

Energy and Climate Policies of the Appalachian Mountain Club

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Section I – Overview

AMC’s mission “promotes the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of the Appalachian region [from Maine to Washington, DC].” Energy extraction and generation, as well as electric transmission and pipeline corridors, can have major impacts on these resources. By 2014, Pennsylvania had leased 700,000 acres of State Forest land for natural gas development, an activity that can significantly change the character of these public lands due to miles of new roads, drill pads, truck traffic and accompanying noise, and air and water pollution. Industrial scale wind farm development has been permitted on the Green Mountain National Forest in Vermont, and electric transmission and gas pipe lines that would dramatically alter open spaces and public lands are regularly proposed.

Energy use and the current dependence on fossil fuels is also directly related to air pollutant and greenhouse gas emissions that impact the enjoyment and safety of outdoor recreationists and the vitality of the resources AMC works to protect. People recreating outdoors are exposed to unhealthy levels of air pollutants and their views compromised by pollution-induced haze. Pollutants emitted from the combustion of fossil fuels threaten mountain ecosystems, including the region’s now rare sub-alpine and alpine habitats. Acidic precipitation and clouds harm aquatic life in streams and water bodies, and weaken the ability of forests to rebound from naturally occurring stresses. Greenhouse gas emissions are contributing to the observed rapid impacts of poor air quality and climate change in the region, AMC has developed expertise in areas such as air pollutant emissions that degrade visibility and affect hiker health, and on the potential impacts of climate change to northeastern sub-alpine and 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. Technological advances and new market tools offer cost effective alternatives to the current large scale energy generation and long distance transmission model with its large environmental footprint, exemplified by demand side management, distributed generation, buried high voltage DC power lines, inverse rate structures, and others.

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 in our region of the Northeast and mid-Atlantic. The following policies take into consideration AMC's potential to influence the region's congressional delegation and state governments, the interests 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, its rare alpine ecosystems, and the public using these resources. 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, especially to 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, including 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:

- 1) Capping and then reducing greenhouse gas and air pollutant emissions in a timely manner to achieve acceptable, scientifically-supported, concentrations in the atmosphere;
- 2) Supporting strategies that concurrently reduce both greenhouse gas and air pollutant emissions, including tax and market-based strategies that steer consumer choices toward energy efficiency, lower emission fuels, and low impact energy sources.
- 3) Supporting improvements to air pollution standards (threshold and form), established by scientific review, that appropriately protect human and ecosystem health [i.e. National Ambient Air Quality Standards];
- 4) Increasing energy efficiency in AMC's operations, educating and motivating recreationists to reduce their greenhouse gas emissions, and supporting national and state-based energy efficiency initiatives as the most effective and environmentally benign path;

- 5) Supporting renewable energy sources that demonstrably reduce current pollutant emissions, whose impacts are appropriately mitigated for, that incorporate best available technologies to reduce their impact, and that do not individually or cumulatively greatly compromise recreational and ecological resources of state, regional, or national significance;
- 6) Supporting and using science-based carbon sequestration methods, including forest carbon offsets, that concurrently protect other ecosystem and outdoor recreation values and opportunities germane to our mission; and
- 7) 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 greenhouse gas emissions is energy efficiency, which also creates the fewest conflicts with AMC's mission. There is considerable remaining opportunity to effectively reduce greenhouse gas emissions in the Northeast through improved energy efficiency, and this approach should be given the highest priority. This policy includes, but is not limited to:

1. support for requirements and incentives for more energy efficient vehicles;
2. support of national, regional, and state energy efficiency initiatives and policies;
3. development of public transportation systems and alternatives that provide access to and within public lands and waterways;
4. promotion of appropriate limits on motorized recreation on public lands and waterways to reduce air pollution, greenhouse gas emissions, and ecological resource damage; and
5. 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. Public Lands and Energy Development

The increase in proposed and actual use of public lands, or lands with publicly-held and/or funded conservation easements ("public interest lands"), for large-scale energy production and its transmission, can and does conflict with the other purposes for which these lands have been protected, and specifically with management goals AMC has promoted for such lands. It is the policy of the AMC that public interest lands in our region should be the choice of last resort for energy and energy transmission projects that would create long-term adverse impacts to the ecological, recreational, and scenic values of these lands. Specifically, these values include managing for natural ecosystem and backcountry recreation values, preserving forests for their carbon sequestration abilities, providing 'reserves' that could serve as refugia for ecosystems to adapt to climate change or provide resilience to the impacts of climate change, and protecting recognized outstanding scenic characteristics.

When large-scale energy projects occur on these lands, there must be no reasonable alternatives available. In addition, the project must incorporate the best available technologies to reduce impacts, provide adequate compensatory mitigation for all ecosystem and recreation values impacted, and not conflict with the primary purposes for which the lands were protected. AMC believes that states, and the federal government, should develop specific policies governing energy development on public interest 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 V. Decommissioning

All energy projects have a finite life span. It is the policy of the AMC that all energy projects should be required to have an adequate decommissioning plan and escrowed funding mechanism put in place as a requirement of their permitting and/or certification. If their decommissioning is not adequately planned for and funded in advance they could become a blight on the landscape and a public liability and responsibility in the case of bankruptcy. Decommissioning plans and funding should include both the removal of equipment and the rehabilitation of the lands and/or waterways to restore public values that were present prior to project development.

Section VI. Reduce Impacts using Best Available Technologies and Mitigation

Advancements in technologies to produce energy or to make formerly uneconomic energy sources or sites economically viable are constant. Paralleling this process is the development of operational changes and technologies to mitigate adverse impacts. It is the policy of the AMC that best available technologies and operational changes to reduce impacts should be required and consistently applied components of the permitting of all energy projects, and should not be a subject for negotiation between developers, permitting agencies, and stakeholders.

Proposed energy development and/or energy transmission projects should be required to provide reasonably equivalent mitigation for unavoidable resource impacts. The mitigation should have a nexus with the resource impacted, if possible and environmentally preferable be within the project area, and if off-site be appropriately related to the impact. The project applicant should be directly or indirectly responsible for securing the mitigation prior to the project becoming operational; monetary mitigation funds should only be considered as a secondary option, must have direct nexus to project impacts, and have high probability of implementation within a decade of initiation of project construction.

Section VII. Alternative/Renewable Energy Standards

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. Energy sources differ widely in their contribution to air pollutant and greenhouse gas emissions and their physical footprints on the landscape, but none are benign. Qualified alternative fuels,

including biofuels, should substantially reduce air pollution, be derived from sustainable sources, and have carbon neutral or better life cycles.

The enactment of state and federal renewable portfolio energy standards should be based on realistic assessments of what may be achieved without undue impact on the region's natural and recreational resource base. This requires a comprehensive understanding and assessment of the role of energy conservation and efficiency, as well as tools such as carbon sequestration and other methods that can be used to meet established targets. A focus on energy production (even from renewable sources) over conservation and efficiency can lead to energy generation goals that justify major but unnecessary impacts to important natural or recreational resources, particularly those of recognized state, regional, or national significance. Energy development and transmission corridors should occur on human dominated landscapes and features, rather than introducing new or expanded development to the region's ever-shrinking natural landscapes.

Section VIII. Energy Extraction, Generation, and Transmission Corridor Policies

Overview

AMC is faced with difficult choices regarding energy development when it conflicts with elements of AMC's mission. Sufficient evidence exists that human actions are accelerating the rate of climate change, posing a serious risk to society and the region's ecosystems. Renewable energy sources must have a substantive role in reducing greenhouse gas and air pollution emissions in our region. Even with a major focus on conservation and efficiency, the region will continue to have a significant demand for energy. As the region transitions toward lower-carbon energy sources, new sources of such energy are needed, and opposition to all new energy projects is neither practical nor effective. Where AMC has developed sufficient experience, more specific policies have evolved to guide the organization's decisions as it attempts to meet its overall mission to "*promote[s] the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of the Appalachian region.*" Furthermore, technologies, economics, and incentive programs that alter the energy sector are not static and AMC's policies are adaptable and subject to revision as conditions change and lessons are learned. Principles to guide our involvement in energy projects include:

1. The project exhibits a verifiable replacement of electrical generation from dirtier fossil fuel power sources within the project's service region. It should not just provide for cheaper power or replace other renewables or pollution reductions derived from conservation or demand side management programs.
2. The project provides for decommissioning if the project is no longer in use. An adequate and dedicated decommissioning fund in escrow should be required pre-project to ensure removal of any equipment and rehabilitation of the lands and/or waterways to fully restore the pre-development public values.
3. The project permit(s) 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).

4. The project adopts best available technologies and operational plans to mitigate for acceptable negative impacts.

All energy projects represent a balance between desirable and undesirable impacts. AMC reserves the right to decline to support any project, even if we are not actively opposing it. The AMC also reserves the right to decline to support any project that does not take place in the context of an adequate and official state energy project siting policy, or where proposed mitigation does not include provisions for the protection of areas of equal or greater value as a condition for permitting.

AMC's specific policies include:

- A. *Energy Transmission Corridors:*** New or expanded energy transmission corridors transporting power (spanning the range from “green” to “dirty”) either into or through the region, and the siting of such corridors may impact natural and recreational resources (see **Subsection A. Energy Transmission Corridors**)
- B. *Hydropower:*** Efficiency improvements and incremental development at existing facilities, reduction of facility and operational impacts, substantive mitigation for recurring 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 **Subsection B. Hydroelectric Policy**)
- C. *Windpower:*** 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 **Subsection C. Windpower Policy**)
- D. *Wood Biomass:*** Increased use of regionally available biomass such as wood that concurrently meets appropriate air quality and sustainable forestry standards. (see **Subsection D. Biomass Policy**)
- E. *Natural Gas:*** As an alternative to oil and coal-fired power, natural gas potentially provides emissions and other environmental benefits, but these benefits will be undermined if natural gas development is not appropriately sited or regulated. (see **Subsection E. Natural Gas Policy**)
- F. *Grid Scale Solar Energy Development:*** Increased development of solar energy will bring new non- carbon-based energy online in the Northeastern United States, but these benefits may have adverse impacts if projects are constructed on ecologically sensitive lands. (see **Subsection F. Grid Scale Solar Energy Development**)

Subsection A. Energy Transmission Corridors (Including Pipelines)

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:

1. 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;
2. the site-specific environmental impacts of new or expanded transmission corridors do not impair ecological and recreational values of state, regional, or national significance;
3. the agencies or boards overseeing transmission corridors should have in place siting methodologies or other environmentally balanced review methods that protect natural and recreational resource values of state, regional, or national significance;
4. the new or expanded transmission corridor actually **displaces** problematic energy sources, rather than merely adding to our capacity to meet ever-growing energy demand and/or simply move fossil fuel or energy generated at ecologically inappropriate sites around the grid;
5. transmission corridors should be co-located along routes already dominated by infrastructure, such as existing transportation or utility corridors. A rebuttable presumption should be that transmission projects can be buried under ground and/or under water and avoid public interest lands.
6. multiple transmission project proposals that would affect the same resources of state, regional, or national significance should be collectively reviewed and evaluated such that cumulative impacts can be avoided or fully mitigated.

Subsection B. Hydropower

Rivers are a publicly owned resource. There are hundreds of hydropower dams in the AMC region located on many of our most important rivers and streams. Hydroelectric dams can create relatively pollution-free energy, but they can also cause significant adverse impacts on fish and wildlife, water quality and quantity, recreation, and other resources.

AMC supports low-impact hydropower, and believes that independent 3rd party certification of hydroelectric projects by the Low Impact Hydroelectric Institute (LIHI)¹ should be required for any hydroelectric project to qualify for state or national renewable energy certificates or to qualify in renewable portfolio standards or similar incentive programs. In addition, where minimal environmental or recreational impact would occur, AMC supports the upgrading of existing turbine generating capacity and the powering of existing non-hydroelectric dams and water conduits, but not the construction of new dams or river diversions.

Multiple dams within the same watershed can have both individual and cumulative

¹ <http://lowimpacthydro.org/>

impacts. Rivers being a publicly owned resource, AMC supports a transition from ongoing project-by-project permitting to a more comprehensive basin-wide review and permitting approach, regardless of the fact that multiple owners may be involved.

Hydropower projects should:

1. Provide flows and reservoir level fluctuations that support the natural flow regime² and littoral ecosystem values.
2. Fully meet water quality and quantity standards.
3. Provide adequate up and down stream passage for both resident and migratory aquatic organisms.
4. Provide for riparian land protection.
5. Protect threatened and endangered species.
6. Adequately provide for recreation, including paddle sports, with adequate flows, access, portages, ambience, and timely information on river and reservoir levels.
7. Properly address cultural resource impacts
8. Not be facilities otherwise recommended for removal due to their overwhelming negative impacts.
9. Provide adequate mitigation for acceptable impacts, preferably onsite, but if not practical then in the immediate watershed and with a nexus to the project impact(s).

Subsection C. Windpower

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

Windpower siting 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. In addition to their industrial scale footprint in generally undeveloped areas, ever-taller turbines (now ~600 feet with prototypes over 700 feet in height) make them some of the most dominant features in the landscape. Turbines may be visible from 20 or more miles away in the daytime, and the required nighttime aircraft safety lighting from even farther. State windpower policies or regulations should require:

1. watershed analyses that extend out to 15 or more miles to adjust for evolving taller turbine heights
2. windpower development, permitting, operation, and decommissioning certificate conditions that assure an appropriate balance between the development of windpower and the protection of undeveloped forested areas and associated resource values,
3. specific criteria for determining suitable sites and guiding development away from areas of high natural resource value to reduce project siting conflicts,

² A large body of evidence has shown that the natural flow regime of virtually all rivers is inherently variable, and that this variability is critical to ecosystem function and native biodiversity. The natural flow of a river varies on time scales of hours, days, seasons, years, and longer. Five critical components of the flow regime regulate ecological processes in river ecosystems: the magnitude, frequency, duration, timing, and rate of change of hydrologic conditions. Hydroelectric facility operations should sufficiently mimic natural flow patterns and variability to provide for and protect a more natural riverine ecosystem.

permitting delays and to provide more certainty to windpower developers in the regulatory process.

4. assessment and mitigation of and avoidance of significant cumulative impacts;
5. best available technologies and operations to reduce negative impacts.

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. 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.

Specific Siting Guidelines

Overview

This section sets forth guidelines that address issues associated with the siting of commercial windpower facilities in Northeastern forested 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 uses 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. Because windpower facilities are disproportionately tall relative to the topography and they require extensive landscape alteration, they can have large cumulative impacts across the landscape. Therefore the cumulative impacts of more than one project, (past, present, or future) on resources of concern must also be considered and addressed.

The AMC may also engage in particular windpower projects if they present the opportunity

to set important new policy precedents. AMC recognizes that windpower in our region is rapidly expanding, therefore these guidelines will be reviewed and revised based on future experience, on the development of state siting guidelines or regulations for windpower projects, and on changes in the evolving technology.

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: Actively managed private commercial timberland with infrastructure in relatively close proximity.

Moderately unsuitable: Large mature unfragmented blocks of private timberland.

Least suitable: Undeveloped public land; private non-commercial timberland.

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

Sites for commercial windpower facilities range from lower-elevation second-growth hardwood forest to high-elevation subalpine forest. Development should be located in areas of regionally common vegetation types that have already been significantly impacted by human activity.

Most suitable: Agricultural lands and areas dominated by relatively common young to mid-successional second-growth forest types. Most preferable are 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.

Least suitable: Unfragmented late-successional or old-growth forest; areas where development would directly impact rare natural communities (including but not limited to subalpine forest; areas where extensive disturbance of wetlands cannot be avoided; 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) and the cumulative effect on wide-ranging species (e.g. lynx) and migratory birds and bats. Increases in tower height and larger turbine blade sweep may result in more of the airspace used by migrating birds

and bats being impacted, making a site unsuitable or requiring operational changes. Consideration must also be given to how project habitat modifications may attract predator species or put species of concern at risk beyond direct habitat loss.

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 and the project's airspace.

Scenic

Any windpower development will have unavoidable scenic impacts, including both daytime visibility and nighttime light pollution. Assessment of impacts must consider not only impacts on existing recreational areas and scenic viewsheds, but also the potential impact on areas with high potential for expanded recreational use in the future, sporting camps, and the night sky. 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. Because of projects' long range visual impact, at times greater than 20 miles, the cumulative impact of the project on the landscape in combination with other existing or planned projects must be given appropriate consideration.

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 and are recognized for their cultural and recreational value (such as the Appalachian Trail, state and national parks and forests, Wild and Scenic Rivers, recreation-based facilities whose business depends on the viewshed, 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 (and related stewardship activity) 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 and stewardship 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 their backcountry values are recognized. Sites creating significant impacts to existing regional or long-distance trails.

Subsection D. Biomass

AMC's mission encompasses the protection, enjoyment, and understanding of our region's forests. In the northeastern United States, wood derived from native forests is currently the primary source of biomass energy in the region, used for home and facility heating, on-site energy generation at wood products manufacturing facilities, and electricity production in large generating plants. If properly implemented, the increased use of wood as a regional energy source has potential benefits, including a long-term reduction in fossil fuel use and enhancing the ability of forest landowners to sustainably

manage their forests by providing an additional market for low-grade wood.

However, a significant increase in the use of wood biomass for energy generation in the region creates two major concerns:

1. Increased harvesting of wood for energy could significantly impact forest sustainability and associated ecological and recreational values derived from forests.
2. The life cycle carbon accounting for wood biomass energy is complex. Incomplete or inappropriate accounting can lead to public policies that are counterproductive for climate change mitigation, especially in the near term.

Wood biomass is considered an eligible renewable energy resource under state Renewable Portfolio Standard (RPS) requirements throughout the region. Federal policies on wood biomass energy are still being developed. 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.

The actual climate change benefits of wood biomass have been the subject of considerable scientific and policy debate. While over the long term (i.e. many decades) transitioning from fossil fuels to biogenic energy sources such as wood will reduce overall carbon emissions, the near term benefits depend on many factors including:

1. The source of the wood. Logging and mill residues would return their carbon to the atmosphere in one to two decades if not burned, whereas carbon in whole trees would remain sequestered for many decades.
2. The efficiency of its use. Wood-based energy is much more efficient as a heat source than an electrical generation source. The best use is in high-efficiency heating or co-generation (heat plus electricity) systems, while the worse use is in large centralized electrical generating facilities.

Increased use of wood as an energy source results in the immediate release of carbon that would otherwise be released through decay over a longer period. This results in a period of “carbon debt” during which the use of wood results in greater greenhouse gas emissions than would the continued use of fossil fuels. The carbon debt period may be relatively short (one to two decades) for rapidly decaying sources such as logging and mill residues, but many decades for slowly decaying sources such as the stems of large trees.

AMC supports the reasonable use of wood biomass energy that is derived from sustainably harvested forests and that is managed in a manner consistent with the policy below. However, wood biomass should not be considered a de facto carbon neutral energy source under all

circumstances. Public policies incentivizing its use (particularly at a large scale) must give proper consideration to carbon cycle accounting to ensure that greenhouse gas emission benefits are truly additional.

It is AMC's general wood biomass policy that:

1. We support the use of locally-sourced and sustainably harvested wood for home and facility heating.
2. 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 biomass³.
3. 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. This may include:
 - a. Certification by a widely-accepted program such as FSC, SFI or Tree Farm.
 - b. 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.)
 - c. Harvesting conducted according to an accepted stewardship plan required by current use tax programs.
 - d. Harvesting conducted under a management plan prepared and supervised by a state-licensed professional forester.
4. The maximization of forest biomass production must not take priority over other forest ecosystem and recreational benefits, uses, and values.
5. Native forests should not be converted to high-yield short-rotation plantations or other artificial systems solely for the production of biomass.
6. 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.
7. Permitting of large-scale facilities potentially eligible for RPS or other renewable energy credits should be subject to the following standards:
 - a. Biomass plants should demonstrate the highest level of efficiency possible with the best available technology (including co-generation where feasible) so that the energy benefits of biomass are maximized to the greatest degree practical.
 - b. Potential greenhouse gas emissions and reductions must be fully accounted for, including the "carbon debt" incurred by utilizing biomass as a substitute for fossil fuels. RPS or other credits should only be available for emissions reductions that are demonstrated to be additional to "business as usual".
 - c. The full impact of the siting and operation of biomass energy plants on human communities, public health, and air and water quality must be considered.
 - d. Sustainability of wood supply sources must be considered to ensure that increased use of biomass does not lead to a foreseeable long-term reduction

³ Such as The Forest Guild's *Forest Biomass Retention and Harvesting Guidelines for the Northeast*.

- in regional forest carbon stocking.
- e. 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 result in emission of toxic substances, degrade air quality, or negatively affect public health.

Subsection E. Natural Gas

Overview

Natural gas development, including exploration, drilling, production, and transport, is taking place throughout the Appalachian region. AMC recognizes the impact this development is having across the landscape, and the concerns noted below impact all kinds of resources, both public and private. However, in light of our mission, history, and expertise, AMC policy and staff effort will be focused on addressing the impacts of natural gas development to public resources, including public land and water, as well as public interest in land such as conservation easements that are publicly held or that were acquired with public funding. AMC's approach to engaging on natural gas development will be guided by research, emerging science and technologies, and policy alternatives which address the concerns relating to our mission, members, and the public land and waters of our region.

As an alternative to oil or coal-fired power, natural gas has potential emissions and other environmental benefits, but these benefits will be undermined if natural gas development—both the how and the where—are not appropriately regulated. These emissions benefits may also be limited when compared with other viable lower-emission sources, and with energy efficiency. The scale of impacts from natural gas development ranges from local to regionally cumulative, and considerable activity is occurring on public lands recognized for their outstanding 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.

A. 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. Flare-offs that regulate gas pressure may release heavy metals and other toxic substances into the air and is an inefficient loss of this energy. 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. These releases of gasses, pollutants, and particulates through natural gas drilling development conflict with 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.

1. The 2005 Congressional exemption of fracking and related wastewater discharges from the Safe Drinking Water Act should be repealed.
2. 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.

3. Short-term, minor air and water quality and quantity impacts should be appropriately mitigated.
4. Operations should be obligated to temporarily cease should they cumulatively contribute to problematic air or water quality and quantity event(s).
5. The project should demonstrate that its life cycle greenhouse gas emissions represent an overall reduction in fossil fuel greenhouse gas emissions.
6. Flaring of natural gases is wasteful, increases pollution and greenhouse gas emissions, and should be avoided.

B. Public lands and waters. While states differ in their ownership of mineral rights, public lands--including public interest in lands and public waters--deserve special attention to assure that the values for which they were initially protected remain unimpaired and available for public benefit. Public lands and waters are valued and enjoyed by millions of Americans, residents and visitors alike. Public lands, and often public interest in land, are frequently purchased or otherwise set aside with public funds for a range of ecological and recreational values. Natural gas development impacting public resources should not undermine the reasons for initial investment in those lands and/or waters, or displace natural or recreational resources of state, regional, or national significance, or otherwise impair these landscapes or waterways. AMC's policy is that:

1. public lands or publicly held interests in land 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, and waterways, including those used for water-based recreation and drinking water supplies, should be off limits to natural gas development.
2. related road, drilling pad, and storage site construction footprints should be the absolute minimal required and be designed to minimize habitat fragmentation and environmental impacts. Roads, pads, and storage sites should be returned to their natural pre-project condition as is reasonably possible when extraction is ended.
3. identified pre-development public values should be protected or appropriately mitigated for if impacted.
4. public access and use of adjacent public lands for recreation should be guaranteed during construction, operation, and decommissioning.
5. 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.
6. lease revenue funds should be collected and dedicated to the long-term future stewardship of these lands and for additional public land acquisitions.

Subsection F. Grid Scale Solar Energy Development

It is AMC's solar energy development policy that:

1. Solar development projects should align with other aspects of AMC's Energy and Climate Policy, including Section IV, V, VI, VII and VIII - A.
2. Grid scale solar energy development projects should be sited in areas of pre-existing high disturbance or development. AMC encourages grid scale solar siting on highly impacted and compromised lands including but not limited to landfills, brownfield sites, abandoned mine sites, highway cloverleaf interchanges, gravel pits, sewage treatment plants and other similarly developed municipal lands, above parking lots, on large commercial building roofs, and on business and industrial park lands⁴.
3. Grid scale solar development on farmlands, either abandoned or active, should take into account whether agricultural activities can continue⁵ on the same acreage post-development, and whether the scale of the project is appropriate relative to the quality of the agricultural value. Solar farms should be discouraged where they displace prime agricultural lands.
4. Grid scale solar energy development should seek to avoid impacts to scenic, ecological and/or recreational resources, and should seek to minimize and mitigate for impacts when they cannot be avoided.
5. Conversion of forested, or recently harvested forest lands, to solar farms should be discouraged to avoid compromising both ecological habitat and forest carbon sequestration.
6. Solar energy projects on undeveloped public lands should be pursued only when they will provide power to facilities that are associated with the management and use of the public land unit, taking the place of energy that would need to be brought into a rural area through new or expanded transmission lines.

Notes:

Windpower policy: approved by Conservation Programs Committee 6/13/96; revised 12/07/06, 12/10/2009; 3/30/2010.

Biomass policy: approved by CPC on 5/8/08/; revised 12/10/2009; 3/30/2010; revised 1/29/2019.

Natural gas policy: approved by CPC on 9/7/2011.

Grid Scale Solar Energy Development policy: approved by CPC on 1/29/2019.

⁴ Though examples of previously disturbed areas that may be suitable are provided, sometimes these lands can also have environmental resource values that made them unsuitable. For example, some gravel pits may be targets for conservation or restoration due to their location and surrounding ecology, and some other sites such as cloverleaf exchanges may provide other values such as storm water management that may make these sites unsuitable. Determinations of actual suitability must be made on a case-by-case basis.

⁵ e.g. animal grazing, shade tolerant crops, etc.