



A Menu of Regulatory Alternatives to Achieve Grid Modernization

Utility investments in infrastructure are driven by the obligation to provide safe and reliable service to customers. As a result, utilities are modernizing their infrastructure at a pace that considers the safety and reliability priorities of their investment plans, available technologies, the current design of their systems, and concerns about costs to customers, without necessarily taking full advantage of opportunities to modernize the grid for the future. In this paper, National Grid describes four alternatives to the current regulatory framework which will enable utilities to begin making meaningful investments in grid modernization to better meet the needs of customers both today and tomorrow, while at the same time maintaining the traditional focus on safety, reliability, and cost.

Two of the options are variations on capital investment recovery mechanisms currently in use by some Massachusetts utilities. The first option would allow a utility with such a mechanism to seek Department approval to exceed the annual investment cap for grid modernization spending, subject to an after the fact prudence review as with all capital investments. The second option is the same as the first, but would allow a utility to seek Department approval for a multi-year investment budget, to enable more long term planning and investment. The third option is to move from a historic test year to forecasted test year for ratemaking with ongoing capital recovery mechanisms under decoupling, as historic spending levels are by definition not indicative of the costs of modernizing the grid. The fourth option is the same as the third, but provides for a multi-

year rate plan, under which the Department would review a utility's plan for the following three years and set out the course for grid modernization.

In order to set the stage for increased investments in grid modernization, the Department does not need to do everything all at once. Rather, it can make a series of small, but important, incremental step changes to the regulatory framework in Massachusetts by considering the annual capital investment budget review and pre-approval process as a first step, with other changes to the regulatory framework potentially implemented based on experience and the desire to achieve particular grid modernization goals. As discussed below, National Grid recommends that the Department take this first incremental step change by allowing National Grid to make a proposal to the Department under Menu Option 1, to change the spending level under its capital investment recovery mechanism, to invest in grid modernization.

Today's Framework

Current investment decisions are consistent with the concept of "good utility practice," i.e., investments that are similar to investments that other utilities around the country are making to serve their customers in terms of the types of technologies and materials used, expected useful life, and costs and benefits. Under the traditional approach to utility ratemaking in Massachusetts, utilities recover the costs of infrastructure investments only after the investments are made and there is often a considerable lag between the time expenditures are made and costs are recovered from customers. Although some commentators have maintained that regulatory lag provides discipline for utilities in the management of their assets, when utilities make investments

that are not supported by current revenues, they erode earnings and hinder the utility's opportunity to earn its allowed rate of return. Because regulatory lag impacts the financial performance of utilities, it also places pressure on utilities to limit investments when the utility must balance capital investment against earnings deflation. Accordingly, utilities will typically prioritize investments that maintain safe and reliable service over investments in innovation and grid modernization, because there is significant precedence that such investments will meet the standard of good utility practice, as compared to more innovative and novel grid modernization investments. Lastly, the erosion in earnings brought on by regulatory lag can also harm customers as financial investors may require a higher return to invest in the Company's bonds. This will result in increased rates to customers from higher bond rates. Thus, under the status quo regulatory framework, the pace of grid modernization may not be sufficient to meet the changing energy needs of customers both today and over the long term.

Enabling Investments in Grid Modernization

Each of the alternatives described below represents a viable change to the regulatory framework that will enhance the opportunity for utility innovation and investment in grid modernization and allow the Department to evaluate the benefits of each in the context of the goals of its investigation into modernization of the electric grid.

Menu Option 1: Expand Investment Caps Eligible for Recovery - Historic

Test Year

Menu Option 1 builds from National Grid's approved electric capital investment recovery mechanism. The Department approved in National Grid's last electric rate case

an annual recovery mechanism for in-service capital investments made by National Grid in a preceding calendar year. The Department approved this mechanism as a complement to decoupling. The amount that National Grid can recover is based upon a cap of \$170 million of in-service investments in a given year. The Company's actual investments are reviewed annually by the Department in a proceeding in the year following the in-service year of the investment. The Department review allows for investigation of the prudence of the investments in an adjudicatory proceeding. This approach maintains the historic test year method for rate recovery and, as such, does not eliminate the effects of regulatory lag.

Menu Option 1 would allow a utility with this mechanism in place to request an increase to its capital investment budget cap outside of a base rate proceeding for additional investment that a utility has determined is necessary to modernize the grid while maintaining safe, reliable service. Under this approach, the utility would have the ability to request an increase to the capital investment budget established during its most recent base rate proceeding for Department review and approval. The scope of this review would be limited to the Company's broad rationale for increasing its capital investment budget. So long as the request is consistent with the goals of modernizing the grid, the Department would not need to conduct a full adjudicatory proceeding to review the request to increase the capital investment budget. Rather, the Department would undertake a thorough review of the actual investments, projects and costs at the time that the utility requests recovery for in-service investment in the following year. Thus, the utility maintains the full risk of cost disallowance if its investments are deemed

imprudent even though the Department may have approved an increased capital investment budget at the beginning of the year.

There are many strengths to this approach. First, the approach provides flexibility regarding the level of investment that a utility deems necessary in any given year. A utility can elect to use its entire budget or can fall back to a lower level if appropriate. Second, the request can accommodate the effect of inflation on costs for equipment and manpower by allowing expansion of the capital investment budget. Third, the Department can determine the appropriate speed for modernization of the grid and improvements to safe, reliable service based upon the impacts to customers' bills from an expansion. Lastly, this approach speeds the modernization of the grid without the need for frequent rate cases yet maintains the full authority of the Department to investigate the prudence of the utility's investments.

The weakness of this approach is the potential for the utility's initial request to increase its capital investment budget to become bogged down in a lengthy regulatory proceeding with an uncertain timeline for receipt of a final decision from the Department. Even though all investments would be reviewed after the in-service date, the Department and intervenors may request additional time for investigation into the need and projects associated with the proposal to increase the capital investment budget. This may affect the timing of grid modernization investment while the proceeding remains ongoing and provide uncertainty to the utility in its planning process and in the implementation of its plan. Also, as noted above, this approach maintains the effects of regulatory lag on first year investment which will be recognized by the financial markets as noted above.

In principle, this menu option accords with the Utility Consensus model.

Menu Option 2: Expand Menu Option 1 to Three Years - Historic Test Year

Comment [BA1]: path or pace?

A concern of regulators and customers may be the path of investment necessary to modernize the grid. Although utilities must be cautious regarding forecasts too far in the future given the risk of uncertainty, expectations regarding investment levels and corresponding need over a few years would be far less uncertain. Technological changes and changes in customer use will not be as dramatic as could be possible over a longer timeframe. Thus, the utility can plan for a certain level of work using certain standards for modernizing the grid. Adaptation of the plan will occur annually as known facts reveal differences from the initial plan. However, the annual changes will be small adjustments, not major unforeseen changes. A three year period would be an appropriate length of time for a utility to present a fairly definite level of investment necessary for modernizing the grid while providing safe, reliable service to customers.

The regulatory request for approval would be identical to Menu Option 1, except the request would be for a three year period. Utilities would present grid modernization goals for the next three years along with a capital investment budget to meet these goals for each year of the plan. The Department would review the request in terms of meeting the twin goals of modernizing the grid while balancing concerns over bill impacts to customers. As in Menu Option 1, regulatory review should assess these facts quickly and the Department should reach a decision within a set period of time, since the review of the prudence of actual investments would occur in each year after the investment was made and delays at this stage would impact the Company's ability to implement its plan.

This menu option maintains the strengths from the first option: Utility can flex the level of investment deemed necessary in any year; accommodation for inflation on costs for equipment and manpower; Department can determine the appropriate speed for modernization of the grid considering bill impacts to customers; authority of the Department and right of intervenors to question the prudence of investment is maintained. In addition, the ability of the Department to determine a multi-year level of investment that modernizes the grid provides greater real transparency regarding the utility's expected investment levels and goals for the investment.

The weakness of this approach is the potential for the utility's initial request to increase its investment budget to become bogged down in a lengthy regulatory proceeding with an uncertain timeline for final decision. Even though all investments would be reviewed after they are placed in-service, the Department and intervenors may request additional time for investigation into the need and projects associated with the proposal for increased investment. This may affect the timing of grid modernization investment while the proceeding remains ongoing. Also, as noted above, this approach maintains the effects of regulatory lag on first year investment which will be recognized by the financial markets, increasing costs to customers.

In principle, this menu option accords with the Utility Consensus model.

Menu Option 3: Change from Historic Test Year Review to Forecast Rate Year Review

The next menu option is a forecast rate year method for rate-setting. In Menu Options 1 and 2, the utility's capital investment plan goals and total investment are forecasted but recovery occurs after investment is in service as a result of a separate

Department review of the investments. Menu Option 3 introduces the concept of forecasting all costs that the Company anticipates incurring during the year in which rates become effective. The forecasted items would include changes in revenue, investment plan, operations and maintenance expense and administrative and general expense. This approach uses the historic test year as a base from which the forecast is created along with any adjustments for known changes in future costs significantly above or below inflation, except for the investment plan which is more specific to projects and programs.

The forecasted rate year approach would continue with an ongoing capital recovery mechanism for utilities with decoupled rates as described in Options 1 and 2. Maintaining this approach in the years after the rate year would provide all the benefits enumerated before for those options.

A forecasted rate year approach to cost of service provides utilities with greater incentive to invest in modernizing the grid because it would align the cost of service with the time period in which the costs would be incurred. As such, the revenues would be set to match expected costs, as approved after review by the Department, in the year of incurrence instead of costs incurred two years earlier. Modernizing the grid implies that additional investment may be necessary than what has occurred in the past. In addition, the availability of greater amounts of information would cause an increase in O&M costs to process and analyze the data for use in operating the distribution grid and providing service to customers. A benefit from use of a forecast rate year is the alignment of future plans to modernize the grid with the rates necessary to recover the costs. Department approval of the forecast rate year would align the company's future operations and investments in the rate year with the goals of the state energy plan that requires a modern

grid. A future rate year does not eliminate the risk that the company must perform according to the approved plan and manage costs in a way to deliver the approved plan.

The current source of costs and revenues for rate case filings in Massachusetts is a recent historic test year adjusted for known and measurable changes, such as union contracts. Historical costs and revenues are often not a good indication of what costs and revenues will actually be at some future point in time, especially in the context of grid modernization which by its very definition is not historic. For Massachusetts, preparation for a rate case does not even begin until a historic test year is complete. Preparation of the case takes time, typically up to five months before filing. Due to recent statutory changes, a filing that occurs five months after the end of the historic test year is now reviewed by the Department over a ten month suspension period. By the time an order is issued and rates are in effect, the data upon which the rates are determined will be fifteen to twenty-seven months old. The staleness of the data results in attrition of the ability of the utility to earn its allowed return on equity approved in the case from the effective date, which has a negative impact on utility investment decisions.

The future grid will do more than the present grid to enable renewable energy, distributed generation and customer demand response, among other goals. Assuming that a modern grid is justified as used and useful and cost beneficial for delivery and distributed generation customers, historic levels of investment in utility infrastructure are not representative of the levels of investment that will be necessary to modernize the grid for the future. Decoupling fixes the revenue level which does not allow any increase from growth to pay for additional expenses to modernize the grid. Continuation of a capital recovery mechanism for decoupled utilities after the initial rate year allows for the

potential deferral of rate cases as it would provide for recovery of ongoing investment to modernize the grid as outlined earlier.

A forecasted rate year takes the inputs from the historic test year and inflates those values by inflation or actual forecasts of costs, e.g., capital investment plans, to derive the revenues necessary to run the utility in a forward-looking rate year. All elements of the forward-looking rate year including inflation in O&M expenses, forecasts of revenues and forecasts of capital investment are carefully reviewed by the regulator and intervenors to the case. The utility is required to justify the reasons for increases in costs in the future such as the rate of inflation for O&M costs or investment costs for projects and programs in the investment plan.

The drawback to a forward rate year cost of service approach is the uncertainty created among all stakeholders regarding a significant change in the regulatory model. This uncertainty may result in prolonged adjudication of any proceeding in which the Department considers institution of forecast rate years as an approach. However, any prolonged delay in receiving a final decision from the Department may lessen the speed of further grid modernization investments given the uncertainty in the regulatory model.

Menu Option 4: Multi-year Rate Plans with Forecasted Rate Years

The final menu option is a multi- year forecasted rate plan. This approach takes the same form as Menu Option 3 with a forecasted rate year based upon an historic test year and forecasts of known changes such as capital investment. However, it would extend the plan for a number of years, usually three to five years. The benefit from multi-year plans, particularly when considering grid modernization, is that the utility's capital

investment plan can be reviewed and approved for a number of years with recognition of and accountability for the goals of the plan. Also, multi-year rate plans improve the efficiency of regulation, particularly for utilities with decoupled rates, as they will not need to file multiple rate cases to acquire the revenues necessary to provide safe and reliable service through a modern grid. The length of the plan should be reasonable but not too long, as experience has shown that long multi-year rate plans tend to forecast the needs in the latter half of the plans poorly. A three year period provides the transparent view of the utility's plans going forward while avoiding the risks from unforeseen changes that affect utility plans in future years.

Conclusion and Recommendation

Each of the options discussed above will enable utilities to make increased investments in grid modernization. National Grid recognizes that some represent bigger changes to the present regulatory construct than others, and require careful thought. As a first step, National Grid recommends that the Department allow it to make a grid modernization proposal consistent with Option 1 (pre-approval of an increased spending amount under its capital investment recovery mechanism, subject to an after the fact prudence review) in order to begin the journey of grid modernization, while the more far reaching proposals are considered. This small step in regulation will enable a giant leap for grid modernization.