

Energy and Climate Policies of the Appalachian Mountain Club

Approved by AMC Conservation Programs Committee 12/10/2009

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Section I – Introduction

AMC's mission "promotes the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of the Appalachian region". Energy use and the current dependence on fossil fuels is directly related to air pollutant and greenhouse gas emissions that impact the enjoyment and safety of hikers and the vitality of the resources AMC works to protect. Hikers are exposed to unhealthy levels of air pollutants and their views compromised by pollution-induced haze. The release of greenhouse gases from fossil fuel consumption threatens mountain ecosystems, particularly the remnant post-glacial alpine habitats. Acidic precipitation and clouds cause further impacts to the resources of the region, harm aquatic life in streams and water bodies, and weakens the ability of forests to rebound from naturally occurring stresses. Recognizing the challenge posed by these impacts of poor air quality and climate change in the region, AMC has developed expertise on air pollutant emissions that degrade visibility and affect hiker health, and on the potential impacts of climate change to northeastern alpine plant communities, so that we can promote science-based policy that will improve the region's air quality and combat climate change.

Transitioning away from a fossil fuel-based economy to address climate change impacts requires multiple tools, including increased energy efficiency and the development of renewable energy sources. AMC will selectively engage in those components of the energy and climate change issue where the nexus is strong with AMC's mission and strengths, and where AMC can make a meaningful contribution. The following policies take into consideration AMC's potential to influence the northeastern congressional delegation and state politicians, the existing interest of the organization's membership, and our ongoing long-term research focus and credibility in select arenas of the interrelated energy, air pollution, and climate change challenges.

Section II. Air Pollutant and Greenhouse Gas Emissions (climate change)

AMC recognizes that climate change and air pollutants have the potential to impact the waters, forests, and mountains of the Northeast and its rare alpine ecosystems. It is AMC's policy to take an active role in public processes that it can influence to help reduce greenhouse gas and air pollution emissions and their impacts to these resources, including visibility and hiker and ecosystem health. AMC's contributions to air quality and climate change research will target impacts to northeast alpine and mountain forest ecosystems and related recreational opportunities and Class I airsheds (Wilderness areas) in the northeast that are negatively impacted by long distance transport of air pollutants.

The AMC supports a seven-pronged approach to dealing with climate change and air pollution:

- a) capping and then reducing greenhouse gas emissions in a timely manner to achieve acceptable, scientifically-supported, concentrations in the atmosphere;
- b) supporting strategies that concurrently reduce both greenhouse gas and air pollutant emissions;
- c) supporting improvements to air pollution standards (threshold and form), established by scientific review that appropriately protects human and ecosystem health [i.e.: NAAQS];
- d) increasing energy efficiency in AMC's operations, advocating for lower transportation carbon footprints by recreationists, and supporting national and state based energy efficiency initiatives as the most effective and environmentally benign path;
- e) supporting renewable energy sources whose impacts are appropriately mitigated for and that do not greatly compromise recreational and ecological resources;
- f) supporting and using science-based carbon sequestration methods that concurrently protect other ecosystem and outdoor recreation values and opportunities germane to our mission; and
- g) supporting research and strategies to adapt to climate change with an emphasis on those germane to AMC's mission of protecting ecological and recreational values.

Section III. Energy Efficiency

It is AMC's policy that the most effective and environmentally benign strategy to reduce air pollutants and green house gas emissions is energy efficiency. This policy includes, but is not limited to:

- a) support for requirements and incentives for more energy efficient vehicles;
- b) support of national energy efficiency initiatives and policies;
- c) development of public transportation systems and alternatives that provide access to and within public lands and waterways;
- d) promotion of appropriate limits on motorized recreation on public lands and waterways to reduce air pollution, greenhouse gas emissions, and ecological resource damage; and
- e) commitment to making all AMC operations more energy efficient and sustainable, with a goal of reducing AMC's net carbon footprint 80% below its average 2004-2005 operational baseline by 2050.

Section IV. Renewable Energy

Energy sources differ widely in their contribution to air pollutant and green house gas emissions and their physical footprints on the landscape, but none are benign. It is AMC policy to support significant increases in renewable energy that result in actual greenhouse gas and air pollutant reductions and are balanced with strong protections for natural and recreational resources of statewide, regional or national significance. This includes:

- a) *Hydroelectric*: efficiency improvements and incremental development at existing facilities, reduction of facility and operational impacts, substantive mitigation for re-occurring impacts from hydroelectric dam operations, and certification of low impact hydroelectric power. The AMC will develop and help implement policies developed collaboratively by the National Hydropower Coalition and Low Impact Hydro Institute germane to AMC's mission, and will engage in select individual hydropower relicensing processes. (see **Section VII. Hydroelectric Policy –to be drafted**)
- b) *Wind power*: development of wind power siting policies at the state level, based on landscape constraint analysis that directs wind power development to sites that will avoid or minimize adverse impacts to recognized natural and recreational resources of statewide, regional or national significance. (see **Section VIII. Windpower Policy**)
- c) *Biomass*: increased use of regionally available biomass such as wood that concurrently meets appropriate air quality and sustainable forestry standards. (see **Section IX. Biomass Policy**)
- d) *Alternative fuels*: the use of alternative fuels, including biofuels, which reduce air pollution, are derived from sustainable sources, and are better than carbon neutral. (*this section to be expanded*)
- e) *Renewable portfolio standards*: enactment of state and federal renewable portfolio energy standards based on realistic assessments of what may be achieved without undue impact on the region's natural resource base.

Section V. Public Lands and Renewable Energy Development (*to be developed in greater detail*)

The proposed use of public lands, or lands with publicly-held conservation easements, for large-scale renewable energy production has the potential to conflict with the other purposes for which these lands have been protected, and specifically with management goals AMC has promoted on public lands. These include managing for natural ecosystem and backcountry recreation values, preserving forests for their carbon sequestration abilities or for providing 'reserves' that could serve as refugia for ecosystems to adapt to climate change, and protecting recognized outstanding aesthetic and visual characteristics. Increased emphasis on wind or biomass energy production in our region may directly conflict with these other management goals by resulting in increased timber harvesting or plantation forests for accelerated biomass production, or the industrialization of ridgelines through the installation of large scale wind farms.

AMC believes that states and the federal government should develop specific policies governing renewable energy development on public lands that clearly prioritize the protection of the values for which these lands have been set aside over energy production, and that also provide a transparent process for public engagement in the decision-making process.

Section VI. Energy Transmission Corridors

AMC recognizes that new or expanded energy transmission corridors have the potential to transport more environmentally-friendly power originating from distant sources, but that the generation of the power being transported, and/or the siting of such corridors, may also impact natural and recreational resources. AMC's approach to engaging in and/or taking a position on a specific transmission proposal, be they electric, natural gas or other, will be based on the following guidance:

- a) the proposed transmission corridor is not primarily used to transport power whose source has major impacts on natural and recreational resources of state, regional or national significance and the transmission corridor does not simply enable the displacement of negative impacts to a remote region where these impacts will be "out of sight/out of mind" for most consumers;
- b) the site-specific environmental impacts of new or expanded transmission lines do not impair ecological and recreational values of state, regional or national significance;
- c) the agencies or boards overseeing transmission corridors have in place siting methodologies or other environmentally balanced review methods that protect natural and recreational resource values of state, regional or national significance; and
- d) the new or expanded transmission corridor actually displaces problematic energy sources, rather than merely adding to our capacity to move fossil fuel or energy generated at ecologically inappropriate sites around the grid.

Section VII. HYDROELECTRIC POLICY *(to be drafted)*

Section VIII. WINDPOWER (Approved by Conservation Programs Committee 6/13/96; revised 12/07/06, 12/10/2009; 3/30/2010)

AMC's position on windpower has been developed in light of our mission statement:

"The Appalachian Mountain Club promotes the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of the Appalachian region."

AMC's position has also been developed in coordination with other approved AMC policies. Since many potential sites for large commercial windpower facilities are

located in the Northern Forest, the siting of windpower facilities should avoid or minimize compromising the first two goals outlined in AMC's "Summary of Northern Forest Lands Policy and Strategy" (April 7, 1991):

- *"Conserve the integrity of the Northern Forest Lands as a vast, unfragmented natural resource."*
- *"Sustain and protect ecologically vigorous, healthy, and diverse ecosystems."*

The following general principles will guide AMC's decisions about future windpower projects:

- 1) The AMC believes that human actions are accelerating the rate of climate change, and this change poses a serious risk to society and the region's ecosystems. AMC recognizes that windpower and other renewable energy sources must have a substantive role in reducing greenhouse gas and air pollution emissions in our region.
- 2) The AMC posits that state policies or regulations specific to windpower are needed. Unlike most other technologies, siting of windpower is constrained by the need for an adequate wind resource, much of which is located in undeveloped areas of potentially high ecological, recreational and/or scenic value. State windpower policies or regulations should provide for an assessment of cumulative impacts, mitigation for impacts, set specific criteria for determining suitable sites, and implement appropriate regulations for windpower development, permitting, operation and decommissioning. They should assure that an appropriate balance between the development of windpower and protection of higher-elevation areas and associated resource values is maintained, and provide strong direction as to which sites will be considered suitable or less suitable for windpower development. Effective state policies or regulations should also reduce project siting conflicts and permitting delays and provide more certainty to windpower developers in the regulatory process. The AMC reserves the right to decline to support any project that does not take place in the context of an adequate and official state windpower siting policy, or where proposed mitigation does not include provisions for the protection of mountainous areas of equal or greater value as a condition for permitting.
- 3) Windpower projects should lead to a verifiable replacement of electrical generation from dirtier fossil fuel power sources within the project's service region. They should not just provide for cheaper power or replace other renewables or pollution reductions derived from conservation or demand side management programs.
- 4) Projects should include provisions to provide for decommissioning if the project is no longer producing power (including rehabilitation of roads and revegetation of cleared areas). Project permitting should be conditioned on payment into a decommissioning fund, or some other mechanism, to ensure that rehabilitation of abandoned sites will take place.
- 5) Project permits should contain adaptive management provisions, such that if an unanticipated impact occurs, project operations would be modified to reduce or

eliminate such impacts (i.e. unanticipated bird migration mortality that could be eliminated with temporary turbine shut downs during the migration period).

The AMC believes that appropriate state-initiated windpower siting guidelines can reduce siting conflicts and will assist with the efficient development of windpower. AMC will work cooperatively with states, the wind industry, conservation organizations, and other interested parties to develop balanced and realistic state windpower siting policies, regulations, and statutes.

SPECIFIC SITING GUIDELINES

This section sets forth guidelines that address issues associated with the siting of commercial windpower facilities in Northeastern mountain environments. (Issues associated with other areas, such as the seacoast and offshore are not addressed because they are outside the AMC's current area of expertise.) The AMC intends to use these guidelines as a framework for evaluating large-scale windpower project proposals; smaller individual or local-use windpower facilities may involve different considerations. These guidelines are intended to address those issues that are generally associated with windpower projects, but we recognize that additional site-specific factors or concerns may arise. These more site-specific issues will also be taken into consideration in evaluating any project. In addition, beyond the site-specific issues described below, AMC will consider the broader landscape context of a project, including whether it is located in a region of high conservation interest.

In evaluating proposed windpower projects, AMC will consider the extent and nature of any conflicts with natural resource values of recognized state, regional or national significance, as well as any proposed mitigation for such impacts. The guidelines seek to make distinctions based on objective standards where possible. In practice any decision by the AMC to support, oppose or remain neutral with respect to any proposed project will be based on all of the factors addressed by the guidelines and any important site-specific factors. In some cases a single severe conflict may render a site unsuitable for development; in other cases a combination of less severe resource conflicts may, in the aggregate, render the site unsuitable. In other cases, the type, scale or number of conflicts may not render the site unsuitable, after considering proposed mitigation for impacts or changes to an applicant's design plans.

The AMC recognizes that there has been relatively limited experience with windpower facilities in the Northeast, and expects that the guidelines set forth here will be reviewed and revised based on future experience and on the development of state siting guidelines or regulations for windpower projects.

OWNERSHIP AND LAND USE

Commercial windpower facilities should be located on private or already developed public lands. When additional infrastructure is required, impacts should be minimized. Most appropriate are sites that already contain the necessary infrastructure (roads, transmission lines, etc.). Public lands set aside for natural resource protection, scenic attributes and/or backcountry recreation should not generally be considered for

windpower development, particularly if the construction of commercial windfarms would be incompatible with the purposes for which public land was set aside.

Windpower development should be restricted to areas that have seen major commercial activities (e.g. agriculture, timber harvesting, etc.) and associated road building in the past or are likely to in the near future. Higher elevation areas where future timber harvesting is unlikely ("non-commercial timberland") should not be developed for windpower, since these areas will most likely remain relatively undisturbed in the future. AMC encourages windpower siting in areas where human development already dominates (e.g. agricultural and urban areas).

Most suitable: Private land with existing infrastructure in place. Developed public lands (e.g. municipal waste treatment facilities, school or hospital campuses, etc.), assuming that projects are at an appropriate scale for the site and do not seriously impact other major public values.

Moderately suitable: Private commercial timberland with infrastructure in relatively close proximity.

Moderately unsuitable: Private non-commercial timberland.

Least suitable: Undeveloped public land.

SOILS AND TOPOGRAPHY

Soils in potential mountain windpower areas are generally cryic (cold regime) and thus inherently more fragile than soils at lower elevation. Disruption of these soils will be a likely consequence of windpower development in high-elevation areas. Therefore siting criteria should aim to minimize soil disruption by siting these facilities in topographically suitable locations.

Suitable: Sites with relatively even ridgelines and gradual approach slopes. Access routes and turbine strings should be able to avoid steep slopes (in excess of 15-20%) in order to prevent excessive sidecuts and fill areas. Potential for sedimentation of streams and ponds must be low.

Moderately suitable: Suitable sites (as defined above) but with small and unavoidable wet soil or steep slope areas where the impacts can be mitigated. Construction must avoid extensive cut and fill for individual turbine pads or road sections.

Moderately unsuitable: Sites with some inclusion of steeper slopes requiring significant terrain alteration on access roads and turbine strings.

Least suitable: Ridgelines with steep slopes, extensive areas of wet or seepy soils or subsurface drainage patterns, uneven topography or large bedrock outcrops requiring extensive terrain alteration along turbine strings and access roads.

ROADS AND ACCESS

High-elevation areas may be the least accessible parts of an otherwise accessible landscape. Windpower facilities located in more remote areas may compromise the remote character of the site.

Most suitable: Areas with existing permanent and secondary access, including roads into and through the proposed site.

Moderately suitable: Areas with well-developed, permanent and secondary access in the vicinity of the site (i.e., lower elevations) but limited access within the site.

Moderately unsuitable: Areas with limited existing access in the vicinity of the site (i.e., few permanent roads or very low road density even in adjacent low-elevation areas).

Least suitable: Areas in which construction of the facility would have a significant impact on large areas that are essentially roadless.

VEGETATION AND NATURAL COMMUNITIES

Commercial windpower facilities will generally be located in montane boreal forest or upper-slope northern hardwood forest. Potential sites could also encompass subalpine boreal forest, krummholz, alpine areas, or bare rock. In addition, these areas may include areas of high-elevation wetlands or unusual natural communities.

Most suitable: Agricultural lands and areas dominated by relatively common second-growth northern hardwood or spruce-fir forest types. Most preferable would be areas of younger hardwood forest showing obvious evidence of past harvesting.

Moderately suitable: Areas similar to the above but with some inclusions of wetlands, rare communities, or rare plant populations; construction must be able to be located so as to avoid disrupting these sites.

Moderately unsuitable: Mature second-growth spruce-fir forests as this habitat is in short supply across the northern New England landscape. Subalpine boreal forest with little or no commercial timber potential.

Least suitable: Krummholz and alpine areas or sites with extensive inclusions of wetlands or rare communities. Areas where no evidence of previous harvesting is present. Areas containing populations of rare plants where construction would threaten the viability of these populations.

WILDLIFE

Wildlife impacts must be addressed including the site-specific impact on species resident at the site (including small mammals, herps, and birds), the cumulative effect on wide-ranging species (e.g. lynx) and migratory birds and bats, and the potential for the onsite-project habitat modifications to attract species and put them at risk.

Most suitable: Areas away from major bird and bat migration routes and containing little or no known habitat for species of concern. Areas where local habitat has already been altered or disturbed by past activity.

Moderately suitable: Areas away from major bird and bat migration routes but containing known small-scale habitats for species of concern (such as certain small mammals or birds); construction must be able to be located so as to avoid disrupting these sites.

Moderately unsuitable: Areas with significantly higher-than-average passage rates for migratory birds and bats. Areas containing potential habitat for species of

concern. Areas that have a high potential, due to habitat manipulation from project construction, to attract wildlife and put them at risk.

Least suitable: Areas containing extensive or critical habitat for species of concern that is known to be currently occupied, such that construction could not avoid impacting these sites or the species that utilize them. Areas identified as priority focus areas in state Wildlife Action Plans where development would degrade the habitat that was the rationale for delineation of the area. Large areas of mature, unfragmented habitat where this habitat is absent or uncommon in the surrounding landscape. Areas located along major bird and/or bat migration routes, which have a relatively narrow funnel across the landscape that intersects with a site.

SCENIC

Any windpower development will have unavoidable scenic impacts. Assessment of impacts must consider not only impact on existing recreational areas but also the potential impact on areas with high potential for expanded recreational use in the future. Considering only current scenic impact may lead to a conflict with the goal of protecting remote areas by promoting siting in remote areas with high potential for expanded recreational use.

AMC's primary concern is for scenic impacts to areas where a natural-appearing landscape is important. The impact to areas that already show extensive development (such as in the vicinity of towns or highways) is not AMC's primary concern, though we recognize it may be important to the residents of these areas.

Most suitable: Areas where extensive evidence of permanent human development is already a noticeable component of the landscape, e.g. agricultural areas, highways, or towns, etc.

Moderately suitable: Areas within relatively naturally-appearing landscapes but where the primary scenic impact is to the view from developed areas (roads, settlements) or which have limited visibility from public recreational use areas; areas visible from public recreational use areas but where the impact is limited due to factors such as distance, limited duration of views, low levels of public use, and/or the presence of existing development.

Moderately unsuitable: Areas that are part of a relatively naturally-appearing viewshed of less significant or less intensively used public recreation areas, within which the project would be a highly visible, dominant and discordant visual element within the viewshed.

Least suitable: Areas that are part of a relatively naturally-appearing viewshed of major recreational use areas (such as the Appalachian Trail, state and national parks, Wild and Scenic Rivers, etc.), within which the project would be a highly visible, dominant and discordant visual element within the viewshed.

RECREATION

As with scenic impacts, impact on recreational use must consider the likely closure of the project site to the public for safety and security reasons, and the project's impact on the recreation experience. Existing and future recreational use should be included in the evaluation, as growth in recreational demand may mean the expansion of recreational activity into new areas in the future.

Most suitable: Areas with little current use and limited appeal for increased use in the future, and areas that will not create barriers to recreational trail corridors.

Moderately suitable: Areas where current use is limited to activities that co-exist well with managed forest landscapes (ex. snowmobiling, hunting), where current backcountry use is low, and where there is limited opportunity for increased backcountry recreation in the future.

Moderately unsuitable: Areas that contain scattered features with moderate backcountry recreational use (such as hiking trails to minor peaks), or where the project could pose a barrier to identified recreational trail corridors.

Least suitable: Areas that currently receive a high level of backcountry recreational use, or where the landscape features and location are such that the potential for increased backcountry use is high. Sites traversed by existing regional or long-distance trails.

Section IX. Wood Biomass Policy (approved by CPC on 5/8/08/; revised 12/10/2009; 3/30/2010)

In the northeastern United States, wood is currently the primary source of biomass energy in the region. Wood biomass energy developed at a major scale in the region could significantly impact forest sustainability, future forest management practices, and associated ecological and recreational values derived from forests.

Wood biomass is considered an eligible renewable energy resource under state Renewable Portfolio Standard (RPS) requirements throughout the Northeast, and may be so designated in future federal climate change legislation. States currently vary in whether they require wood biomass to be sustainably harvested, and few provide specific definitions or standards for sustainability. Existing certification programs provide relatively strong assurance of sustainability; these include the Forest Stewardship Council (FSC) (state forests in Maine, New York, and Pennsylvania and some private landowners), the Sustainable Forest Initiative (primarily large commercial forestland owners, mostly in Maine) and the American Tree Farm System (primarily smaller forestland owners). Currently land certified by these programs remains a minority of forest lands from which biomass can be harvested. A requirement that land be certified in order to be credited as renewable is not currently practical, as it would unduly limit the amount of wood eligible for renewable energy credits and limit the ability of many landowners to participate in eligible biomass markets.

Policy

AMC's mission encompasses the protection, enjoyment, and understanding of our region's forests. AMC supports the reasonable use of wood biomass energy that is derived from sustainably harvested forests. It is AMC's general wood biomass policy that:

- a) The actual net energy yield should be holistically determined and be greater than carbon neutral.
- b) The full impact of the siting and operation of biomass energy plants on human communities, public health, and air and water quality are seriously considered.
- c) Biomass plants should demonstrate the highest level of efficiency possible with the best available technology so that the energy benefits of biomass are maximized to the greatest degree practical.
- d) Biomass harvested from land that is being developed or converted to non-forest use is not renewable and should not be eligible for Renewable Energy Credits.
- e) The maximization of forest biomass production must not take priority over other forest ecosystem and recreational benefits, uses, and values.
- f) Consideration of scale on forest harvesting levels should be included in the analyses of forest sustainability goals. Forests are managed at the level of individual landowners, but sustainability must also be cumulatively assessed at the landscape and regional scale. What is sustainable at one scale may or may not be sustainable at another.
- g) Native forests are not converted to high-yield short-rotation plantations or other artificial systems solely for the production of biomass.
- h) States should adopt biomass harvesting guidelines or "best management practices" that provide guidance as to how to maintain soil fertility, wildlife habitat, and other forest-based values when harvesting biomass¹.
- i) States and the federal government should develop and adopt a consistent definition of "sustainably harvested biomass" that would qualify for Renewable Energy Credits (RECs) issued under state or federal Renewable Energy Portfolio Standards (RPS) or related legislation. These should include:
 - 1) Certification by a widely-accepted program such as FSC, SFI or Tree Farm.
 - 2) Harvesting conducted according to a harvest plan required under state forest practices legislation, provided such legislation requires consideration of the full range of sustainability issues (including, but not limited to, effects on water quality, soils, and wildlife habitat.)
 - 3) Harvesting conducted according to an accepted stewardship plan required by current use tax programs.
 - 4) Harvesting conducted under a management plan prepared and supervised by a state-licensed professional forester.
- j) Construction and demolition debris, urban waste, and other sources of non-forest biomass are acceptable providing they are clean and non-hazardous, and do not

¹ Pennsylvania (as well as other states outside of the Northeast) have developed such guidelines and they are under development in Maine.

result in emission of toxic substances, degrade air quality, or negatively affect public health.

Note:

AMC believes that large-scale wood biomass electric generating facilities using existing technologies are unlikely to meet the criteria outlined in this policy. Smaller plants that combine heat and electricity generation for individual community facilities, such as hospitals and schools, would be more likely to meet this policy's criteria. A thorough review of the characteristics of individual proposals would determine the extent to which each meets this policy.

Section X. Natural Gas Policy (approved by CPC on 9/7/2011)

Natural gas development, including exploration, drilling, production, and transport, is taking place throughout the Appalachian Region. The scale of impacts ranges from local to regionally cumulative, and considerable activity is occurring on public lands recognized for their outdoor recreational and ecological values. Better management and awareness of the impacts to public resources is needed, especially in relation to public lands, waters, air quality, and greenhouse gas emissions. AMC's approach to engaging on natural gas development will be guided by research and policy recommendations, which address the following concerns relating to our mission, members, and the land and waters of the Appalachian Region:

- A. Public lands and waters -While states differ in their ownership of mineral rights, public lands deserve special attention to assure that the values for which they were initially protected remain available for public benefit. These valued public lands and waters are enjoyed and relied on by millions of Americans, residents and visitors alike, and were purchased or otherwise set aside for those purposes. Natural gas development on public lands should not undermine the reasons for initial investment in those lands, or displace natural or recreational resources of state, regional, or national significance, or otherwise impair these landscapes.
 - Public lands not encumbered by previous mineral rights, with identified state, regional, or national vistas, viewsheds, wild and/or natural areas, critical habitat for threatened or endangered species, trail systems and other outdoor recreation opportunities and amenities, waterways, including those used for water-based recreation and drinking water supplies, should be off limits to natural gas development.
 - Related road, drilling pad, and storage site construction footprints should be the absolute minimal required, designed to minimize habitat fragmentation and environmental impacts. The location of the roads, pads, and storage sites should be returned to their natural pre-project condition.
 - Identified pre-development public values should be protected or appropriately mitigated for if impacted.
 - Public access and use of adjacent public lands for recreation should be guaranteed during construction, operation, and decommissioning.

- An adequate and dedicated decommissioning fund in escrow should be required pre-project to rehabilitate the public lands upon completion of any extraction to fully restore the pre-development public values.
- Lease revenue funds should be collected and dedicated to the long-term future stewardship of these lands and for additional public land acquisitions.

B. Air and Water Quality and Greenhouse Gas Emissions -Drilling and extraction of natural gas includes problematic emissions of methane, nitrogen oxides, sulfur oxides, particulates, and hazardous substances such as benzene, that are of concern to AMC and the larger public. Flare-offs that regulate gas pressure may release heavy metals and other toxic substances into the air. Dirt roads to access well pad areas can increase dust and particulate matter locally. Wastewater discharges of drilling fluids and pipe leaks can contaminate waterways. The release of gasses, pollutants, and particulates through natural gas drilling development creates concerns relative to AMC's Energy and Climate Policies: Section II -Air Pollution and Greenhouse Gas Emissions (climate change). The following natural gas-specific policy recommendations should be considered in conjunction with Section II as noted above.

- The 2005 Congressional exemption of fracking and wastewater discharges from the Safe Drinking Water Act should be withdrawn.
- The project should demonstrate adequate safeguards and bonded assurances that pre-project air and water quality and quantity will not be degraded, both for on-and offsite activities.
- Short-term, minor air and water quality and quantity impacts should be appropriately mitigated.
- Operations should be obligated to temporarily cease should they cumulatively contribute to problematic air or water quality and quantity event(s).
- The project should demonstrate that its life cycle greenhouse gas emissions represent an overall reduction in fossil fuel greenhouse gas emissions.