1. Basic Information
   1.1 CRIS Number: 2004/016-815.02.02
   1.2 Title: Technical assistance to the Romanian Nuclear Regulatory Authority to deal with important aspects of the future commissioning activities
   1.3 Sector: Nuclear safety
   1.4 Location: Romania (Bucharest)

2. Objectives
   2.1 Overall Objective(s):
   - To increase the level of nuclear safety in Romania by applying the recommendations within the document CONF-RO 28/01 European Union Report on nuclear safety in the context of enlargement

   2.2 Project purpose:
   - to strengthen the skills of CNCAN staff involved in the commissioning phase of Cernavoda NPP Unit 2
   - to provide adequate procedures/regulations for NPP requirements related to all commissioning phases

   2.3 Accession Partnership and NPAA priority
   - **AP (medium term priority)**
     - Strengthen regulatory structures for nuclear safety and radiation protection
   - **NPAA (short term priorities)**
     - Strengthen the National Commission for Nuclear Activities (CNCAN) as national authority responsible in the field of the safe deployment of nuclear activities.

   Report on Nuclear Safety in the context of Enlargement (CONF-RO 28/01)
   - EU Atomic Questions Group (AQG) and the Working Party on Nuclear Safety (WPNS) underline that Romania should pay particular attention to the following:
     a) Type II general recommendations **Regarding the regulatory quality management**: “measures to implement a modern, well documented quality management system for the regulatory authority”
     b) Type I recommendation (short term priority) **Regarding the capability and resources of the regulator**: “develop and implement an action plan for the regulatory body (CNCAN) including in particular a training programme and technical support in order to strengthen ...its inspection practice”.

2.4 Contribution to National Development Plan
   N/A.

2.5 Cross Border Impact
   N/A.
3. Description

3.1 Background:

This project is part of the European Community funded PHARE nuclear safety programme for economic and technical assistance to the Central and East European States prior to their expected accession to the European Union. For Romania, in the field of nuclear safety, this effort largely comprises the transfer of Western European Regulatory Methodology and Practices to the Nuclear Safety Authority of Romania, the National Commission for Nuclear Activities Control (CNCAN).

Cernavoda NPP is the most important nuclear facility in Romania, being equipped with a CANDU 600 MWe reactor. The Unit 1 went into full commercial operation on December 2nd, 1996, while the commissioning of the Cernavoda NPP Unit 2 is expected for December 2006.

All nuclear activities are authorised and controlled by the National Commission for Nuclear Activities Control (CNCAN), which according to the Romanian legal provisions (Law no. 111/1996 on safe deployment of nuclear activities, with subsequent modifications and completions) is the national regulatory authority in the field of nuclear safety. CNCAN issues an operation licence for Cernavoda NPP Unit 1 every two years, and in perspective of the commissioning of the Cernavoda NPP Unit 2 takes all measures to enhance its specific capabilities related to independent assessment, control, inspection, etc. Until now, for Unit 2, CNCAN issued the construction licence (renewed in October 2003 and valid until October 2006) and the licence for quality assurance programme (renewed in January 2003 and valid until December 2004).

Justification

The scope of this project is to strengthen and enhance the effectiveness of the Romanian Nuclear Regulatory Authority to review and assess the commissioning programme and improve its testing competence whether the “as-built” facility meets the stated requirements of Cernavoda NPP Unit 2, whose commissioning is estimated to take place at the end of 2006.

Therefore the goal of this project is to increase CNCAN staff capability to perform the reviewing and the assessment of the commissioning programme deployment, the NPP organizational structure, the qualification of operating personnel, the emergency planning, the preliminary operational limits and conditions and the preliminary operating procedures.

The main milestones took into account by CNCAN within the licensing programme for commissioning of Cernavoda NPP Unit 2 are: issuing of construction licence (performed in 2003), reviewing of related documentation and approval of receiving and storage of D$_2$O, reviewing of related documentation and approval of receiving and storage of nuclear fuel, reviewing of related documentation and approval of loading of D$_2$O into moderator, reviewing of related documentation and issuing of commissioning licence, reviewing of related documentation and approval of fuel loading; reviewing of related documentation and approval of D$_2$O loading into heat transport system, reviewing of related documentation and approval for hot performance tests, reviewing of related documentation and approval for first criticality, approval the power ascensions (5%, 25%, 50%, 75%, full power).

Based on the knowledge received as result of this project, CNCAN will have enhanced capability to properly perform its tasks related to the reviewing and the assessment of the
completion of the commissioning process. This issue will assure to CNCAN staff confidence related to the commissioning tests results, established operational limits and conditions and the NPP future safe operation as bases for each licensing step of Cernavoda NPP Unit 2.

The project is also required with a view of the new CNCAN organisational structure, including a number of new comers who have to be familiarised with the responsibilities and specific regulatory tasks related to the NPP commissioning.

3.2 Linked activities:

It is important to pay attention to avoid any duplication with other assistance activities.

**Phare funds:**

- **Project RO/RA/01 “Transfer of Western Regulatory Methodology and Practice to the Nuclear Safety Authority of Romania” (1st year)** developed by CWR during 1997-1998, being a first step in defining the new regulatory policies and practices, taking into account the similar Western Regulatory Authorities experience. The results of this project have been the obtaining of a high level of perception and analysis of regulatory aspects in the field of regulations and guides, organisation of the nuclear regulatory authority, improvement of inspection and safety assessment practice related to plant operation, trained CNCAN personnel in dedicated field, such as inspection practice, assessment methodology of key safety related topics -transients and accident analysis, FSAR methodology, I&C, regulatory approach to review the on-site emergency plan, and equipment supply.

  *Connection with the new proposal:* this new proposal is considered as a new one, being dedicated to the specific regulatory aspects related to the commissioning process and not to regulatory control of plant operation which were the subject of RO/RA/01.

- **Project RO 01.10.01 “Nuclear Safety Regulatory Regime Consolidation”** developed in the framework of the Programme for Community Support in the field of Nuclear Safety for 2001 in Romania. The objective of this project is to support CNCAN with a view of its technical capabilities consolidation related to the radioactive waste management, raw materials mining and milling, safeguards, physical protection and nuclear safety. The project is dedicated to the technical assistance in the elaboration and reviewing the existing norms and regulations covering the areas identified above.

  *Connection with the new proposal:* there is no connection of this new proposal with the project RO 01.10.01.

**Other donors: IAEA Technical Co-operation Programme**

- **Project ROM/9/007 “Licensing of Cernavoda Nuclear Power Plant”** developed between 1991-1998. The Agency provided 12 expert missions, including an IRRT, on the following main topics: regulatory process administration, operator licensing evaluation, reactor operator’s licensing, accident analyses, stress analyses, review of regulatory decisions for commissioning, underwater examination of Cernavoda NPP spent fuel. A number of on the job trainings were carried out in the following areas: quality assurance with emphasis on standards and codes; radiation protection, including internal contamination, dose assessment, whole body counting calibration; analysis of safety systems from I&C point of view; regulatory inspections; fuel
management for CANDU-6. Some equipment was also delivered (computers, printers and books).

Connection with the new proposal: This new proposal is a continuation of the project ROM/9/007 being focused on complementary aspects to those addressed in the IAEA project.

- Project ROM/9/019 “Strengthening Nuclear Safety Regulatory Authority” approved as “model project” and developed between 1997-2002. The objectives of this project were focused to increase the Romanian Nuclear Safety Authority efficiency and to support the performance of the regulatory functions at the required level by the best international practice and in accordance with the requirements of the Nuclear Safety Convention. The Agency provided 13 safety missions, including an IRRT full scope mission, related to: safety inspections of components, inspection of ageing valves, review of operators certification training program, licensing for radioactive sources, regulatory analysis of FSAR. Training was also provided in the following areas: radiation protection – medical and industrial facilities, including aspects related to waste disposal activities; physical protection; safety assessment of CANDU type reactors; regulatory inspection of CANDU type reactors.; seismic evaluation of safety related systems and components. It was organized a basic professional training course on nuclear safety. Some pieces of equipment were also supplied (computers).

Connection with the new proposal: there is no connection with this new project proposal.

3.3 Results:

The results of the project will ensure enhanced regulatory capabilities with a view to the commissioning phase of Cernavoda NPP Unit 2 and should be summarised as follows:
- regulations for NPP requirements related to all commissioning phases,
- trained CNCAN staff in dedicated aspects covering the whole regulatory process for preparing the commissioning phase
- training materials for regulatory review of specific documentation with a view of commissioning and operation phase

3.4 Activities:

The activities envisaged to be covered under the terms of this project shall comprise the following items:

- Specific training course based on the western experience in the field, and know-how transfer for supporting the CNCAN staff to perform the regulatory activities related to the evaluation of the commissioning program; planning and supervision of regulatory activities during commissioning tests, regulatory involvement on test supervision and assessment of test results. During the training activity it is expected to be transferred the western experience regarding the specific organization of the regulatory authority during the licensing of NPP commissioning, when task force projects will be setup. The CNCAN staff will learn to perform the following activities:

Evaluation of the overall and detailed commissioning program;
Establishing the commissioning test that will be witness by CNCAN;
Witnessing of the commissioning test;
Evaluation of the commissioning reports and test results;
Assessment of the commissioning performances in order to issue regulatory approval of each commissioning phases;

- Specific quality assurance training course and transfer of know-how in order to enhance CNCAN staff capability with a view of the quality assurance management systems during commissioning and NPP early operation. Is expected that after the training, the CNCAN staff will be able to evaluate and to audit the quality management system of the commissioning organization and the organization that will take over the operation responsibility. CNCAN issued regulations for quality management requirements, based on International Atomic Energy Agency, Canadian and American standards and guides. Based on international recognized requirements, the European Union experience will be useful in developing the knowledge and skill in assessing the quality management documents and in auditing of the commissioning and operating activities. Additional to the basic quality management requirements (organization, responsibilities, interfaces, feedback experience, processes and practices, nonconformities, correctives actions, improvement) specifics requirements managed by the CNCAN trained people in evaluation of commissioning and operating activities: planning, control of structure, systems and components, design, changes, turnover responsibilities, maintenance, operating, surveillance, radiation protection, will be performed. The transfer of experience in the field, and know-how from the EU to CNCAN staff will be performed trough lessons taught and joint inspection made to utility.

- Specific training course and transfer of know-how for supporting the CNCAN staff to perform the regulatory activities related to the assessment of supporting documents for operation licence. Methodology to assess NPP compliance with design requirements, methodology and plan to review a Final Safety Analysis Report. Mainly the activities needed to be learned by CNCAN staff cover the evaluation of the following document categories:

  - Final Safety Analysis Report
  - Operating Manual
  - Commissioning Procedure
  - Operational flowsheets
  - Detailed commissioning plans
  - Policy and reference documents
  - Design manuals
  - System and Item Classification List
  - Design Change Notice
  - Environment qualification requirements

- Elaboration by the western experts together with the CNCAN staff of the related regulations for NPP commissioning requirements covering all commissioning phases. These ones include structure and responsibilities of the commissioning organisation; content of the commissioning programme, acceptance criteria, regulatory approval; establishing of the commissioning stages/milestones (systems, documentation, acceptance criteria, regulatory licences/approvals); testing detailed plan, procedures, deployment, records, acceptance; turnover between construction-commissioning-operation organisations interfaces; personnel calibration. Finally the training programme will help the CNCAN staff to issue a set of specific regulation, similar with the western commissioning regulations.
Consideration will be also given to the requirements of documentation to be submitted for justification from safety point of view.

In performing these activities, the know-how transfer will be achieved with respect to objectives, criteria, methods and approaches to be followed in the regulatory supervision of the commissioning phases of NPP.

It is important to emphasise that the training courses should based on concrete cases rather than on general situations.

3.5 Lessons learned:
N/A.

4. Institutional Framework
In Romania, the regulatory authority in the field of nuclear safety is the National Commission for Nuclear Activities Control (CNCAN). CNCAN is an authority independent from the ministries and other organisations with role in the promotion and using the nuclear energy in peaceful purposes. CNCAN is led by a President, as State Secretary appointed by the Prime Minister. According to the provisions of Governmental Urgency Ordinance no. 11/2004, CNCAN is under the co-ordination of the Prime Minister of Romania through its Chancellor’s Office.

The legal framework for developing its activities is set-up by the Law no. 111/1996 on safe deployment of nuclear activities, with further modifications and completions. According to the legal provisions, CNCAN is empowered to issue norms and regulations for the specification in detail of the general requirements for nuclear safety, for control and regulation the nuclear activities, to issue operation licences for the nuclear objectives and installations. According to the provisions set-out in the law, CNCAN is empowered also to issue authorizations for all phases of the nuclear facilities and plants, including designing, siting, production, construction and installation, commissioning, test operation, operation and maintenance, repair or modification, conservation and decommissioning.

Also, CNCAN is empowered to verify the compliance with the legal provisions, to suspend or withdraw licences or practice permits in case of failure of the legal provisions, to apply sanctions under the provisions of the law and to decide on the use of its own funds.

The project will be implemented based on the divisions/sections involved in the commissioning activity and the Project Implementation Unit within CNCAN.

5. Detailed Budget

<table>
<thead>
<tr>
<th>Phare</th>
<th>Support</th>
<th>MEuro</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment Support</td>
<td>Phare (I+IB)</td>
</tr>
<tr>
<td></td>
<td>Institution Building</td>
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</tr>
<tr>
<td>Contract 1</td>
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<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>
6. Implementation Arrangements

6.1 Implementing Agency
The project will be implemented in accordance with the Practical Guide to contract procedures financed from the General Budget of the European Communities in the context of external actions and the Operational Relations with regard to decentralised implementation of PHARE Nuclear Safety Programmes (set-out in January 24th, 2002). The CFCU within the Ministry of Finance will be the Implementing Agency responsible for tendering, contracting and accounting.

Implementing Agency
CFCU – Mrs. Jeana Buzduga, Director
6-8 Magheru Avenue, 5th floor
Sector 1, Bucharest
Phone: +4021 301 93 01
Fax: +4021 210 64 56
E-mail: jbuzduga@cfcu.ansit.ro

Implementing Authority
National Commission for Nuclear Activities Control
Dr. Lucian Biro, State Secretary, President
Libertatii 1 Blvd, sector 5, Bucharest
Phone: +4021 410 05 72
Fax: +4021 337 38 87
E-mail: lucian.biro@cncan.ro

6.2 Twinning
N/A

6.3 Non-standard aspects
N/A.

6.4 Contracts
One contract in an amount of about 0.5 MEuro

7. Implementation Schedule
7.1 Completion of the tender dossier, start of tendering: 2nd Quarter 2005
7.2 Selection of a contractor, signature of the contract: 3rd Quarter 2005
7.3 Start of the project activities: 4th Quarter 2005
7.4 Completion of project activities: 4th Quarter 2006

8. Equal Opportunity
Equal opportunity for men and women to participate in all component of the project will be ensured.

9. Environment
No environmental impact is foreseen under this project.

10. Rates of return
Economic rate of return: N/A
Financial rate of return (where applicable): N/A
What (pre)feasibility studies have been completed, when and by whom: N/A
11. **Investment criteria**

11.1 **Catalytic effect:**
   The proposed project will help CNCAN staff to better prepare for the commissioning phase of Cernavoda NPP Unit 2.

11.2 **Co-financing:**
   N/A.

11.3 **Additionality:**
   N/A.

11.4 **Project readiness and Size:**
   No preliminary study has been completed. The project complies with the 0.5 Meuro minimum Phare allocation requirement.

11.5 **Sustainability:**
   N/A.

11.6 **Compliance with state aids provisions**
   The project respects the state aids provisions.

12. **Conditionality and sequencing**
   The project has to be successfully completed before the end of 2006, the estimated date of the commissioning date of Cernavoda NPP Unit 2.

**ANNEXES TO PROJECT FICHE**

1. Logical framework matrix in standard format (compulsory)
2. Detailed implementation chart (compulsory)
3. Contracting and disbursement schedule by quarter for full duration of programme (including disbursement period) (compulsory)
### Overall objective
- To increase the level of nuclear safety in Romania by applying the recommendations within the document CONF-RO 28/01 European Union Report on Nuclear Safety in context of Enlargement

### Objectively verifiable indicators
- Acknowledge by the European Commission and the Member States

### Sources of Verification
- Status reports in the accession process

### Project purpose
- Strengthening the skills of CNCAN staff involved in the commissioning phase of Cernavoda NPP Unit 2
- To provide adequate regulations for NPP requirements related to all commissioning phases, documentations to be submitted

### Objectively verifiable indicators
- no. of regulations elaborated
- no. of trained personnel

### Sources of Verification
- assessment reports
- training materials
- delay in the project starting

### Results
- regulations for NPP requirements related to all commissioning phases
- trained CNCAN staff
- training materials

### Objectively verifiable indicators
- no. of regulations issued
- no. of personnel trained
- no. of dedicated training courses

### Sources of Verification
- training reports
- assessment reports related to the commissioning phase of Cernavoda NPP Unit 2

### Assumptions
<table>
<thead>
<tr>
<th>Activities</th>
<th>Means</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Specific training course based on the western experience in the field, and know-how transfer for supporting the CNCAN staff to perform the regulatory activities related to the evaluation of the commissioning program; planning and supervision of regulatory activities during commissioning tests, regulatory involvement on test supervision and assessment of test results;</td>
<td>• specific training materials</td>
<td>• staff availability</td>
</tr>
<tr>
<td>- Specific quality assurance training course and transfer of know-how in order to enhance CNCAN staff capability with a view of the quality assurance management systems during commissioning and NPP operation;</td>
<td>• no. of regulations issued</td>
<td>• co-operation with the NPP staff</td>
</tr>
<tr>
<td>- Specific training course and transfer of know-how for supporting the CNCAN staff to perform the regulatory activities related to the assessment of supporting documents for operation licence; methodology to assess NPP compliance with design requirements, methodology and plan to review a Final Safety Analysis Report.</td>
<td></td>
<td>• availability of specific documentation issued by NPP</td>
</tr>
<tr>
<td>- Elaboration by the western experts together with the CNCAN staff of the related regulations for NPP commissioning requirements covering all commissioning phases.</td>
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</tbody>
</table>

| Preconditions                                                                                      |                                    |                                                                            |
## DETAILED TIME IMPLEMENTATION CHART FOR PROJECT NUMBER RO-01XX-XX

*(Technical assistance to the Romanian Nuclear Regulatory Authority to deal with important aspects of the future commissioning activities)*

<table>
<thead>
<tr>
<th>Activities</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
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<tbody>
<tr>
<td>Specific training course based on the western experience in the field, and</td>
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<tr>
<td>know-how transfer for supporting the CNCAN staff to perform the regulatory</td>
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<td>D D D</td>
<td>C C C</td>
</tr>
<tr>
<td>activities related to the evaluation of the commissioning program;</td>
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<td></td>
<td>I I I</td>
<td>I I I</td>
</tr>
<tr>
<td>planning and supervision of regulatory activities during commissioning</td>
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<tr>
<td>tests, regulatory involvement on test supervision and assessment of test</td>
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</tr>
<tr>
<td>results;</td>
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<tr>
<td>Specific quality assurance training course and transfer of know-how in</td>
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<td></td>
<td>D D D</td>
<td>C C C</td>
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<tr>
<td>order to enhance CNCAN staff capability with a view of the quality</td>
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<td>I I I</td>
<td>I I I</td>
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<tr>
<td>assurance management systems</td>
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</tbody>
</table>
during commissioning and NPP operation;

| Specific training course and transfer of know-how for supporting the CNCAN staff to perform the regulatory activities related to the assessment of supporting documents for operation licence; methodology to assess NPP compliance with design requirements, methodology and plan to review a Final Safety Analysis Report. | D D D C C I I I I I I I I I |

| Elaboration of the related regulations for NPP commissioning requirements covering all commissioning phases | D D D C C I I I I I I I I I I |

D = Design  
C = Contracting  
I = Implementation
**Technical assistance to the Romanian Nuclear Regulatory Authority to deal with important aspects of the future commissioning activities**

**CUMULATIVE CONTRACTING AND DISBURSEMENT SCHEDULE (0.5 MEURO)**

**DATE:**

<table>
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<tr>
<th></th>
<th>31/03/05</th>
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<th>30/09/05</th>
<th>31/12/05</th>
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<tr>
<td><strong>DISBURSEMENT</strong></td>
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**NB:**

1. *All contracting should normally be completed within 6-12 months and must be completed within 24 months of signature of the FM.*

2. *All disbursements must be completed within 36 months of signature of the FM.*