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## New NRA rules impose costly roadblocks to restart idle reactors

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By JIN NISHIKAWA/ Staff Writer

For the next several years at least, Japan will probably have very limited ability to generate electricity through nuclear power.

This is because the vast majority of the nation's idle nuclear reactors are unlikely to resume operations anytime soon due to proposed new regulation standards that set high and costly hurdles.

On April 10, the Nuclear Regulation Authority released its proposal for new regulation standards that are expected to go into effect in July.

For electric power companies to resume operations at nuclear plants, their reactors will have to meet the new standards and pass an NRA appraisal.

Although some of the new standards have a grace period, some of the measures that will be required could take years for the utilities to install. That means a majority of the 48 reactors that are currently offline will not likely resume operations over the next few years.

One measure included in the new standards, which is based on lessons from the 2011 reactor meltdowns at the Fukushima No. 1 nuclear power plant, is the requirement for installing venting equipment with a filter attached for boiling water reactors like the ones at the Fukushima plant. The lack of such equipment led to the release of large volumes of radioactive materials during the Fukushima nuclear disaster.

However, the installation of such equipment normally takes several years. That means operations will not likely be resumed in the near future at the 26 boiling water reactors operated by Tohoku Electric Power Co., Tokyo Electric Power Co., Chubu Electric Power Co., Hokuriku Electric Power Co., Chugoku Electric Power Co. and Japan Atomic Power Co.

Another obstacle for resuming operations is the construction of coastal levees to prevent tsunami from swamping a nuclear reactor. The tsunami that hit the Fukushima No. 1 plant on March 11, 2011, caused a loss of electric power sources that resulted in meltdowns at three reactors.

Again, however, construction of such levees often takes several years.

Another problem facing some reactors is the presence of active faults at the site. Central government officials plan to study active faults that may lie within the grounds of the Shika nuclear plant operated by Hokuriku Electric and the Mihama nuclear plant operated by Kansai Electric Power Co. Those studies will also delay the resumption of operations at those plants.

Candidates for early resumption of operations are reactors that do not use the boiling water system for generation. These include the No. 3 reactor at the Ikata nuclear plant operated by Shikoku Electric Power Co. and the No. 1 and No. 2 reactors of the Sendai nuclear plant in Kagoshima Prefecture operated by Kyushu Electric Power Co.

The operators of those reactors are expected to submit applications with the central government to resume operations in July after the new standards go into effect.

The only reactors now in operation--the No. 3 and No. 4 reactors at the Oi nuclear plant--will be allowed to operate until September, when they will face another periodic inspection, before facing an appraisal of whether the new standards are being met.

Based on the lessons from the Fukushima nuclear crisis, each reactor will be required to have several possible electric power sources to prevent a severe accident caused by a failure to cool the reactor.

Although plant operators will also be required to install emergency control rooms that are capable of remote-controlled cooling of reactor cores, they will be given a five-year grace period because of the time needed to construct such facilities.

A major problem facing some of the older reactors in meeting the new standards will be installing flame-retardant electric cables inside reactor buildings and other areas of the plants as a precaution against fires.

Excluding the Fukushima No. 1 and No. 2 plants, 12 of the 14 reactors that have been in operation for more than 30 years have not installed such flame-retardant cables.

While some electric power companies have tried to get around the provision by painting cables with materials to prevent the spreading of fires, the new standards call for a high level of flame-resistance that may force the utilities to replace all of the cables. Experts said replacing all of the cables would be a major technological challenge.

The strict new standards will likely mean that some electric power companies may decide to decommission older reactors rather than spend huge amounts of money to upgrade them.

Stricter standards regarding active faults will also be a burden for the utilities. The companies will have to expand their studies about the existence of active faults 400,000 years into the past.

Under the stricter interpretation, that may mean the reactor buildings of the No. 1 and No. 2 reactors at the Kashiwazaki-Kariwa nuclear plant in Niigata Prefecture could lie directly above an active fault.

The utilities have criticized the stricter standards, as well as the manner in which the central government will determine if an active fault exists, because the companies will not be able to resume operations at a reactor if an active fault is found to lie directly below the reactor building.

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