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Greenhouse gas policy for New England includes reducing emissions to 1990 levels by 2010

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What are Greenhouse Gases? Greenhouse gases (GHGs) contribute to warming of the earth's surface by trapping infrared radiation in the atmosphere. These gases include: carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Future climate change issues for New England are likely to include increased stresses on estuaries, bays, and wetlands; changes in precipitation rates; and changes in the composition of northeastern forests with associated impacts to biodiversity.

To reduce or reverse these impacts, the New England governors and Eastern Canadian premiers have entered into an agreement to reduce GHG emissions. The key goals of this agreement are to reduce emissions to:

* 1990 levels by 2010
* 10% below 1990 levels by 2020

In order to meet these goals, individual New England states have adopted policies to control emissions. The typical policy focuses primarily on carbon dioxide, as it is considered the predominant contributor to global warming and is the easiest of the GHGs to quantify with readily accessible data. Other GHGs may be scoped depending on the project, i.e. methane for a landfill project, or an industry specific gas emission.

Quantification of total emissions requires looking at direct emissions and indirect emissions from energy consumption and transportation. Direct emissions are calculated based on the amount and type of fuel used for boilers, heaters, furnaces, incinerators, emergency generators and combustion turbines. Indirect emissions from energy consumption include: electricity consumption; type of heating; HVAC systems; facility uses; and hours of operation. Indirect emissions from transportation are based on a mesoscale analysis. Estimated annual vehicle miles traveled are multiplied by the EPA Mobile 6.2 carbon dioxide emission factors to develop an estimate of emissions.

Massachusetts' GHG Policy - New developments subject to the Massachusetts Environmental Policy Act (MEPA) are now required to mitigate for GHG emissions. The Massachusetts Executive Office of Energy and Environmental Affairs (EEA), in an effort to address the effects of GHGs on the environment, has developed a new GHG Emissions Policy. The EEA determined that the impact of GHGs contributed to "damage to the environment" and is therefore subject to review under MEPA.

MEPA review is required if a project requires a state agency action, in the form of a permit, financial assistance, or land transfer, and meets or exceeds a review threshold listed in 301 CMR 11.03. The new GHG Policy applies to projects submitting Environmental Notification Forms (ENFs) after October 31, 2007, where the project triggers a mandatory Environmental Impact Report, and requires an Air Quality Permit from the Department of Environmental Protection or a Vehicular Access Permit from the Massachusetts Highway Department. These projects are being scoped to avoid, minimize or mitigate "Damage to the Environment" caused by GHG emissions.

What analysis is required? - The GHG Policy requires project proponents to quantify the annual GHG emissions for baseline conditions and at least two alternatives; identify and commit to implementing mitigation measures; and quantify emissions reduction and energy savings resulting from the mitigation measures. Baseline conditions are code-compliant buildings for energy consumption emissions and build-conditions without mitigation for transportation emissions. The required alternatives are the preferred alternative and an alternative with greater GHG emissions.

Total project emissions are quantified using both direct emissions and indirect emissions. Assumptions on emissions are developed through computer models that estimate both fuel and electricity use. The policy acknowledges that the available models provide limited accuracy. So the policy does not include specific limits or targets, but instead aims to compare differences in energy usage.

The goal of the policy is to encourage more energy efficient projects. MEPA accepts a broad range of mitigation measures, which are generally consistent with Low Impact Development (LID) and Leadership in Energy and Environmental Design (LEED) principles. Examples of acceptable mitigation measures include:

* Integrating transportation and land use
* Providing water efficient landscaping
* Using high efficiency HVAC systems
* Incorporating on-site renewable energy sources
* Using green building products
* Providing bicycle storage/showers
* Improving roadways for traffic flow

To date, projects subject to the GHG Policy have shown only minimal reductions in GHG emissions. The policy remains a work in progress that will evolve as more projects are required to address GHG emissions.

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