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The Municipal Art Society of New York

**MAS** **NYC**

# SEQRA and Climate Change

Prepared by the  
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at The Municipal Art Society of New York



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# I/ Executive Summary

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The next 20 years are critical in the world-wide effort to minimize the impacts of global climate change — the planet is rapidly approaching the point beyond which greenhouse gas (“GHG”) concentrations, and their subsequent climate change impacts, will no longer be manageable. This is a new global challenge and New Yorkers have the responsibility to aggressively reduce GHG emissions and prepare for the changes in air temperature, sea level, and precipitation, and the massive implications of those changes, to human and natural environments.

New York is making great strides to reduce the State’s GHG emissions, but more solutions can and should be pursued to drastically reduce its contribution to global climate change. One tool that can assist in this pursuit is environmental review. There is no need to wait for new policies; the State Environmental Quality Review Act (“SEQRA”) currently provides the tools necessary to evaluate the consequences of an action’s impact upon climate change and its vulnerability to changing climatic conditions. Meaningful environmental review will greatly assist governmental agencies and the public in understanding those consequences, and will help to address the impacts associated with actions taken in New York State in the land-use, energy, industrial transportation and other sectors. Accordingly, New York should require the disclosure of an action’s GHG emissions, mitigation of those emissions and the consideration of the impact that climate change will have on an action.

While global climate change is the most significant environmental issue of our time, it has, to this point, been largely ignored in most analyses under SEQRA and City Environmental Quality Review (“CEQR”), though it is routinely analyzed under the analogous statutes in Massachusetts, California and Washington. New York should now do the same.

Due to the necessity of analyzing climate change, and the need for consistent and clear analysis when doing so, the Municipal Art Society (“MAS”) convened a group of experts to identify a method for analyzing climate change in an Environmental Impact Statement (“EIS”) under SEQRA. MAS presents its findings to facilitate public discussion regarding the best way to analyze climate change in New York.

The following paper and corresponding protocols conclude that the New York State Department of Environmental Conservation (“DEC”) has the authority and mandate under SEQRA to require an EIS analysis for the following inquiries:

- How will an action’s life-cycle GHG emissions affect climate change?
  - And, how can a project’s adverse impact be minimized?
- How will climate change affect the project?
  - And, how can a project best anticipate and prepare for the effects of climate change?

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# I/ Executive Summary

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MAS believes that GHG emissions should be treated as a non-threshold pollutant – meaning that any increase in GHG emissions above a zero-threshold will contribute to the adverse cumulative impact of global climate change. We therefore recommend that DEC require disclosure of the GHG emissions associated with every action subject to an EIS under SEQRA.

We recognize the practical difficulties of requiring smaller projects that necessitate an EIS to conduct in-depth analysis of the action's GHG emissions, and therefore suggest that DEC create three different categories of actions requiring an EIS: (1) actions that do not warrant any substantive analysis of climate change impacts, like certain rule-making actions; (2) actions that require a quantitative lifecycle analysis of GHG emissions, such as major construction projects, power plants, major rezonings, and projects generating a large increase in traffic; and (3) all remaining actions subject to an EIS that require only a qualitative analysis of their impact upon climate change.

In addition to the quantitative or qualitative analysis required for a project's GHG emissions, every action requiring an EIS should account for the changing landscape and climate that could alter the efficiency, health, lifetime, or infrastructure of a project and, subsequently, examine adaptation measures that will reduce the project's vulnerability to these effects.

The consideration of climate change under SEQRA will enable the government to identify opportunities to reduce or minimize the impact that discretionary projects have on the global climate and the impacts that global climate change will have on them. This paper details the suggested framework for analyzing climate change in an EIS under SEQRA.

## **About the Study**

This study of climate change and SEQRA was performed by MAS in 2007 and 2008. MAS assembled the SEQRA Advisory Committee, composed of environmental consultants, environmental advocates, and experts in environmental law. The Committee met several times throughout the year and worked to craft the conclusions and recommendation in this report.

Katie Kendall, the Ralph C. Menapace Jr. Fellow in Urban Land Use Law at MAS when the study was prepared, drafted this report. MAS thanks the committee for its hard work. This report is the result of a collaborative process. Accordingly, not all of the views of the committee members are expressed or reflected.

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# I/ Executive Summary

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## **Editor's Note**

*Katie Kendall, the former Ralph C. Menapace, Jr. Fellow in Urban Land Use Law at the Municipal Art Society, prepared the original draft "SEQRA and Climate Change" report. This final "SEQRA and Climate Change" report was edited by the MAS SEQRA committee and the current Menapace Fellow. The final version does not contain any substantive edits, and strongly reflects the ideas set forth in the original draft.*

*Subsequent to MAS's release of the draft report, DEC circulated a proposed technical guidance for the consideration of certain climate issues in EISs. The DEC draft, which is still undergoing review within the agency, drew important concepts from the MAS draft report.*

*The MAS SEQRA committee responded to the DEC's proposed technical guidance with certain recommendations that are not reflected in this report.*

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The Municipal Art Society of New York is a private, non-profit membership organization that fights for intelligent urban design, planning and preservation through education, dialogue and advocacy.

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# II/ Introduction

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## “Climate change is the most significant environmental problem of our generation.”

Pete Grannis, Commissioner  
New York State Department of Environmental Conservation<sup>1</sup>

The Intergovernmental Panel on Climate Change (“IPCC”) recently found that “[w]arming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level.”<sup>2</sup> Climate change impacts are most evident with regard to the melting of the polar ice caps, but New Yorkers are starting to experience the effects of climate change at home.<sup>3</sup> For example, in New York City, the temperature will rise, rainfall will increase, there will be more frequent, and more extreme storms, and the sea level will rise.<sup>4</sup>

The IPCC concluded that our industrial society has significantly contributed to the warming of our planet.<sup>5</sup> Thankfully, technological and scientific advances now provide an opportunity to pursue aggressive and environmentally sensitive policies that seek to reduce and potentially reverse this warming. Failure to act now will only result in climate change exceeding “the capacity of natural, managed and human systems to adapt,”<sup>6</sup> but could also cause great harm to the global economy.<sup>7</sup>

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1. New York State Department of Environmental Conservation, “Date for Nation’s First Auction of Greenhouse Gas Allowances Announced,” *Environment DEC* (April 2008), available at <http://www.dec.ny.gov/environmentdec/42734.html> (last visited April 14, 2009).
  2. See Intergovernmental Panel on Climate Change, “AR4 Synthesis Report” at 72 (2007) (hereinafter “IPCC Synthesis Report”).
  3. New York City Department of Environmental Protection Climate Change Program, “Assessment and Action Plan,” at 6 (2008) (hereinafter “DEP Climate Change Report”).
  4. “[B]y the 2080s the most probable amounts of change in New York City and its Watershed Region will be 7.5 to 8 degrees Fahrenheit increase in temperature, a 7.5 to 10 percent increase in precipitation, and a 15.7 to 17.7 inch rise in sea level. Scientists anticipate that extreme weather events will also be more frequent.” *Id.* These projections were performed for DEP by the Columbia University Center for Climate Systems Research and the NASA Goddard Institute for Space Studies at Columbia University. Furthermore, in another recent report by NASA Goddard Center at Columbia University, it is estimated that the interval of the 100-year storm flood could shorten to as little as 4 to 60 years. Klaus Jacob, ET AL., “Vulnerability of the New York City Metropolitan Area to Coastal Hazards, Including Sea-Level Rise: Inferences For Urban Coastal Risk Management and Adaptation Policies,” *Managing Coastal Vulnerability* 145 (2007).
  5. “Most of the global average warming over the past 50 years is *very likely* due to anthropogenic GHG increases.” IPCC Synthesis Report, *supra* note 2, at 72.
  6. *Id.* at 73.
  7. “New research shows that if present trends continue, the total cost of global warming will be as high as 3.6 percent of gross domestic product (GDP). Four global warming impacts alone—hurricane damage, real estate losses, energy costs, and water costs—will come with a price tag of 1.8 percent of U.S. GDP, or almost \$1.9 trillion annually (in today’s dollars) by 2100. . . . the longer we wait, the more painful—and expensive—the consequences will be.” Natural Resources Defense Council, “The Cost of Climate Change: What We’ll Pay if global Warming Continues Unchecked,” ES-IV (May 2008), available at <http://www.nrdc.org/globalwarming/cost/cost.pdf> (last visited April 14, 2009).

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## II/ Introduction

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The next 20 years are critical if we are to successfully confront the problems of climate change, as the planet is rapidly approaching the point beyond which greenhouse gas (“GHG”) emissions and resulting climate change impacts will no longer be manageable. For economic and environmental reasons, immediate action must be taken.<sup>8</sup>

Even though climate change has global implications, New Yorkers are not precluded from immediately acting in an environmentally responsible, and local, manner so as not to exacerbate this growing problem. In New York, policies to reduce GHG emissions could have a demonstrable impact on total global GHG emissions, as the state currently emits a higher percentage of global carbon emissions than some industrialized countries that have already committed to cutting their emissions by 2012.<sup>9</sup> We commend New York State and its municipalities for their genuine recognition of climate change, their acknowledgment that New York is a major contributor to this problem, and their actions thus far to combat this challenge.<sup>10</sup> But more can and must be accomplished in order to drastically reduce our contribution to the problem of global climate change. In fact, as the IPCC noted, even “[w]ith current climate change mitigation policies and related sustainable development practices, global GHG emissions will continue to grow over the next few decades.”<sup>11</sup>

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8. To illustrate the severity of the problem we face, it is estimated that the world needs to reduce its anthropogenic GHG emissions by 50 to 85 percent below 2000 levels by 2050 in order to stabilize global GHG concentrations to a manageable level. See Intergovernmental Panel on Climate Change 2007: Summary for Policymakers at 15. See also *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA (hereinafter “IPCC Mitigation Summary Report”). As the IPCC notes, “[m]itigation efforts and investments over the next two to three decades will have a large impact on opportunities to achieve lower stabilisation levels. Delayed emissions reductions significantly constrain the opportunities to achieve lower stabilisation levels and increase the risk of more severe climate change impacts.” *Id.* at 19.
  9. Although New York is home to only 0.3 percent of the world’s population, the state emits 0.9 percent of the world’s carbon emissions and 4.2 percent of U.S. carbon emissions. “In this regard, New York State’s . . . emissions exceed those of Sweden and the Netherlands, countries that have committed to cutting their emissions to eight percent below 1990 levels by 2012.” The Center for Clean Air Policy, “Recommendations to Governor Pataki for Reducing New York State Greenhouse Gas Emissions,” ES-4 (April 2003), available at [http://www.ccap.org/docs/resources/534/NYGHG\\_Report.pdf](http://www.ccap.org/docs/resources/534/NYGHG_Report.pdf) (last visited April 14, 2009).
  10. New York State has taken great strides to reduce its GHG emissions. For example, New York is a participating member of the Regional Greenhouse Gas Initiative (“RGGI”), an agreement among the governors of ten northeastern and Mid-Atlantic States to reduce GHG emissions from power plants. New York requires its agencies to achieve a 35 percent reduction from 1990 in energy consumption in its buildings by 2010. See New York State Executive Order 111 (2001) (continued by Governor Paterson on March 20, 2008). In 2007, former New York Governor Eliot Spitzer announced an aggressive framework that will reduce energy consumption in New York State by fifteen percent from expected levels by 2015 (“15 by 15”). This is but a small sample of the actions taken by the State in this endeavor. Also, New York State has adopted a Renewable Portfolio Standard, which requires that 25% of the electricity purchased in New York within the next decade be obtained from renewable energy sources. See New York Public Service Commission, “Order Regarding Retail Renewable Portfolio Standard” (Sept. 24, 2004). The state is not alone in acting to fight climate change. New York City’s Local Law 86, passed in 2005, requires that capital projects with an estimated construction cost of \$2 million or more be designed and constructed to achieve a LEED silver or higher rating (with exceptions and caveats for certain projects). See Local Laws of the City of New York, No. 86 (2005), available at <http://www.nyc.gov/html/dob/downloads/pdf/1L86of2005.pdf> (last visited April 14, 2009). New York City has also set a goal to reduce citywide carbon dioxide emissions by 30 percent by 2030. See PlaNYC “Greenhouse Gas Emissions Inventory” <http://www.nyc.gov/html/planyc2030/html/emissions/emissions.shtml> (last visited April 14, 2009).
  11. See IPCC Synthesis Report, *supra* note 2.

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## II/ Introduction

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SEQRA is the ideal way to integrate consideration of climate change into agency decision-making. In his speech announcing PlaNYC 2030, New York City's long-term blueprint for sustainability, Mayor Michael Bloomberg stated that "we soon realized that you can't formulate a land use plan without thinking about transportation and you can't think about transportation without thinking about air quality. You can't think about air quality without thinking about energy and you certainly can't think about energy – or any of this – without thinking about global warming." Clearly, the Mayor believes that any good land use plan should consider climate change impacts.<sup>12</sup> But, so far, there has been little analysis of project specific GHG emissions, or the environmental impact on a project that climate change will bring about. When New York plans for its future, it must simultaneously assess a project's impact upon climate change and how best to reduce that impact.

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12. In fact, New York City's DEP recognizes the value of environmental review and recommends as part of its actions to determine and implement system adaptations the creation of "a methodology for the CEQR process so that potential climate change impacts are assessed and considered before decisions are made." DEP Climate Change Report, *supra* note 3, at 62.

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# III/ Why SEQRA Mandates the Study of Climate Change

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Environmental impact review is an essential means of examining the impacts that buildings, land-use plans and other government actions have upon climate change. Federal agencies and other states are beginning to incorporate climate change analyses into their own environmental review.

The passage of the National Environmental Policy Act of 1969 (“NEPA”) fundamentally changed federal decision-making by requiring environmental review prior to approval of an action.<sup>13</sup> The debate on whether NEPA requires a climate change analysis is being played out in federal courts. In one recent decision, the U.S. Court of Appeals for the Ninth Circuit annulled the U.S. Department of Transportation’s average fuel economy standards for light trucks and remanded the action to the agency for an analysis of the significant environmental impacts, including climate change, in an Environmental Impact Statement (“EIS”).<sup>14</sup> Although some federal agencies have begun to include climate change in EISs prepared under NEPA, discussions have not been particularly extensive.

New York and many other states have their own “mini-NEPAs,” which require state agencies and municipalities to assess the environmental impacts of their actions. State governments, often the laboratories of innovation for climate change policy, have taken the lead in incorporating climate change analyses into environmental review documents. Massachusetts, Washington, and California, states with corresponding mini-NEPAs, have begun to require such an analysis.<sup>15</sup> New York must now do the same.

Guided by the principle that “the capacity of the environment is limited,” the New York State Environmental Quality Review Act (“SEQRA”) broadly dictates that the government must be a “steward of the air, water, land, and living resources, and [recognize] that [it] ha[s] an obligation to protect the environment for the use and enjoyment of this and all future generations.”<sup>16</sup> Although not enumerated in SEQRA, the study of climate change is exactly the sort of environmental problem that SEQRA seeks to address. SEQRA’s stated goal to “incorporate the consideration of environmental factors”<sup>17</sup> into planning and decision-making provides the flexibility to adapt to new environmental threats, including the threats of and associated with climate change. Indeed, agencies regularly address categories of environmental harms that SEQRA does not specifically enumerate.

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13. Michael B. Gerrard, “Climate Change and the Environmental Impact Review Process,” 22 NAT. RESOURCES & ENV’T 20 (Winter 2008).

14. *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 508 F.3d 508, 550 (9th Cir. 2007) (holding that the Environmental Assessment was inadequate and Petitioners raised a substantial question as to whether the final action setting light truck Corporate Average Fuel Economy (“CAFE”) standards may have a significant impact on the environment, and remanding to NHTSA for the preparation of a full EIS) (*quoting* 40 C.F.R. 1508.7); *see also*, Gerrard, *supra* note 13 at 21.

15. Massachusetts and King County in Washington State have developed comprehensive protocols for measuring climate change in their EIS-equivalent environmental reviews. We based our guidance on the structure of these innovative protocols. California is in the process of developing its protocol on measuring climate change in its environmental review. Please see the Appendix for a compilation of the protocols and suggested guidance for conducting environmental review for climate change.

16. N.Y. ENVTL. CONSERV. LAW § 8-0109(1).

17. 6 NYC.R.R. § 6171(c).

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# III/ Why SEQRA Mandates the Study of Climate Change

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Based upon SEQRA's mandate to examine a project's impact upon air pollution, and the U.S. Supreme Court's recent declaration that carbon dioxide is a pollutant,<sup>18</sup> "the New York Department of Environmental Conservation ("DEC") would seem to have ample authority to require consideration of climate change in EISs under SEQRA."<sup>19</sup> As stated in a recent article, "[a] thorough environmental analysis of the topics that SEQRA and the DEC SEQRA rules do explicitly address – such as land, air, water, and habitat – requires consideration of climate change impacts because all of these resources will be affected by the altered temperature, weather, precipitation, and sea level patterns that global warming is bringing."<sup>20</sup> The authors concluded that "an adequate SEQRA analysis would need to discuss not only how global warming would affect these resources related to a project but also how a project's impacts – the associated increase in carbon dioxide emissions – exacerbate all these effects."<sup>21</sup>

DEC is currently making progress by requiring an analysis of GHG emissions and climate change impacts upon projects in those EISs where it acts as lead agency.<sup>22</sup> As outlined in the recently-released Final Scope for Belleayre Mountain Ski Center and Resort, DEC, as lead agency, will conduct a qualitative analysis of climate change impacts that may affect the new ski center, and a quantitative analysis (where practicable) of the GHG emissions resulting from the construction and operation of the ski center.<sup>23</sup>

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18. *Massachusetts v. EPA*, 549 U.S. 497 (2007).

19. Gerrard, *supra* note 13 at 22.

20. Peter H. Lehner & Janice A. Dean, "SEQRA's Alarm Rings for Climate-Impact Considerations." *New York Law Journal* (Aug. 28, 2007). For a thorough examination regarding the reasons that SEQRA mandates an examination of climate change, *see also* Michael B. Gerrard, "Climate Change and Impact Statements," *New York Law Journal* (May 25, 2007).

21. Lehner & Dean, *supra* note 20.

22. New York State DEP, in a recent report on climate change, also advocated for an update to the City Environmental Quality Review ("CEQR") Technical Manual that will include a climate change analysis. DEP Climate Change Report, *supra* note 3, at 62. We have chosen to focus upon SEQRA because no municipal environmental review may be less stringent than that of the State. Therefore, we believe that if a climate change analysis is required for SEQRA, all local environmental reviews will have to incorporate an analysis of climate change.

23. New York State DEC, "Final Scoping Document for Belleayre Mountain Ski Center Unit Management Plan – DEIS and Modified Belleayre Resort at Catskill Park Supplemental DEIS," at 34-36 (2008), *available at* [http://www.dec.ny.gov/docs/permits\\_ej\\_operations\\_pdf/belleayrefinalscope.pdf](http://www.dec.ny.gov/docs/permits_ej_operations_pdf/belleayrefinalscope.pdf) (last visited April 14, 2009).

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# IV/ The Benefits of Reducing GHG Emissions Through an EIS

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MAS believes that SEQRA mandates consideration of climate change — the bigger question is why such analysis is important. While there is no single solution to climate change, requiring disclosure and analysis of climate change in an EIS would be an important step towards achieving carbon emissions reductions in New York State, as decision-makers will have a tool with which to assess impacts and evaluate mitigation measures.

Moreover, a climate change analysis can readily be incorporated into an EIS analysis because governmental agencies and applicants already understand how to analyze environmental impacts through the EIS process. Adding a climate change analysis to the EIS process will help government agencies to identify potential opportunities to reduce or minimize the impact that discretionary projects have on GHG emissions and climate change, and the impacts climate change will have on them. Furthermore, one of the primary values of SEQRA is that it exposes projects to public scrutiny and provides opportunity for public input; this disclosure will make developers more accountable for their projects' contributions to climate change and more cognizant of the impact climate change may have on their projects.

Requiring a climate change analysis in an EIS could demonstrably reduce the climate change implications of development in New York. For the years 1984 to 2002, DEC compiled statistics on the number of SEQRA EISs prepared every year; during that period, agencies prepared an average of 159 Draft Environmental Impact Statements (“DEIS”) per year.<sup>24</sup> Considering that a handful of projects subject to SEQRA analysis in New York City alone will result in well over 65 million square feet of new development<sup>25</sup>, analyzing and mitigating the climate change impacts of an average of 159 EISs per year, some of them quite large in size, is certain to have positive implications.

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24. MICHAEL B. GERRARD, DANIEL A. RUZOW & PHILIP WEINBERG, ENVIRONMENTAL IMPACT REVIEW IN NEW YORK § 1.03[1] (2005).

25. Four proposed development projects and rezonings in New York City could produce approximately 68 million square feet of development. Approximately 7.9 million GSF of development was approved for the Atlantic Yards project. See <http://www.empire.state.ny.us/pdf/AtlanticYards/SEQRA%20findings%20Statement.pdf> at page 11. The Hudson Yards rezoning area and No. 7 Subway extension is projected to add 42 million square feet of development. See [http://www.nyc.gov/html/dcp/pdf/hyards/hy\\_exec\\_sum\\_t\\_fgeis\\_final.pdf](http://www.nyc.gov/html/dcp/pdf/hyards/hy_exec_sum_t_fgeis_final.pdf), at Executive Summary-5. The World Trade Center Redevelopment project and memorial will result in approximately 11.6 million square feet of development. See <http://www.nylovesbiz.com/pdf/MoynihanStation/DraftScopeofWork.pdf> at 3. The Expanded Moynihan Station/Penn Station Redevelopment Plan could result in approximately 7.5 million square feet of development. See <http://www.empire.state.ny.us/pdf/MoynihanStation/DraftScopeofWork.pdf> at page 3.

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# V/ Developing a Climate Change Protocol Under SEQRA

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In order to assist agencies in implementing a fair and intelligent analysis, generating predictable outcomes and garnering consistent finding, it is important to develop specific guidelines for analyzing climate change in an EIS. Because courts tend to afford great deference to discretionary administrative determinations, “a heavy burden [has been placed] on those administrative agencies — planning boards, town boards, highway departments, and the like to genuinely take environmental issues into account, and not simply rubber-stamp projects with serious impacts.”<sup>26</sup>

As outlined in this section, the proposed protocols will require disclosure of GHG emissions, an analysis of potential mitigation measures, an analysis of climate change impacts upon the project, and an enhanced analysis of energy supply and consumption. In drafting these protocols our goal is to provide agencies with a guidance that will enable them to conduct a meaningful analysis, but still allow them the necessary flexibility to determine the environmental impacts of a project, select mitigation measures and choose among alternatives.

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26. Philip Weinberg, “SEQRA: Effective Weapon—If Used as Directed” 65 ALB. L. REV. 315, 317 (2001).

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# V/ Developing a Climate Change Protocol Under SEQRA

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## 1 How SEQRA Works

### **Environmental Assessment**

Under SEQRA, a lead agency must prepare a full Environmental Assessment Form (“EAF”) for any Type I action, or a short EAF for an unlisted action.<sup>27</sup> If the lead agency determines that an action may have a significant adverse impact on the environment, an EIS must be prepared. The “significant adverse impact” is the threshold which triggers an EIS under SEQRA. Generally, the determination of significance is a subjective judgment within the lead agency’s discretion. If a lead agency determines that harm to one aspect of the environment may be significant, a full EIS must be prepared.

### **Scoping**

At this point in the SEQRA process, a lead agency may prepare a scoping document and hold a scoping meeting. Notably, scoping documents often address all categories for an EIS statement, even if the agency concluded in the environmental assessment that some categories of impacts were unlikely to be significant.

### **Environmental Impact Statements**

Once the decision has been made to prepare an EIS, different statutory standards control how environmental impacts are analyzed and mitigated. A determination that potential impacts in one or more environmental categories are significant is required to trigger an EIS. When drafting the EIS, however, the lead agency is required to minimize or avoid adverse environmental impacts to the maximum extent practicable.<sup>28</sup>

After the draft EIS is prepared and accepted by the lead agency, the public has an opportunity to comment on the analysis and conclusions. After a minimum of thirty days of public comment, and possibly a public hearing which often extends the comment and review period, the lead agency drafts a Final Environmental Impact Statement (“FEIS”) complete with responses to public comments. At this point, the lead agency can file a Notice of Completion of the environmental review process.

### **Findings Statement**

After filing the FEIS, the lead agency must also prepare a findings statement, which is “an explicit finding that the requirements of [the New York State Environmental Conservation Law] have been met and that consistent with social, economic and other essential considerations, to the maximum extent practicable, adverse environmental effects revealed in the environmental impact statement process will be minimized or avoided.”<sup>29</sup> The value of this substantive mitigation requirement was highlighted by DEC: “[t]he quest for this degree of mitigation is one of the fundamental objectives of the SEQR process.”<sup>30</sup>

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27. Throughout this report, the terms “action” and “project” are used interchangeably. Under SEQRA, the statute refers to an “action.” Colloquially, people often refer to these actions as “projects.”

28. N.Y. ENVTL. CONSERV. LAW § 8-0109(1).

29. N.Y. ENVTL. CONSERV. LAW § 8-0109(8).

30. GERRARD, RUZOW & WEINBERG, *supra* note 24 at § 6.01[1] (quoting *In re Pyramid Crossgates Co.* (DEC Comm’r Decision, Sept. 18, 1981)).

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# V/ Developing a Climate Change Protocol Under SEQRA

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## 2 How Can We Incorporate a GHG Analysis into the Current SEQRA Structure?

The SEQRA process clearly does not preclude a lead agency from requiring the analysis of other impact categories in an EIS, especially where there is scientific consensus that increased GHG emissions may exacerbate the problem of climate change.<sup>31</sup> When an EIS is triggered by a finding of a potential significant impact in another category, such as air quality or traffic, climate change should then be studied. A leading article recently concluded that “[i]t is unlikely that a climate impact would alone trigger the need for an EIS. Most activities with major GHG emissions would already trigger the EIS requirement because of non-climate impacts.”<sup>32</sup>

Climate change is not a localized problem, but the difficulty in attaching causation to any one particular project does not mean climate change can or should be ignored by lead agencies under SEQRA. By adopting an EIS protocol for climate change analysis, DEC can best target those projects that will have the greatest adverse impacts to our environment while outlining a consistent and predictable analytical framework for practitioners. While an action’s individual contribution to global GHG emissions may be quite small, the aggregate impact of projects does have a significant environmental impact when it comes to climate change.

Courts have agreed. As noted in a report by the Center for Biological Diversity regarding climate change and the California Environmental Quality Review Act, “[c]ourts have flatly rejected the notion that the incremental impact of a project is not cumulatively considerable because it is so small that it would make only a de minimus contribution to the problem as a whole.”<sup>33</sup> The United States Court of Appeals for the Second Circuit has noted in a different context that, with regard to NEPA, “[i]mportant decisions concerning the use and shape of man’s future environment continue to be made in small but steady increments which perpetuate rather than avoid the recognized mistakes of previous decades.”<sup>34</sup> More recently, the United States Court of Appeals for the Ninth Circuit has held that “[t]he impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct. Any given rule setting a [Corporate Average Fuel Economy (“CAFE”)] standard might have an ‘individually minor’ effect on the environment, but these rules are ‘collectively significant actions taking place over a period of time.’”<sup>35</sup>

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31. See IPCC Synthesis Report, *supra* note 2.

32. Gerrard, *supra* note 20 at 6-7.

33. Center for Biological Diversity, “The California Environmental Quality Act: On the Front Lines of California’s Fight Against Global Warming,” at 8 (Sept. 2007) (citing *Communities for a Better Environment v. California Resources Agency*, 103 Cal. App. 4th 98, 117 (Cal. Ct. App. 2002)).

34. *Natural Resources Defense Council v. Callaway*, 524 F.2d 79, 88 (2d Cir. 1975) (quoting S. Rep. No. 296, 91 Cong., 1st Sess. 5 (1969)); see also Lehner & Dean, *supra* note 20.

35. *Ctr. For Biological Diversity*, 508 F.3d at 550.

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# V/ Developing a Climate Change Protocol Under SEQRA

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## 2 How Can We Incorporate a GHG Analysis into the Current SEQRA Structure?

While a cumulative impacts analysis under NEPA differs somewhat from the required cumulative impacts analysis under SEQRA,<sup>36</sup> these holdings are instructive with regard to the notion that any additional increases in GHGs is adverse considering the background concentration of GHGs in the atmosphere and the need to significantly reduce GHG emissions in the next 20 to 40 years.<sup>37</sup>

Agencies are likely to need guidance and assistance to begin incorporating climate change analysis into environmental review. We call on DEC to provide that guidance. In the Appendix, we propose the specifics of three separate protocols: (1) a GHG Protocol; (2) a Protocol for Measuring the Impacts of Climate Change on an Action; and (3) an Energy Environmental Assessment Addendum. The subsequent sections generally describe how this analysis of climate change should be examined in an EIS.

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36. Federal regulations define a cumulative impact as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” 40 C.F.R. § 1508.7. SEQRA also requires an analysis of cumulative impacts in an EIS. N.Y. ENVTL. CONSERV. LAW § 8-0105. For the purposes of determining significance, and thereby triggering an EIS, SEQRA regulations describe cumulative impacts as “changes in two or more elements of the environment, no one of which has a significant impact on the environment, but when considered together result in a substantial adverse impact on the environment;” or “two or more related actions undertaken, funded or approved by an agency, none of which has or would have a significant impact on the environment, but when considered cumulatively would meet one or more of the criteria in this subdivision.” 6 N.Y.C.R.R. § 617.7 (c)(1)(xi)-(xii). It has been noted that impacts can be significant if they are exponential, where the effects “increase in magnitude and severity at a faster rate than the increase in the size or number of projects.” GERRARD, RUZOW & WEINBERG, *supra* note 24 at §5.10[4][a][iii]. An example of such impacts is a highway operating at or close to capacity—greater, more significant traffic congestion and environmental impacts may occur with the addition of only a few cars. See *id.*

37. See Lehner & Dean, *supra* note 20.

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# VI/ Applicability of the GHG Protocol

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The world has reached the point where it needs to significantly reduce the current concentration of GHG emissions in the atmosphere. Because any increase in emissions above a zero-threshold will contribute to the cumulative adverse impact created by global climate change, MAS believes that GHG emissions should be treated as a non-threshold pollutant. Accordingly, MAS recommends that DEC require disclosure of the GHG emissions associated with every action subject to an EIS under SEQRA.

We recognize the practical difficulties of requiring smaller projects that necessitate an EIS to conduct a GHG Calculation and Mitigation Analysis. Therefore, we call upon DEC to promulgate thresholds for the types of projects that will likely be sizable enough to require a quantitative analysis of GHG emissions and mitigation measures. Because disclosure and mitigation of GHG emissions should be an important concern for all projects, those actions that do not meet or surpass the project type and size thresholds should conduct a qualitative analysis of climate change impacts in order to increase both agency and public awareness of an action's contribution to climate change.

MAS proposes three categories of EIS actions: (1) actions that require a quantitative analysis of GHG emissions, such as major construction projects, power plants, major rezonings, and projects generating a large increase in traffic; (2) actions that do not warrant any substantive analysis of climate change impacts, like certain rule-making actions; and (3) all remaining actions subject to an EIS that are likely only to require qualitative analysis of climate change impacts.

It is possible that certain actions, such as a small power generating facility or sewage facility, may not be subject to a full EIS.<sup>38</sup> Even though these actions may not adversely affect other environmental impact categories, such facilities may have a cumulative adverse impact upon climate change. In order to fully disclose and reduce these actions' contributions to global GHG emissions, the applicant or lead agency should conduct a climate change analysis in a special Environmental Assessment Form ("EAF"), which is typically used to conduct an in-depth analysis concerning an action's particular impact.<sup>39</sup>

On a policy level, the proponent of every action should reduce a project's GHG emissions to the best of its ability, whether or not subject to SEQRA or the requirement to perform a GHG Calculation and Mitigation Analysis. While any additional GHG emissions adversely impact the environment, we feel that fairness and practicality dictate the incremental threshold approach proposed here.

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38. For example, it was expected that the South Pier Improvement Project, a project to increase the generating capacity at a power plant by 100 MW, would not require a Full EIS. However, the applicant opted to conduct a full EIS and will discuss the project emissions in the context of climate change and plans to examine mitigation measure to reduce its GHG emissions. The applicant will also study the implications of potential sea level rise due to climate change at the site. South Pier Improvement Project Final Scope of Work for a Draft Environmental Impact Statement (May 1, 2008), available at [http://www.uspowergen.com/projects/south-pier/documents/downloads/?dl\\_page=2](http://www.uspowergen.com/projects/south-pier/documents/downloads/?dl_page=2) (last visited April 14, 2009).

39. GERRARD, RUZOW & WEINBERG, *supra* note 24 at § 3.04[c]. See also 6 N.Y.C.R.R. § 617.20. The specific projects subject to this provision are listed in the GHG Protocol in the Appendix. We did not believe it was necessary to require a GHG Calculation and Mitigation Analysis for landfills, as they are required to control the release of methane, a contributing GHG, under 6 N.Y.C.R.R. § 360-2.17.

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# VII/ GHG Calculation

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## 1 What Does the Agency Need to Analyze?

In order to understand the cumulative impact of an individual action, the total emissions of GHGs must be disclosed.

We recommend that the EIS include an analysis of the following upstream and downstream GHG emissions:

- Direct Emissions resulting from the operation of the project:
  - e.g., boilers, heaters, incinerators, emergency generators, on-site power sources, vehicles or engines used within the project site during operation.
- Indirect Building Emissions resulting from the operation of project:
  - e.g., where a project will purchase its electricity, the emissions resulting from the off-site generation of that electricity must be calculated.
- Indirect Transportation Emissions associated with the action:
  - e.g., traffic generated by the project.
- Construction Emissions
  - e.g., emissions from construction on-road vehicles, non-road vehicles and equipment, emissions resulting from the demolition of existing structures, the removal of debris and materials from the project site, the transport of those materials to landfills, the disposal of discarded building material, and upstream emissions from the production and transportation of key building materials, like cement, iron and steel.

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# VII/ GHG Calculation

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## 2 Why Should an Agency Measure Upstream and Construction Emissions?

Certain midstream (construction impacts) and downstream impacts (end-use environmental impacts) are well established areas of analysis for an EIS. For example, an applicant or lead agency typically calculates energy use of a building (generated both on and off-site), traffic generation, parking, and certain construction impacts. These measurements are used to determine the amount of sulfur dioxide, carbon monoxide, nitrogen oxides, and particulate matter emissions resulting from the project. It logically follows that SEQRA requires quantitative assessment of GHG emissions for these impacts as well.

In contrast, upstream emissions, defined as the extraction, transport, and production of materials and fuels used, have typically been ignored in EISs. Because cement and fuel production and transport, as well as the production of iron and steel, produce high amounts of carbon dioxide emissions, DEC should require a lead agency to calculate these upstream emissions. To illustrate; cement, essential to the production of concrete for the building industry, is considered “a key source of CO<sub>2</sub> emissions, due in part to the significant reliance on coal and petroleum coke to fuel the kilns for clinker production.”<sup>40</sup> In fact, cement production results in approximately 3.4 percent of global CO<sub>2</sub> emissions.<sup>41</sup> Similarly, the upstream emissions associated with fuel extraction and transport comprise approximately 23 percent of the direct emissions from on-road vehicles.<sup>42</sup>

For the purpose of SEQRA, the calculation of upstream emissions is of the utmost importance as the GHG emissions resulting from the production and transportation of fuels, and the extraction and production of new construction materials such as cement, iron, and steel, can be considerable. We understand that an applicant may not know the quantity or type of cement or iron and steel that will be used at such an early point in the project. However, based upon similar completed projects, the applicant can give a general estimate of its predicted usage of these key building materials, and multiply that number by a GHG emissions quotient to be provided by DEC.<sup>43</sup> By developing standardized information for upstream emissions sources, the burden of this analysis can be minimized.

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40. Lisa J. Hanle, “CO<sub>2</sub> Emissions Profile of the U.S. Cement Industry,” U.S. Environmental Protection Agency, available at <http://www.epa.gov/ttn/chief/conference/ei13/ghg/hanle.pdf> (last visited April 14, 2009).

41. *Id.* at 2.

42. Essentially, for each gallon of gasoline burned in an engine, the equivalent of an additional 1/4 of a gallon is burned to produce and transport the fuel. See U.S. Environmental Protection Agency, “MOVES 2004 Energy and Emissions Outputs Draft Report,” at 66 Table 10-1 (2005), available at <http://www.epa.gov/otaq/models/ngm/420p05003.pdf> (last visited April 14, 2009).

43. King County, in Washington State, recently published a technical guidance for the calculation of the embodied GHG emissions of development, including pavement. The guidance is available at <http://www.metrokc.gov/ddes/forms/SEPA-GHG-EmissionsWorksheet-Bulletin26.pdf> (last visited April 14, 2009).

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# VII/ GHG Calculation

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## 2 Why Should an Agency Measure Upstream and Construction Emissions?

Furthermore, while construction impacts are normally included in an EIS analysis, in order to fully understand the impact of construction activities on the environment, the construction analysis should be extended to include the GHG emissions associated with the demolition and disposal of any discarded building materials. In general, reusing existing buildings reduces new energy demands associated with construction, prevents the waste associated with demolition and construction, and retains the energy embodied in existing structures.<sup>44</sup> Consequently, the calculation of the demolition and disposal of a building will help the lead agency determine if the impact can be avoided with the reuse of existing buildings on the site in lieu of demolition and new construction.

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44. Based upon a study conducted for the Advisory Council on Historic Preservation that examined energy demands in reuse versus demolition/new construction, it was found building reuse was more energy efficient than demolition and new construction. See Advisory Council on Historic Preservation, *Assessing the Energy Conservation Benefits of Historic Preservation: Methods and Examples* (1979).

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# VII/ GHG Calculation

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## 3 How Does an Agency Measure GHG Emissions?

Our proposed protocol provides the structure for analysis of GHG emissions and suggests the categories that should be analyzed in an EIS in order to develop a comprehensive and consistent SEQRA analysis. With regard to selecting the methodologies for calculating the GHG emissions, however, we defer to the scientific and technical expertise of DEC and the lead agencies. Because the science and technology that informs the calculation of GHG emissions continues to improve, New York should not preclude the use of new and innovative methods of analysis by requiring the use of one particular methodology. Moreover, the lead agency should be afforded the flexibility to select the proper methodology for a particular action. For instance, the Climate Registry developed a General Reporting Protocol<sup>45</sup> that provides a “methodology that will be used to calculate, verify, and publicly report GHG emissions.”<sup>46</sup> This protocol could provide excellent guidance for calculating the majority of the GHG emissions required under our suggested analysis.

In order to maintain transparency and consistency in the EIS process, an applicant should always explain its methodology. If the applicant or lead agency determines that key information for the GHG emissions calculation is unknown at the time of analysis, the applicant must (1) explain the reasons for this determination; and (2) calculate the GHG emissions using general estimates based on similar past projects. If the applicant cannot use general estimates, it must explain why, and should then discuss the impact qualitatively based upon general practice and assumptions.

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45. The Climate Registry is a “nonprofit organization that provides meaningful information to reduce greenhouse gas emissions. The Climate Registry establishes consistent, transparent standards throughout North America for businesses and governments to calculate, verify and publicly report their carbon footprints in a single, unified registry.” See <http://www.theclimateregistry.org/about/> (last visited April 14, 2009).

46. New York State recently announced that it joined the Climate Registry. New York State DEC Press Release, “Greenhouse Gas Reporting Standard Available to Help Measure and Verify Emissions” (April 2, 2008). As a note of caution, the General Reporting Protocol was developed with the calculation of the GHG emissions from existing buildings in mind. Further, it is meant to help companies become aware of their carbon footprint. We believe this is a wonderful tool and will give applicants a clear and consistent methodology for calculating their potential GHG emissions, but certain sections of the General Reporting Protocol will be inapplicable for a GHG calculation under SEQRA. Those inapplicable sections of the General Reporting Protocol are as follows: “Geographical Boundaries;” “Organizational Boundaries;” “Facility-Level Reporting;” “Base Year;” “Transitional Reporting;” “Historical Reporting;” and “Performance Metrics.” See The Climate Registry, “General Reporting Protocol: Version 1.1,” at 9-10 (2008), available at <http://www.theclimateregistry.org/downloads/GRP.pdf> (last visited April 14, 2009).

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# VII/ GHG Calculation

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## 3 How Does an Agency Measure GHG Emissions?

After the emissions are calculated, the applicant or lead agency will need to present its GHG emissions in the following ways: (1) total CO<sub>2</sub>e per year; (2) total CO<sub>2</sub>e per components listed above (direct emissions, indirect building emissions, indirect transportation emissions, and upstream and construction emissions); (3) total CO<sub>2</sub>e per user; and (4) total CO<sub>2</sub>e per user for each component of emissions.<sup>47</sup> If the public, the applicant, and the lead agency better understand which components of a project create the most GHG emissions, they can focus upon mitigation measures needed to reduce the impacts of those specific components. However, agencies should have the flexibility to determine what “user” means in the context of an action, and whether the concept applies, in order to best target its mitigation efforts.

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47. We recommend that the CO<sub>2</sub>e per user be defined as the total CO<sub>2</sub>e per year divided by the estimated number of new users of the proposed action. For example, if it is a residential project, the rate per user is defined as an estimated rate per average daily resident. If it is an office building project, the rate per user is defined as an estimated rate per average daily office/retail worker. If it is a mixed-use development, the rate per user is defined as an estimated rate per average daily resident and office/retail worker. If it is a project that operates seasonally, such as a resort, the rate per user is the estimated rate per average daily visitor for each season in operation.

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# VIII/ Mitigation Analysis

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As previously stated, MAS believes that any addition of GHG emissions to the atmosphere will have an adverse cumulative impact on global climate change. Agencies should consider appropriate and practicable mitigation measures for any action that adds GHGs to the atmosphere. Agencies should keep in mind that the fundamental component of sustainability is using fewer resources. The greatest mitigation measures will reduce the quantity of resources consumed; including energy, building materials, and open space. Myriad mitigation measures exist that could reduce an action's incremental additions to global GHG emissions, and we have included a list of suggested mitigation measures in the Appendix.

To better inform the public of the mitigation measures that will be examined during the EIS process, the lead agency should describe in the scoping document those measures it deems worthy of analysis. This open and deliberative process will provide the public with an opportunity to comment upon the selected mitigation measures and suggest additional applicable measures that could be studied. To assist those applicants who choose to pursue Leadership in Energy and Environmental Design ("LEED") certification, rapidly becoming the national green building standard, we have identified the mitigation measures that are deemed "LEED –equivalent" in the suggested mitigation list.

In the EIS analysis, if the applicant or lead agency plans to implement certain mitigation measures, the applicant should explain how each measure will be used, and what particular component of GHG emissions (direct, indirect building, indirect transportation, upstream or construction) the mitigation measure will reduce. In order to increase transparency and accountability (i.e., to ensure that the mitigation measures are implemented), the lead agency shall include the list of mitigation measures to be adopted in its findings statement.

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# VIII/ Mitigation Analysis

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## 1 How Does an Agency Conduct the Mitigation Analysis?

Agencies should take two approaches to mitigation. First, they should incorporate mitigation measures into the project, thereby avoiding adverse impacts from the outset as much as possible. This is a good result and should be encouraged. Second, they should identify feasible mitigation measures and present a quantitative and qualitative analysis for such additional measures that will reduce the adverse impacts of a project. To the extent feasible, DEC should develop model calculations for each mitigation measure. For example, each square foot of a green roof may reduce energy consumption by [x] percent, a standardized number that would make it easier for agencies to explore that mitigation measure.

In its discussion, the EIS should first describe the component, or components, for which the applicable mitigation measure could be used. Using formulas provided by DEC, or other appropriate methods to calculate the GHG emissions reduction of a mitigation measure or group of measures, the EIS should then compare the resulting reduction in GHG emissions were the lead agency to require implementation of the measures with the project's estimated GHG emissions. If feasible, the EIS should also present the GHG emissions per component and per user, and compare the project's emissions to the reduced emissions per component or per user. If an applicant or lead agency would prefer to use alternative calculation methods other than those formulas provided by DEC, it may do so as long as the methodology is explained.

If a mitigation measure is not quantifiable at the time of analysis (for instance, the choice for environmentally preferable or local materials) the EIS should discuss, qualitatively, the benefits or drawbacks of choosing such measures. After comparing the GHG emissions of the proposed action with the GHG emissions reductions of the applicable mitigation measures, the EIS should explain the reasons each mitigation measure was accepted or rejected.

This exercise will assist the lead agency in determining the areas in which an action's contribution to New York's GHG emissions baseline can be reduced or eliminated, and thereby reduce the action's environmental impact. For example, if an applicant has not chosen to construct a green roof on a proposed building as mitigation (and it is applicable to the proposed project), and the lead agency determines that a green roof should be analyzed as a potential mitigation measure, the applicant must: (1) determine the component of GHG emissions that a green roof will help reduce – in this case, indirect building emissions and possibly direct building emissions; (2) utilize a formula provided by DEC to calculate and disclose the energy savings and resultant GHG emissions reductions from constructing a green roof; (3) compare the project's total and indirect building GHG emissions as proposed with the project's total and indirect building GHG emissions should the applicant construct a green roof; and (4) explain, should the analysis not persuade the applicant to construct a green roof, why the applicant plans to reject this measure as mitigation for the resultant environmental impact from its GHG emissions. This analysis will provide the lead agency with sufficient information to determine whether, in its findings statement, it should require the construction of a green roof as mitigation for the project's environmental impact.

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# IX/ Measuring Climate Change Impacts on an Action

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The IPCC has predicted that even if GHG emissions remain at the current level, there will be a “very likely increase in frequency of hot extremes, heat waves, and heavy precipitation.”<sup>48</sup> Storms and flooding impacts may also increase. Because SEQRA regulations require an EIS to include an examination and comparison of future conditions of the site with and without the project, an EIS should examine the long-term effects of climate change and account for projected changes in landscape and climate that could alter the efficiency, healthfulness, lifetime or infrastructure of a project.<sup>49</sup> For instance, a rise in sea levels coupled with more frequent storms and heavy precipitation may increase a project’s vulnerability to flooding; this should be considered by the lead agency.

Certain discretionary projects will not require an EIS, but may be particularly susceptible to the effects of climate change due to their location. In those instances, DEC should require a climate change impacts analysis in a special EAF to examine, and hopefully reduce, the projects’ vulnerability to climate change. It is likely that predicted sea level rise and increased storms will increase a project’s vulnerability to flooding, which, in turn, would further exacerbate the impact the project would have on the environment; even if the project did not initially require an EIS, the analysis is warranted. Based upon predictions of the effects of climate change on a global, regional, and local scale, lead agencies and applicants should strive to identify the potential impacts to actions brought about by climate change in the future, and examine how best to adapt to those predicted impacts.

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48. IPCC Synthesis Report, *supra* note 2 at 8.

49. See 6 N.Y.C.R.R. § 617.9.

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# IX/ Measuring Climate Change Impacts on an Action

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## 1 How Does an Agency Study Climate Change's Impact on an Action?

In an EIS, there are certain environmental categories that may be especially susceptible to the effects of global climate change. The most notable is the floodplain category, but other environmental categories may be impacted as well, such as water quality, water supply, energy needs and supply, public health, and infrastructure. For these particular areas of analysis, as well as any other areas identified by DEC as particularly sensitive to the effects of climate change, the applicant or lead agency must conduct a climate change impacts analysis. Because the impacts of climate change are likely to worsen over time, an applicant should examine the impacts in the build year as well as thirty and sixty years after the estimated build year. If the project's projected life is shorter than this time frame, the predicted effects of climate change should be examined for the end of the projected life of the project.

For the analysis, the applicant should first identify project vulnerability and sensitivity. Next, the applicant should assess the likelihood and range of impacts to the public and the project. Finally, the applicant should examine impact management, adaptation and mitigation measures that could reduce the project's vulnerability to the future effects of climate change.

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# IX/ Measuring Climate Change Impacts on an Action

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## 2 Where Does an Agency Get the Information to Analyze Climate Change?

While the global effects of climate change have been extensively studied, the specific regional and local effects are more difficult to predict. In order to assist applicants and lead agencies in understanding the crucial impacts of climate change, DEC should provide applicants and lead agencies with information regarding the most recent credible scientific evidence on global climate change and its impacts, including regional and local impacts, and the likelihood of occurrence of those impacts. In the short term, agencies should qualitatively discuss the impacts of climate change on a project in relevant environmental categories. In the long term, DEC should help develop methodologies for carrying out more precise quantitative measurements.

Tools for predicting sea-level rise, for example, are already available. Studies discussing probable sea-level rise in New York City as predicted using Global Climate Models (“GCM”) currently provide data that can be used in an EIS analysis.<sup>50</sup> Due to the inevitable uncertainties in climate modeling, an applicant should assess a range of climate change scenarios in order to better consider the likely impacts of climate change. For example, the Columbia-Goddard study recently predicted a sea-level rise, more frequent flooding, and storm surges in New York City.<sup>51</sup> If a project proponent would like to develop in a known floodplain in New York City, the lead agency should discuss the feasibility of locating the project in an area that is not projected to be impacted by climate change.

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50. Columbia University has obtained GCM data for the New York City Watershed Region. See DEP Climate Change Report, *supra* note 3 at 22. See also Columbia Earth Institute, “Climate Change and a Global City: The Potential Consequences of Climate Variability and Change” (July 2001), available at <http://www.ccsr.columbia.edu/cig/mec/> (last visited April 14, 2009); Union of Concerned Scientists, “Confronting Climate Change in the U.S. northeast” (July 2007), available at <http://www.climatechoices.org/assets/documents/climatechoices/confronting-climate-change-in-the-u-s-northeast.pdf> (last visited April 14, 2009); Union of Concerned Scientists, “Climate Change in the U.S. Northeast” (October 2006), available at [http://www.climatechoices.org/assets/documents/climatechoices/NECIA\\_climate\\_report\\_final.pdf](http://www.climatechoices.org/assets/documents/climatechoices/NECIA_climate_report_final.pdf) (last visited April 14, 2009).

51. Jacob, *supra* note 4.

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# IX/ Measuring Climate Change Impacts on an Action

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## 3 How Does an Agency Conduct the Adaptation Analysis?

After the applicant analyzes the effects that climate change will have on a proposed project's environmental impact, the applicant should examine adaptation measures that could reduce the project's vulnerability to the effects of climate change and reduce potential risks associated with climate change. Due to the likelihood of heat waves, storms and flooding, among other impacts, it is important that any new project prepare itself to the maximum extent practicable. Because adaptation will depend on the nature of the impact, the agency should explain in the scoping document those adaptation measures the lead agency deems worthy of analysis and, in the EIS, should evaluate the risks associated with proceeding or not proceeding with the implementation of the adaptations in the analysis.

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# X/ Measuring Energy Usage and Fuel Consumption

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In the United States, the CO<sub>2</sub> emissions resulting from power plants constitute approximately 40 percent of the nation's total CO<sub>2</sub> emissions.<sup>52</sup> Therefore, the decisions made in an action regarding energy use and fuel type are important aspects of any climate change analysis. Along with measuring the GHG emissions for a particular action, DEC should require a more stringent analysis of an action's energy use in both an environmental assessment and EIS.

With regard to the environmental assessment, we suggest that DEC adopt an amendment to its EAF that will help an applicant or lead agency understand an action's impact resulting from energy usage and consumption.<sup>53</sup> The form should require disclosure of the annual estimated electricity use, as well as the peaking pattern of electricity use for the action. In order to understand the GHG emissions implications of an action's energy choices, the applicant should disclose the estimated energy mix for an action's energy sources. We are aware that the majority of the power supply is purchased on the wholesale market, making it difficult to predict a project's future energy mix with absolute certainty. In the short term, therefore, agencies should provide general information on power supply.

In the long term, DEC should help agencies improve disclosure of GHG emissions from energy sources by providing standardized estimates of the energy mix for the state in future years. For instance, King County, Washington, uses an energy mix estimate based upon data provided by the Washington State Department of Community Trade and Economic Development — we encourage DEC to calculate similar estimates applicable to New York State.<sup>54</sup> This power mix and electricity usage should be estimated so that the public and the lead agency can determine whether mitigation measures, such as implementing energy reduction measures, using alternative energy sources, or generating energy on-site, are appropriate and practicable.

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52. Ilan Levin, "50 Dirtiest U.S. Power Plants: CO<sub>2</sub> Pollution Linked to Global Warming on Track to Rise by a Third, Mixed Picture on Other Key Pollutants," Environmental Integrity Project (2007).

53. Our proposed Addendum is located in the Appendix.

54. This fuel mix estimate is *available at* [http://www.cascadeagenda.com/files/ca-cities/Climatechangeimpactsworksheet\\_KC.pdf](http://www.cascadeagenda.com/files/ca-cities/Climatechangeimpactsworksheet_KC.pdf) (last visited April 14, 2009).

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# XI/ Regulatory Changes Needed to Implement the Proposed Protocols

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MAS believes that DEC has the authority to implement the protocol outlined in this paper. In order to provide clarity in the SEQRA regulations, however, we suggest that DEC promulgate regulations that explicitly require an analysis of climate change in an EIS, including a GHG calculation, mitigation analysis, and an analysis of climate change's impact upon an action.

In addition, some limited categories of actions (such as small power plants or sewage treatment facilities) may have an adverse impact upon climate change but not trigger the need for an EIS. Similarly, certain categories of actions may be particularly vulnerable to climate change impacts but still not trigger the need for an EIS. DEC should help identify these actions and suggest appropriate ways to supplement an environmental assessment. The specific language of our proposed regulatory changes is located in the appendix.

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## XII/ Potential Additional Requirements

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The MAS SEQRA Advisory Committee also discussed the establishment of project baseline calculations, based upon New York State energy-code compliant buildings, average transportation calculations, average construction emissions, etc. These baselines or averages would provide agencies with a way to compare their actions to “average” or “typical” actions. This could have both positive and negative implications.

On the positive side, establishing GHG baseline conditions and comparing that to the project’s projected GHG emissions will help develop a level playing field and reward those that minimize emissions from the outset. On the negative side, it would be difficult to develop broadly-applicable baselines. Moreover, we believe that GHG emissions are a non-threshold pollutant and that any additional emissions above the zero threshold are cumulatively adverse. The establishment of a GHG baseline condition could imply that any project whose GHG emissions fall below the baseline is no longer adversely affecting the environment; this is simply not the case. If baselines are developed, MAS encourages DEC to ensure that all non-trivial increases in GHG emission are treated as adverse effects.

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# XIII/ Conclusion

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The consideration of global climate change under SEQRA will allow the government to identify opportunities to reduce or minimize the impact that GHG emissions from new buildings, land-use plans, and other discretionary projects have on climate change. Moreover, a meaningful GHG analysis will also enable project proponents and lead agencies to best prepare for a changing climate.

Now is the time for New York to act. SEQRA mandates an analysis of an action's GHG emissions, and the impact that climate change will have upon a project. We urge DEC to require this analysis of climate change in every EIS, ensuring that New York joins other states in confronting the challenges of global climate change.

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# A/ Draft GHG Protocol

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## 1 Applicability

### 1.1 Environmental Impact Statements

- An action that is subject to an EIS and that meets project type and size thresholds, to be determined by DEC, must conduct the following quantitative analysis:
  - » A calculation of the potential direct and indirect greenhouse gas emissions from the proposed action (GHG Calculation); and
  - » An analysis and review of reduction measures and their potential for reducing GHG emissions. (Mitigation Analysis).
- An action subject to an EIS that does not meet the DEC-promulgated project type and size thresholds must conduct the following qualitative analysis:
  - » Discuss the nature of the action's potential contribution to GHG emissions; and
  - » Discuss measures that could reduce the total GHG emissions created by the action, and describe those measures the applicant or lead agency plans to implement.
- Where an action is not likely to result in the creation of GHG emissions, such as a procedural rulemaking, it is exempt from a quantitative or qualitative analysis.

### 1.2 Environmental Assessment

- An action subject to SEQRA but not requiring an EIS must conduct the GHG Calculation and Mitigation Analysis in a supplement to the Environmental Assessment form if the action involves:
  - » Any combustion source generating 25 Megawatts (MW) or above; or
  - » Any sewage treatment facility with a [X-to be determined by DEC] MGD treatment capacity.

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# A/ Draft GHG Protocol

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## 2 Procedure

### 2.1 Scoping

In the scoping document, the lead agency shall determine whether it is required to conduct a GHG Calculation and Mitigation Analysis in a forthcoming EIS, and if so, what level of analysis is appropriate for the specific project or action. It shall then describe the methodology of the analysis under a new category of “global climate change.” This new category will include an analysis of the project’s potential impact on GHG emissions, and the potential impact of global climate change on the project (see Climate Change impact Protocol, Appendix B).

Based upon emerging science and technology, lead agencies and applicants should be given the flexibility to create a methodology for measuring GHG emissions in an EIS. Lead Agencies should require the use of current best practices for calculating GHG emissions and/or provide calculation tools to the applicants. An example of available methodology for GHG emissions calculations is the Climate Registry’s general Reporting Protocol.<sup>1</sup>

In the scoping document, lead agencies should list the mitigation measures to be analyzed in the EIS, if they are known at the time of the scoping analysis.

### 2.2 Environmental Impact Statement

In the EIS, the lead agency or applicant will conduct the GHG Calculation and Mitigation Analysis, outlined in the Analysis Methodology Guidance in Section 3.

### 2.3 Findings Statement

After the EIS is finalized, the Lead Agency will adopt a findings statement outlining the required mitigation measures to avoid or minimize the action’s adverse impacts upon global climate change.

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1. See The Climate Registry, “General Reporting Protocol: Version 1.1,” at 9-10 (2008), available at <http://www.theclimateregistry.org/downloads/GRP.pdf> (last visited April 14, 2009).

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# A/ Draft GHG Protocol

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## 3 Analysis Methodology Guidance

### 3.1 GHG Calculation

- The GHG Calculation will include GHG emissions from all of the project's non-renewable sources of energy. Results will be presented as equivalent carbon dioxide (CO<sub>2</sub>e) in tons per year, or, for temporary impacts (e.g., construction), in tons per day and total tons for the duration of the impact for the following components of emissions:
- Direct Emissions: The future potential direct GHG emissions associated with the operation of the project will be estimated for the following sources. Results of this portion will be presented both as total CO<sub>2</sub>e per year and as a CO<sub>2</sub>e rate per user.<sup>2</sup>
  - » Direct emissions are defined as:
    - Emissions from on-site stationary sources of the facility itself. Stationary sources include, but are not limited to, boilers, heaters, furnaces, incinerators, ovens, internal combustion engines (including emergency generators), combustion turbines, and any other equipment or machinery that combusts non-renewable carbon bearing fuels;
    - Emissions from mobile and non-road sources within the boundary of the facility or project; and
    - Fugitive sources, i.e., releases from the production, processing, transmission, storage, and use of fuels and other substances, that do not pass through a stack, chimney, vent, exhaust pipe or other functionally-equivalent opening (such as releases of sulfur hexafluoride from electrical equipment; hydrofluorocarbon releases during the use of refrigeration and air conditioning equipment; methane leakage from natural gas transport), unless these source are shown to be insignificant.<sup>3</sup>
- Indirect Building Emissions: The future potential indirect building GHG emissions associated with the operation of the project will be estimated.<sup>4</sup> Results of this portion will be presented both as total CO<sub>2</sub>e per year and as a CO<sub>2</sub>e rate per user.
  - » Indirect emissions are defined as:
    - Emissions generated by the off-site combustion of fossil fuels in order to supply electric power or steam.

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2. Agencies should have the flexibility to determine what "user" means in the context of an action, and whether the concept applies, to best target its mitigation efforts. We recommend that rate per user be defined as the total CO<sub>2</sub>e per year divided by the estimated number of new users of the proposed action. For example, if it is a residential project, the rate per user is defined as an estimated rate per resident. If it is an office building project, the rate per user is defined as an estimated rate per office/retail worker. If it is a mixed-use development, the rate per user is defined as an estimated rate per resident and office/retail worker.

3. The Climate Registry, "General Reporting Protocol: Version 1.0," at 33 (2008), available at <http://www.theclimateregistry.org/downloads/gRP.pdf> (last visited April 14, 2009).

4. This calculation is not included in the Climate Registry's general Reporting Protocol; however, for the purposes of an analysis under SEQRA, where proposed actions are often land use decisions that may bring about additional traffic and may be dissimilar to the type of facilities targeted by the Climate Registry, calculating the indirect transportation GHG emissions for the purposes of SEQRA is necessary.

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# A/ Draft GHG Protocol

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## 3 Analysis Methodology Guidance

- Indirect Transportation Emissions: The future potential indirect transportation GHG emissions associated with the operation of the project will be estimated. Results of this portion will be presented both as total CO<sub>2e</sub> per year and as a CO<sub>2e</sub> rate per user associated with the project.
    - » Indirect transportation emissions are defined as:
      - Emissions generated through traffic generation or traffic congestion increased by the project and associated fuel combustion. This will include the upstream emissions associated with the production and transport of fuel (“well-to-pump” emissions).<sup>5</sup>
  - Construction Emissions: in addition to estimating the future potential direct and indirect operational GHG emissions, construction emissions will be estimated. The results of this portion will be presented as total CO<sub>2e</sub> per year, and as total CO<sub>2e</sub> for the duration of construction, including, but not limited to:
    - » Construction Emissions
      - Emissions from construction on-road and non-road vehicles and construction equipment associated with all on-site activity and transport to and from the construction site. This shall include all activity and transport for all demolition, excavation, construction, and finishing of the project.
    - » Upstream Construction Emissions
      - Emissions associated with the production of key materials (such as cement, iron and steel) used in building the project, as well those emissions associated with transport of those materials to the factory gate. If the materials are unknown, a low estimate and high estimate of amount of cement to be used, and the low estimate and high estimate of the amount of iron and steel to be used will be included.
      - Discuss qualitatively, based on general practice and assumptions, the environmental effects of utilizing environmentally preferred and local construction materials.
- \* *All calculations will include well-to-pump emissions for fuel production and transport.*

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5. For each gallon of gasoline combusted in an engine, the equivalent of an additional 1/4 of a gallon is burned to produce and transport the fuel. See U.S. Environmental Protection Agency, “MOVES 2004 Energy and Emissions Outputs Draft Report,” at 66 Table 10-1 (2005), available at <http://www.epa.gov/otaq/models/ngm/420p05003.pdf> (last visited April 14, 2009).

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# A/ Draft GHG Protocol

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## 3 Analysis Methodology Guidance

### 3.2 Mitigation Analysis

#### 3.2.1 Applicability

The lead agency should determine what mitigation measures should be reviewed. A suggested list of mitigation measures is attached in Appendix B. The applicant or lead agency is encouraged to analyze and potentially implement any relevant and practicable mitigation measures. Every project requiring an EIS that is subject to the mitigation analysis must mitigate to the maximum extent practicable. Because many applicants choose to seek LEED certification, the list of suggested mitigation measures includes identification of those measures deemed LEED-equivalent. Furthermore, if the action will directly off-set or displace emissions from other sources, the agency should explain this.

#### 3.2.2 Analysis

- For those mitigation measures the lead agency determines should be analyzed, the applicant should:
  - » Describe the mitigation measures the applicant intends to implement and describe the component(s), defined above, for which the mitigation measure will be used.
  - » For each remaining relevant mitigation measure the lead agency has chosen for analysis, the applicant must:
    - Describe the applicable mitigation measures, and the component(s) for which the measure could be used;
    - Calculate the potential reduction in total CO<sub>2</sub>e emissions for the mitigation measures, using either formulas for mitigation measures provided by DEC or an alternative formula where the methodology is explained;
    - Compare the estimated CO<sub>2</sub>e emissions reduction with the project's CO<sub>2</sub>e emissions. If feasible, the comparison should be broken down into component emissions and per user emissions; and
    - Explain the reasons it chose to accept or reject a mitigation measure.
  - » For those mitigation measures that cannot be quantified at the time of analysis, such as the choice for environmentally preferable or local materials, the lead agency should discuss, qualitatively, the benefits of choosing such measures.
- The traditional standards for SEQRA, explained in three decades of court decisions, will continue to apply. Agencies must take a hard look at mitigation of climate change and make a reasoned elaboration of their analysis. An agency need not consider every conceivable mitigation measure, only those that would genuinely reduce emissions or avoid adverse impacts.

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# B/ Suggested Mitigation Measures and LEED for New Construction 2009 Equivalent Measures

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## Corresponding LEED Equivalency

### LAND USE, SITING AND TRANSPORTATION

Implement land use strategies to encourage jobs/housing proximity, promote transit-oriented development, and encourage high density development along transit corridors. Encourage compact, mixed-use projects, forming urban villages designed to maximize affordable housing and encourage walking, bicycling and the use of public transit systems.	SS 2 SS 4.2
Encourage infill, redevelopment, and higher density development, whether in incorporated or unincorporated settings.	SS 2
Encourage new developments to integrate housing, civic and retail amenities (jobs, schools, parks, shopping opportunities) to help reduce VMT resulting from discretionary automobile trips.	
Apply advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.	
Incorporate features into project design that would accommodate the supply of frequent, reliable and convenient public transit.	SS 4.1 SS 4.2
Implement street improvements that are designed to relieve pressure on a region's most congested roadways and intersections.	
Limit idling time for commercial vehicles, including delivery and construction vehicles.	
Provide permanent protection for open space on the Project site.	SS 5.2
Conserve and restore natural areas on-site.	SS 5.1
Minimize building footprint.	SS 5.2
Design Project to support alternative transportation to site including transit, walking and bicycling.	SS 2 SS 4.2 SS 2

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# B/ Suggested Mitigation Measures and LEED for New Construction 2009 Equivalent Measures

## Corresponding LEED Equivalency

Use Low Impact Development for Stormwater Design .	SS 6.1 SS 6.2
Design water efficient landscaping .	WE 1.1 WE 1.2
Minimize energy use through building orientation.	
Locate new buildings in or near areas designated for transitoriented development (TOD) and, where possible, incorporate TOD principles in employee and customer activity patterns.	SS 4.1
Reduce the available parking on site and within 1/2 mile of the study area.	SS 4.4
Purchase alternative fuel and/or fuel efficient vehicles for fleet.	SS 4.2
Provide new transit service or support extension/expansion of existing transit (buses, trains, shuttles, water transportation).	SS 4.4 Option 3
Size parking capacity to meet, but not exceed, local parking requirements and, where possible, seek reductions in parking supply through special permits or waivers.	
Pursue opportunities to minimize parking supply through shared parking or banked parking.	
Develop a parking management program to minimize parking requirements such as parking cash-out, parking charges, preferential carpool or vanpool parking, limiting parking available to employees.	
Subsidize transit passes.	
Use of pre-tax dollars for non-single occupancy vehicle (sov) commuting costs.	
Reduce employee trips during peak periods through alternative work schedules.	
Telecommuting and/or flex-time.	

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# B/ Suggested Mitigation Measures and LEED for New Construction 2009 Equivalent Measures

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## Corresponding LEED Equivalency

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Provide on-site amenities such as banks, dry cleaning, food service, childcare.

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Provide bicycle storage and showers/changing rooms.

SS 4.2

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Traffic Signalization and coordination to improve traffic flow and support pedestrian and bicycle safety.

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Make on- and off-site improvements to reduce VMT including sidewalks, paths, traffic signals, lighting and landscaping.

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Provide no-idling truck zones at loading/off-loading and queuing areas.

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Encourage large businesses to develop commute trip reduction plans that encourage employees who commute alone to consider alternative transportation modes.

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Develop shuttle systems around business district parking garages to reduce congestion and create shorter commutes.

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### URBAN FORESTRY

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Plant trees and vegetation near structures to shade buildings and reduce energy requirements for heating/cooling.

SS 7.1

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Preserve or replace onsite trees (that are removed due to development) as a means of providing carbon storage.

SS 5.2

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### GREEN BUILDINGS-DESIGN & OPERATION

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Encourage public and private construction of LEED (Leadership in Energy and Environmental Design) certified (or equivalent) buildings.

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Use limestone or coal fly ash blended cement.

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Replace conventional I-beams where possible with castellated I-beams.

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Choose floor coverings that can be recycled and easily maintained without full replacement.

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# B/ Suggested Mitigation Measures and LEED for New Construction 2009 Equivalent Measures

## Corresponding LEED Equivalency

Utilize Autoclaved Aerated Concrete Masonry Units where feasible to replace conventional masonry units.	
Construct green roofs.	SS 7.2
Use high-albedo roofing materials.	SS 7.2
Install high-efficiency HVAC systems.	EA 1
Eliminate or reduce use of refrigerants in HVAC systems.	EA 4
Reduce energy demand using peak shaving or load shifting strategies.	EA 6
Maximize interior daylighting through floor plates, increased building perimeter and use of skylights, celestories and light wells.	EQ 8.1 EQ 8.2
Incorporate window glazing to balance and optimize daylighting, heat loss and solar heat gain performance.	EQ 8.2 EQ 8.1
Incorporate super insulation to minimize heat loss.	EA 1
Incorporate motion sensors and lighting and climate control.	
Use efficient, directed exterior lighting.	SS 8
Incorporate on-site renewable energy sources into project including solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies.	EA 2
Incorporate combined heat and power (CHP) technologies.	
Use water conserving fixtures that exceed building code requirements.	WE 3.1 WE 3.2

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# B/ Suggested Mitigation Measures and LEED for New Construction 2009 Equivalent Measures

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## Corresponding LEED Equivalency

Re-use gray water and/or collect and re-use rainwater.	WE 2
Re-use building materials and products.	WE 3.1 WE 3.2
Adaptively re-use buildings.	MR 1.1 MR 1.2 MR 1.3
Use building materials with recycled content.	MR 4.1 MR 4.2
Use building materials that are extracted and/or manufactured within the region.	MR 5.1 MR 5.2
Use rapidly renewable building materials.	MR 6
Use wood that is certified in accordance with the Forestry Stewardship Council's Principles and Criteria.	MR 7
Conduct 3rd party building commissioning to ensure energy performance.	EA 3
Track energy performance of building and develop strategy to maintain efficiency.	EA 5
Provide construction and design guidelines to facilitate sustainable design for build-out by tenants.	
Purchase Energy Star-rated appliances that are the lowest energy rating.	
<b>ENERGY CONSERVATION POLICIES AND ACTIONS</b>	
Recognize and promote energy saving measures.	EA 1

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# B/ Suggested Mitigation Measures and LEED for New Construction 2009 Equivalent Measures

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## Corresponding LEED Equivalency

Where feasible, include in new buildings facilities to support the use of low/zero carbon fueled vehicles, such as the charging of electric vehicles from green electricity sources.	SS 4.3
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Purchase Energy Star equipment and appliances.

Incorporate on-site renewable energy production, including installation of photovoltaic cells or other solar options.	EA 6
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Execute an Energy Savings Performance Contract with a private entity to retrofit public buildings. This type of contract allows the private entity to fund all energy improvements in exchange for a share of the energy savings over a period of time.

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Design, build, and operate schools that meet the Collaborative for High Performance Schools (CHPS) best practices.

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Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.

Install a gray water reuse and recycling.	WE 1.2 WE 2
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Install water-efficient appliances.	WE 3.1 WE 3.2 SS 7.1
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## PROGRAMS TO REDUCE SOLID WASTE

Create incentives to increase recycling and reduce generation of solid waste by residential users.	MR PR
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Add residential/commercial food waste collection to existing greenwaste collection programs.

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\* Suggested mitigation measures based on the CA Governor's Office of Planning and Research: CEQA and Climate Change and the Massachusetts Suggested Mitigation Measures

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# C/ Draft Protocol for Measuring the Impacts of Climate Change on an Action

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## 1 Applicability

### 1.1 Environmental Impact Statements

- For every action subject to an EIS, an applicant must consider and include an analysis of the potential effect of global climate change on the project.

### 1.2 Environmental Assessment

- An action not subject to an EIS must conduct the Climate Change Impacts Analysis in a Special Environmental Assessment form if the action:
  - » Is located within an area determined by DEC or the lead agency to be potentially flooded under reasonable climate change scenarios.

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# C/ Draft Protocol for Measuring the Impacts of Climate Change on an Action

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## 2 Climate Change Impacts Analysis

### 2.1 Areas of Analysis

- For each applicable category below, the applicant must examine the effect global climate change may have on the project:
  - » Floodplain analysis;
  - » Water quality;
  - » Water supply;
  - » Infrastructure;
  - » Public Health;
  - » Energy;
  - » The operation of the action; and
  - » Other areas of environmental concern identified by DEC.

### 2.2 Time Frame

In this analysis, the applicant shall examine, to the extent practicable, potential impacts at the time of the build-out year, as well as the predicted long-term impacts on this project 30 years and 60 years after the estimated build-out year. If the project's projected life is shorter than 30 and/or 60 years, the predicted effects of climate change should be examined for the end of the projected life of the project.

### 2.3 Impact Analysis

#### *Identify Impact Considerations*

- Identify project sensitivity to possible changing climactic parameters. For example, a proposed project may be sensitive to the following:
  - » Rising sea levels;
  - » Rising groundwater levels or changes in water quality;
  - » Changes in local climate, including temperature and precipitation;
  - » Increased flooding;
  - » Increased susceptibility to storms;
  - » Increased wind load;
  - » Decreased snowpack;
  - » Loss of native vegetation; or
  - » Other areas of project sensitivity.

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# C/ Draft Protocol for Measuring the Impacts of Climate Change on an Action

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## 2 Climate Change Impacts Analysis

### *Assess Impacts Considerations*

- Assess the reasonable range of possible changes to climatic parameters.
- Determine the range and extent of possible impacts on the action using the latest credible scientific information.\*
- Assess the potential risks to the public and the environment.

### *Qualitative Discussion*

DEC should provide applicants and lead agencies with information regarding the most recent credible scientific evidence on global climate change and its impacts, including regional and local impacts, and the likelihood of occurrence. Using this information, the lead agency or applicant shall assess the consequences of the potential impact to the project.

### **2.4 Adaptation**

Based on the impact analysis, the applicant should describe any adaptation measures it plans to implement to avoid or lessen the impact of global climate change on the project.

- Examine adaptation measures and the timeline for implementation of such measures to reduce project vulnerability and the potential risks associated with climate change;
- Evaluate the risks associated with proceeding or not proceeding with adaptation measures; and
- The lead agency must explain:
  - » the reasons it chose to implement an adaptation measure;
  - » the reasons it chose to reject an adaptation measure; or
  - » the reasons an adaptation measure is inapplicable to the proposed action.

\* If the quantitative information required to accurately analyze the effect of global climate change on the project is unavailable, explain the analysis approach and research methods. At a minimum, the applicant must discuss the predicted impacts from climate change qualitatively.

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# D/ Energy Environmental Assessment Form Addendum

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This form may be used to provide additional information relating to Question 21 of Part 1 of the Full EAF and Question 16 of Part 2 of the full EAF.

## **Energy Use, Fuel Type and Energy Supply**

- What is the estimated electricity use for this project?
  - » Disclose the electricity use as a yearly estimate and disclose the peaking pattern of electricity use for the project.
  - » Disclose the estimated fuel mix for the project's electricity supply.
  - » Disclose any direct, on-site use of fossil fuels, such as oil, natural gas, propane or coal.
- Disclose alternative energy sources being used.
  - » Example: Will wind, solar, biomass, geothermal, ground loop heat pumps, or hydropower be used to supply power or energy for any or all of this project, beyond what is in area's normal fuel mix? Describe.
- Disclose on-site power generation.
  - » Example: Will any power be generated on the project site? What fuel(s) will it use? What is the method of generation, its generating capacity, and projected generation? Is a Combined Heat and Power (CHP) system to be used? Is this on-site generation using renewable sources? Describe.
- Will the project implement any energy reduction or efficiency measures, or use renewable sources to supply its energy needs, either on or off site? Describe.
- Is it possible to incorporate renewable energy sources into the action or energy reduction measures?

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# E/ Suggested Regulatory Changes

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## §617.9 Preparation and content of environmental impact statements

(b) Environmental impact statement content.

(5) The format of the draft EIS may be flexible; however, all draft EISs must include the following elements:

- ix) an analysis of potential global climate change impacts, including:
  - a) a quantitative discussion of the action's direct and indirect impact on greenhouse gas (GHG) emissions and/or sequestration, if the action meets one of the following thresholds:
    - (1) [DEC SHALL PROMULGATE THE APPROPRIATE TYPE OF PROJECT AND SIZE THRESHOLDS FOR THE GHG CALCULATION];
  - b) a description of measures to reduce the action's direct and indirect impact on greenhouse gas (GHG) emissions and/or sequestration;
  - c) a description of potential global climate change's impact upon the action; and
  - d) a description of the adaptation measures to reduce and/or avoid an action's vulnerability to the effects of global climate change.

## §617.6 Initial review of actions and establishing lead agency

(a) Initial review of actions.

- (7) For actions not requiring an EIS that involve either (i) any combustion source generating 25 MW or above; or (ii) any sewage treatment facility with [X] million gallons per day treatment capacity,\* the Special EAF for GHG Calculation and Mitigation Analysis (see section 617.20, Appendix D, of this Part) must be used.
- (8) For actions not requiring an EIS that will be located within an area determined by DEC or the lead agency to be potentially flooded under reasonable climate change scenarios, the Special EAF for Climate Change Impact Analysis (see section 617.20, Appendix E, of this Part) must be used.

\*to be determined by DEC

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# F/ Compilation of Climate Change and Environmental Review Literature

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## New York

Michael B. Gerrard, “Climate Change and Impact Statements,” *New York Law Journal* (May 25, 2007).

Peter H. Lehner & Janice A. Dean, “SEQRA’s Alarm Rings for Climate-Impact Considerations.” *New York Law Journal* (Aug. 28, 2007).

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## California

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# F/ Compilation of Climate Change and Environmental Review Literature

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Center for Biological Diversity, “The California Environmental Quality Act: On the Front Lines of California’s Fight Against Global Warming,” (September 2007), available at <http://www.biologicaldiversity.org/publications/papers/CBD-CEQA-white-paper.pdf> (last visited April 14, 2009).

## King County, Washington

Draft King County SEPA Climate Change Ordinance (April 30, 2008), available at <http://www.metrokc.gov/permits/codes/pdf/PubComment08May-SEPA-GHG-Ord080430-1.pdf> (last visited April 14, 2009).

King County Executive Order on the Evaluation of Climate Change through the State Environmental Policy Act (June 2007), available at <http://www.metrokc.gov/exec/news/2007/pdf/climateimpacts.pdf> (last visited April 14, 2009).

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Draft King County Climate Change Impacts Worksheet (August 2007), available at <http://www.metrokc.gov/permits/codes/pdf/Climatechangeimpactsworksheetsaugust312007.pdf> (last visited April 14, 2009).

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## Canada

Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment, “Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners,” (November 2003), available at [http://www.ceaa-acee.gc.ca/012/014/index\\_e.htm](http://www.ceaa-acee.gc.ca/012/014/index_e.htm) (last visited April 14, 2009).



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