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Potential Impacts of Indian Point Relicensing with Delayed Site Reclamation

Summary of finding

If the "no action" option of ceasing operations at IP2 in 2013 and IP3 in 2015 permits more rapid site reclamation and restoration, while the option of relicensing operations to run through 2035 is associated with a delayed process of site restoration, there are significant additional burdens imposed on off-site property values if license renewal is approved. If the diminution in current property values is approximately $500 million, then the burden caused by the additional delay in restoration due to the period of extended plant operation plus the longer period required for site reclamation is reasonably estimated as between $300 and $340 million.

Introduction

In my initial report submitted on November 29, 2007, I reviewed a variety of studies that had appeared in peer-reviewed journals concerning the potential impacts on off-site land use and property values resulting from continued operation of Indian Point 2 and Indian Point 3 nuclear power plants in the Village of Buchanan in Westchester County. Making use of census data and estimated impacts of large power plants on off-site property values I demonstrated that the effects resulting from relicensing could be over $500 million, with a more exact measurement requiring detailed data from the local property markets. In that analysis I assumed that if license renewal were approved, the additional wastes generated by license renewal would be gone from the site and the site would be fully restored no later than 30 years after the renewed license expired - i.e. by 2065. However, as discussed below, I have now been advised that it is possible the wastes generated by license renewal may remain on the site for much longer and perhaps indefinitely. This substantial additional delay in restoring the site to unrestricted use will have a substantial additional impact on off-site land values.

Diminution of off-site property value can be expected to be associated with important and visible changes in land use, including delayed development of land, lower density of development on land that is developed, and deferred maintenance on affected parcels.

A full analysis of the impacts naturally depends on the dynamic structure of the nuisance. In particular, I have been told to assume that the "no action" option (denying the request to relicense IP2 and IP3) involves operating the power plant at present levels until 2015, and then commencing a process of site reclamation so that by 2025 the site can be developed to its most efficient use, and the nuisance impact on off-site properties resulting from proximity to the power plant would be removed.

In comparison with this "no action" option I am asked to consider the impact resulting from relicensed operation of IP2 and IP3 until 2035. Following this period will commence a period of undetermined length during which of the nuclear waste products produced at the plant during extended license operation will continue to be stored at the site. The site would no longer be a significant source of employment and would possibly be a reduced source of property tax revenue for the community. The implication is that the relicensing option is likely to continue to impose a nuisance burden on off-site property values with a combined magnitude equal or greater to the magnitude imposed on property values at present. This impact is expected to continue for at least a period of 60 years (until 2095) and potentially much longer. What impact does the extended delay in full site reclamation associated with IP2 and IP3 have on the off-site costs?

Analysis

To answer the question posed at the end of the previous section with precision requires an estimate of the total impact on off-site property values. In order to illustrate the impact of delayed site reclamation and illustrate the range of possible impacts, I assume a present market impact of $500 million on property values. To the extent that more detailed evaluation of these impacts suggests an amount more or less than this, the results discussed below would increase or decrease.

All options under consideration allow the continued operation of IP2 and IP3 until 2015. Following this, the "no action" option imposes a continued cost of $500 million in reduced wealth on local property owners for a period of 10 years until site reclamation is complete. The relicensing option imposes this cost on local property owners through the period of continued operation (until 2035) followed by possibly larger costs imposed for an indefinite amount of time. For this example I assume the costs continue at the level of $500 million, but a detailed evaluation may well suggest a substantial increase.

The difference between the two options depends critically on four variables:

1. The total diminution in off-site property values
2. The real rate of increase in local property values
3. The appropriate discount rate chosen to evaluate the dynamic flow of costs
4. The time required for complete site reclamation following the relicensed operation of IP2 and IP3

As indicated above, for this report I will assume that the diminution in values caused by the current plant operation is $500 million, and that this lost value could be recovered in 2025 if relicensing were not allowed. I will also make the conservative assumption that there is no real increase in local property values (meaning that property values increase or decrease at exactly the same rate as the general price level).

The impact of the discount rate is shown below in Figure 1. This figure assumes a delay in site reclamation until 2105 (70 years after the plants cease operations). A range of possible discount rates is shown along the horizontal axis, and the additional burden on off-site property values arising from relicensing and delayed reclamation is shown on the vertical axis. As indicate, the impact ranges from about $240 million to $310 million, depending on the discount rate chosen.

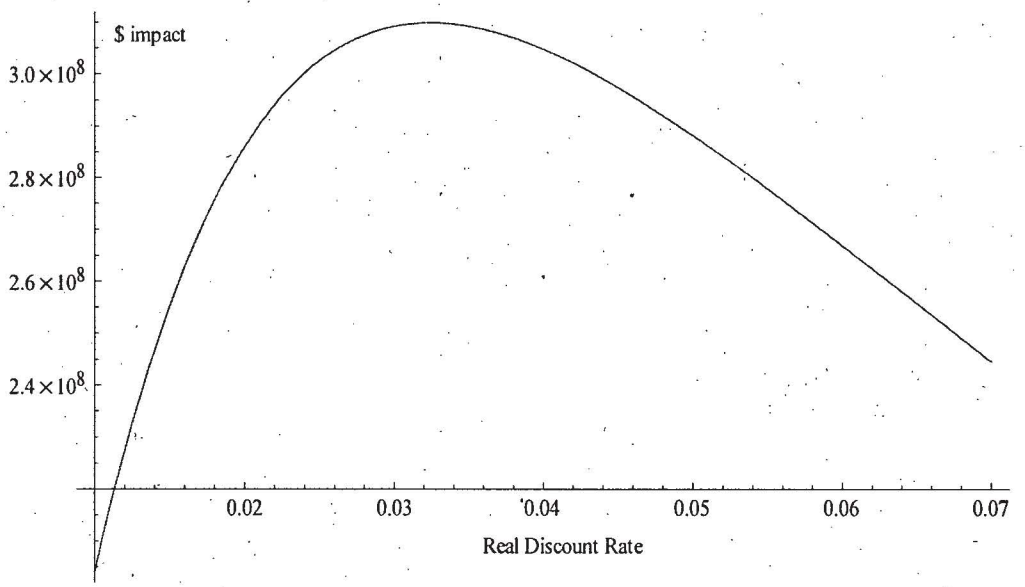

Figure 1: Burden on off-site properties at various discount rates

While there can be debate about the appropriate discount rate to use for analysis, a reasonable starting point would be the real mortgage interest rate, or the mortgage interest rate less the rate of inflation. This would

suggest a discount rate of between 3 and 4 percent (.03 to .04). Figure 1 shows that over this range the burden on off-site property values from relicensing and delayed reclamation would be between $300 and $310 million.

What about the duration of the delay in site reclamation and restoration? It is clear that increasing the delay imposes greater burdens on off-site properties, because the penalty of reduced values and reduced wealth is being imposed for a longer time period. The exact magnitude depends on the discount rate used, but a range of possible impacts is shown in Figure 2 below. Figure 2 shows the burden on off-site property values at various durations of delay, assuming a discount rate of .0325, or 3.25 percent. As one might expect, the burden is increasing as the delay increases. The impact is particularly severe as we increase the delay from 60 or 70 years of delay (where the burden imposed is $300 to $310 million) to 140 years of delay (where the burden rises to $350 million). Beyond that the additional delay imposes only modest increases in the cost to off-site property owners because the remedy (removal of the nuisance) is so far in the future as to be of little or no market value.

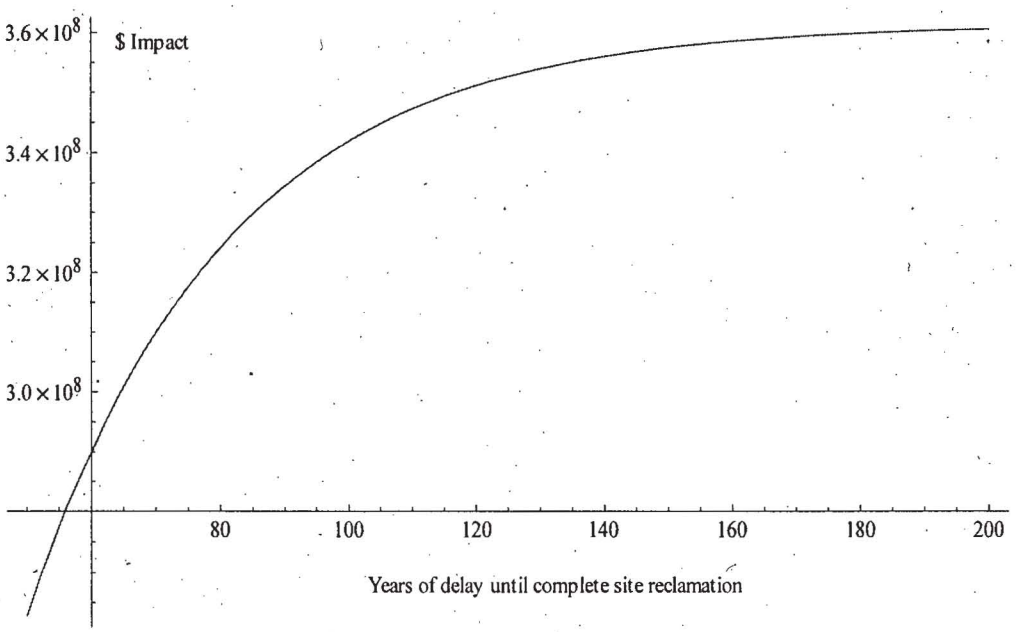

Figure 2: Burden on off-site properties at various years of delay

It should be noted that the calculations in Figure 2 are sensitive to the assumption of zero increase in real property values.

Conclusion

If the "no action" option permits complete site reclamation and restoration within ten years after the end of operations, while relicensing delays site reclamation by not only the additional time period of plant operations but also a significant delay during which nuclear waste is stored on site, there are important additional burdens imposed on off-site properties. Making reasonable assumptions about this delay, and using the potential property value impacts identified in my earlier report, the option that provides for relicensing of IP2 and IP3 would impose additional burdens of $300 to $340 million on these properties. This is not only a burden on the individuals involved but could have significant land use and development impacts.