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Energy

Analysis of energy focuses on a project's consumption of energy and, where relevant, potential effects on the transmission of energy that may result from the project. The assessment is of the energy sources typically used in a project's operation (HVAC, lighting, etc.) and includes electricity, fossil fuels (oil, coal, gas, etc.), nuclear power, hydroelectric power and, occasionally, miscellaneous fuels like wood, solid waste or other combustible materials.

Introduction

Energy analyses focus on an action's consumption of energy as well as the relevant effects on energy transmission as a result of an action. All new structures and alteration projects requiring heating and cooling systems are subject to the New York State Energy Conservation Code, reflecting State and City energy policies. According to the *CEQR Technical Manual*, a detailed assessment of energy impacts would be limited to projects that may significantly affect the transmission or generation of energy. Most actions resulting in new construction would not create significant energy impacts, and, as such, do not require a detailed energy assessment.

The introduction of a CPC special permit for new hotels in M1 districts could result in shifting hotel development from M1 districts to other locations where they will continue to be permitted as-of-right but would not otherwise change any rules regulating development in these locations. Thus, the possible effects of a shift in some hotel development from M1 districts in the future No-Action and With-Action conditions will be considered by means of a prototypical analysis. The energy assessment will be performed for each of the seven prototypical sites as defined and described in Chapter 1, "Project Description" to identify the possible effects of shifting from one use (such as a residential or different commercial use) in the No-Action condition to a commercial hotel use in the With-Action condition.

Principal Conclusions

Analyses were conducted on the prototypical sites to assess energy demand pertaining to the shift from non-hotel use (i.e., a residential or different commercial use) in the No-Action condition to commercial hotel use in the With-Action condition. The screening analysis concluded that the incremental development that may occur at any one prototypical site would not affect energy systems in the city.

Screening Analysis

According to the *CEQR Technical Manual*, in most cases, a project does not need a detailed energy assessment; however, its operational energy consumption should be calculated. The incremental demand caused by most projects results in incremental supply, and consequently, an individual project's energy consumption often would not create a significant impact on energy supply. Consequently, a detailed assessment of energy impacts would be limited to projects that may significantly affect the transmission or generation of energy.

The proposed action would create a special permit for hotels in M1 districts, except for areas that are airport property or areas adjacent to airports that are predominantly non-residential. The proposed action is not in-and-of-itself expected to induce development where it would not have occurred absent the proposed action. The proposed action is anticipated to instead change the geographic distribution of hotels.

These changes would not require a detailed energy assessment. However, as recommended in the *CEQR Technical Manual*, the projected amount of energy consumption during long-term operation should be disclosed in the environmental assessment.

The proposed action is a generic action and there are no known potential or projected development sites. Due to its broad applicability, it is difficult to predict the sites where development would be facilitated. To produce a reasonable analysis of possible effects of the proposed action, seven representative development prototypical sites have been identified, as described in Chapter 1, "Project Description."

Table 15-1 of the *CEQR Technical Manual* identifies energy usage by building type as described in Table 13-1 below.

Table 13-1 Average Annual Whole-Building Energy Use in New York City

| Building Type | Source Energy (MBtu/SF) |
|-----------------------------|--------------------------------|
| Commercial | 216.3 |
| Industrial | 554.3 |
| Institutional | 250.7 |
| Large Residential (>4 DUs) | 126.7 |
| Small Residential (1-4 DUs) | 94 |

Source: Table 15-1 of the *CEQR Technical Manual*

To calculate the use of energy for each prototype, the projected difference in energy usage between the No-Action and With-Action conditions is first determined by use. The incremental difference is then multiplied by the applicable energy use rate (*CEQR Technical Manual* Table 15-1). This calculation provides the net energy use rate for each prototype.

Table 13-2 below describes the incremental energy usage of each of the seven prototypical sites.

Table 13-2 No-Action, With-Action and Incremental Energy Usage

| Proto-typical Site | No-Action | With-Action | | Increment | |
|---------------------------|---|----------------------------|------------------------------|----------------------------|----------------------------|
| | SF by Use | Energy Usage (MBtu) | Commercial (Hotel) SF | Energy Usage (MBtu) | Energy Usage (MBtu) |
| 1 | Small Residential: 2,254 Institutional: 2,300 Commercial: 877 | 978,181.1 | 34,500 | 7,462,350 | + 6,484,168.9 |
| 2 | Commercial: 70,121 | 15,167,172.3 | 70,121 | 15,167,172.3 | 0.0 |
| 3 | Large Residential: 306,363 Commercial: 26,045 | 44,449,725.6 | 259,751 | 56,184,141.3 | + 11,734,415.7 |
| 4 | Large Residential: 10,105 Commercial: 1,553 | 1,616,217.4 | 8,078 | 1,747,271.4 | + 131,054 |
| 5 | Large Residential: 61,158 | 7,748,718.6 | 53,360 | 11,563,112.0 | + 3,814,393.4 |
| 6 | Commercial: 10,868 | 2,350,748.4 | 29,325 | 6,342,997.5 | + 3,992,249.1 |
| 7 | Large Residential: 82,500 | 10,452,750.0 | 57,500 | 12,437,250.0 | + 1,984,500.0 |

Based on the analysis above, the largest incremental increase that may occur amongst the seven prototypical sites is for Site 3. Based on the energy consumption rates outlined in Table 15-1 of the *CEQR Technical Manual*, the incremental energy usage for Site 3 would be 11,734,416 MBtu.

The proposed action would generate an incremental increase in energy demand that would be negligible when compared to the overall demand within Consolidated Edison's (Con Edison's) New York City and Westchester County service area.

Conclusion

The screening analyses conducted on the prototypical sites to assess energy demand pertaining to the shift from non-hotel use in the No-Action condition to a commercial hotel use in the With-Action condition concluded that the incremental increase in energy demand that may occur at any one prototypical site would not affect energy systems in the city.