Final Question One-Suggestions

The task (question to answer) is to provide a detailed assessment of how the nuclear power industry has performed since The Economist magazine offered advice one month before the Chernobyl disaster in 1986:

> "…get plenty of nuclear plants built and then accumulate year after year, a record of no deaths, no serious accidents, and no dispute that the result is cheaper energy."

In meeting the requirements of the task, there are three elements.

THE FIRST ELEMENT

The first element of the answer is to assess the quantity and quality of power plants built and the consequences of when they were built for this time in the 21st Century

- Under Objective Eleven "Study Guide" [first entry] based on 2014 data, there were 436 reactors in the world. Based on 2015 data, there were 60 reactors under construction.
- Under Objective Eleven "Nuclear Share of Electricity" there is a breakdown of what countries have how many reactors. Also, there is a breakdown of which countries have nuclear plants under construction.

  The data about the United States is wrong—as of 2023 there is only one reactor under construction (with just one completed).
- The issue of the implications of when reactors were constructed was covered in the class of November 20. Both France and the United States constructed many reactors 40 years ago and are being retired. World wide, it is estimated that 200 reactors will be retired in the next 20 years.

  Unlike the United States, France has retained its expertise in nuclear plant construction. France does not have oil and gas, a contributing factor to its nuclear power focus. France is being paid $40 billion by Great Britain to construct two new reactors at Hinkley Point, and will probably be contracted to construct one more at Sizemore in England.

  The reason Great Britain is forced to pay such a high price is that their North Sea Oil Fields are drying up.

THE SECOND ELEMENT

Judge the safety record

- The safety record at Chernobyl, and Fukushima has been covered. The Documentary on 3 Mile Island Reactors One and Two have been covered extensively.
- In California, San Onofre and Diablo Canyon represent different points-of-view over safety risk, and the role of political considerations. In order to meet California clean energy targets Diablo Canyon will not close in 2025, and have its productive life

extended by ten years. The Governor and the Legislature agreed to loan the owner Pacific Gas and Electric $4 billion to fund necessary retrofits.

THE THIRD ELEMENT

Assess the cost factors and what has contributed to the current economics of nuclear power

- The cost factors in the United States are covered in Objective 10 and in lecture with a focus on Vogtle in Georgia and Summer in South Carolina.

  In South Carolina, rate-payers must retire $9 billion in debt with nothing in the way of no electricity to show for the $9 billion. Why? The cost of finishing the nuclear reactors under construction had accelerated beyond the point that management decided it was not feasible to proceed.

  At Vogtle, construction began in 2013 under the direction of Westinghouse to build a Westinghouse 1000 reactor. Their bankruptcy cost $3.5 billion. Reactor 3 was finished in 2023. Reactor 4 will not begin operating until 2024 at a cumulative cost of $35 billion. Georgia ratepayers must require the debt.