LETTERS

A Bank of Mammalian DNA Fragments

On 16 June 1976, the National Institutes of Health published guidelines for recombinant DNA research. The guidelines were adopted after much discussion and debate within both the scientific and the lay communities. They are intended to facilitate the pursuit of research while at the same time minimizing the risk to the public. Certain types of experiments, particularly those involving the creation of DNA chimeras between bacterial and mammalian genes, can only be performed under the most restrictive conditions. Despite these concerns, there are likely to be very significant uses of such materials for biomedical research and diagnostic purposes.

Since the complex large genomes of man and other mammals are now amenable to more detailed study as a consequence of advances in recombinant DNA technology, it is important that a safe, uniform, and reproducible method be developed for replicating and storing their fragments. It has been suggested to the National Institute of General Medical Sciences (NIGMS) by members of the scientific community that a repository or bank of mammalian DNA fragments might provide a useful means for achieving these objectives. A bank of DNA fragments, containing reference portions of the human and other mammalian genomes, could help keep order in this rapidly growing field and provide an invaluable national resource for investigators. Use of this bank to replicate the reference material for distribution in a safe form would foster full utilization of this new technology while maintaining compliance with the guidelines, and minimizing risk.

The NIGMS is therefore specifically interested in receiving comments on the desirability of establishing a repository of mammalian DNA fragments. Suggestions as to its operation and maintenance will also be welcome. For example, such a repository might solicit and accept defined fragments of DNA in an appropriate form. It is conceivable that the bank might also produce DNA fragments de novo, if this proved desirable. These fragments would then be stored, replicated, characterized, and distributed with strict attention to safety.

Although interested in the possibility of establishing a repository for mammalian DNA fragments, the NIGMS has come to no conclusion as to its advisability. A decision to proceed will, in part, be based on an evaluation of responses to this letter.

Comments should be sent to the undersigned within 6 weeks of the date of publication of this letter.

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Utility Accounting and Energy Policy

Luther J. Carter, in his article "Nuclear initiatives: Two sides disagree on meaning of defeat" (News and Comment, 19 Nov., p. 811), discusses the Missouri utility rate reform referendum and says, "This initiative, which was approved by a 62 percent majority, makes it impossible for the Union Electric Company to bill ratepayers for the interest it owes on construction work in progress."

Since the construction work in progress (CWIP) issue is an important one for both energy policy and utility financing, it would be worth getting straight the concept and the terminology.

The Missouri electorate voted to exclude CWIP from the rate base. What does this mean? In many jurisdictions, CWIP is excluded from the rate base, the rationale being that a plant not completed is not serving the public, and therefore the public should not pay a return on it. This is the "used and useful" concept. The utility, though, is incurring costs to support the construction work (that is, interest on borrowed funds, dividends on preferred stock, and return on common stock sold to finance the work). These costs are capitalized, which means that they are added to the final cost of the power plant. If, for instance, the utility had to invest $100 in a construction project for a year, and the cost of that money was 9 percent, the project would go on the books at $109. The utility would earn a return on $109 and also recover its investment through depreciation on $109, not $100. The extra $9 is referred to as the allowance for funds used during construction. It is a noncash credit that appears in the income statement.

In other jurisdictions, such as Missouri until the referendum, some or all of CWIP is placed in the rate base and customers must pay higher rates to provide that extra $9 cost during the construction period. The choice is between making the customer pay over the life of the plant or while the plant is being built. There is no way of escaping payment.

What does the arcane art of utility accounting have to do with energy policy? Consider that CWIP makes up 20 percent of net plant investment and that the allowance for funds used during construction accounts for 35 percent of net income. Companies have to raise enormous sums of money and, for prolonged periods, pay out cash to the suppliers of the funds; but they receive only a bookkeeping entry as an offset. This puts tremendous pressure on the utilities. Furthermore, the longer the period of construction and the greater the capital cost of the plant, the heavier the burden. Nuclear units take the longest time to construct and have the highest first cost.

Adding CWIP to the rate base can be rationalized by claiming that the new plant is primarily for the benefit of current ratepayers (most growth does come from present customers), so they are not being harmed if they pay now. From a practical standpoint, regulators might prefer to deal with a larger rate base and give a lower rate of return, rather than to have to justify a seemingly high return on a smaller base. Certainly, there was a big push by the federal government and by the industry to add CWIP to the rate base during the post-oil-boycott turmoil. And, if energy policy is geared solely to producing more electricity, there are virtues to this attempt. However, there is another point to consider. As long as utilities can be assured of returns on CWIP, they will not have as much incentive to find ways of meeting power needs other than building new plants.

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Networks of Amateurs for Science

Deborah Shapley's intriguing article "Chinese earthquakes: The Maoist approach to seismology" (News and Comment, 20 Aug., p. 656) reports use in China of vast networks of amateurs in the earthquake prediction program there. Use of amateurs in science, if appropriately planned and applied, can prove a service to science, a learning experience for amateurs, and a means by which to sensitize citizens to scientific programs and needs.

It may be enlightening to point out a few instances of the successful use of large-scale networks of amateurs in science, particularly with regard to data or sample collection and monitoring. In the late 1800's, Joseph Henry, the first secretary of the Smithsonian Institution, orga-