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Pg. 2

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Avoided Energy Supply Costs in New England:

2011 Report

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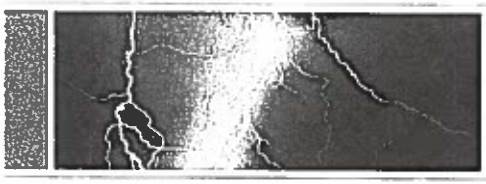
PREPARED FOR

Avoided-Energy-Supply-Component (AESC) Study Group



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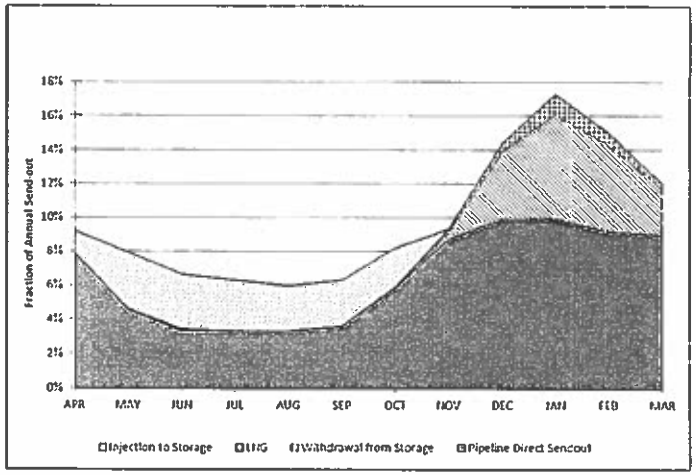
Local distribution companies use their long-haul pipeline transportation to supply load directly in each month of the year. In addition, in summer months LDCs use a portion of that pipeline transportation capacity to deliver gas from producing areas for injection into underground storage, and sometimes for liquefaction and injection into LNG tanks.[83] In winter months LDCs meet customer load with gas delivered by pipeline directly from producing areas and from underground storage. LDCs use gas from LNG and propane facilities delivered directly into their distribution systems to meet daily peaking and seasonal requirements during the months of heaviest load, mostly December through February.[84] See Exhibit 4-4.

Exhibit 4-4: Representative New England Gas LDC Sendout by Source



Because LDCs incur fixed costs to hold pipeline transportation capacity, in the form of *demand charges* multiplied by their capacity entitlements, and because

[83] Local distribution companies may use some of their pipeline capacity to deliver gas in summer for injection into LNG tanks where there are liquefaction facilities on site.

[84] The data underlying the representative LDC sendout by source is the weighted average of the recent data supplied by Yankee Gas Systems, Connecticut Natural Gas Company, Columbia Gas of Massachusetts, NSTAR and National Grid (MA).

they use long-haul pipeline transportation capacity to provide supply in three major ways, we had to determine how best to allocate those fixed costs among the three transportation applications provided using this capacity.[85] The three transportation applications are transportation of gas supply for direct supply (send-out) in winter months, transportation of gas in summer months for injection to underground storage (and subsequent withdrawal in winter months) and transportation of gas for direct supply in summer months. Our analysis of how LDCs use their long-haul capacity for each application is presented in detail below.

Based upon our analysis of LDC use of long-haul capacity, our projection of avoided costs is based on an allocation of 100 percent of pipeline demand charges incurred in winter months to avoided costs in winter months. This allocation reflects LDC use of all of their capacity to provide direct supply in those months. Allocation of pipeline demand charges incurred in summer months is somewhat complex because LDCs use only approximately 75 percent of their capacity during those months based on information provided by LDCs. Of that 75 percent, they use about 46 percent to provide direct supply and about 29 percent to deliver gas for injection into storage. Based upon our analysis of LDC use of capacity in summer months:

- 25 percent of pipeline transportation demand charges incurred in summer months are allocated to avoided costs of winter months, corresponding to the approximately 25 percent of physical capacity not being used in the summer either to refill storage or provide direct supply;
- 29 percent of pipeline demand charges in summer months are allocated to the avoided costs of gas injected into storage. (All costs of gas injected into storage are allocated to avoided costs of winter months). This is the percentage of long-haul capacity LDCs use to transport gas for injection into underground storage in summer;
- 46 percent of pipeline demand charges in summer months are not allocated to avoided costs of summer months. This is the percentage of long-haul capacity LDCs use to provide direct supply in summer. Our analysis indicates that LDCs cannot avoid those costs.

[85] An LDC's fixed cost of capacity on a pipeline for a given month equals the pipeline's demand charge, expressed in dollars per month per dth/day of capacity, multiplied by the LDC's capacity entitlement or contract demand expressed in dth/day.

temperatures. LDCs must demonstrate to their state regulators that they hold sufficient capacity to ensure reliable service.

Local distribution companies acquire the capacity needed to meet design-day demands from a range of resources, according to their particular location and circumstances. For example Vermont Gas Systems relies on spot gas for peaking for normal winters under an arrangement with its supply pipeline with backup propane-air for exceptionally cold days. Many New England LDCs use local LNG storage facilities to meet peak day requirements. One New York utility appears to rely upon a large, gas-fired cogeneration power plant to switch to No. 2 fuel oil and release gas to the LDC on a few peak days in a year. Thus, there is not a common resource used to meet peak-day requirements.

However, we provide an estimate of avoided peak-day costs for those LDCs who do choose to include an avoided peak-day cost. Other LDCs may choose to adjust this estimate upward to account for their design-winter reserve margin, e.g. perhaps 10% greater than during a normal winter sendout, when computing their avoided cost. The avoided demand charges for each month of the winter will provide the number for such an addition to the avoided costs computed here.

4.3.5.1. Peak-Day Avoided Cost

Liquid-natural-gas peaking facilities are generally used to meet the peak-day requirements of New England LDCs. The fixed costs were excluded from the estimate of the avoided costs for the LNG facilities. The resulting modest cost, which excludes fixed costs, does not properly capture the high avoided costs that are expected for peak day service.

Consequently, peak-day avoided costs are estimated based on the costs of underground storage. We assume that underground storage and transportation capacity to the LDC was needed to meet a one-day peak even though the demand charges are generally paid for twelve months.[95] Thus, in calculating the peak-day avoided cost, the demand charges for all twelve months were allocated to the one-day peak.

The estimate of peak-day avoided costs is shown in Exhibit 4-8 for both the TETCO-ALG and the TGP routes. As can be seen, greater incremental demand charges, especially when several pipelines are used for transportation, produce high peak-day avoided costs.

[95] In the case of transportation of stored gas to New England on AGT, a winter service is used for which demand charges are paid for only the five-month winter period.