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THE PRESENCE IN THE PROGRAMS FOR IMPROVING NUCLEAR SAFETY IN THE EASTERN EUROPEAN COUNTRIES

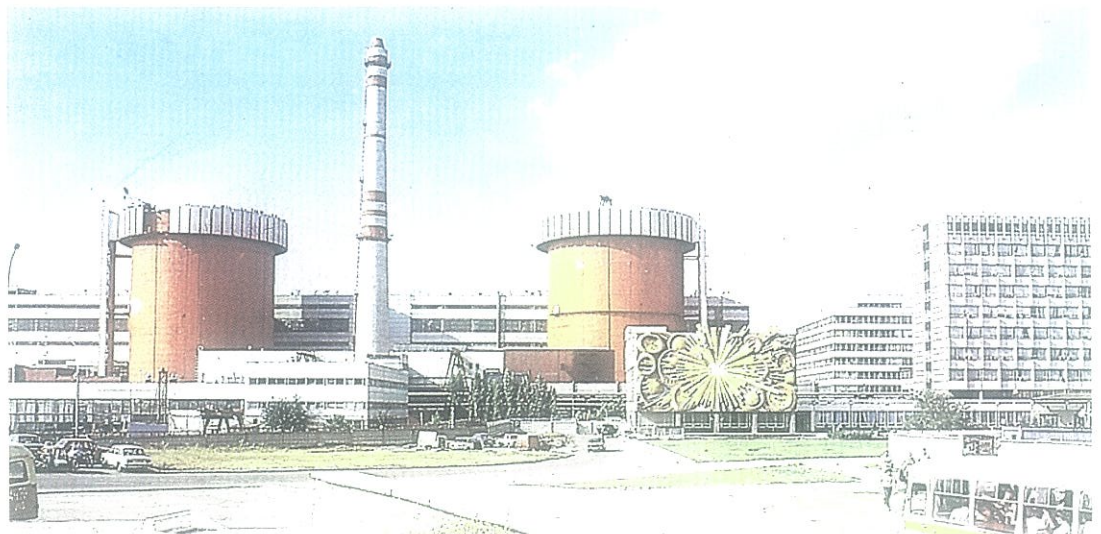
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INTRODUCTION

In April 1990, on the fourth anniversary of the Chernobyl accident, the Commissioners of Energy and the Environment of the European Community issued a joint statement proposing a cooperation program aimed at improving the safety of the nuclear power plants of the ex Soviet Union and its area of influence (the ex

Soviet Block). The original idea had been proposed by the Energy Commission of the European Parliament, and was centered on interchanges between plant operators in the East and West, the so-called Twinning Program. Parallel to the above, the World Association of Nuclear Operators (WANO) had launched a Special Project, within which Western operators would help

The South - Ukrainian Nuclear Power Plant.





South-Ukrainian NPP

their counterparts in Eastern Europe to improve their nuclear plants.

The Economic Summit held in London in July 1991 underlined the problem of nuclear safety existing in the plants of the Central and Eastern European Countries (CEEC) and issued a call to the international community to develop an effective system for coordination of the different bilateral measures taken or being prepared, in particular those promoted by the EC and its member states and by the United States, Sweden and Finland.

The G-7 Summit of July 1992, after recognizing the important role played by nuclear energy in overall energy supply in the CEEC, emphasized the seriousness of the safety problems posed by Soviet designed plants and the concerns existing with respect to them, and offered the affected countries a Program of cooperation including: (a) immediate actions designed to increase operational safety, provide near-term technical improvements based on safety assessments and enhance regulatory regimes, and (b) longer term actions including the scope for replacement of those plants assumed to be least safe (VVER 230 and RBMK) by developing alternative energy sources and updating plants of more recent designs (VVER 213 and VVER 1000).

The Program is under way and consists basically of a set of bilateral actions with the EC acting on behalf of its member States. In addition to this, a multilateral fund known as the Nuclear Safety Account has been set up within the framework of the EBRD (European Bank for Reconstruction and Development).

THE ROLE OF THE ELECTRIC UTILITIES

The most important part of the Community's cooperation program is accomplished through direct collaboration by the electric utilities. In this respect, and

in response to a request by the EC, representatives of the electricity generating sectors of the seven Community nations with experience in the nuclear field - among them Spain, represented by UNESA - set up a European Economic Interest Group known as the Twinning Program Engineering Group (TPEG), which acts as the Community's agent for the technical management of its programs.

With the help of the TPEG, the EC has prepared a Master Plan with a view to coordinating the different actions designed to support safety-related improvements to the civil nuclear installations of the CEEC and the ex Soviet Union. The two programs financed by the EC, PHARE and TACIS, constitute a significant part of the overall program included within the framework of G-7.

Through its regional centres in Paris and Moscow, WANO provides operational assistance and the exchange of operating experiences, an activity which is partly financed by the EC.

Finally, EURELECTRIC, set up by the electric utilities of the Community members to deal with general matters relating to electricity supply and to act as an institutional channel for relations with the Administration of the EC, carries out studies on replacement of the installed generating capacity, within the framework of the PHARE program.

THE SPANISH ELECTRICITY SECTOR

From the strategic point of view, the interest of the world's electricity utilities is based on awareness that another nuclear accident like that which occurred at Chernobyl might irreversibly question this energy source, so that any contribution aimed at preventing a situation of this kind constitutes a measure of protection for their respective nuclear assets. In addition, an early shutdown of the nuclear power plants of the East would imply the

need for an alternative electricity supply from the West, which might seriously compromise the intra-community electricity supplies originally foreseen.

The participation of the Spanish Electricity Sector basically meets this strategic position.

From the business point of view, the interest of the Electricity Sector in this Program is related to the strategy of contributing to the maintenance and improvement of the technological know-how and capabilities acquired through the Spanish nuclear program, which has consisted of the construction of 15 nuclear units with an overall capacity of 12,000 MWe over a period of 20 years, 9 of them currently in operation.

To date, the actions taken by the Electricity Sector have been coordinated via the Commission for Technological Research and Development of UNESA, with support from its Nuclear Division. The President of the Commission is a member of the TPEG Steering Committee, the meetings of which are attended also by the Nuclear Director of UNESA. In addition to the above, UNESA is a member of WANO, and as such has played an active part in various of the actions commissioned to this Association, including representation in the Paris and Moscow Centres Coordination Committee for these projects.

THE SPANISH INDUSTRIAL SECTOR

Another general and highly important strategic consideration is the opening of a wide market for the goods and services industry. Indeed, according to the forecasts of the G-7, updating of the VVER 213 and VVER 1000 plants (32 units in total) may mean a cost of between 120 and 180 million dollars per unit, with slightly lower costs for completion of those currently in the construction phase. This means that we are confronted with a market of some 7,000 million dollars

which may be open to the Spanish nuclear industry if an adequate response is achieved during these initial phases of cooperation. This market might be widened in the medium term to include the construction of new electricity generating facilities and, in general, any other type of industrial installations. In view of the dimensions of the geopolitical area in question, this would be of maximum interest for an industry such as Spain's.

With a view to participating in the industrial phase of the current Program and in the longer term (backfitting) of the overall G-7 program, the companies Empresarios Agrupados, Tecnomat and ENSA have set up a consortium known as IBERATOM.

ACTIVITIES PERFORMED BY UNESA

UNESA has been involved from the beginning in the development, organization, launching and performance of these programs. The following activities are especially important *within the framework of the TPEG*:

- Participation in the organization of the TPEG as project manager, working with the CEC's DG-I for the PHARE and TACIS programs.

- Collaboration in preparation and launching of the TACIS-91 Program with participation of UNESA experts, support from the engineering companies in the drawing up of the project technical specifications and participation of six UNESA experts in the evaluation of proposals.

A Spanish - Belgian - British consortium in which IBERATOM participates has been awarded 45% of the aforementioned actions, the 1/3 share corresponding to Spain being equivalent to 15% of the total program.

- Participation in drawing up the specifications for the TACIS-92 Program, in which UNESA has been awarded the projects for the South Ukraine Plant. Support will be provided for these projects by Tractebel, with reciprocal support provided by UNESA in relation to the Russian Kalinin plant.

The following is worthy of special mention *within the framework of WANO*:

- Participation by UNESA experts, with support from the engineering companies, in drawing up the backfitting program for VVER 230 plants: Volume A (general) and Volume B (6-month program for Kozloduy NPP). This program has served as a basis for subsequent EC programs relating to the V230 units as well as to the V213 and V1000 units.

- Participation of 3 electricity utility experts in the program for

enhancement of the Kozloduy plant, with periods spent in Kozloduy, Sophia and Paris.

- On-site use of the AMYS Quicky equipment at the Kozloduy plant for the Radiological Protection program carried out by UNESA / AMYS.

- Performance, with support from the Spanish nuclear industry and in collaboration with the Belgian Tractebel, of the various on-site activities at the South Ukraine and Kalinin nuclear power stations, as mentioned above.

CONCLUSIONS

The Program for the improvement of nuclear safety in Eastern Europe offers both the Electricity Sector and the Spanish Nuclear Industry an opportunity to apply their wide technological capabilities and to contribute to strengthening of the nuclear option, which is perceived as being of

fundamental importance to ensure the supply of electrical energy that will be demanded by the industrialized societies in the medium and long term.



Kozloduy NPP.

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