**PROJECT PROGRESS ASSESSMENT REPORT** **(PPAR)**

**National Projects**

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|  | ***Explanations*** |
| ***SECTION-1: BASIC INFORMATION*** |
| **Project Number and Title**    | IRA/2/011 | *(prefilled)* |
| **Country** | Islamic Republic of Iran,  |
| **Counterpart** **Name & Institution**  | Nuclear Power Production and Development Company of Iran, Atomic Energy Organization of Iran |
| **1st Year of Approval** | 2011 |
| **Estimated Duration** | 5 YEARS |
| **Expected End Date** | 31/12/2015 |
| **Total Project Budget** *(as per IAEA White Book)* |  |
| **Reporting Period** | ☐ January - June ☐ July - December | *Tick one reporting period* |
| **Report Contributors**  |       | *Other contributors to the report besides counterpart* |
| **Has there been any major change that affected the project?** | ☐ Yes ☐ NoIf yes, tick to specify nature of change(s):☐ CP1 ☐ NLO2 ☐ PMO3 ☐ TO4☐ Budget/funding; ☐ Other (*specify*)[Provide explanation]……       | *Select “Yes” or “No” and, if “Yes”, please tick relevant box(es) and describe nature of impact* |
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| ***SECTION-2: OUTPUTS ACHIEVEMENT*** |
| *Select status of Output and briefly describe elements of progress towards target indicators: (1st column prefilled)* |
| Output 1: Safety program is assessed and improved (80%)Indicator(s): Proactive safety performance indicators include human performance indicatorsImproving the knowledge of Bushehr NPP performance in Reactor Core Monitoring | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*).      | *Select status and provide explanation/ supporting background information (e.g., Why is the output delayed? What mitigation measures have been taken to solve the issue?)* |
| Output 2: … Maintenance program is optimized and updated (92%)Indicator(s): Development of equipment M&R history incorporating changes due to construction, installation and M&R activities.Development of equipment maintenance and repair documents based on manufacturing documents and assembly drawingsEstablishment of permanent warehouse system in BNPP.Preparation of checklist and control documents of main equipment M&R activities to increase quality performance and analysis of results.Decreasing the rate of personnel radiation exposure(1.17.2)Decreasing the waste and the decontamination time(1.17.2) | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*) [Provide explanation]……       |
| Output 3: Technical Support program is modified (80%)Indicator(s): Initiation of selected equipment aging management programmes with a view to be expanded to other equipment. | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*) [Provide explanation]……       |
| Output 4: BNPP training program is updated.(60%).Indicator(s): Basic requirements for equipment of training laboratories and workshops developed using Balakovo NPP training center experience.Training methods of M&R personnel established based on Systematic Approach to Training (SAT) | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*) [Provide explanation]……       | *Insert additional rows if more than 4 outputs* |
| Output 5. Improved capability in legal and contractual issues relating preparation of required contracts for operation and maintenance of BNPP1 (60%) | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*) [Provide explanation]……       |  |
| Output 6.Overall HRM system for BNPP-1 is in progress of improvement (50%) | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*) Provide explanation]……       |  |
| Output 7. Improvement of BNPP-1 full scope simulator (FSS) performance in progress (30%) | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*) [Provide explanation]……       |  |
| Output 8. Increased owner organization capability in application of nuclear oversight function (70%) | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*) [Provide explanation]……       |  |
| Output 9. BNPP Training Centre in process of upgrading (60%) | ☐ Completed ☐ On schedule ☐ Delayed ☐ Other (*specify*) [Provide explanation]……       |  |
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| ***SECTION-3: EQUIPMENT & HUMAN RESOURCES*** |
| *Based on TC Input categories, rate overall contribution towards achievement of project Outputs of Procurement and Human Resources capacity building Activities implemented thus far* |
| Equipment (EQ)/ Sub-Contract (SC) | ☐ Not Applicable☐ Very Good ☐ Good ☐ Fair ☐ PoorFinding weaknesses and helping in optimizing the equipment performance of primary and secondary circuits. .(3.4.1)     Necessity of modernization of chemical control system related to the primary and secondary circuits and its impact in preventing personnel errors. .(3.4.1) Pipeline vibration measurement and mitigation methods(2.2.3)Investment in updating the novel equipment of decontamination(1.17.2) | *Select overall rating and provide explanation/ supporting background information deemed relevant to support rating**(e.g., Is the procured EQ on schedule as regards delivery/ custom clearance/ installation-commissioning/ utilization? If not, what is being done to overcome difficulties?**How did/ will the training received through FEs/ SVs support the establishment of new services? Are the trainees still employed?**How did/ will the technical guidance received during/after EMs help improve capabilities of the Counterpart Institute?* *Was/will the knowledge and experience gained by TC/ WS participants shared/ be shared among colleagues to enhance institutional performance? How was/ will this done/ be done?)* |
| Expert Missions (EM) | ☐ Not Applicable☐ Very Good ☐ Good ☐ Fair ☐ PoorInvestment in updating the novel equipment of decontamination(1.17.2)Improvement method of primary and secondary circuit of BNPP chemical water regime.(3.4.1)Enhancing personnel knowledge on chemical water regime criteria and the necessity of more acquaintance with the importance of control chemical parameters as equipment lifetime indicator. .(3.4.1) |
| Fellowships (FE) | ☐ Not Applicable☐ Very Good ☐ Good ☐ Fair ☐ Poor[Provide explanation]……       |
| Scientific Visits (SV) | ☐ Not Applicable☐ Very Good ☐ Good ☐ Fair ☐ PoorImproved Training methods of M&R personnel established based on Systematic Approach to Training (SAT)(91.1) |
| National Training Courses (TC) | ☐ Not Applicable☐ Very Good ☐ Good ☐ Fair ☐ Poor[Provide explanation]……       |
| Meetings (MT)/ Workshops (WS) | ☐ Not Applicable☐ Very Good ☐ Good ☐ Fair ☐ PoorImproving the knowledge of Bushehr NPP performance in Reactor Core Monitoring; (1.22.1)Comparisons between the in-core monitoring system data and calculations during the fuel cycle operation. |
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| ***SECTION-4: COMMENT AND RECOMMENDATIONS BY CP*** |
| **Rating by CP**  | The project performance:☐ Very Good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor[Provide explanation]……       | *Select rating based on experience thus far and provide explanation/ supporting background information deemed relevant to support rating* |
| The support received from the Agency: ☐ Very Good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor[Provide explanation]……       |
| **Lessons learned** | In fulfillment of the Safety guide NS-G-2.5 requirements (an independent verification of computational results) a Bushehr NPP need new code package as HELHEX (The Bulgarian code package) for VVER-1000 reactor core steady-state neutron physics calculations, IAEA should help Bushehr NPP to establish a new code package for neutron physics calculations. | *Highlight key factors of success / failure that can promote/ hinder the achievement of project outputs and may impact TC Programme delivery* |
| **Recommendation(s) by CP to:** | ☐PMO      ☐TO      ☐NLO/Government      ☐CP Management      ☐Other (specify)       | *Select addressee and provide recommendation(s) to be addressed* |
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| ***SECTION-5: OUTCOME PROGRESS:*** *(1st column prefilled)* |
| Outcome StatementAssessment of BNPP performance and safety indicators and Improvement in some area | ☐ Achieved ☐ To be achieved as planned (on schedule)☐ Delayed ☐ Other (*specify*)Output 1:1. Strengthened capability of 20 experts of the owner organization in safety and severe accident management of BNPP-1 based on stress tests (1.12.1)
2. Strengthened capability of 25 experts in BNPP on-site and off-site monitoring system during normal and accident situations (1.16.1)
3. Owner capabilities strengthened on BNPP security procedures (1.5.1)
4. Physical protection system (PPS) effectiveness assessed, procedures developed/improved, and needed changes of its design recommended (1.6.1)
5. Strengthened capability of operating organization in practical application of Living Probabilistic Safety Assessment (LPSA) for safe operation of BNPP (1.3.1)
6. Development of process and methodology for assessment and improvement of BNPP safety culture(1.13.1)
7. Strengthened capabilities of BNPP personnel on proactive safety management during operation and outage and on operational safety indicators (8.2.1)
8. Preparations for implementation of IAEA OSART mission(1.11.1)
9. Performing neutronic calculations in order to decide upon the next fuel loading; (1.22.1)
10. Comparing the current situation of Bushehr NPP with ideal Reactor Core Monitoring. (1.22.1)
11. Improving the process of supervising the activities and processes in NPP(1.4.1)
12. Improving the field of identifying and analyzing the safety events and distractions; (1.4.1)
13. Improving the analysis of root causes of safety events and distractions and developing the corrective measures (1.4.1)
14. Better understanding of the OSART proresses, methodology, roles and responsibilities. Additional NPPD/BNPP-1 observer is planned in 2015. Very useful assistance for preparations of the planned OSART mission to BNPP-1
15. Enhanced knowledge of 25 expers from BNPP-1 and NNSD (regulator) on Reactor Core Monitoring for improving BNPP-1 performance. For fulfilment of requirements for independent verification of computational results (NS-G-2.5) it is recommended to establish a new code package for reactor core steady-state neutron physics calculations as HELHEX (Bulgarian code package) for VVER-1000 reactor.

Output 2:1. Maintenance strategy, predictive/preventive maintenance programme and M&R procedures developed;20 staff of M&R department capable of using the new methods in M&R process planning and implementation of procedures.(8.4.1):
2. Improved outage management organization, implementation and support activities; strengthened outage management capabilities on safety requirements (TECSPEC) and plant system operation (3.1.1)
3. Improved spare parts and warehouse management; establishment of databases and datasheets of main equipment spare parts, special tools and consumer materials(2.1.1)
4. Strengthened capabilities on modern methods of maintenance and repair of rotating equipment (3.7.1)
5. Strengthened owner's capabilities for effective decontamination work management during the operation and maintenance activities on VVER-1000 reactor in BNPP-1, with emphasis on safety (mainly in radiation protection), operational reliability and waste management. Further efforts are needed to clarify the responsibility interface between the decontamination needs/requirements and the chemical and radwaste processes/needs requirements, as well on the need for external technical/engineering support. (1.17.2)
6. Regarding decontamination work management BNPP has received nine recommendations from IAEA experts in this area and is currently assessing and examining them.(1.17.2)

Output 3:1. Strengthened capabilities of 20 experts of the owner organization on practical application of technical support of utility/operating organization.(8.7.1)
2. Safety performance Indicators (SPI) established in compliance with the latest IAEA guidance and word practices (3.5.1)
3. Strengthened BNPP personnel capabilities in methods and procedures for Plant Life Management (PLIM) programme and Aging Management Programme(AMP); and on interfaces and functionality of PLIM and AMP teams(3.2.1)
4. Strengthened BNPP personnel capabilities in using advanced Ultrasonic Test (UT) methods, equipment, measurements and evaluation techniques; BNPP In-Service-Inspection (ISI) programme updated(3.3.1)
5. BNPP radioactive waste management (RWM) programme assessed and recommendations for its further improvement provided (8.5.1)

F) Changes of chemical water regimes in multiple process and periods could be lead to the failure of steam generator and secondary circuit equipment. (3.4.1)1. Improved vibration management organization, (2.2.3)
2. Introduce to nonrotating ( Pipeline&valve) vibration measurement and mitigation methods
3. Introduction to method of measuring the vibration of turbogenerator and RCP.
4. This follow-up assistance strengthened capability of 4 experts on modern methods for measuring vibrartion of rotating equipment with focus on the VVER-1000 reactor coolant pump and the turbine-generator, as well as on improving vibration management organization.

Output 4:1. Assessmentof BNPP-1 selected operational training programmes&procedures and development ofcorrective actionplan in progres (4.1.1)
2. Improved Training methods of M&R personnel established based on Systematic Approach to Training (SAT)(9.1.2)
 | *Select status and provide explanation/ supporting background information (e.g., based on the outcome indicator and its target value, to what extent the outcome is being achieved? Is there any deviation from expectations? Why?)* |
| Outcome Indicator (s)Performance and safety indicators are assessed and in some area improved by the end of 2014 in comparison with the baseline |
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| ***SECTION-6: CLEARANCE BY NLO*** |
| **Clearance by NLO** | Date:       | *Day, Month and Year* |
| Remarks:       | *Provide any additional remark deemed relevant* |
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***SECTION-7: FEEDBACK BY IAEA ON THE REPORT*** |
| **Comments by TO(s)** | ☐ Very Good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor [Provide explanation]……       | *Rating and feedback from TO(s)* ***on the report*** |
| **Comments by PMO** | ☐ Very Good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor [Provide explanation]……       | *Rating and feedback from PMO(s)* ***on the report*** |
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1**CP**: Counterpart 2 **NLO**: National Liaison Officer

3**PMO**: Programme Management Officer 4**TO**: Technical Officer