Brief comments by John F. Ahearne for the meeting of 19 August.

The Transportation and Storage subcommittee was established to address the question: "Should the US change the way in which it is storing used nuclear fuel and high level waste while one or more final disposal locations are established?"

The letter of invitation gives three "broad questions" that will be explored at this meeting. Below I give my initial responses.

- **What role(s) should storage play in an integrated US waste management system and strategy in the future?**

Storage is the approach currently used and will continue to be used for many decades. The issues are (1) should it continue to be the sole approach and (2), if not, to what and when should it change. I believe, as we concluded in an APS study[1], that an "integrated waste management system" should plan on transitioning away from long-term on-site storage.

- **Are there technical or regulatory uncertainties related to the ability to store existing and future spent fuel and high-level waste safely and securely for an extended period of time (100 years or more) and then transport it without difficulty to another location?**

There are no identified significant technical uncertainties for long-term on-site storage. There are several regulatory issues with that storage. The waste confidence rule is a challenge particularly when a reactor is shut down. Also, the citizens of several states have led their PUCs to question whether a utility in the state should be allowed additional on-site storage. The citizens' concern is that the site could become a federal repository.

The phrase "transport it without difficulty to another location" is hard to take seriously in today's climate. Given the many failures to find storage sites other than reactors, without fundamental changes in storage technology and political approaches, the difficulty will not be transporting but finding a place to which to transport the waste.

Although there is opposition to what opponents have labeled "rolling Chernobyls", transporting spent fuel has been done safely and should be able to be done so in the future.

- **What should be the relationship between storage and progress on development of disposal capability and possible advanced fuel cycles?**

[1] Consolidated Interim Storage of Commercial Spent Nuclear Fuel, Panel on Public Affairs, American Physical Society, February 2007.

Storage is the current default position and is likely to remain so until and unless there is substantial progress on the key question of what to do with the spent fuel. Answering that question can involve advanced fuel cycles that destroy the actinides or utilize other than uranium as fuel and also can include revisiting disposal options such as deep-sea bed disposal, deep borehole disposal, and international or regional disposal sites.

APS (2007):

"…we find that:

- There are no substantive safety or security reasons for establishing consolidated interim storage.
- There are no compelling cost savings to the Federal government associated with consolidated interim storage, so long as Yucca Mountain is not delayed well beyond its currently planned opening.
- There is sufficient space at all operating nuclear reactors to store all spent nuclear fuel in pools and in existing or additional dry casks that will be discharged even with plant license extensions. Although some states may limit the amount of dry storage at a reactor site.

Nevertheless, we also find that:

- Consolidated storage could facilitate the decommissioning of sites with reactors that have been shut down.
- Consolidated interim storage would establish a process for taking Federal title to commercial spent fuel and decouple private sector nuclear power plant operators from the long-term spent-fuel management problem, thereby removing a potential obstacle to siting new nuclear power plants and to continued operation of existing plants.

Such a decoupling could arguably also be accomplished if the Federal government took title to the spent fuel at the reactor sites."