



**ASN Opinion 2013-AV-0180 of 16th May 2013
representing ASN's contribution
to the national debate on energy transition.**

ASN (Autorité de Sûreté Nucléaire – French Nuclear Safety Authority),

Having regard to the Environment Code, in particular its articles L. 592-1 and L. 592-27;

Whereas the Government has opened a national debate on energy transition;

Whereas the energy choices have implications for nuclear safety;

Whereas ASN must contribute to informing the general public and facilitating the debate on questions relating to nuclear safety and radiation protection,

Submits the appended opinion as a contribution to the national debate on energy transition.

Done in Montrouge, 16th May 2013.

The ASN Commission,

Signed by

Pierre-Franck Chevet

Michel Bourguignon

Jean-Jacques Dumont

Philippe Jamet

Margot Tirmarche

Appendix to ASN Opinion 2013-AV-0180 of 16th May 2013

ASN contribution to the national debate on energy transition.

The energy choices have implications for nuclear safety. ASN considers it necessary for these implications to be explained and taken into consideration in the debate.

1/ The French electricity system must have margins for manoeuvre

The French nuclear power fleet is widely standardised and the French nuclear power plants are very similar to one another. This situation has the advantage of enabling each nuclear power plant to benefit from the experience acquired at national level and thus enhances the effectiveness of operating experience feedback. On the other hand, experience has shown that standardisation also brings the risk that a serious fault, which in principle cannot be excluded, could be generic and affect several reactors. In such a situation ASN could consider it necessary, in view of the safety requirements, to suspend operation of these reactors immediately.

The rapid shutdown of a significant proportion of the electricity production resources would, if there are no alternative resources, result in an electricity shortage with substantial social and economic consequences.

It is therefore necessary for the electricity system to have adequate margins for manoeuvre with regard to both production - whatever the source - and consumption.

ASN reiterates the importance of having sufficient margins in the electricity system to cope with the simultaneous suspension of operation of several reactors should they display a serious generic fault.

2/ As of now we must anticipate the final shutdown of the current nuclear reactors for reasons of safety.

The majority of the French nuclear power plants was commissioned in the 1980's.

Each nuclear reactor will have to be shut down one day or another due to aging, associated with the physical deterioration of the equipment, particularly those items that cannot be replaced, and the obsolescence of its design bases with regard to the level of safety demanded for more recent installations. This is why the safety of the reactors is verified during the 10-yearly safety reviews provided for by law, and on completion of which ASN decides whether the facilities are fit to remain in operation.

The reactors were originally designed for a minimum service life of 40 years. Their possible operation beyond their fourth safety review requires, from the safety aspect, an examination of particular scope, taking account of the hypotheses and margins used for the 40-year design basis, operating experience feedback, improvements in current knowledge and the foreseeable changes in the safety requirements over the period in question.

Although the safety considerations have thus far not led to the setting of a deadline date for final shutdown of the nuclear reactors currently in operation, the possibility of keeping them in operation beyond 40 years cannot be taken for granted.

In any case, the shutdown date for each reactor cannot be predicted with precision and will vary from one reactor to another. It is nevertheless plausible that, due to the tight initial commissioning calendar, the final shutdowns of the various reactors will be relatively close to one another in time. If these shutdowns are not suitably anticipated, they could upset the balance between electricity production and consumption.

Furthermore, the time lapse between taking the decision to build a new electricity production facility - irrespective of its type - and its connection to the grid can be up to ten years. Similarly, energy savings policies take many years to produce their full effects.

Thus, the time between now and final shutdown of the first reactors could be comparable with the time necessary to deploy the corresponding compensatory measures. Appropriate energy policy decisions must therefore be made in the short term.

ASN underlines the need, in the short term, to make decisions relative to the electricity production capacities - whatever the production source - and energy savings, to prepare for the future final shutdowns of reactors for reasons of safety.