

## House Appropriations Committee Passes Energy Budget

In early June, the U.S. House of Representatives Appropriations Committee passed a \$25.243 billion budget for the U.S. Department of Energy for fiscal 2008—an increase of \$1.15 billion over the fiscal 2007 budget and \$480 million more than the Bush administration request. Among the highlights of the budget bill are the following:

- Environmental Cleanup: \$6.671 billion, \$358.8 million above the administration request, and \$30.9 million above the 2007 appropriation.
- Yucca Mountain: \$494.5 million, \$48.8 million above 2007, and matching the administration request.
- Nuclear Energy (non-GNEP): \$639.2 million, \$232.5 million above the administration request, and \$324.5 million above 2007, including funding for a Next Generation Nuclear Power Plant at the Idaho National Laboratory.
- GNEP (Global Nuclear Energy Partnership): \$120 million, \$285 million below the administration request, and \$47.5 million below 2007. The committee language for this item stated that “it is unnecessary to rush into a plan that continues to raise concerns among scientists and has only weak support from industry given that there are reasonable options available for short-term storage of nuclear waste and that this project will cost tens of billions of dollars and last for decades.”
- Mixed Oxide Fuel Fabrication Facility (MOX): \$167.8 million, \$263.5 million below the administration request, and \$115.1 million below 2007 because the administration “asked for more than could be spent in 2008 and last year’s funds are sufficient to continue construction.”
- Nuclear Nonproliferation: \$1.684 billion, \$11 million above the administration request and \$0.3 million above 2007. This includes work to secure nuclear weapons and materials in the former Soviet Republic.

As always, House appropriations must be reconciled with Senate appropriations to produce the final budget numbers. At this writing, the Senate had yet to take up Energy funding.

## Hanford Vit Plant Project to Restart in Autumn; Other Hanford Updates

Hanford’s Waste Treatment Plant project should be returning to full construction mode later this year, with the start of the new fiscal year in October. Construction was halted more than a year ago on the plant’s Pretreatment and High-Level Waste Facilities because of seismic con-

cerns. Construction has been continuing on the Low Activity Waste Facility, the Analytical Laboratory, and about 23 smaller facilities not affected by the seismic issues. The work resumption on the full project depends, however, on resolution of the seismic concerns by October 1.

The \$12.2 billion plant is designed to vitrify much of the U.S. Department of Energy’s worst radioactive wastes into glass logs that will be encased in steel canisters before final disposal at a national waste repository. For now, the waste is stored in Hanford’s underground storage tanks, some of which have leaked in the years since the waste was placed in them beginning in the mid-1940s and extending through the Cold War era.

In preparation for a return to full construction mode, Bechtel National, which manages the project, is planning to hire about 300 additional workers, including more than 100 additional construction workers. Engineering staff, procurement workers, and project control staff will also be added.

- The price tag for closing Hanford’s underground tanks and treating their radioactive and hazardous chemical wastes has increased from \$26 billion to \$44 billion, and this \$18 billion increase does not include contingency costs of as much as \$18 billion more if the project experiences additional delays or other difficulties. The price increase is a direct result of the delay in construction of Hanford’s Waste Treatment Plant (see previous story), which is being constructed to vitrify the tank waste. When construction first began, the plant was expected to begin operations in 2011; various delays and budget problems have extended that start date to late 2019.

The \$44 billion cost covers emptying and closing the 177 underground tanks and treating the 53 million gallons of waste they hold. It does not include the \$12 billion cost of building and testing the vitrification plant, although it does include the plant’s operating costs. Under the new estimate, the entire project will be complete in 2042.

- The DOE is looking at starting operations at the Hanford Waste Treatment Plant’s Low-Activity Waste vitrification facility prior to completion the rest of the WTP facilities, with initial operations starting between 2013 and 2015. According to a report prepared for the DOE’s Office of River Protection, which oversees the Hanford tank farms, some 8 percent of the 42 million gallons of low-activity tank waste could be treated between early start of the LAW vitrification facility and startup of the rest of the WTP. Early startup of the LAW facility could also provide useful lessons learned for the startup of the other WTP facilities, and create a base of trained and experienced operational staff.

Early startup would require additional funding of approximately \$160 million to \$220 million for construction of a pretreatment capability for the LAW facility, while operations would cost some \$760 million for the five-year period.

A Waste Treatment Mission Completion Alternative Study scheduled for completion this summer will evaluate this and other tank waste treatment approaches, including the related costs, schedules, and risks with each option.

- Elsewhere on the 561-square-mile Hanford site, the K East Basin has been declared sludge-free. The last of the muck was removed from the basin at the end of May. The waste has been pumped to the sturdier K West Basin.

The K East and West Basins were used starting in the 1950s to cool fuel irradiated in Hanford reactors prior to

reprocessing for the production of plutonium. At the end of the Cold War, fuel was left stranded in the basins. It corroded and mixed with dirt and concrete that had sloughed from the pool walls to form a radioactive sludge.

Once all the fuel was removed from the basins a few years ago, workers began vacuuming the sludge into underwater containers in October 2004, expecting the process to take a few months. The sludge, however, proved to be elusive. Complicating the work was far more debris than expected hidden under mounds of sludge at the pool bottom. Some 170 tons of debris had to be removed. Then, workers stood on gratings and used tools with 26-foot-long handles to reach the bottom of the pools to stir up the sludge to make vacuuming more efficient.

The next step in the cleanup process will be preparing

the K East basin for a scrubbing with a high-pressure water spray to remove surface concrete embedded with radiation. Then water can be drained and the basin torn down to get at the contaminated soil beneath it.

The sludge now in the K Waste Basin must be vacuumed into underwater containers. The waste must then be treated for permanent disposal by a November 2009 deadline.

### **National Energy Policy Commission Recommends Interim Spent Fuel Storage**

In April, the National Commission on Energy Policy issued a report on “Energy Policy Recommendations to the President and the 110th Congress.” The commission

is made up of 21 representatives from universities, government, industry, environmental groups, unions, and lawmakers. Among the members are Frank Keating, former governor of Oklahoma; Ralph Cavanagh, codirector of the energy program for the Natural Resources Defense Council; and Richard Meserve, former chairman of the U.S. Nuclear Regulatory Commission.

In the area of nuclear energy, the commission noted that “the fact that the licensing of the proposed nuclear waste repository at Nevada’s Yucca Mountain remains highly uncertain argues for refocused attention on effective management of spent fuel as an interim step towards permanent disposal. . . . To that end, the commission recommends that congress consider several additional steps aimed at ending the current impasse on nuclear waste disposal, including:

- Reforming the Nuclear Waste Policy Act (NWPA) to align its requirements with human engineering and scientific capabilities, while simultaneously ensuring adequate protection of public health and safety and of the environment.
- Amending the NWPA to require DOE to site and operate consolidated national or regional interim storage options.
- Undertaking R&D investments to explore technological alternatives to the direct disposal of waste from a once-through cycle that meet commercial requirements and non-proliferation objectives, reduce the challenge of waste disposal (by reducing heat load and/or transmuting long-lived radionuclides), ensure adequate protection of public health and safety, and extend fuel supply.
- Amending the NWPA to codify that interim storage and federal responsibility for disposal of nuclear waste is sufficient to satisfy the Nuclear Regulatory Commission's waste confidence requirement.
- Amending the NWPA to require the Secretary of Energy to take possession of and/or remove fuel from reactor sites that have been, or are in the process of being fully decommissioned."

The full report, which covers many other energy sources as well as nuclear, is available on the Internet at [www.energycommission.org](http://www.energycommission.org).

### **Domenici Reintroduces His Own "Fix-Yucca" Bill**

Republican senators, led by Sen. Pete Domenici of New Mexico, have reintroduced legislation to allow spent fuel storage at the Yucca Mountain site until the repository is ready to open. Domenici introduced similar legislation last September, but it did not advance, even though Republicans at that time controlled Congress. With the Democrats now in charge, and with Yucca Mountain opponent Sen. Harry Reid (D-Nevada) serving as Senate Majority Leader, even Domenici acknowledges that the bill faces "long odds."

Under terms of the bill, spent fuel could begin being shipped to Yucca Mountain as early as 2010. The bill also repeals the current 70 000 metric ton limit on how much waste the mountain can accept, and gives the U.S. De-

partment of Energy access to land it needs to build a rail line.

### **DOE Offers \$60 Million To Spur Industry Engagement in GNEP**

The U.S. Department of Energy will provide up to \$60 million over two years (fiscal 2007 and 2008) to engage industry experts in the conceptual design of the initial nuclear fuel recycling center and advanced recycling reactor as part of the Global Nuclear Energy Partnership. Studies completed under this funding will include scope, schedule, and cost information of the proposed facilities and will also identify technological needs that will be used to inform, and effectively and efficiently implement, GNEP's research and development activities.

Along with conceptual design studies, recipients of funding will also develop technology development roadmaps to describe the state of the current technology, perform a technology "gap" analysis, and define the methods and plans to acquire the technology needed to achieve the GNEP goals. Business plans will address how the market may facilitate DOE plans to develop and commercialize the advanced fuel cycle technologies and facilities. Communications plans will address the dissemination of scientific, technical, and practical information relating to nuclear energy and closing the nuclear fuel cycle. The DOE will use the information and recommendations provided by these studies, as well as other information and analyses, to assist in evaluating the development and deployment of proposed activities under GNEP, and to inform a Secretarial decision on the path forward for GNEP. The DOE expects to make between three and six funding awards later this year.

### **D&D Progress Reports**

- At the end of May, the reactor vessel from Dairyland Power Cooperative's La Crosse Boiling Water Reactor, in La Crosse, Wis., began its 1100-mile journey to the Barnwell, S.C., low-level waste disposal site. The 10-foot-diameter by 40-ft-long vessel was filled with cement and encased in cement and steel. The total shipment weighed 310

tons. Removing the vessel from the containment building was particularly difficult because the unit's spent fuel remains stored in the spent fuel pool inside the containment building. The reactor was shut down in 1987.

- Mota Corp. has successfully completed the segmentation, removal, and packaging of the reactor components and associated material and systems at the Carolinas-Virginia Nuclear Power Associates (CVNPA) Parr Reactor Facility, located in Jenkinsville, S.C. The project duration was approximately 14 months. The project scope included identifying and developing the appropriate cutting/removal methodologies and tooling for the moderator tank, cavity liner, shielding aggregate, and associated piping and systems. Mota also removed the eight vertical thermal shields through the restricted cavity opening. The cavity had restricted access due to the design of the operating floor above the thermal shields.

- In May, the 50-year-old Chapelcross cooling towers in Scotland were reduced to a pile of rubble by the controlled use of explosives, following more than a year of planning, preparation, and analysis. The decommissioning contractor, British Nuclear Group, reported that the demolition was a complete success and was carried out safely and with minimal impact on the rest of the site and the local community. Work to be conducted after the demolition included clearing the debris and separating the steel reinforcing bars from the concrete ready to be sent for recycling.

### International Briefs

- The United Kingdom is reportedly running out of space at the Drigg low-level waste disposal facility. The current operational vault at the LLW disposal site is expected to be completely full by the end of 2008, and any additional vault construction is dependent on local county council planning permission. The earliest a new vault could be available is mid-2009. As an interim solution, LLW could be stored at Sellafield until new capacity becomes available, although county council permission would have to be sought in that case also. In addition, some of the country's magnox stations that are being decommissioned are looking at onsite LLW disposal options. For example, turbine hall basements or other onsite locations could be used for LLW disposal.

- The European Parliament has approved a resolution aimed at reforming Euratom, the 50-year-old European Atomic Energy Community Treaty. The European Parliament is also asking to be given "co-decision" powers on nuclear matters with the European Union Council. (The parliament currently has no authority over nuclear issues.) The resolution also calls for reviving proposals to harmonize nuclear plant safety standards across the European Union. The package include proposals for EU regulation of nuclear waste and decommissioning.

- The *Pacific Heron*, Japan's new INF 3-Class ship, was launched in early May. The new ship, built by Mitsui Engineering and Shipbuilding Co. Ltd., is owned by Pacific Nuclear Transport Ltd. and operated by British Nuclear Group Sellafield Ltd. The INF 3-Class certification enables the ship to carry highly radioactive materials such as spent nuclear fuel, high-level waste, and plutonium.

- The "current assumption" is that spent fuel from any new commercial nuclear reactor in the United Kingdom would be treated as waste, the U.K. government said in May in its launch of a 20-week public consultation on the future of nuclear power. People will be asked if they agree or disagree that the spent fuel from any new power stations should not be reprocessed and that waste management plans and financing should proceed on that basis. After the 20-week consultation period, the U.K. government will decide whether or not to allow new nuclear construction.

- Site clearing and groundbreaking on South Korea's national repository for low- and intermediate-level nuclear waste is expected to get under way later this year, according to project leaders. The repository should be ready to begin accepting waste by the end of 2009.

- In late May, Swedish regulators ordered the Swedish Nuclear Fuel and Waste Management Co. (SKB) as of June 21 to stop storing radioactive waste at SFR, the repository for operational waste from Sweden's nuclear power plants. The Swedish Radiation Protection Authority (SSI), citing repeated warnings to SKB, stated that radiation protection requirements were not being followed at the facility. In particular, the SSI noted that the methods used to measure radioactivity amounts in the waste are inadequate. The SSI add that the problems do not pose any immediate risk for the area around SFR. ■