

Tree & Shrub Survival Report

Baldwin Wind Energy Center

Annual Report 4 of 6

Prepared for:
NEXTERA ENERGY RESOURCES
BALDWIN WIND, LLC
ND PSC Case Number: PU-09-668 (Wind Farm)



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1.0 Introduction & Background

The Baldwin Wind Energy Center (Project) was completed in 2010 in Burleigh County, North Dakota, within portions of Township 143N, Range 79W, Township 142N, Range 80W, and Township 142N, Range 79W. The Project is operated by Baldwin Wind, LLC (Baldwin Wind), a subsidiary of NextEra Energy Resources, LLC, and comprises a 102-megawatt (MW) wind generation plant. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC). Its construction required the removal of trees and shrubs within Project rights-of-way.

A Tree and Shrub Replacement Plan for this Project, which discussed the approach that Baldwin Wind would follow, was submitted to the PSC and approved by the agency in July 2011. The plan was implemented in June 2011 prior to the PSC's approval in order to ensure that the trees were planted early enough in the season. Survival monitoring was required for three years and was completed in 2014 with a survival rate of 88%.

In October 2015, the PSC requested that NextEra conduct survival monitoring through 2017 since a portion of the trees had been replanted in 2014. This survival report documents the number of trees and shrubs surviving in the fall of 2015.

Baldwin Wind retained Wenck Associates, Inc. (Wenck) to assist in field checks and documentation of tree and shrub survival.

2.0 Survival Report

2.1 SURVIVAL REQUIREMENTS

The total number of trees and shrubs removed for the Project in 2010 was 206; the total number to be replaced was 412 based on the 2:1 replacement requirement. At the end of the PSC's requested three-year monitoring of the replantings that occurred in 2013, 75% of these planted trees, or 309, will be required to have survived to meet the obligations of the PSC.

2.2 PLANTING REVIEW

Six landowners within the Project area requested replacement on their property. The plantings for all landowners were installed early June 2011 in Sections 17 and 32, Township 143N, Range 79W and Sections 18, 22, 28, and 32, Township 142N, Range 79W by Prairie View Landscaping and Nursery. A total of 533 trees were planted, which exceeds the required 2:1 ratio.

A replacement planting was installed in July 2013 by Prairie View Landscaping and Nursery at the John Spitzer residence of 40 additional trees: 10 cottonwoods and 30 willows.

A replacement planting was installed in May 2014 by Plant Perfect at the Gene Hilken residence of 30 Colorado blue spruce.

2.3 2015 SURVIVAL

The plantings of each of the landowners were visited in November 2015. Trees or shrubs which had any portion of living plant material were considered alive. Wenck consulted Joel Nichols, Community Forestry Specialist at the North Dakota Forest Service (November 10, 2015) for indicators of living material for deciduous plants that have lost their leaves. Nichols suggested using any of the following three indicators: 1) pliable, non-brittle smaller branches and twigs, 2) presence of new buds, and 3) green color underneath the bark. Of the 533 trees originally planted for this Project and the 70 from additional plantings, 332 were alive in the fall of 2015 (Table 2-1). The current survival rate is above the required 75% at 81%.

Table 2-1: Survival Counts

Landowner	Number of Trees/Shrubs Planted	2012 Count	2013 Count	2014 Count	2015 Count	Comments
John Spitzer	108	54	36 (32 spruce, 4 deciduous)	65 (32 spruce, 33 deciduous)	58 (32 spruce, 26 deciduous)	The larger-sized spruce continue to do well with no loss from 2013 to 2015. The new cottonwood and willow saplings did well overall in the new area that they were planted to the northeast of the farmyard. Several of the willow and all of the cottonwood saplings planted in the northeast have died.
Jeffrey & Robyn Spitzer	50	6	48 (43 willows, 5 cottonwoods/ poplars)	37 (36 willows, 1 cottonwood)	25 (24 willows, 1 cottonwood)	Reason for high mortality in 2012 not clear. After 2012 field visit, Prairie View replanted trees (50 willows and 20 poplars). In 2013, mainly willows were alive at base with few leaves, but they did not show vigorous growth or health. In 2014 and 2015 trees showed growth and appeared healthy.
Robert Anderson	200	184	180	98	94	The area of the planting is now covered in 3 ft of grass making it difficult to locate the trees which could account for the dramatic decrease in numbers reported.
Gene & Vivian Hilken	75*	63	29	87 (77 spruce, 4 juniper, 6 cedar)	80 (65 spruce, 4 juniper, 11 cedar)	*Only 58 trees had been planted in 2011, not the reported 75. The count of 63 in 2012 had included some trees that were not part of the wind farm planting. High mortality of spruce on margin of low, wet area. Replacement planting took place in May 2014 which accounts for the marked increase.
Nathan Speten	50	49	48	47	47	Planting was in excellent condition.
Theodore Adamyk	50**	32	30	27 (22 pine, 5 oak)	28 (25 pine, 3 oak)	**During 2013 visit, could only locate 46 trees in original planting. During the 2014 visit the planting was covered in 3 ft of grass which made locating the trees difficult.
TOTAL	533	388	371	361	332	This count exceeds the required 309.



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