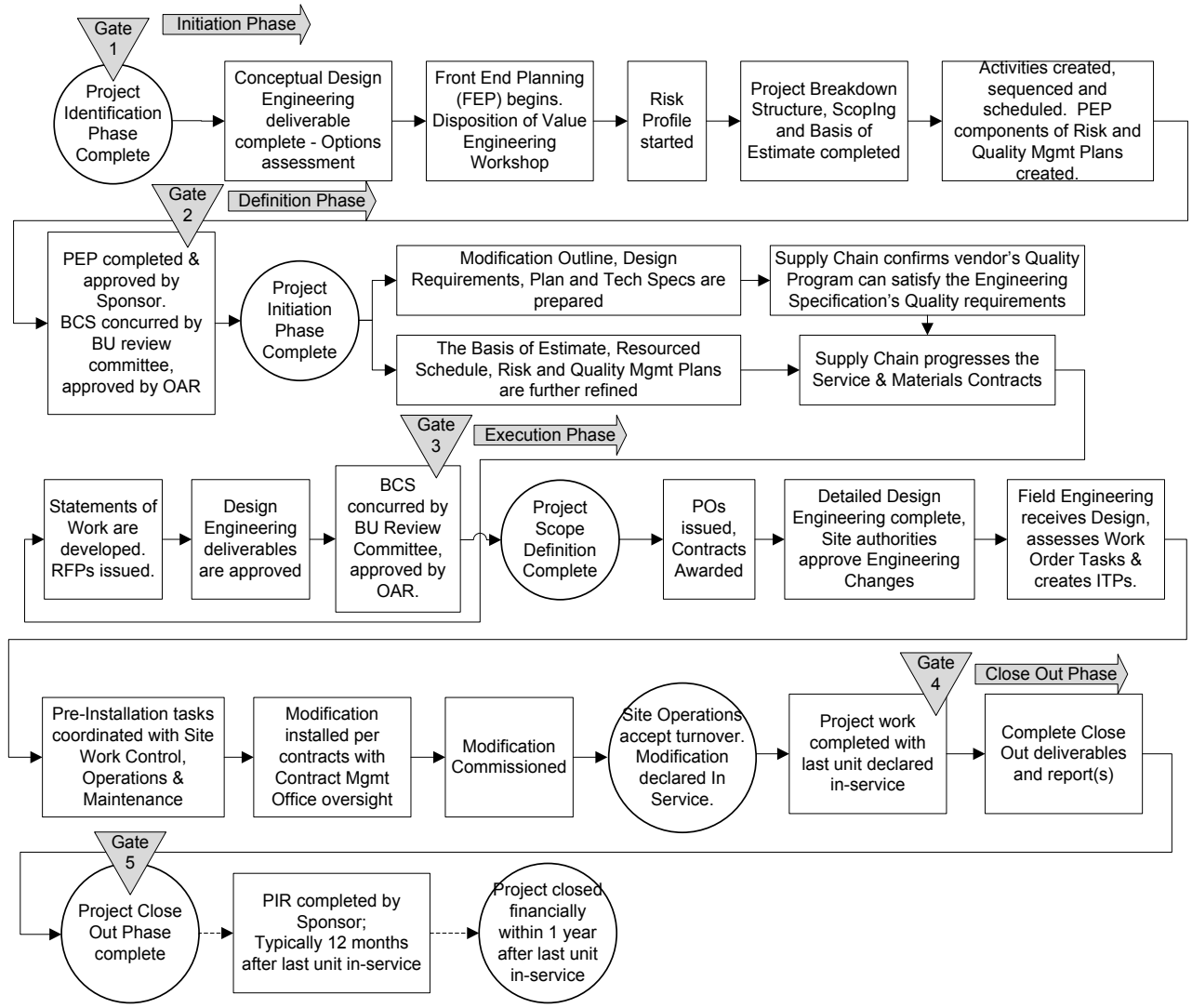


Figure 3, Typical Project Phase Flow Chart

1.7.1 Identification Phase

The purpose of the identification phase is to identify and assess the business gaps or to identify opportunities to enhance performance.

The output of this phase includes a placeholder in the BU budget for the proposed project.

Project Sponsor should document the business gaps or opportunities which are generally identified through one or more of the following methods:

- System health reviews
- Analysis of component failures or facility needs
- Life Cycle Management Plans
- Review of non-standard work programs
- For NWMD, the release of monies to the executing group, in accordance with PISC direction in support of the 5 year Business Plan.

1.7.1.1 When the business gap cannot be closed with existing resources and requires Portfolio funding, the following is required:

(a) BU VP should concur with the project scope.

(b) Project Sponsor should develop the statement of need, typically using N-TMP-10117, Project Charter.

(c) BU Decision Committee confirms path forward and directs the PM organization to execute the work.

(d) *Authorizing Authority of the executing organization* should review and accept the Project Charter or Needs Statement, and appoint a Project Manager.

(e) The Project Manager and Project Sponsor should disposition the initial project contract strategy.

(f) Project Manager should acquire conceptual funding to support unfunded activities during the development of the project concept.

1.7.1.2 For a minor project less than $200k per unit, proceed to Subsection 1.7.2.1.

1.7.1.3 For Portfolio projects greater than $200k per unit:

(a) Project Sponsor should perform the following:

(1) Identify the need to the BU VP.

(i) Nuclear Portfolio project candidates require the completion of N-FORM-10765, AISC Part A: Issue Characterization in consultation with their local Business Support staff and/or with staff in Nuclear Finance Investment Management.

(ii) NWMD Portfolio project candidates require completion of N-FORM-11491, NWMD Needs Statement.

(2) Decide whether the issue may be resolved and managed by the OM&A funding for the base organization, or whether the issue or implementation strategy is too complex, and therefore the services of a dedicated project organization is required.

Note: BU Decision Committee may be consulted to assist with the decision.

(3) Create a Project Charter using N-TMP-10117.

(4) Approve the Charter and forward the approved Project Charter to the *Authorizing Authority of the executing organization*.

(b) Authorizing Authority of the executing organization should perform the following:

(1) Review the Project Charter, if acceptable, sign acceptance in order to proceed.

(2) Appoint a Project Manager.

(c) Project Manager should perform the following:

(1) Forward the approved Project Charter to Business Services – Controlled Documents for issuance into PASSPORT, with a copy to the executing organization.

Note: For P&M Division, the copy goes to the Project Management Office (PMO).

(2) Acquire conceptual funding for organizations that do not have OM&A Base funding by completing N-FORM-10945.

(d) Project Sponsor should ensure a project can be listed on the budget year's 'New Project Start List' by submitting the following documents to Nuclear Finance – Investment Management no later than June 30 of the previous year. The following documents are complete at the end of the Identification Phase.

- N-FORM-10765 approved by the BU VP (N-FORM-11491 for NWMD)
- N-TMP-10117 approved by the Project Sponsor and accepted by the *Authorizing Authority of the executing organization*
- N-FORM-10945 approved by the BU VP or delegate.

1.7.2 Initiation Phase

The main purpose of the Project Initiation Phase is to develop viable alternatives which resolve the business gap through the FEP processes.

A graded, risk based approach is used in selecting the FEP processes and tools. The required rigour of PM and controls are a function of the project risk and the expected dollar value of the project. Low risk, low dollar value projects require a lower level of PM and project controls compared to projects with higher dollar value and/or risk. High risk, high dollar value projects require the most detail and the highest level of PM and project controls.

Phase deliverables include the following:

(a) Project Manager should prepare a PEP using one of the following:

- Use N-FORM-11172, Project Execution Plan Form, for projects using the FEP process
- Use N-TMP-10119, Project Execution Plan, for projects not using the FEP process.

(b) Project Sponsor should review and, if acceptable, approve the PEP.

Note: In the case of a Regulatory Commitment (REGC) which requires the involvement of several organizations, the PEP should be approved by the cross over

Note: Manager of those organizations (i.e., the Project Executive Sponsor).

(c) Project Manager should perform the following:

(1) Develop a summary level business case that justifies total project value, and requests funding to further design engineering, finalize scope, acquire vendor quotes, etc. This is typically a BCS. Refer to OPG-STD-0076 and OPG-STD-0017.

(2) If the value of the project release or the anticipated cost of a partial release exceeds $25M (including contingency), prepare a Board Memorandum with the assistance of Nuclear Finance – Investment Management to obtain Board of Directors approval.

(3) Ensure the BCS and Board Memorandum are routed to the Enterprise Leadership Team for review and Chief Executive Officer (CEO) approval no later than three weeks before the Nuclear Operations Committee meeting which is held prior to the full Board of Directors meeting.

(4) For Portfolio funded projects, complete N-FORM-10994, AISC Part B: Decision Record, for projects funded from the Portfolio.

(5) Submit the following to the BU Decision Committee (i.e., AISC, PISC or PGRB):

- BCS or equivalent
- Board Memorandum (for +$25M projects only)
- Completed N-FORM-10994 (for P&M only).

Note: Refer to Appendix A for details.

1.7.2.1 Portfolio Funded Minor Projects

Minor projects of a similar nature are typically grouped together and funded as a program with oversight from a divisional Director. For example, Site minor projects are overseen by the Station Engineering Director, who should also be the Project Sponsor.

Note: This project phase is the entry point for projects valued **less** than $200k into the Project Life Cycle. The previous Project Life Cycle steps are not necessary.

Minor projects should be managed in accordance with the following principles:

(a) Minor Projects That Impact the Site Design Basis

(1) Modification Team Leader (MTL) should define the project work that impacts the Plant Design Basis to the level of rigour required in accordance with N-PROC-MP-0090, or BU Engineering Change Control (ECC) governance.

(2) Director of executing organization should review the proposed work and, if acceptable, provide approval in order to proceed.

(3) MTL should develop and acquire funding approval using N-FORM-10945 (for P&M).

(b) Minor Projects That Do Not Impact The Site Design Basis

(1) Project Manager should define the project work.

(2) Director executing organization should review the proposed defined work and, if acceptable, provide approval to proceed in accordance with Provincial and National Engineering Standards.

1.7.2.2 Development and Progression of the Business Case Summary

Project Manager should perform the following:

(a) Create the applicable BCS in accordance with OPG-STD-0076. The BCS is identified by both project phase and release type:

(i) Project Phase includes:

- Initiation
- Definition
- Execution.

(ii) Release Type:

- Partial (there will be more than one BCS in a particular phase)
- Full (there is only one BCS planned in a particular phase)
- Superseding (BCS re-issue for additional phase funding)

(b) Obtain BCS approval per OPG-STD-0017 OAR.

(c) For any variances to the BCS during the execution of the project, obtain approval from the Director of Nuclear Finance in accordance with OPG-STD-0017.

1.7.2.3 Progression of the Business Case Summary to the Decision Gate

(a) Project Sponsor should submit the BCS for approval to the approving OAR authority for the release of funding following a BU Decision Committee approval to proceed.

(b) Nuclear Finance – Investment Management should provide guidance regarding what supporting documents are required to accompany the BCS, such as the completed PEP, and the level of approvals required in accordance with OPG-STD-0017.

Note: When a project is in response to a proposed REGC, the BCS should be approved by the approving OAR authority prior to the committing of OPG to the REGC.

(c) Project Manager should forward a copy of the approved BCS and associated documents to Nuclear Finance Investment Management and file originals in the PM File.

(d) Nuclear Finance Investment Management should be the single point of interface for further approvals required according to the OAR (e.g., with Finance - Corporate Investment & Asset Planning).

1.7.2.4 Major Interfaces and Handoffs in the Project Initiation Phase

Project Manager should monitor and facilitate the progress of the PM activities described below that are delivered from other organizations.

(a) Conceptual Design Development

(1) Project Manager should perform the project kick off meeting(s) and cursory field walk down(s) to support the development of the Conceptual Design. The walk down(s) should be performed with representatives from implementing and supporting organizations such as:

- Design Team Leader (DTL)
- Contract Management Office (CMO)
- System Engineering
- Field Engineering.

(2) DTL should coordinate the Design Engineering deliverables which at the end of this project phase includes the issuance of:

- Conceptual Design Report and Options
- Assessment forecast of required Design Engineering resources
- Design Agency Engineering Specifications, Scope of Work, and Design Agency Interface Agreement (DAIA) (DAIA for P&M only).

(b) Project Management Activities

Project Manager should perform the following:

(1) Construct a plan and schedule from the Conceptual Design deliverables and describe them in the PEP.

(2) Use the FEP process to ensure the project deliverables described in the PEP are aligned with the Project Sponsor's business gap described in the Project Charter. The Project Manager may use N-FORM-10959, Design Scoping Checklist as a guide to ensure consideration has been given to the interests of the various groups who might be impacted by the project.

(3) Use the Value Engineering (VE) process in accordance with N-INS-00120-10019, Value Engineering. VE should be used when one or more of the following criteria are met or if the Project Manager believes it is required:

(i) Probable project budget with contingency is greater than $5M.

(ii) Project scope is ambiguous.

(iii) There is more than one viable alternative.

(4) Use the FEP processes described below to develop the PEP:

- Project Scoping
- Project Definition Rating Index (PDRI) (if required)
- Risk Management in accordance with N-INS-00120-10014, Project Risk Management
- Basis of Estimate (BOE) and Project Estimating in accordance with N-INS-00100-10000, Project Cost Estimating Instruction
- Scheduling
- Budgeting (cash flow determination).

Note: For details refer to the FEP Section found in the P&M FEP web site.

1.7.2.5 Expediting Projects

To quickly resolve equipment obsolescence or implement ECC defined non-complex improvements, the Project Manager may be requested by the Project Sponsor to expedite the Project Life Cycle.

The Project Life Cycle process is intertwined with various other OPG Management Systems such as:

- Design Engineering
- Supply Chain
- Work Control
- BCS development
- OAR.

All these organizations have their own specific process timelines. These process timelines need to be accounted for when developing an expedited project schedule. It is advised to acquire formal agreements, commitments, cooperation, and prioritization of process timeline exceptions and resources to improve the chances of expedited project success.

1.7.2.6 Milestones Achieved in the Project Initiation Phase

Project Manager should monitor and facilitate the progress of the PM activities that are delivered from other organizations in accordance with the milestones described below.

(a) Design Engineering – (Conceptual Design Phase)

(1) Modification Outline drafted.

(2) Conceptual Report/options assessment issued.

(3) Design contracting strategy developed.

(4) Long lead material requirements defined for major equipment.

(5) Design resources, schedule forecast for overall project.

(6) Engineering Target Completion Date (TCD) commitment for Preliminary Design.

(b) Stations Operation Work Control: for details refer to:

- N-PROC-MA-0013, Planned Outage Management
- N-PROC-MA-0022, Integrated On-Line Work Scheduling
- N-INS-06931-10001, On-Line Cycle Planning Process.

(c) Project Schedule Milestones may include:

- PEP - PEP approved (Key Milestone)
- ASC - AISC disposition (Key Milestone) (if applicable)
- DBC - First BCS approved
- DCA - Design contracts awarded (Key Milestone).

Note: For details see the P&M web site. Milestone acronyms are typically linked to the various departments for their specific use and are not to be referenced in Section 3.2 of this document.

1.7.3 Definition Phase

The purpose of the project Definition Phase is to define the scope of the preferred alternative. The responsibilities of updating any changes to the Definition and Authorization Packages are described in the earlier phase.

Project team should further develop the project scope, cost, schedule, and design engineering in accordance with first BCS funding release strategy, and *Decision Gate* requirements.

1.7.3.1 Major Interfaces and Handoffs in the Project Definition Phase

Project Manager should monitor and facilitate the progress of the PM activities described below that are delivered from other organizations.

(a) Design Engineering work with Design Agency Resources

(1) Project Manager should acquire the following:

(i) Contract Administrator services and DTL assistance to implement the DAIA.

(ii) Design engineering services in accordance with the appropriate Supply Chain procedures.

(2) Project Manager should document in the PEP the provision for design engineering contract administration and interfaces for the design of the project's Systems, Structures and Components (SSCs).

(3) Project Manager as Contract Owner or Design Agency Contracts should develop a Statement of Work (SOW), and Design Agency Engineering Specifications. The Project Manager may use N-FORM-10959 and FIN-MAN-CM-002, Technical Contractor Management Process Manual, as a guide to this PM activity.

(b) Configuration Management

Project Manager should coordinate a configuration management review involving the *paper plant* and *physical plant* of the affected Systems, Structures and Components (SSC) and document non-conformances in accordance with N-PROG-RA-0003.

(c) Development of Project Management Deliverables

Project Manager should coordinate the development of PM deliverables in accordance with the following principles:

(1) Alignment of the Site authorities' approval criteria with the project's general design principles required to achieve dependable performance.

(i) Project Sponsor's BCS PIR plan.

(ii) Director of the accepting organization's Available for Service (AFS) acceptance criteria.

(iii) Commissioning Specifications in accordance with the Engineering Specifications from the Design Engineer.

(2) Maintenance Strategy ensuring the dependability of the new equipment after the project has been turned over to the Site.

(i) Name of Accepting organization's Maintenance Manager.

(ii) Maintenance strategy concurrence in accordance with N-GUID-00120-10001, Nuclear Integrated Supply Planning.

(iii) Transfer of project materials inventory from the project Financial Asset Classification (FAC) to the maintenance organization's FAC.

(3) Operational Strategy describing the optimal use of the new equipment in accordance with availability targets after the project has been turned over to the Site, including name of the accepting organization's operations manager, for concurrence of the Operations strategy.

(d) Supply Chain and Project's Trades Contract Strategy

(1) Project Manager (as requisitioner) should perform the following:

(i) Confirm with Supply Chain the estimated value of the trade's contract(s) in accordance with OPG-PROC-0058, Procurement Activities.

(ii) Contact Supply Chain for the establishment of a Cross Functional Sourcing Team if the estimated value is greater than $5M.

(iii) Develop the Trade contract's Scope of Work. The Project Manager may use Contractor Management Process manual as a guide.

(2) Project Manager should document in the PEP the provision for trade contract administration and interfaces for the installation of the project's SSCs.

(3) Project Manager should acquire agreement regarding the appointment of staff to the Contract Management roles of Contract Owner, Contract Administrator, and Contract Monitor.

For Portfolio funded projects, the following groups are typically utilized to fulfill those roles:

(i) Contract Owner - To be determined through discussions between the Project Manager, Field Engineering, and the CMO prior to the issue of the Purchase Order (PO). The project manager is often the Contract Owner.

(ii) Contract Administrator - Typically First Line Managers (FLM) Construction from Site CMO.

(iii) Contract Monitors - Typically Project Technicians from Field Engineering who have been assigned to the CMO.

(4) DTL should forward the material purchase Quality Assurance (QA) Program information to the Supply Chain Buyer.

(i) For Portfolio and Refurbishment funded projects, the QA Program information is typically documented in N-TMP-10019, Engineering Specifications.

(5) Project Manager should resolve jurisdictional boundary issues by forwarding the Contract Strategy for review and comment to:

(i) Nuclear Operations

- Portfolio funded projects - Maintenance Support: Power Worker Union Work Assignment Single Point of Contact (SPOC)
- NWMD – NWMD Human Resources.

(ii) P&M – PMO Society Purchase Service Agreement (SPOC).

(e) Contracts through the Extended Services Master Services Agreement (ES MSA)

The Extended Services Master Services Agreement Request for Work instruction details the process for acquiring project material and/or services from an ES MSA contractor.

(f) Long Lead Material

The following guidance may not be applicable to Engineer, Procure, Construct (EPC) contracts:

(1) Project Manager should perform the following:

(i) Oversee the gathering of information regarding project material requirements and timing, and identify Long Lead materials.

Note: In accordance with Work Control governance, any material that requires more than 90 days to acquire is a Long Lead Item.

(ii) Ensure material technical performance specifications and QA requirements are created by the Design Engineer for input by the Supply Chain Buyer into the Request for Quotation (RFQ) or (RFP).

Note: Project Manager may use the N-FORM-10959 as a guide to review the RFQ or RFP for completeness.

(iii) Ensure selected vendors and contractors are on the Approved Suppliers List (ASL).

Note: A vendor not on the ASL may require to be audited by Quality Services, which may take 6 months or more.

(iv) Ensure goods or services obtained from outside of Canada are reviewed by the OPG Customs department (details are in the OPG Finance website).

(v) Ensure AFS meeting requirements are met in accordance with BU ECC procedures.

(g) Project Definition Rating Index Workshop

Project Manager should conduct a PDRI workshop for projects greater than $5M prior to progressing to the next *decision gate*. P&M PMO is available to assist and facilitate.

Note: Note: For the PDRI Workshop to be effective there is a minimum quorum requirement. The following people representing their organization should be in attendance for the duration of the workshop with the authority to speak for their organization:

(1) Project Sponsor (minimum Stratum IV) or delegated authority

(2) Project Manager or Project Leader

(3) DTL representing Design Engineering

(4) Accepting organization (typically from operations and/or maintenance).

(h) Business Case Summary Screening; Business Unit Decision Committee Concurrence

(1) Project Manager and Project Sponsor should forward the draft BCS and supporting documents to the BU Decision Committee.

(2) With BU Decision Committee concurrence, Project Sponsor should submit the BCS to the appropriate OAR authority for approval.

1.7.3.2 Milestones achieved in the Definition Phase

Project Manager should monitor and facilitate the progress of the PM activities that are delivered from other organizations in accordance with the milestones described below.

(a) Design Engineering – DES Milestone (Preliminary Design Complete)

- N-FORM-10958, Modification Outline Approved
- Design Plan Issued
- Design Requirements Issued
- Technical Specifications Issued
- Design Release Plan Issued
- Design Resources and Schedule forecast refined for the remainder of the project.

(b) Station Operations Work Control

Refer to N-PROC-MA-0013 and N-PROC-MA-0022 for details regarding milestone requirements.

(c) Project Schedule Milestones may include:

- BOE – Basis of Estimate Approved
- BQA – Budget Quote Acquired for Contract Strategy
- RMP – Risk Management Plan Approved
- CMP – Contract Management Plan Approved by Contract Owner
- SCI – Services Contract N-FORM-10029 Approved
- BID – Contract Bids Received, Evaluated by Supply Chain
- IAE – Engineering Interface Agreement Approved
- DCA – Design Contracts Awarded, PO Approved in PASSPORT
- LLT - Long lead time material contracts identified

- DES -- Preliminary Design Completed
- PEP – Project Execution Plan Approved by Sponsor
- PTI - Work order tasks identified in PASSPORT (assessments complete)
- FRF/FR1 - Full Release Funding BCS approved by OAR.

1.7.4 Execution Phase - Detailed Engineering and Pre-Installation

The main purpose of this phase is for the completion of the detailed design/engineering and preparation for the installation and execution of the modification. The DTL should ensure the Design Engineering Changes are completed and successfully approved by Site Authorities.

Project Manager should ensure Design Engineering deliverables are successfully transferred to the next set of applicable groups for implementation (e.g., Field Engineering, Supply Chain, Work Control).

1.7.4.1 Portfolio Funded Projects

Project Manager should monitor and facilitate the progress of the PM activities described below that are delivered from other organizations.

1.7.4.2 Major Interfaces and Handoffs in the Execution Phase - Detailed Engineering and Pre-Installation

(a) Prior to construction, Project Manager should perform the following:

(1) Describe the prerequisite work required to define the materials, system designs, required qualifications, proceduralization of engineering requirements, and resourcing of activities.

(2) Describe the prerequisite work required to issue approved drawings, construction specifications, installation procedures, work instructions, document manufacturer QA program compliance, non-conformances program compliance, and release of items for installation.

(b) When ECC is governed by N-PROC-MP-0090, the Project Manager should ensure the Engineering Specification (N-TMP-10019) Sections of design requirements and test requirements are forwarded as construction and installation prerequisite work to Field Engineering (Installation) for the development of the Quality Surveillance Plan in accordance with N-PROC-AS-0069, Field Engineering Installation Quality Process and N-PROC-AS-0074, Contractor Quality Surveillance.

(c) For work performed under the Contractor's QA Program, Field Engineering Quality Surveillance Staff (QSS) should review and if acceptable, approve the contractor's Detailed Work Instructions (DWIs) and ITPs.

(d) For work performed under OPG's QA Program, Field Engineering should create the Comprehensive Work Packages (CWP) or Fabrication and Installation Package Release (FIPR) and ITP(s), while the Project Manager issues the DWI(s).

(e) For the development of commissioning plans, MTL should coordinate efforts with the Contract Administrator, FLM Construction, and the Field Engineering (Commissioning), so the task assessments for commissioning are aligned with the project schedule.

(f) Field Engineering should submit the project work instructions to Work Control for implementation.

(g) For projects managed by Site Work Control, the Project Manager should ensure the following activities specifying the construction and installation work packages are progressed towards completion prior to Outage at PO-1, or T-4 to T-3 for the Work Week.

(1) Work protection requests submitted.

(2) Work permits prepared and checked.

(h) Field Engineering (Installation), Contractor's Supervisor and Contract Administrator should review the schedule with the System Window Coordinator or Work Week Leader, and walk down the work areas to ensure readiness.

(i) FLMs of the work group(s) performing the installation should perform the following:

(1) Walk the job sites.

(2) Assign the work.

(3) Prepare the Radiation Exposure Permits.

(4) Sign on to the work permits.

(5) Perform pre-job briefings.

(j) Field Engineering and Work Order Task Planner should assist in the identification of materials to be delivered for the installation of the project.

(k) Contract Administrator and the Contractor's Supervisor should confirm with the Contract Owner the material required for the project installation has been staged at the job site.

(l) Project Manager should oversee the development of the Maintenance Strategy that supports the maintenance of the new SSC to the level of expected dependability in accordance with N-GUID-00120-10001.

(1) Review the DTL's spare parts list of Catalog IDs (CATIDs) and the repair and replace strategy.

(2) Ensure the Maintenance Strategy is approved in accordance with N-GUID-00120-10001 prior to the AFS meeting.

(3) Review with local Finance the incorporation of the Maintenance Strategy costs to the accepting organization's future budgets.

1.7.4.3 Milestones Achieved in Execution Phase - Detailed Engineering and Pre-Installation

Project Manager should monitor and facilitate the progress of the PM activities that are delivered from other organizations in accordance with the milestones described below.

(a) Design Engineering – Detailed Design Engineering

(1) All Engineering Change documentation has been authorized so the material and spare parts can be ordered.

(2) Design Engineering Changes are approved in PASSPORT.

(3) Design Resources and Schedule forecast further refined for the remainder of the project.

(b) Station Operations Work Control Milestones

Refer to N-PROC-MA-0013 and N-PROC-MA-0022.

(c) Project Schedule Milestones may include:

- LLA Long Lead Time Material Contracts Awarded
- ECP All Design Documents Approved and Issued
- ICA Installation Labour Contracts Awarded
- WPI Work Plans Issued
- PTA CWPs, ITPs, FIPRs, prepared. PassPort WO Tasks set to READY
- MED Material and Equipment staged at the job site
- SOP Start of on–site prefabrication (Key Milestone).

1.7.5 Execution Phase – Installation, Commissioning and Turnover

The purpose of this phase is to install, commission affected SSC(s), and document the turnover of the newly installed asset to the accepting organization. If the project is multi-unit or phase then it would apply only to the applicable unit.

1.7.5.1 Major Interfaces and Handoffs in Execution Phase - Installation and Commissioning

Project Manager should monitor and facilitate the progress of the PM activities described below that are delivered from other organizations.

Note: The following guidance does not apply to EPC projects.

(a) Physical Installation of the Project

(1) FLM Construction, Field Engineering (Installation), Contract Monitor, and Contract Administrator should provide oversight to the installation of the project, in accordance with the schedules, Work Plans, DWIs, FIPRs, CWPs, and contract documents. The Contract Administrator should process any approved Contract changes.

(2) Project Manager should confirm the completion of the inspection and testing of the construction and installation activities.

(3) The Owner's Representative (i.e., Field Engineering [Installation] for P&M, Operations FLM for NWMD) and Contract Monitor should close out the project inspection and test installation records **prior** to the pre-commissioning walk down.

(4) Project Manager should confirm design engineering acceptance of the turnover documents prior to commissioning.

(5) Field Changes should be documented, and approved in PASSPORT by the appropriate agent of the Site Design Authority.

(b) Commission the Affected System, Structure, and Components of the Project

The Owner's Representative (i.e., Field Engineering [Commissioning] for P&M, Responsible System Engineer for NWMD) should perform the following:

(1) Ensure the test prerequisites have been fulfilled prior to the test, and the test acceptance criteria are understood by those involved.

(2) Provide oversight to ensure the commissioning activities are performed in accordance with the approved commissioning plans and specified tests.

(3) Be present at the "HOLD" and "WITNESS" points as specified in the commissioning instructions when the contractor (or OPG) commissions their part of the modification.

(4) Ensure changes to equipment and component data due to Commissioning activities are recorded, approved by the appropriate authority, and input into the PASSPORT database.

(5) Prepare a Commissioning Report from the results of the commissioning activities which, if acceptable, is accepted by the DTL and approved by the Project Manager.

1.7.5.2 Major Interface and Handoffs for Execution Phase - Turnover

Project Manager should monitor and facilitate the progress of the PM activities described below that are delivered from other organizations.

(a) Project Manager should assemble the Contractor Supervisors, Contract Administrator, and FLM Construction to perform the project walk down of the individual Engineering Changes prior to demobilization of trade resources.

(b) Prior to the AFS Meeting the Commissioning Report is:

(1) Prepared by the MTL.

(2) Accepted by the DTL.

(3) If acceptable, approved by the Project Manager.

(c) Contractor Supervisor should deliver a turnover package (in accordance with contract documents) to the Contract Administrator for review and to the Contract Owner for approval.

(d) When the modification is being used for its intended purpose as described in the BCS, the project can be declared “In-Service”. Documentation to support this declaration can any of the following:

- Partial AFS
- Authorized To Operate (ATO) in accordance with W-FORM-10086
- AFS
- Letter from the Design Authority agreeing the modification is In-Service
- Documented notification from the Project Sponsor canceling the project due to business reasons or decisions.

(e) When specified, the AFS is performed in accordance with BU ECC procedures.

(f) For Capital Projects the Project Manager should prepare FIN-FORM, Report of Equipment In-Service, to financially declare the modification In-Service.

(g) Project Manager should create the Project First Unit Lessons Learned Report for projects over $10M and submit it to the Project Sponsor. See Section 4 for Record Keeping details.

(h) Project Manager should confirm the completion of the following end of phase documents:

- FIN-MAN-CM-004-FORM 4, Contract Final Inspection
- N-TMP-10204, Lessons Learned Report.

1.7.5.3 Post Available For Service meeting requirements

Project Manager should ensure the following are completed after the AFS meeting in accordance with BU ECC procedures.

(a) Action Tracking assignments have been successfully dispositioned.

Note: All Open Items should be completed within 6 months of the AFS meeting.

(b) Configuration Management exists between the:

- Paper Plant
- Physical Plant
- The analyzed state described in the terms and conditions of the Site's Operating License from the CNSC.

1.7.5.4 Milestones achieved in the Execution Phase - Installation, Commissioning, and Turnover

Project Manager should monitor and facilitate the progress of the PM activities that are delivered from other organizations in accordance with the milestones described below.

(a) Station Operations Work Control Milestones

Refer to N-PROC-MA-0013 and N-PROC-MA-0022 regarding milestone requirements.

(b) Project Schedule Milestones

- SOI – Start of Installation
- CMS – Commissioning Start
- INS – In Service Declaration Completed

  Note: For NWMD this is Authorized To Operate (ATO)

- AFS – Available For Service (Key Milestone).

1.7.5.5 Project Execution – Next Unit: Detailed Planning, Installation, Commissioning, and Turnover

Project Manager should repeat the required previous unit PM steps after the successful disposition of the Action Items from the previous unit(s). The previous units' actual costs and lessons learned are to be applied to the planning and execution of the next unit.

1.7.5.6 Completion Assurance

Project Manager should ensure the design, purchasing, construction, installation, and commissioning activities are complete, and is able to demonstrate the project is safe for the intended use. This should include the following principles:

(a) Identification of the individual SSC critical characteristics applicable to the activity in accordance with the Engineering Specifications.

(b) Review of the objective evidence to demonstrate the ability of all the SSC to work together as intended.

(c) Identification of any outstanding items, and confirmation those outstanding items do not compromise the intended use.

1.7.6 Close Out Phase

Project Manager should complete the following:

(a) Ensure the project expectations were accomplished, with any post AFS actions, technical and financial tasks completed.

(b) Ensure all outstanding OPEN items should be completed and closed no later than 6 months after the AFS meeting. CNE approval is required to go past 6 months.

(c) Ensure the completion of the Project Close Out Lessons Learned, and Finance Close Out Reports.

(d) Ensure the closed out files are forwarded to the appropriate Records department. The following reports to be completed prior to close out:

- FIN-FORM-PA-004
- FIN-FORM-PA-005, Project Closure Report
- N-TMP-10204
- N-TMP-10209, Available For Service Report
- Other closure forms in accordance with the Contractor Management Process Manual.

(e) Ensure the Project Schedule Milestones have been completed.

- DCO – Engineering Close Out Completed
- PCO – Project Financial Close Out
- MOE - “Ministry of the Environment Commitment Complete”, (if applicable)

- MOL - “Ministry of Labour Commitment Complete”, (if applicable)
- RGM - “CNSC Management Commitment Complete”, (if applicable)
- RGC - “CNSC Regulatory Commitment Complete”, (if applicable)
- PCM - “Plan Complete Milestone”.

Note: Refer to Section 4 for Record Keeping details.

1.7.7 Post Implementation Review

Project Sponsor should assemble a PIR Team to perform the PIR in accordance with the PIR Plan described in the BCS. For details refer to OPG-PROC-0056, Post Implementation Review, and FIN-TMP-PA-002, Post Implementation Review Simplified Template. Refer to Section 4 for Record Keeping details.

1.8 Project Controls

Project Controls are used to monitor and evaluate project performance against the baseline. This information is used plan, regulate progress, forecast outcomes and to report the project results to the Project Sponsor and project executive stakeholders.

Project Manager should, with support from PMO, perform the following:

(a) Monitor life cycle, funding release, and annual project performance against initial release gate approved BCS's and current approved baseline and commitments.

(b) Develop and use a project schedule to monitor and report on:

(1) Work completed.

(2) Forecast completion of scheduled activities.

(3) Forecast annual cash flows (expenditures).

(4) Cost and schedule variance against the baseline using available systems.

(c) Regularly monitor Project Scope development within the boundaries approved in the Definition and Authorization Packages.

(d) Report in a timely manner any material changes to the approving OAR authority and Project Sponsor.

(e) Monitor the number of completed Milestones as part of a fiscal year's metrics.

(f) Establish milestones through the authorizing package (e.g. BCS) for approval to the BU Decision Committee in accordance with the following principles:

(1) Milestones identify the Project Manager's commitment to the completion of the modification.

(2) Milestones require resource commitments from the various groups supporting the project schedule.

(3) Acquire resource commitments needed to support the work.

(g) Manage projects through divisional databases in order to communicate project status.

(h) Provide regular updates on project performance indicators.

(i) Monitor project contracts, in accordance with the BCS and PEP deliverables, and control any changes.

- Non-conformances are identified and remedied
- Root causes are dispositioned and corrected.

1.8.1 Project Monitoring and Control Tools

Project Manager should use the various project monitoring and control tools which are typically used throughout the project life cycle to project close out. As an overview, the typical tools used are described below:

(a) ONCORE

Oncore is the Contractor Management system that helps Project and Cost Control Managers keep track of contractor costs such as labour, equipment, and materials, and provides them with information to assess the performance of the contractor. For details see N-INS-00150-10001, Contract Administration in ONCORE.

(b) ProSight

ProSight database incorporates the forecast spending of the individual projects within the Portfolio, and the actual costs as accumulated by the financial accounting database. ProSight also gives the user an overview of total Portfolio commitments and actual costs. Contact Finance Nuclear Investment Management staff for further details.

(c) Proliance

Proliance is a data repository of individual project budgets and actual costs. It is detailed to the work event level of the schedule with the actual costs drawn from the financial databases. Both the schedule and cost events have forecast capability. Contact the P&M PMO for further details.

1.8.2 Project Control Metrics

Project Control metrics are used to monitor the project performance in order to indentify or anticipate areas of the project that may not be progressing as planned. The Project Manager should, with PMO support, monitor and control the following metrics on project life cycle, project release, and annual basis as applicable:

(a) Earned Value Management performance baseline metrics such as,

(1) Cost Performance Index (CPI) which is calculated as:

BCWP (Budgeted Cost of Work Performed)
ACWP (Actual Cost of Work Performed)

(2) Schedule Performance Index (SPI) which is calculated as,

$$\frac{\text{BCWP (Budgeted Cost of Work Performed)}}{\text{BCWS (Budgeted Cost of Work Scheduled)}}$$

(b) Milestone schedule compliance for key deliverables.

(c) Variance Analysis.

(d) Forecast of Project Completion and annual cash flow.

(e) Issues that need management attention.

(f) Project Risk Register.

(g) Work completed this period.

(h) Work expected to be completed in the next period.

(i) Summary of Changes Approved in this period.

1.8.3 Vendor Scorecards

Vendor performance scorecards are used to document the performance of major project vendors (e.g. design agencies, equipment vendors and trades contractors), in accordance with OPG instruction OPG-INS-08173-0001, Supplier Performance Monitoring and Scorecarding.

1.8.4 Programmatic Metrics

Project Manager should monitor and report to the PMO Manager the following Programmatic Metrics as applicable.

- Annual Cost Growth changes
- In-Service Milestones completed
- Oversight Reports and Trends
- Self Assessments, Station Condition Records (SCRs), Lesson Learned Reports

1.9 Project Change Control

Each project is unique and complex in its own way, and changing circumstances during the Project Life Cycle may impact on the project's scope, cost and schedule.

Project Manager should perform the following:

(a) Identify to the Project Sponsor and to the approving OAR authority any significant issues impacting the project.

(b) Monitor their projects for impacts that affect a project, and if the Project Manager determines that a change to the project is required, the Project Manager should initiate a change using one of the change mechanisms. This is illustrated in Appendix B: Project Change Management Process.

(c) Preserve previous actual project performance as change control should not change prior project performance.

Each project change type may require a different approval process due to the criticality of the change, as well as the authority required as mandated by Finance and Project Management governance. If the project change involves many project change types, administer the change via the process requiring the highest authority.

Example: an event occurs which results in a project scope change. This change involves a change to the total release amount, a change in the BCS milestones, and a change to the annual cash flow. A Superseding BCS is prepared and approved but an additional PCRAF is not required to change the milestones and cash flows since a Superseding BCS has a higher authority then a PCRAF and provides approval for all the changes necessary.

1.9.1 Potential Project Changes and Required Action:

(a) Planned Funding Release: Progression of the project through the next approving OAR authority *Decision Gate*.

ACTION: Project Manager creates a BCS and submits it to the applicable BU Decision committee and OAR Authority for approval. Once approved, project performance **going forward** shall be measured against the new commitments.

(b) Change in Scope: A significant change to project scope is required.

ACTION: Project Manager creates a Superseding BCS or OPG-FORM-0077, Project Over-Variance Approval, and submits it to the OAR Authority for approval. Once approved, project performance **going forward** shall be measured against new commitments.

(c) Change In Total Release Amount: Significant change to the amount of money required due to the impact on the project of:

(1) A risk event that was not previously identified and planned for:

ACTION: Project Manager creates a Superseding BCS or OPG-FORM-0077 and submits it to the OAR Authority for approval. Once approved, project performance going forward should be measured against new commitments.

(2) A risk event that was previously identified but without sufficient contingency remaining:

ACTION: Project Manager creates a Superseding BCS or OPG-FORM-0077 and submits it to the OAR Authority for approval. Once approved, project performance going forward should be measured against new commitments.

(3) A risk event that was previously identified and there is sufficient contingency available:

ACTION: Project Manager uses N-FORM-10607 (PCRAF) and submits it to the applicable BU Decision Committee or chair. Once approved, project performance going forward should be measured against new commitments approved in the PCRAF.

(d) Change to Business Case Summary Commitment Milestones and/or Available for Service Milestone:

ACTION: Project Manager submits N-FORM-10607 (PCRAF). If no cash flow changes, Project Sponsor approval is required. If cash flow changes are required refer to (e) below. If the Project Sponsor deems change to be a *Directed Change* then project performance going forward shall be measured against new commitments approved in the PCRAF.

(e) Change in Annual Cash flow: Change to the project's annual cash flow within the bounds of the latest BCS.

ACTION: Project Manager creates a PCRAF which follows approval process outlined in Section 1.9.2.3. If the Project Sponsor deems change is a *Directed Change* then project performance going forward shall be measured against new commitments outlined in the PCRAF.

(f) Change in Key Milestone / Other Milestone Change (not Business Case Summary) Milestone):

ACTION: Project Manager creates a Baseline Change Control Form found in the P&M FEP website. If approved by the *Authorizing Authority of the executing organization*, than the project performance going forward should be measured against new commitments.

(g) Change in Schedule Activity Details or Logic;

ACTION: Project Manager documents in a Baseline Change Control Form

1.9.2 N-FORM-10607, Project Change Request Authorization (PCRAF)

1.9.2.1 Project Change Request Authorization (PCRAF) Principles

Project Manager should document changes to BCS cash flows or AFS/BCS milestones with the PCRAF in accordance with the following principles.

(a) PCRAF can only document changes within the approved release limits originally defined in the BCS. The trigger for documenting the cash flow change is when the Project Manager has determined a definite variance will occur.

(b) A PCRAF shall only change current project commitments (i.e., schedule activities and budget) directly impacted by the PCRAF. Schedule activity changes should be referenced with the PCRAF number within the schedule. The history of any completed schedule activities shall not be changed unless they are directly related to the PCRAF.

(c) An approved PCRAF shall only make changes to the *Project Baseline Schedule* and/or the Control Budget. A PCRAF cannot change the Original Budget, or the *Primary Approved Baseline Schedule* as described in the latest approved BCS.

1.9.2.2 Project Change Request Authorization (PCRAF) Change Type

Project Manager should select the affected PCRAF Change Type in accordance with the following principles:

(a) Change to the amounts of BCS cash flows and corresponding schedule change within the bounds of the original annual cash flows without Contingency.

Note: If the cash flow is changing due to a minor scope change, N-FORM-11170 should to be included with the PCRAF.

If the scope increase is material in accordance with guidance from Nuclear Finance – Investment Management, the change in scope should be authorized by a Superseding BCS or OPG-FORM-0077 and approved by the applicable OAR.

(b) Project Contingency Request within Release Amounts with Contingency.

(c) Delays to AFS or other BCS Milestones.

(d) *Directed Change.*

1.9.2.3 Project Change Request Authorization (PCRAF) Routing for Approval

Project Manager should prepare the PCRAF and route it for approval in a timely manner and in accordance with the following steps:

(a) Project Manager's Stratum V Director shall review and if acceptable sign to indicate concurrence.

(b) Project Sponsor should review, and if acceptable sign to indicate concurrence. If PCRAF is for BCS milestone changes only [i.e., no annual cash flow changes, refer to 1.9.1 (d)], then go to (i) below.

(c) BU Finance representative should confirm the current cash flow and changes are within the approved amounts prior to the progression of the PCRAF for the applicable BU Reviewer or Decision Committee.

(d) Finance Director from the BU should present to the BU Decision Committee/Chair a summary of the PCRAFs that have proceeded through the previous steps and are recommended for review.

(e) BU Decision Committee/Chair should ensure the Portfolio 'Released' and 'Balance to be Released' cash flows remain balanced at the fleet level throughout current year and future years.

(f) If acceptable, the BU Decision Committee Chair or delegate should sign the PCRAF as approved.

Note: PCRAFs to withdraw contingency for projects in which P&M controls and manages the contingency require P&M VP approval but not BU Decision Committee approval (e.g., AISC or PISC).

(g) Project Manager should distribute copies of the approved PCRAF to the following:

- PMO (P&M only)
- Finance - Nuclear Investment Management
- The associated Financial Controller (if applicable)
- See Section 4 for Record Keeping details.

(h) Finance - Nuclear Investment Management should update the project Control Budget.

(i) Project Manager should ensure the project schedule is updated appropriately.

1.9.3 N-FORM-11044, Transfer of Portfolio Responsibility

(a) Project Manager of the original executing organization may transfer its project responsibility to another group by preparing N-FORM-11044, Transfer of Portfolio Responsibility.

(b) Stratum IV Department Manager transferring the project and the Stratum IV Department Manager receiving the project should jointly approve N-FORM-11044.

Note: For transfers that are complex in nature, further details of explanation are attached to the N-FORM-11044.

(c) Project Manager of receiving organization should forward a copy of the approved N-FORM-11044 to Nuclear Finance Investment Management.

(d) Nuclear Finance Investment Management should update the financial source systems to ensure costs are directed to the new executing organization.

1.9.4 N-FORM-11170, Project Scope Control Authorization

Project Manager should document any project scope growth by completing N-FORM-11170 and associated Impact Checklist.

This should occur even if the scope change may be accommodated within released cash flows. This check list is a tool that may identify emergent issues not immediately considered at the time of scope approval.

The approved original is filed in the PM File. Refer to Section 4 for Record Keeping details.

2.0 ROLES AND ACCOUNTABILITIES

Refer to N-PROG-AS-0007

3.0 DEFINITIONS AND ACRONYMS

3.1 Definitions

Authorizing Authority of the executing organization is a position holder within OPG. This individual retains the authority to bind the corporation regarding PM decisions. It can vary in Stratum level or title (i.e., Director or Vice President).

Business Driver is a Business Unit's ability to meet Business Plan Objectives. Examples would be influences on Safety, Reliability, Human Performance, Value (decrease costs, increase revenue).

Decision Gate is a management hold point in the Project Life Cycle where decisions and approvals are required.

Directed Change is a project change resulting from event(s) outside the project's influence. *Directed Changes* are not a result of poor-planning. If a *Directed Change* is initiated, project performance going forward shall be measured against the new commitments. If a change is not a *Directed Change*, then project performance will continue to be measured against the previously approved commitments.

The following are examples of events which may result in a *Directed Change*:

(a) Major unforeseen station changes to outage or on-line plans and priorities (e.g. changes to outage dates, conflict with work on priority systems)

(b) Major unforeseen variations in site conditions (e.g. underground boulders, soil contamination, water level) provided that a reasonable and prudent effort was taken to survey site conditions.

(c) New and emergent requirements imposed by regulatory authorities (e.g. CNSC, TSSA, Ministry of Labour, Ministry of Environment) provided that a reasonable and prudent effort was taken to anticipate these new requirements (i.e., engineering code changes are usually communicated to practitioners ahead of time before the codes are enforced).

(d) Changes to project priorities or funding availability imposed by Portfolio Managers (including Business Planning by Finance) and AISC or PISC.

Nuclear Refurbishment (NR) Project Bundle refers to the major scope sub-projects that the NR overall program is divided into. A NR Bundle is typically further divided into smaller sub-project groups or individual projects.

Paper Plant is the collection of flow diagrams, engineering drawings and technical specifications that describe the SSC of the assets in Nuclear. This collection of information is analyzed to see how all the pieces safely interact with each other for the generation of electricity in Nuclear. It is the basis of the Regulatory license that allows OPG Nuclear to operate, maintain, and modify those assets.

Physical Plant - consists of the SSC that make up the assets in Nuclear.

Primary Approved Baseline Schedule consists of the schedule activities and logic described in the latest approved BCS from the last *Decision Gate*. A new *Primary Approved Baseline Schedule* is created when the approving OAR authority approves the next BCS required for the next project phase. For example, a Partial Release BCS ends, and a Full Release BCS is approved.

Project Baseline Schedule consists of the schedule activities and logic described in the latest approved PCRAF(s), and/or Superseding BCS within the duration of the same project phase. The *Project Baseline Schedule* incorporates the schedule impacts from approved changes between BCS approved, project phase *Decision Gates*.

3.2 Abbreviations and Acronyms

ACWP	Actual Cost of Work Performed
AFS	Available For Service
AISC	Asset Investment Screening Committee
ASL	Approved Suppliers List
ATO	Authorized to Operate
BCS	Business Case Summary
BCWP	Budgeted Cost of Work Performed
BCWS	Budgeted Cost of Work Scheduled
BOE	Basis of Estimate
BOM	Bill of Material
BU	Business Unit
BU VP	Business Unit Vice President
CAT ID	Catalog Identification in PassPort
CEO	Chief Executive Officer
CMFA	Constructed Minor Fixed Assets
CMO	Contract Management Office
CNE	Chief Nuclear Engineer
CNO	Chief Nuclear Officer
CPI	Cost Performance Index
CWP	Comprehensive Work Packages
DAIA	Design Authority Interface Agreement
DTL	Design Team Leader
DWI	Detailed Work Instruction
ECC	Engineering Change Control
ES MSA	Extended Services Master Services Agreement
EPC	Engineer, Procure, Construct
FAC	Financial Account Classification
FEP	Front End Planning
FIPR	Fabrication and Installation Package Release
FLM	First Line Manager
GRB	Gate Review Board
IM&CS	Inspection Maintenance and Commercial Services
INS	In Service Declaration
ITP	Inspection and Test Plan
MTL	Modification Team Leader
NR	Nuclear Refurbishment
NWMD	Nuclear Waste Management Division
OAR	Organizational Authority Register
OEB	Ontario Energy Board
OM&A	Operating, Maintenance and Administration
OPEX	Operating Experience
OPG	Ontario Power Generation
P&M	Projects and Modifications
PAC	Project Approval Committee
PCRAF	Project Change Request Authorization Form
PDRI	Project Definition Rating Index
PEP	Project Execution Plan
PIR	Post-Implementation Review

PM	Project Management
PMO	Project Management Office
PO	Purchase Order
PISC	Project Investment Screening Committee
PV_{Alt}	Present Value
QA	Quality Assurance
QSS	Quality Surveillance Staff
REGC	Regulatory Commitment
RFP	Request for Proposal
RFQ	Request for Quotation
RMP	Risk Management Plan
RRA	Records Retention Authorization
SC	Screening Committee
SCR	Station Condition Record
SOW	Statement of Work
SPI	Schedule Performance Index
SPOC	Single Point of Contact
TCD	Target Completion Date
PSRB	Program Scope Review Board (NR)
SSC	Systems, Structures and Components
VE VP NWMD	Value Engineering Vice President, Nuclear Waste Management Division

4.0 RECORDS AND REFERENCES

4.1 Records

4.1.1 The Project Manager is responsible for the record keeping of project documents.

4.1.2 There are two methods of Records Keeping for the controlled documents or records produced as a result of this procedure, and they are as follows:

(a) The Project Management (PM) File which is further described in the Records Retention Code (RRC) N02-0038. This RRC is:

(1) Managed in accordance with N-PROC-AS-0003, Controlled Document Management and N-PROC-AS-0042, Records and Document Management.

(2) Described in accordance with the first chart at the end of this section.

Note: Since the RRC has evolved over time, the Stratum III Project Manager is allowed to add disposition notes to the file that clarify discrepancies.

(b) The project working files are kept locally with the associated project management department, and are described in the second chart of this section. These records are retained for two years after the approval of the Project Closure Report, FIN-FORM-PA-005, and then destroyed.

4.1.3 Project Controlled Documents are associated with each other in PASSPORT by the Project Identification Number which is supplied by local Finance, and should be included with any filing submissions.

4.1.4 There are two types of Project Controlled Documents and Records;

(a) Those that record the impact of the modification on the Plant Design Bases, are governed by BU ECC procedures. Typically, these records and documents are described as QA Records, which in this situation is a Records classification.

(b) Those that describe the project management and BU Decision Committee business processes are governed by this procedure. These records and documents are classified as non-QA Records, and are filed in the PM File or project working file.

4.1.5 Within the PM File is the BCS which is an essential non-QA OPG Confidential Record which can be released to the Ontario Energy Board (OEB) during the rate setting hearings. Since the BCS can contain proprietary information such as estimates, contingency, vendor information, etc., the BCS should be managed differently than other records and documents in the PM File. That is,

(a) The BCS is indexed but not linked electronically in PASSPORT, so it cannot be viewed by unauthorized personnel.

(b) If requested by the OEB where it can be released into the public domain, the BCS should first be reviewed by Nuclear Finance. The sensitive information should be redacted with a heavy black marker prior to release in accordance with OPG-STD-0030, Classification, Protection and Release of Information.

(c) When Records staff receives a request to view or copy a BCS filed in the PM File, they should first receive permission from the Project Manager or PMO Manager prior to releasing the BCS to OPG personnel who are not listed on the BCS signature page. The original BCS should not leave the Site Secure Storage area.

Note: P&M Vice President has delegated the authority to these managers in accordance with OPG-STD-0030.

(d) PM File

Record Created	Associated Form Number	QA Record? Y/N	Filing Information/Retention (PASSPORT Type/Sub-Type)
Site PM File		N	Site PM File, filed by Project ID number. Retention = 6 Years after project closed per the approval of Project Closure Report, FIN-FORM-PA-005. Records Retention Code (RRC): N02-0038.

Record Created	Associated Form Number	QA Record? Y/N	Filing Information/Retention (PASSPORT Type/Sub-Type)
Project Charter	N-TMP-10117	N	Issued in Passport as Controlled Document Doc Type = PLAN Sub Type = PCH Doc No. N or P or, D-PCH--SCIXX-XXXXX Filed in site PM File. Retention = 6 Years after project closed per the approval of Project Closure Report, FIN-FORM-PA-005. RRC: N02-0038.
Type 1 Business Case Summary	OPG-FORM-0074	N	Indexed in Passport as Controlled Document Doc Type = PLAN Sub Type = BCS Doc No. N or P or, D-BCS-SCIXX-XXXXX Filed in site PM File, not linked in PassPort. Retention = 6 Years after project closed per the approval of Project Closure Report, FIN-FORM-PA-005. RRC: N02-0038.
Type 2 Business Case Summary	OPG-FORM-0075	N	Per OPG-FORM-0074 above.
Type 3 Business Case Summary	OPG-FORM-0076	N	Per OPG-FORM-0074 above.
Project Over-Variance Approval	OPG-FORM-0077	N	Per OPG-FORM-0074 above.
Project Execution Plan (without FEP process)	N-TMP-10119	N	Issued in Passport as Controlled Document Doc Type = PLAN Sub Type = PEP Doc No. N or P or, D-PEP-SCIXX-XXXXX Filed in site PM File. Retention = 6 Years after project closed per the approval of Project Closure Report, FIN-FORM-PA-005. RRC: N02-0038.
Project Execution Plan Form (with FEP process)	N-FORM-11172	N	Filed in site PM File as a Record.
Transfer of Portfolio Responsibility	N-FORM-11044	N	Filed in site PM File.

Record Created	Associated Form Number	QA Record? Y/N	Filing Information/Retention (PASSPORT Type/Sub-Type)
Lessons Learned Report	N-TMP-10204	N	Issued in Passport as Controlled Document Doc Type = REP Sub Type = LLD Doc No. N or P or, D-LLD-SCIXX-XXXXX Filed in site PM File. Retention = 6 Years after project closed per the approval of Project Closure Report, FIN-FORM-PA-005. RRC: N02-0038.
Report of Equipment In-Service (Capital Projects only)	FIN-FORM-PA-004	N	Filed in site PM File.
Project Closure Report	FIN-FORM-PA-005	N	Copy filed in PM File
Disposition Note	n/a	N	Filed in site PM File
Post Implementation Review (Simplified Template)	FIN-TMP-PA-002	N	Issued in Passport as Controlled Document Doc Type = REP Sub Type = PIR Doc No. N or P or, D-PIR-SCIXX-XXXXX Filed in site PM File Retention = 6 Years after project closed per the approval of Project Closure Report, FIN-FORM-PA-005. RRC: N02-0038.

(e) Project Working File

Record Created	Associated Form Number	QA Record? Y/N	Filing Information/Retention (PASSPORT Type/Sub-Type)
Project working file		N/A	Stored locally in the project management department. Destroy 2 years after close of project, i.e., clock starts after FIN-FORM-PA-005 approval.
AISC Part A: Issue Characterization	N-FORM-10765	N	Filed departmentally. Destroy 2 years after the close of the project.
Cost Estimate & Request for Conceptual Funding	N-FORM-10945	N	Filed departmentally. Destroy 2 years after the close of the project.
AISC Part B: Decision Record	N-FORM-10994	N	Filed departmentally. Destroy 2 years after the close of the project
Project Change Request Authorization (PCRAF)	N-FORM-10607	N	Filed departmentally. Destroy 2 years after the close of the project.
Project Scope Control Authorization	N-FORM-11170	N	Filed departmentally. Destroy 2 years after the close of the project.
Project Authorization Package (if applicable)	N-FORM-11466	N	Filed departmentally. Destroy 2 years after the close of the project.
NWMD Needs Statement (NWMD only)	N-FORM-11491	N	Filed departmentally. Destroy 2 years after the close of the project.

4.2 References

4.2.1 Performance References

- FIN-FORM-PA-004, Report of Equipment In-Service
- FIN-FORM-PA-005, Project Closure Report
- FIN-TMP-PA-002, Post Implementation Review Simplified Template
- I-PROC-MP-0001, Engineered Tooling Modification Process
- N-CHAR-AS-0002, Nuclear Management System
- N-FORM-10607, Project Change Request Authorization Form (PCRAF)
- N-FORM-10765, AISC Part A: Issue Characterization
- N-FORM-10945, Cost Estimate and Request for Conceptual Funding
- N-FORM-10958, Modification Outline
- N-FORM-10959, Design Scoping Checklist
- N-FORM-10994, AISC Part B: Decision Record
- N-FORM-11044, Transfer of Portfolio Responsibility
- N-FORM-11170, Project Scope Control Authorization
- N-FORM-11172, Project Execution Plan Form
- N-FORM-11252, Nuclear Refurbishment Change Control Form
- N-FORM-11392, Funding Request Form
- N-FORM-11454, OBU Funding Request
- N-FORM-11466, Project Authorization Package (PAP)
- N-FORM-11491, NWMD Needs Statement
- N-GUID-00120-10001, Nuclear Integrated Supply Planning
- N-GUID-09701-10014-R000, NR - Transfer of Work Process
- N-INS-00100-10000, Project Cost Estimating Instruction
- N-INS-00120-10014, Project Risk Management
- N-INS-00120-10019, Value Engineering
- N-INS-00120-10022, NR - Cost and Schedule Change Control
- N-INS-00150-10001, Contract Administration in ONCORE
- N-INS-06931-10001, On-Line Cycle Planning Process
- N-INS-09701-10005, Nuclear Project - Gated Process
- N-PLAN-08115-10000, Nuclear Operations Project Portfolio Business Plan
- N-PROC-AS-0069, Field Engineering Installation Quality Process

- N-PROC-AS-0074, Contractor Quality Surveillance
- N-PROC-HR-0018, Resolution of Differing Professional Opinions
- N-PROC-LE-0010, Nuclear Refurbishment - Cost and Schedule Change Control
- N-PROC-LE-0013, Nuclear Refurbishment - Contingency Development And Management
- N-PROC-MA-0013, Planned Outage Management
- N-PROC-MA-0022, Integrated On-Line Work Scheduling
- N-PROC-MP-0090, Modification Process
- N-PROG-AS-0007, Project Management
- N-PROG-RA-0003, Corrective Action
- N-QG-403-00023, Nuclear Project Staff Qualification Guide
- N-TMP-10019, Engineering Specification
- N-TMP-10117, Project Charter
- N-TMP-10119, Project Execution Plan
- N-TMP-10204, Lessons Learned Report
- OPG-FORM-0074, Type 1 Business Case Summary
- OPG-FORM-0075, Type 2 Business Case Summary
- OPG-FORM-0076, Type 3 Business Case Summary
- OPG-FORM-0077, Project Over-Variance Approval
- OPG-INS-08173-0001, Supplier Performance Monitoring and Scorecarding
- OPG-PROC-0058, Procurement Activities
- OPG-STD-0017, Organizational Authorities Register (OAR)
- OPG-STD-0076, Developing and Documenting Business Cases
- W-PLAN-08100-00002 NWMD Project Investment Steering Committee Terms of Reference
- W-TQD-400-00002, Nuclear Waste Management Division Engineering Support Personnel Training and Qualification Description

4.2.2 Developmental References

- FIN-MAN-CM-002, Technical Contractor Management Process Manual
- N-GUID-01920-10000, Guideline for Managing the Design Agency Interface, per N-STD-MP-0009
- N-INS-00700-10004, Facilities Commercial Modification Control
- N-INS-00700-10006, Commercial Modifications on Nuclear Sites
- N-PLAN-08115-10000, Nuclear Operations Project Portfolio Business Plan

- N-PROC-AS-0003, Controlled Document Management
- N-PROC-AS-0042, Quality Assurance Records
- N-PROC-MA-0024, System Performance Monitoring
- N-PROC-MP-0060, Aging Management Process
- N-STD-AS-0020, Nuclear Organization
- N-STD-MP-0009, Contractor\Owner Deliverables And Activities Interface Control
- NK38-INS-09701-10001, Darlington Refurbishment Program – Scope Review Instruction
- OPG-PROC-0005, Materials and Supplies Inventory and Control
- OPG-PROC-0007, Project Accounting and Reporting
- OPG-PROC-0056, Post Implementation Review
- OPG-STD-0030, Classification, Protection, and Release of Information

5.0 REVISION SUMMARY

This is an Intent revision.

- Revision bars have been used.
- Incorporate NWMD and the execution of certain NR projects transferred to P&M under this procedure.
    - Execptions updated to reflect inclusion of NWMD and NR projects
    - Added Section 1.4 regarding projects funded by NR and executed by P&M
    - Performance and Developmental References, Acronyms and Definitions updated.
- References to FAC 22860 were removed in order to align with current Finance processes
- Aligned the procedure with existing processes such as:
    - Financial oversight of Provision Funding by NWMD PISC
    - Changes to BCS process in accordance with OPG-STD-0076
    - Financial oversight of Nuclear Refurbishment Funding by Program Scope Review Board and Gate Review Board
    - Project phase milestones and deliverables updated
    - Project Control metrics expanded

- Revisions to N-FORM-10607 & N-FORM-10945
- New forms N-FORM-11466 & N-FORM-11491
- ES MSA Request for Work
- Revised PCRAF annual cash flow threshold
- Records Retention Codes.

- Added additional detail on project phase *decision gates* including updated figures
- Manager of Finance - Nuclear Investment Management summarizes in N-FORM-10765, AISC Part A, the fleet wide review to determine if an adverse condition or opportunity exists.
- Incorporated dispositioned recommendations from N-PLAN-08115-10000, 2011-2020 Nuclear Operations Project Portfolio Business Plan
- Incorporated dispositioned recommendations from AR 28124311-02 (i.e., resolve procedural gaps between Portfolio and NWMD funded projects)
- Added the Conduct of Project Management Performance Indicators Annual Cost Growth and In-Service Milestones
- Added paragraph regarding expedited projects
- Changed ‘Executive Management Team’ to ‘Enterprise Leadership Team’
- The ambiguous phrase ‘senior management’ was replaced with ‘project executive stakeholders’ who are those Executive Representatives listed in the N-FORM-11172, PEP Section 4.0 Project Organization Map
- Appendices revised
- Performed a grammatical clean up of the document.

Appendix A: Business Unit Project Decision Committees

A.1.0 BUSINESS UNIT DECISION COMMITTEES

BU Decision Committees (e.g., AISC and PISC) are senior cross-functional committees with representation from the BU, Engineering, Nuclear Finance, and P&M. These committees provide a forum to review BSCs and their supporting documents. For details regarding PISC, see W-PLAN-08100-00002 NWMD Project Investment Steering Committee Terms of Reference. The committees may perform the following:

(a) Challenge whether there has been an acceptable range of alternatives considered.

(b) Challenge the feasibility of the proposed solution to the Business Gap or opportunity.

(c) Consider whether the solution has taken advantage of all available OPG Management Systems.

(d) Determine if the solution has identified all internal department resources and has received commitments from the respective departments.

(e) Consider whether there has been an effort to reduce engineering costs.

(f) Recommend approval regarding additions to the Nuclear and Provision Portfolios by reviewing the Rolling Agenda.

(g) Prioritize the investments on a fleet basis.

(h) Approve a recommended schedule for investments.

(i) Determine the overall fleet priority and schedule for proposals.

(j) Recommend improvements to the PM governance and processes.

(k) Seek advice from subject matter experts.

(l) Provide the review of business risk to the fleet and prioritizes the project Nuclear and Provision Portfolios to minimize that risk.

(m) Determine if the BCS provides a strategy to spread implementation costs across the nuclear fleet.

A.2.0 SITE SCREENING COMMITTEE

Sponsored by the BU VP, the Site Screening Committee (SC) receives from OPGN staff issues that have been identified as opportunities for investment or as business gaps between current performance and *business drivers*. The Site SC provides technical dispositions to the Business Gap or opportunity which typically may not be resolved with the available site resources.

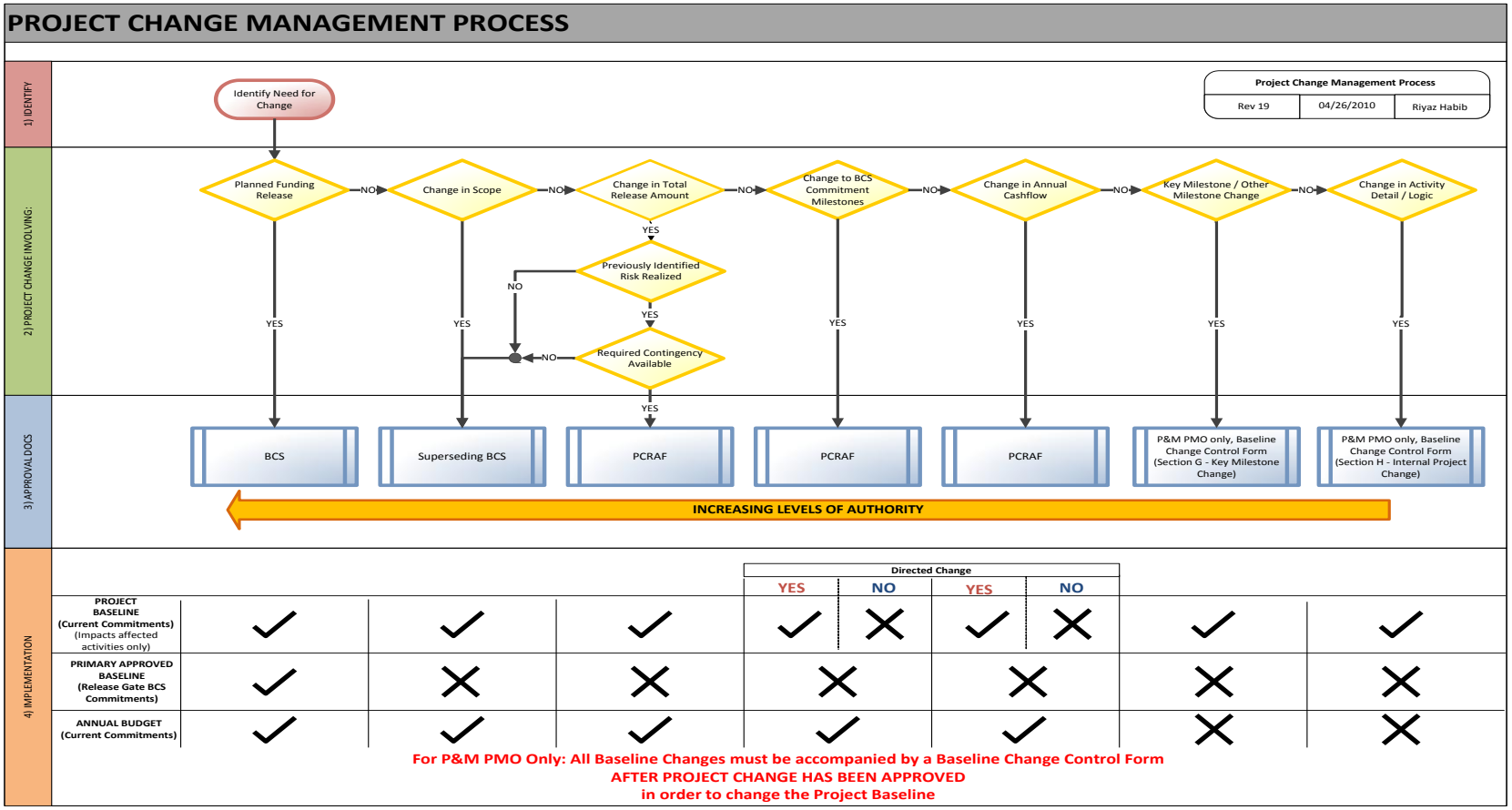
A.3.0 SITE PROJECT APPROVAL COMMITTEE

Sponsored by the BU VP, the Site Project Approval Committee (PAC) reviews the scope of the individual projects being executed at their site and considers the cumulative effect to the site's portion of the Portfolio, as well as the fleet view perspective and adherence of the project's cost and schedule to the Business Plan. The Site PAC reviews all submitted PCRAFs, consider their affect on the Portfolio cash flows, and offer their recommendation to the BU VP.

ONTARIO POWER GENERATION

Internal Use Only		
Document Number: N-PROC-AS-0039		Revision: R011
Usage Classification: Information	Sheet Number: N/A	Page: 53 of 53

Appendix B: Project Change Management Process



UNDERTAKING J15.7

Undertaking

To provide which of the Tier 1 Business Case Summaries referred to at Attachment 1 of L-4.2-AMPCO-17 have gone through the revised gated process.

Response

The following four Tier 1 Business Case Summaries referred to at Attachment 1 of L-4.2-AMPCO-17 have gone through the revised gated process:

- 31710 - DN Shutdown Cooling Heat Exchanger Replacement
- 31508, 49158, 49299 - Fukushima Phase 1 Beyond Design Basis Event Emergency Mitigation Equipment
- 41027 32202 - Fukushima Phase 2 Beyond Design Basis Event Emergency Mitigation Equipment
- 73566, 80144 - Primary Heat Transport Pump Motor Replacement/Overhaul

UNDERTAKING J15.8

Undertaking

Where available, provide the past five years' historical SPI and CPI values for the Projects and Modifications' portfolio (at the aggregate level), as well as any forecast SPI and CPI.

Response

Table 1 below provides historical SPI and CPI values for the period 2012 to 2016. An index score greater than 1.0 indicates performance better than target while less than 1.0 represents a score worse than target. As noted at Tr. Vol. 15, p. 63, OPG does not forecast SPI and CPI.

Table 1

Project & Modifications SPI, CPI 2012-2016

	Target	2012	2013	2014	2015	2016
Cost Performance Index (CPI)	1.00	1.05	1.02	0.99	1.01	1.03
Schedule Performance Index (SPI)	1.00	0.95	0.87	0.85	0.81	0.85

UNDERTAKING J15.14

Undertaking

To provide, out of those 85 former employees that were rehired, how many were simultaneously or concurrently retiring and being rehired in a very short period of time. OPG to quantify “short period of time” in its response.

Response

10 out of the 85 rehires referenced in L-6.6-2 AMPCO-140 retired and then were subsequently rehired in less than one month. 4 of the 10 individuals rehired in a short period of time are previously nuclear authorized operators and are in positions that require them to have been licensed.