APPENDIX A

CONSOLIDATED PARTY'S PROPOSED KEY FINDINGS OF FACT

1. Subalpine Forest Natural Community

Finding. The Fir-Heartleaved Birch Subalpine Forest natural community is ranked S3 (Rare) by the Maine Natural Areas Program, with only 19 documented occurrences in the state encompassing 40,000 acres in total, or just 0.2% of the state's land area. Eighty-six percent of this total is found in just five areas (Mount Katahdin, the Mahoosuc Range, Bigelow Mountain, Redington/Crocker and Baker/Lily Bay). The Maine Natural Area Program (NAP) states that this community "should not be considered common anywhere in Maine." (Letter from Sarah Demers, Maine Natural Areas Program, to Marcia Spencer Famous dated February 24, 2010, p. 1; Testimony of David Publicover, April 21, 2010, Attachment A)

Finding. The southern portion of the proposed project, encompassing Turbines 8 through 15 and the associated access roads, lies predominantly within an occurrence of this rare natural community documented by the Maine Natural Areas Program. (Testimony of Christine Cinnamon/Dana Valleau, April 21, 2010, Exhibit D)

Finding. The occurrence of the Fir-Heartleaved Subalpine natural community on Sisk Mountain encompasses 358 acres, making it the eleventh largest of the nineteen documented occurrences in the state. It falls within the middle of the size range of documented occurrences outside of the state's largest mountain ranges. The Sisk occurrence is larger than eight of the nineteen documented occurrences and more than twice as large as seven of them. (Letter from Sarah Demers, Maine Natural Areas Program, to Marcia Spencer Famous dated February 24, 2010, p. 1; Testimony, Publicover, Attachment A)

Finding. Dr. Hudson for the Applicant opined that there are fifteen additional potential but undocumented areas where this community may occur and estimated that they encompass an additional 8,000 acres. (Testimony of W. Donald Hudson, April 21, 2010, p. 4; Transcript of May 12, 2010, pp. 119-120)

Finding. Inclusion of these additional potential but undocumented areas would bring the total extent of this community to 0.24% of the state – a minor increase that does not diminish the rarity of this community. (Transcript of May 12, 2010, p. 120; Rebuttal Testimony of David Publicover, June 1, 2010, Attachment A)

Finding. Inclusion of these potential areas would increase the number of occurrences to 34, which is at the low end of the range of 20-100 occurrences that are part of the standard for an S3 classification. (Rebuttal Testimony, Publicover, Attachment A)

Finding. Eight of the fifteen potential but undocumented occurrences are smaller than the one on Sisk, which does not change the position of Sisk relative to other occurrences. (Transcript of May 12, 2010, p. 120; Rebuttal Testimony, Publicover, Attachment A)

Finding. The occurrence on Sisk Mountain was assigned an Element Occurrence Rank of "B", or "Good", by MNAP. Of the three elements that go into this ranking (condition, size and landscape context), the occurrence on Sisk was given the highest ranking for condition, with MNAP noting its undisturbed and natural condition. (Kibby Expansion Wind Power Project Application Vol. II, p. B.15-21; Letter from Sarah Demers, Maine Natural Areas Program, to Marcia Spencer Famous dated February 24, 2010, p. 1)

Finding. Other examples of this community in Maine have been impacted by timber harvesting, which reinforces the value of the occurrence on Sisk Mountain as an undisturbed and natural example. (Testimony of Peter Vickery, April 21, 2010, Figure 4; Testimony of Dana Valleau, May 24, 2010, p. 5; Rebuttal Testimony, Publicover, p. 4)

Finding. The size and natural condition of the occurrence of this rare natural community on Sisk Mountain are such that it should be considered an ecologically significant occurrence. (Testimony, Publicover, p. 4)

Finding. The fact that this community may occur outside of Maine is irrelevant in this proceeding. Many rare species and communities are more common outside the borders of Maine (including Canada lynx and alpine habitat). LURC's responsibility is to the resources within its jurisdiction. No legal basis exists for LURC to minimize its responsibility to protect rare or significant natural resource values because of the presence of these resources outside of the state. (Rebuttal Testimony, Publicover, p. 2)

Finding. As documented by the Applicant, the project would eliminate, fragment or indirectly impact 102 of the 358 acres of this rare community occurrence, or nearly 30% of its extent. (Testimony, Cinnamon/Valleau, Exhibit D)

Finding. The Applicant's estimate of project impacts assumes an indirect impact ("edge effect") zone of only 50 feet around the actual project footprint. This estimate is conservative. (Testimony, Cinnamon/Valleau, Exhibit D; Transcript of May 12, 2010, p. 321; Testimony, Publicover, p. 9; Rebuttal Testimony, Publicover, p. 3)

Finding. Maine's Beginning with Habitat Program uses a buffer of 250' around developed areas and roads of similar scale to those in the project. Using this state-published and approved methodology would result in an estimate of total direct and indirect impact of 144 acres, or about 40% of the mapped extent of the community. (Transcript of May 12, 2010, pp. 321-322; Rebuttal Testimony, Publicover, pp. 3-4)

Finding. The fragmenting impact of the southernmost four turbines (Turbines 12 – 15) and their access road would be the same as Turbine 11 as originally proposed, which was relocated by TransCanada at the request of MNAP and the Maine Department of Inland Fisheries and Wildlife. (Transcript of May 12, 2010, p. 322)

Finding. The National Academy of Sciences, in a study of the ecological effects of wind-energy projects, concluded (page 91): "it is likely that wind energy facilities will adversely alter ecosystems indirectly, especially through the following cumulative impacts:

1. Forest clearing resulting from road construction, transmission lines leading to the grid, and turbine placements represents perhaps the most significant potential change through habitat loss and fragmentation for forest-dependent species. This impact is particularly important in the Mid-Atlantic Highlands, because wind-energy projects there all have been constructed or proposed in forested areas.
2. Changes in forest structure and the creation of openings may alter microclimate and increase the amount of forest edge.
3. Plants and animals throughout the ecosystem respond differently to these changes, and particular attention should be paid to species listed under the ESA and species of concern that are known to have narrow habitat requirements and whose niches are disproportionately altered."

(Testimony, Publicover, p. 10)

Finding. Significant adverse impacts to this rare natural community are limited to the southernmost seven turbines and the associated access road. The northern seven turbines would lie outside the mapped extent of the community, and Turbine 8 and its associated access road impact only a small area at the northern tip of the mapped occurrence. (Testimony, Cinnamon/Valleau, Exhibit D)

Finding. The original Kibby project was purposefully and successfully designed to avoid impact to the documented occurrence of this community on Kibby Mountain (614 acres), which also had an Element Occurrence Rank of "B" (Good). TransCanada has applied a less stringent standard to protection of this community in this project as compared to the original Kibby project. (Kibby Wind Power Project Application, April 2007, p. 7-1; Kibby Expansion Wind Power Project Application Vol. I, p. B.6-6 and Vol. II, p. B 15-1; Transcript of May 12, 2010, pp. 100-101; Testimony, Publicover, pp. 11-12)

Finding. Peer-reviewed paleoecological research has documented that the elevational distribution of subalpine forest in the White Mountains (NH) has remained relatively stable for 9,000 years despite significant changes in regional climate and lower-elevation vegetation. Spruce-fir forest was eliminated from low elevations during a previous major warming period between 9,000 and 4,000 years before present following the retreat of the last glacier. Dr. Hudson confirmed that the subalpine forest of Maine has persisted for thousands of years in the areas in which it is found. (Testimony, Publicover, pp. 7-8; Transcript of May 12, 2010, p. 120)

Finding. Peer-reviewed climate/vegetation modeling indicates that areas capable of supporting spruce-fir forests will likely contract again to just the mountainous regions of northwestern Maine and northern New Hampshire as the climate warms over the coming century, even under relatively conservative assumptions about the projected increase in atmospheric CO_2. (Testimony, Publicover, p. 7 and Attachment B)

Finding. Protecting important ecosystems of sufficient size and geographic distribution is an important and well-documented adaptation strategy for climate change. In a presentation made by Alec Giffen to LURC on the "Great Maine Forest Initiative/Keeping Maine's Forests" on April 7, 2010 he included as one aspect of the vision of this effort "Facilitat[ing] the adaptation of forest ecosystems to a changing climate." (Testimony, Publicover, p. 7)

Finding. Subalpine forests in northwestern Maine will have an important adaptive role in a future warmer climate. Areas such as Sisk Mountain are likely to maintain spruce-fir habitat on the landscape at a time when this habitat has been greatly reduced or eliminated at lower elevations, and will serve as refugia for species dependent on this habitat. (Testimony, Publicover, p. 8)

Finding. The Commission did not approve the proposed Black Nubble wind project, which would have impacted an occurrence of this rare community of 316 acres with an Element Occurrence Rank of "B" (Good), finding that "the project as proposed would alter and cause an undue adverse impact on a particularly sensitive area." (LURC Decision, ZP 702, p. 67)

Finding. The AMC did not "support" the Granite Reliable Power project in New Hampshire, as falsely claimed by TransCanada. In cooperation with NH Fish and Game Department, AMC withdrew its opposition after the Applicant agreed to a $2.3 million mitigation package that directly compensated for the Project's serious habitat impacts. In contrast, this project only proposes $100,000 to be used in the Caribbean. (Transcript of May 12, 2010, pp. 225-227)

Finding. Maine Natural Areas Program Director Molly Docherty stated, "I think there's no question there's an adverse impact" on this occurrence of this rare natural community. (Transcript of May 12, 2010, p. 291)

2. Bicknell's Thrush

Finding. Bicknell's thrush is one of the highest conservation priorities in our region and is listed by multiple conservation organizations and government agencies as a species of highest conservation concern. (Transcript of May 12, 2010, p. 183; Susan M. Gallo Testimony, April 21, 2010, pp. 6-7)

Finding. TransCanada's breeding bird survey report states that Bicknell's thrush is among North America's most rare, range-restricted breeding passerines, at greatest risk of extinction and therefore of highest continental conservation concern (BRI Breeding Bird Survey Report for the Sisk Mountain Wind Power Project, Appendix F at 99)

Finding. Our region (including northeastern United States and southeastern Canada) is the only place in the world where Bicknell's thrush breeds. (Testimony, Gallo, p. 6)

Finding. Bicknell's thrush is a species of global conservation concern and is at substantial risk of being listed under the Endangered Species Act, if appropriate measures are not taken. (Testimony, Gallo p.6)

Finding. Within our region, Bicknell's thrush is limited to high elevation, stunted spruce-fir forest. (Testimony, Gallo p. 4)

Finding. Despite a few isolated observations of Bicknell's thrush in regenerating clearcuts at lower elevations, there is no peer-reviewed scientific evidence that Bicknell's thrush breed successfully in Maine in this habitat type. (Transcript of May 12, 2010, p. 111)

Finding. Experts have urged caution to avoid development in high quality Bicknell's thrush breeding habitat. Chris Rimmer of the Vermont Center for Ecostudies, acknowledged by the Applicant as "highly respected" and "very knowledgeable" about this species, has recommended that "Habitat alterations should be avoided in areas where natural disturbance, either chronic or random, could maintain suitable habitat for Bicknell's Thrushes. Such areas include west-facing slopes, ridgelines, fir waves, and areas adjacent to fir waves." (Transcript of May 12, 2010, pp. 113-114)

Finding. TransCanada's own expert witness agreed that it would be preferable to avoid under all possible circumstances habitat alterations in areas where natural disturbances, either chronic or random, could maintain suitable breeding habitat for Bicknell's thrush. (Transcript of May 12, 2010, p.114.)

Finding. TransCanada has underestimated the amount of direct breeding habitat loss to Bicknell's thrush at eight acres. (Transcript of May 12, 2010, p.184)

Finding. The Applicant has made questionable assumptions about Bicknell's thrush observations on the edges of the search areas. Search areas for spot-mapping efforts were limited to 10 ha plots around each of six point count locations, providing no information about Bicknell's thrush use of habitat beyond these plots. (Transcript of May 12, 2010, pp. 182-188; Consolidated Parties Exhibit 1 (Gallo Powerpoint))

Finding. Where the Bicknell's thrush's territory falls relative to the point it was observed changes the amount of habitat impacted by the project. If the Applicant's assumptions are wrong and any observed Bicknell's thrush actually uses habitat beyond the search area, then the impact to the Bicknell's territory would be significantly greater than the Applicant asserts. (Transcript of May 12, 2010, p. 186)

Finding. TransCanada has significantly underestimated the number of Bicknell's thrush to be affected by the proposed project. (Transcript of May 12, 2010, p. 205)

Finding. Bicknell's thrush defends one patch of ground for their territory, not disjunct patches in multiple locations on the landscape. The loss of direct habitat would impact multiple Bicknell's thrush territories. (Transcript of May 12, 2010, p. 205)

Finding. Eight acres of habitat loss is a gross underestimate of the amount of lost and degraded habitat as a result of the proposed project. The Applicant has failed to acknowledge the well-studied and well-documented impacts from edge effects. (Testimony, Gallo pp. 9-11)

Finding. Disturbance caused by edge effects would be much different and much more dramatic than that caused by a typical small-scale logging road or by a natural disturbance. (Testimony, Gallo p. 11)

Finding. Applicant's expert admitted that the habitat directly adjacent to the clearings would change and that the Applicant's estimate of habitat degradation failed to include habitat degradation due to edge effects. (Transcript of May 12, 2010, p.187, pp.107-108)

Finding. Applicant grossly overestimated the amount of potential Bicknell's thrush habitat available on the landscape. (Rebuttal Testimony, Gallo pp. 1-4)

Finding. Dr. Vickery's assertion that there are 98,000 acres of additional available habitat in Maine is based on a study that advises using caution when applying the habitat model in areas north of 45 degrees latitude. (Lambert et. al, 2005, p. 9; Transcript of May 12, 2010, p. 112)

Finding. Sisk Mountain is north of 45 degrees latitude. (Official notice, Delorme Atlas of Maine)

Finding. Dr. Vickery admitted that only a portion of the 98,000 acres would be available as potential habitat. (Transcript of May 12, 2010, pp. 111-114)

Finding. Studies Dr. Vickery references to support claims that Bicknell's thrush use regenerating clearcuts were conducted in Canada where Bicknell's thrush is known to breed at lower elevations than in Maine. (Transcript of May 12, 2010, p. 112)

Finding. Dr. Vickery admitted that there is no documentation of Bicknell's thrush breeding successfully in Maine in regenerating clearcuts. (Transcript of May 12, 2010, 111)

Finding. Dr. Vickery admitted that the Vermont Center for EcoStudies, that houses the leading experts in the field, has not initiated research into regenerating clearcuts in Maine. (Transcript of May 12, 2010, p. 114)

Finding. Even if some of the "available" habitat is truly available potential habitat, it's very likely that it would provide lower quality habitat compared to naturally disturbed forests. (Rebuttal Testimony of Susan M. Gallo, June 1, 2010, p. 1)

Finding. Lower quality bird habitat often attracts singing males with little or no chance of successful breeding. (Rebuttal Testimony, Gallo, p. 1)

Finding. Protection of species of special concern is important. The designation is a red flag that the species is at risk and, if appropriate measures are not taken, we may soon find the species facing extinction. (Rebuttal Testimony, Gallo p. 4)

Finding. The Department of Inland Fisheries and Wildlife's Comprehensive Wildlife Conservation Strategy identified Bicknell's thrush as one of the only 12 bird species of very high priority on the list of Species of Greatest Conservation Needs, which indicates high potential for state extirpation without management intervention and/or protection. (Testimony, Gallo, p. 6)

Finding. There would be considerable opportunity for male Bicknell's thrush to collide with the turbine blades causing direct mortality. (Transcript of May 12, 2010, p. 187; Testimony, Gallo, p.13)

Finding. Flight songs for male Bicknell's thrush typically consist of 10 to 15 second flights, 25 to 75 meters (82 to 246 feet) above the ground often in large circles as large as 100 meters. The turbine blades are 119 feet and higher off the ground. Even if the Bicknell's thrushes don't fly higher than 150 feet off the ground, as was suggested by Dr. Vickery, there is still considerable opportunity for collision with the turbine blades causing direct mortality. (Testimony, Gallo, p. 13)

Finding. With five of the seven southern turbines in or within 100 meters of potential Bicknell's Thrush habitat, there is a significant risk of collision and mortality. (Testimony, Gallo p.13)

Finding. The northern part of the project area, consisting of turbines 1 through 8, does not contain high-quality Bicknell's thrush habitat, is not now in use by Bicknell's thrush, and it not likely potential future habitat. Concern over habitat loss and risk of collisions with turbines during the breeding season is minimal. (Testimony, Gallo, p. 3)

Finding. Even though the migration passage rate for birds and bats over the project area is only moderate, the average flight height is one of the lowest recorded in the northeast for forested ridges, resulting in an overall high number of targets passing through the rotor swept area per hour. (Testimony, Gallo, Exhibit D)

Finding. A northern eight turbine only project would need to incorporate conditions to mitigate for adverse impacts to migratory birds and bats as a relatively high number of bird and bat targets would be expected to pass through the rotor swept area during fall migration. (Testimony, Gallo, pp. 14-15)

Finding. Though the migration passage rates do not rise to the level of creating an undue adverse impact, the low altitude of flights over the project area is a concern in terms of the potential for direct mortality. As a result, rigorous post-construction studies should be required and should be developed by the Department of Inland Fisheries and Wildlife in consultation with the U.S. Fish and Wildlife Service. (Testimony, Gallo, pp. 14-15)

Finding. Strong adaptive management language addressing turbine operations is needed in the event that the post-construction studies find high mortality for either breeding birds or migrating birds and bats. (Testimony, Gallo p. 15)

3. Scenic Character and Uses Related to Scenic Character

Finding. Seven ponds (Round, Natanis, Long, Bag, Lower, Crosby, and Arnold) rated Class 1A indicating that they have two or more "outstanding" values of statewide significance are within 8 miles of the proposed project. (Testimony of Catherine Johnson, April 21, 2010, pp. 3, 4)

Finding. Seven ponds (Round, Natanis, Long, Bag, Lower, Crosby, and Arnold) are rated "outstanding" for their scenic value by the Wildlands Lakes Assessment. (Testimony, Johnson, pp. 3, 4)

Finding. The five ponds comprising the Chain of Ponds have "outstanding" scenic value, physical features, fisheries, wildlife, significant shoreline character and cultural features. (Testimony, Johnson, pp. 3, 4)

Finding. Chain of Ponds are used by the public for camping, fishing and paddling. (BPL Management Plan, p. 92, 95 - 100; Testimony, Johnson, p. 4)

Finding. Chain of Ponds is known for its "highly scenic character" including its "rugged landscape" and "mountain summits and ridges surround[ing] the narrow ribbon of water." (BPL Management Plan, p. 92; Comments, Kathy Eickenberg, May 12, 2010, p. 1)

Finding. The Chain of Ponds Public Lands Unit located on the northern and eastern shores of Chain of Ponds is noted for its "highly scenic" character. (BPL Management Plan, p. 92; Comments, Eickenberg, p. 1)

Finding. The Chain of Ponds Public Lands Unit is managed for its "wild and scenic" character, its primitive nature, and for its remote-feeling recreation experiences, valued by all types of recreationists, including ATV users. (BPL Management Plan, p. 31, 100, 113; Comments, Eickenberg, p. 1; Testimony, Johnson, p. 8)

Finding. Users of Chain of Ponds expect to see undeveloped mountains and forests and completely dark night skies. (Testimony, Johnson, p. 6)

Finding. The Benedict Arnold Trail to Quebec Historic District is listed on the National Register of Historic Places. (Letter, Kirk Mahoney, May 6, 1012, p.1)

Finding. The undeveloped wilderness character and the mountains, bodies of water, and forested landscapes of the Chain of Ponds region through which the Arnold Trail passes are important aspects in determining the "integrity" of the historic trail. (Letter, Mahoney, p. 2; Comments by BPL, Alan Stearns, Feb. 26, 2010, pp. 3-4)

Finding. The seven "outstanding" scenic ponds and the Arnold Trail are located in an area traversed by a scenic byway, also noted for its "outstanding" scenery, and one of only 12 scenic byways in the state. (BPL Plan, p. 92; Testimony, Johnson, p. 5)

Finding. Route 27 is not visible from Long and Bag Ponds. (Transcript of May 12, 2010, p. 128)

Finding. The proposed turbines would be most certainly prominent by any definition from the southern end of Long Pond. (Review of the Kibby expansion Wind Project Aesthetic Impact Assessment, James F. Palmer, April 16, 2010, p. 8; Testimony, Johnson, pp. 7-8)

Finding. The proposed turbines are prominent from the southern end of Natanis Pond, all of Long Pond and the western half of Bag Pond. (Review, Palmer, p. 8; Testimony, Johnson, pp. 7-8)

Finding. The proposed turbines would be visible from approximately one third of the length of Chain of Ponds. (Testimony, Johnson, p. 7)

Finding. The southern seven turbines would be within three miles of the Chain of Ponds, the Arnold Trail, and the Public Lands Unit. (Testimony, Johnson, p.7)

Finding. The road connecting the southern seven turbines would be highly visible to users of Chain of Ponds. (Testimony, Johnson, p. 8)

Finding. The road connecting the seven southern turbines would cross slopes up to 45% and would require significant blasting of bedrock above the road level and fill below the road level. (Transcript of May 12, 2010, p. 129; Testimony, Johnson, p. 23)

Finding. The unrevegetated cut and fill areas along the road connecting the seven southern turbines could be as much as 100 vertical feet. (Transcript of May 12, 2010, p.129)

Finding. The scars caused by the blasting and filling for the road connecting the southern seven turbines cannot be revegetated and will be permanently visible to users of Chain of Ponds. (Testimony, Johnson, p. 8)

Finding. The northern eight turbines would be visible from only about 10% of the Chain of Ponds and would be further from the Chain of Ponds than the southern seven turbines. (Testimony, Johnson, p. 7 and Attachment C-2)

Finding. Adverse scenic effects from the northern eight turbines would be significantly less than from the southern seven turbines. (Testimony, Johnson, p. 9)

4. Summary

Finding**.** LURC's 1997 Comprehensive Land Use Plan contains numerous references to the values and sensitivity of high mountain areas:

- "Mountain areas" are specifically listed among the "unique, high-value natural resources" included in the principal values of the jurisdiction. Throughout the document mountains are consistently listed as one of the specific resources that give the jurisdiction is special character.
- The goal and both policies pertaining to mountain resources emphasize the protection of their significant values:
  - Goal: "Conserve and protect the values of high-mountain areas from undue adverse impacts."
  - Policy 13: "Regulate high-mountain areas to preserve the natural equilibrium of vegetation, geology, slope, soil and climate, to reduce danger to public health and safety posed by unstable mountain areas, to protect water quality, and to preserve *scenic value, vegetative communities, unique wildlife communities* and low-impact recreational opportunities." [italics added]
  - Policy 14: "Protect high-mountain resources with particularly high natural resource values or sensitivity which are not appropriate for most development."

(Testimony, Publicover, p. 5)

Finding. The third criteria for approval of permit applications set forth in 12 MRSA §685-B.4.C and LURC Land Use Districts and Standards Chapter 10.24, states that LURC cannot approve a Project unless "*Adequate provision has been made for fitting the proposal harmoniously into the existing natural environment in order to assure there will be no undue adverse effect on existing uses, scenic character, and natural and historic resources in the area likely to be affected by the proposal*." **(**12 MRSA §685-B.4.C; LURC Land Use Districts and Standards Chapter 10.24)

Finding. The record shows the project area encompassing Turbines 9 through 15 has significant value in the areas of scenic quality, rare vegetation communities and unique wildlife communities, and meets the terms of "high-mountain resources with particularly high natural resource values or sensitivity."

Finding. The construction of Turbines 9 through 15 would have an undue adverse impact on an ecologically significant occurrence of the rare Fir-Heartleaved Birch Subalpine Forest natural community, on significant breeding habitat for Bicknell's thrush, and on outstanding scenic resource values. (Testimony, Publicover, p. 12; Testimony, Gallo, p. 16; Testimony, Johnson, p. 11)