

The Economic Valuation of Environmental Resources

A Case Study: The Riverland Conservancy

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Introduction

Corporate social responsibility and environmental stewardship are becoming valuable pieces to an ever-evolving path towards success in the global marketplace. There is no industry more closely scrutinized under the sustainability microscope than that of energy. To gain consumers' trust through environmental programs is vital for companies such as Alliant Energy.

The creation of the Riverland Conservancy land trust undoubtedly strives to fulfill a part of this vision. With land holdings in Lansing, Iowa and Merrimac, Wisconsin, Alliant has devoted both capital and commitment to the stewardship and preservation of these so-called 'environmental assets'. The possession of these lands not only calls for their maintenance, but an improvement to the overall ecological system in which these land corridors play a vital role.

As a result, an action plan has been proposed to help guide Alliant Energy's land trust program into an environmentally sustainable direction for the future. The following proposal will consider supplemental activities for this action. The recommendations of this report are as follows:

- Alliant Energy should perform an economic valuation of the environmental assets of the Merrimac Preserve.
- A detailed survey of the preserve should be made to allow for a thorough valuation.
- Alliant Energy should pursue participation in government programs that provide assistance for environmental protection such as the Wetlands Reserve Program and the Wildlife Habitat Incentives Program
- Alliant Energy should take advantage of the tax break offered by the WDNR through the Managed Forest Tax Law.
- To insure accurate valuation, several valuation methods should be used, such as the Hedonic method and the reproduction cost method.
- Non-traditional and difficult-to-measure factors such as public goods value and existence value should be included in the final valuation.

Description of Riverland Conservancy

The Riverland Conservancy Land Trust is a collaborative effort including Alliant Energy as well as several conservation groups and local, state, and national government agencies. The conservancy consists of several unconnected parcels of land throughout Wisconsin and Iowa, the largest of the two are the Merrimac Preserve in the Baraboo Hills of Wisconsin and the Lansing Preserve on the Mississippi River in Iowa.

The Merrimac Preserve encompasses approximately 1800 acres between the Baraboo Hills to the north and Lake Wisconsin to the south. This places the Merrimac Preserve within an ecologically sensitive area of south central Wisconsin.

The Merrimac Preserve contains a wide variety of landscapes. Most prevalent is land designated for agriculture, but the preserve also contains significant amounts of land designated as forested, grasslands, wetlands, open water, or developed. Because of this wide array of land designations, the Merrimac Preserve is considered essential to the larger chain of unique and protected lands in the immediate area such as Devil's Lake State Park and the Baraboo Hills.

Overlooking the Mississippi River from the Iowa side is the considerably smaller Lansing Preserve. This preserve contains high-secluded ledges over the river, serving as a favored refuge area by migratory birds. There have also been significant steps taken at the Lansing Preserve to preserve elements of natural diversity with as little human degradation as possible.

Although both of these preserves are vital to their respective landscapes, the recommendations of this report will focus on the Merrimac Preserve. This is due to its size, as well as its presence within an environmentally sensitive region. It is important to note that although the study focus area will be the Merrimac Preserve, these recommendations may be applied to the Lansing Preserve as well.

Government Programs

With much of the land surrounding the Merrimac Preserve being held under protection (local, state, and federal level), there's an obligation for each landowner to provide restoration efforts for future protection. All levels of government are willing to hand out assistance through various incentive-based programs offering financial assistance for participation. With the given characteristics of the Merrimac Preserve, the following is a list of the three most influential programs Alliant Energy should consider implementing:

- The Wetlands Reserve Program (WRP)
- The Wildlife Habitat Incentives Program (WHIP)
- The Managed Forest Tax Law

Wetlands comprise a substantial amount of acreage (approx. 337 ac.) within the Merrimac Preserve. Because of their importance within the overall landscape, the Wetlands Reserve Program should be considered to restore and protect the drained wetland areas. This program is administered by the USDA Natural Resources Conservation Services (NRCS). It offers financial benefits for participation contingent on a long-term commitment of land rights to the federal government. By doing so, however, the government, through the NRCS, will take on or share all expenses with the landowner that are necessary to restore, monitor, and manage the wetland areas. However, there are some drawbacks. These include the restricted use of waterways unless navigable water is involved, and the removal of structures lying within the wetland

easement areas. This is a heavily restrictive program requiring a long-term commitment on the part of Alliant Energy, but the benefits it provides the preserve will increase the overall land value for the future.

The Wildlife Habitat Incentives Program, or WHIP, is intended to develop or improve fish and wildlife habitat on privately owned lands. The Merrimac preserve contains a considerable amount of open water in the form of the Gallus Slough and Manley and Parfrey's Glen Creeks. Maintaining a strong water ecosystem is vital for the fish population and the wildlife that uses those water resources for survival. Land currently not enrolled in a Conservation Reserve Program (CRP) or the WRP is eligible to be partially funded for wildlife restoration. In Wisconsin, priority is given for a number of reasons, but in this case it would have to do with the Merrimac Preserve's proximity to other wildlife areas such as Devil's Lake and the Baraboo Hills region. An emphasis has been placed on assisting declining species within the state, especially species of grassland birds, insects, and small mammals. Grassland habitats cover a large portion of the preserve, and would benefit greatly from the WHIP initiatives. With continuing creek restoration efforts through other sources, WHIP will allow Alliant to become much more active in the area of fish and wildlife preservation on its lands.

The Wisconsin Department of Natural Resources offers a program known as the Managed Forest Tax Law, which focuses on sustainable forestry practices. Alliant has used this program in the past on a small percentage of pine plantation land formerly owned by the Circus City Sportsmen's Club (approximately 65 acres of land). There is much more forested land on the Merrimac Preserve (~400 acres total) that could be enrolled in this program. The DNR offers tax breaks per acre of land under this program. This land may be either open or closed to the public. The drawback is that the closed forested areas require that there be no public access, but better forestry practices will enhance environmental land value and still provide a tax break for Alliant. If you choose not to close the land but keep it available to the public, the tax break will be increased significantly per acre. Overall, this plan is the most feasible for Alliant to implement at the Merrimac Preserve through using a mix of open and closed lands to continue public use while utilizing a sustainable forest system.

Each of the above listed programs can be utilized in unison or broken apart into what is most needed by the visionaries of Alliant Energy and the Riverland Conservancy. Sustainable land development should be the goal for the future and these are critical steps in the process of enhancing the value of environmental assets.

Valuation Methods

According to precedent, land for conservation is only valued when that area is being considered for some kind of development. Usually, environmental valuation serves as a tool to determine whether the land would be worth more if left for conservation, or whether it would be worth more after development. Even though Alliant Energy does not intend to use the Merrimac Preserve for purposes other than conservation, its valuation will help the decision-making processes regarding land use and future development.

There is extensive literature on the different approaches and methods that have been used for the valuation of natural resources (Rietbergen-McCracken, *et al.*; Willis, *et al.*; etc.). Some of these methods are more applicable to the situation of the Merrimac Preserve than others. In our research we have concluded that the best methods to use will include the Hedonic method and the reproduction cost method.

The Hedonic method of valuation is a useful method to determine the value of land that is being left for conservation. The essential approach of this method is to find two properties with the exact same characteristics except for the ones that are being valued. For example, Alliant Energy could compare the value of land in nearby properties that are being used for agriculture, development, etc. with the traditional value of land in the Merrimac Preserve and attribute the price differences to the benefits of leaving the land for conservation. This valuation method runs the risk of not correctly identifying the appropriate characteristics for comparison between the preserve and reference land, resulting in a low valuation for the Merrimac Preserve.

The reproduction (or replacement) cost method is useful for measuring the effects of the protection of certain species on the generation of habitat and ecosystems. It can also be used to value wood and other vegetative resources from the forested and grassland areas. The reproduction cost method consists of determining the contribution of the land in terms of resources. If the Merrimac Preserve did not exist, there would be a reduction in resources. In order to do the valuation, one must determine the costs society would need to pay to compensate for the reduction of these resources. The reproduction cost method works well for valuing land that produces measurable resources, but does not take into account land benefits that do not involve sellable resources.

These valuation methods use traditional factors to value land. However, other factors, such as the valuation of recreational and educational resources need to be considered. Also, aggregated biological potential value that includes soils, flora, and fauna needs to be included in any thorough evaluation.

A specific problem with assigning a proper value to natural resources is the case of the wetlands in the Merrimac Preserve. Wetlands are usually not properly valued based on their condition as public goods. Wetlands assets such as flood control and pollution reduction are examples of public goods. These benefits provided by wetlands are often not properly accounted in the valuation, because of the difficulty of measuring them and the difficulty in perceiving them as independent assets of wetlands.

Another important factor, usually not considered, is the existence value. This refers to the value of preserving the area even though it presents no other readily measurable metric for valuation. This value is difficult to quantify, but it represents a distinctive value to land that cannot be dismissed.

Recommendations

Based on information about the Merrimac Preserve, as well as government programs and laws, and the methods of the valuing environmental resources, we make the following recommendations concerning the economic valuation of environmental resources on the Merrimac Preserve.

First, we recommend that Alliant Energy perform an economic valuation of the environmental resources. Although Alliant does not have plans to develop or sell the Merrimac Preserve in the near future, such a valuation will be useful to Alliant. The valuation process will allow Alliant to identify those environmental characteristics of the preserve that may need additional attention, as well as to track progress over time in improvement of environmental factors. It will also help in decision making about future development and land use.

In order to make a meaningful valuation of the environmental assets of land like the Merrimac Preserve, there needs to be an extensive amount of information on the characteristics of the land. Detailed numbers of the biotic and abiotic resources in the area, including forest counts, fish and bird populations, as well as the potential for the land to provide natural resources both as agriculture, forestry, and as a watershed are necessary in order to perform a meaningful valuation. If Alliant Energy is serious about pursuing the valuation of environmental resources from the Merrimac Preserve, or any property in the Riverland Conservancy, such a detailed survey is required.

With the availability of government programs to provide assistance to Alliant Energy, it would be advisable to make use of them. Specifically, we recommend that Alliant pursue possible participation in the Wetlands Reserve Program and the Wildlife Habitat Incentives Programs. Participation in these programs will allow Alliant to improve the quality of wetlands and wildlife habitat on the Merrimac Preserve, improving the value of its environmental resources.

Alliant could also benefit from taking advantage of the DNR's Managed Forest Tax Law. Alliant can designate some or all of the forestland on the preserve as being closed to the public, receiving a tax break for that land, or designate land as being open to the public, receiving a significantly higher tax break. This plan has the added benefit of introducing the DNR's expertise with forestry practice. This will result in an increase in the valuation of the Merrimac Preserve.

As there is no one-valuation method that is free of pitfalls, it is recommended that Alliant use several valuation methods in valuing the Merrimac Preserve. This will serve as a check on the validity of the results, as well as the parameters for the value of biological resources. Two such valuation methods, described in this report, are the Hedonic method and the reproduction cost method. Other methods may be used, but these two methods should certainly be part of any final valuation effort.

The valuation methods listed above use traditional metrics for determining the value of the land. However, for a thorough valuation, other, non-traditional or difficult to measure

factors need to be considered. In the final valuation certain attention needs to be paid to these factors, such as the value of public goods, and the existence value of the land.

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Abstract for Website

A valuation of the environmental resources of the Merrimac Preserve of the Riverland Conservancy would be useful to future land-use decision making by its owner, Alliant Energy. Multiple valuation methods should be used, along with improved ecological surveys of the property. Alliant should also pursue participation in government-funded conservation and tax programs associated with the Merrimac Preserve.