



17 October 2017

Mr. Salem Abraham
SAA Ventures, LP
Moody Building
Second and Main Streets
Canadian, TX 79014

Re: Wind energy resource potential, Christie Ranch

Dear Salem:

This report contains my assessment of the wind energy resource potential of the Christie Ranch, located 6 miles north of Miami, Texas, along high ground overlooking the Canadian River to the north. This ranch contains 19 sections of land, as shown on Figure 1 after the text of this report.

I've been working in wind energy for 40 years, starting with the initial studies and development of wind farms in California in the late 1970s and throughout the 1980s. I started working in Texas in 1993 and have been actively involved with wind farm development in the Panhandle since that time. In addition to the five years of wind data I collected and analyzed on your properties adjacent and east of the Christie Ranch, I've helped many companies with wind studies from Pampa to Miami to Canadian.

The Texas Panhandle has been recognized by the US Department of Energy and others as one of the premier wind resource areas of the Country. Several thousand megawatts of wind energy capacity have been installed in the Panhandle.

Long-term average annual wind speeds at the typical height of wind turbine towers (80 meters or 262 feet) range from 19-21 mph at well-exposed locations in the Panhandle. Local topography plays an important role in defining the specific wind resource of a given property, such as the Christie Ranch.

Figure 2 shows the prevailing wind direction patterns in the Miami/Canadian area, derived from many years of data at your meteorological towers and others. The bulk of strong winds come from the south, with a secondary contribution from the north.

The Christie Ranch has favorable terrain to take advantage of the prevailing southerly winds. It contains a series of ridges (elevations above 3000 feet in the south), with a gradual descent into the Canadian River (elevation 2400 feet) to the north. Thus, the Christie Ranch stands at the

Mr. Salem Abraham

Page 2

northern part of the Caprock plateau. It has been established throughout western Texas and the Panhandle that the wind resource is enhanced at the northern edges of plateaus and mesas, because the prevailing southerly winds pick up speed as they descend off such terrain features, much like water flows faster at the edge of a waterfall.

The wind studies I have performed for you and others confirm the enhanced winds adjacent to the Christie Ranch. Based on its specific topography, I fully expect the Christie Ranch to have a wind resource similar to these nearby wind measurement locations.

Figure 3 shows a prospective wind turbine array plan I have drafted for the Christie Ranch, consistent with modern efficient wind turbine technology and best-practice siting standards. (By the way, I have personally sited more than 20,000 megawatts of operating wind turbines around the world, sufficient to supply electrical needs for more than 20 million people.) I chose the current turbine model being offered by General Electric, the GE-2.5-127 turbine. Features of this turbine include:

- A 2.5-megawatt (2500-kW) generator
- Rotor diameter of 127 meters (417 feet, thus blades are 208 feet long)
- Tower (hub) height of 88.6 meters (291 feet)

The GE-2.5-127 would be an excellent fit to the Christie Ranch wind regime.

The array plan on Figure 3 has 44 turbines, which equals a nameplate capacity rating of 110 megawatts (44 turbines x 2.5 megawatts/turbine). All turbines are located on local terrain features (high ground, west/east oriented ridges) which maximize the local wind resource. Turbines in the west/east rows are spaced a minimum 3.1 rotor diameters apart, such that wake interference between adjacent turbines is negligible, and the rows are spaced sufficiently from south to north to avoid excessive wake loss in energy.

At today's prices for wind turbines, a 110-megawatt wind farm is equivalent to approximately \$150 million in capital cost.

The rest of this appraisal report evaluates the potential electrical generation of this 44-turbine array. Here are the key assumptions and results of my analyses:

- Long-term average annual hub-height wind speeds of 19½-20½ mph as an average for the 44 turbines (individual turbines likely to average greater than 21 mph)



Mr. Salem Abraham

Page 3

- An equivalent long-term average annual gross capacity factor of 62.0-65.6% for the full array, based on representative annualized wind speed frequency distributions and a power curve for the GE-2.5-127 turbine for an annual average air density of 1.09 kilograms/cubic meter
- A total gross-to-net discount of 17.2% based on the product of the efficiencies of the following individual discount categories: turbine availability 4% (96.0% efficiency), electrical losses 2.5% (97.5% efficiency), wake losses 5.5% (94.5% efficiency), turbine performance 3.5% (96.5% efficiency, incorporating turbulence, sub-optimal operations and power curve inaccuracy), environmental 2% (98.0% efficiency, incorporating blade degradation/soiling, icing, severe weather and site access), curtailment 0% (100.0% efficiency), and balance of plant loss 1% (99.0% efficiency).

The resulting long-term average annual net energy production for the 44-turbine array should thus range from:

Parameter	Low Value	High Value
Net Capacity Factor (%)	51.3	54.3
Annual Net MWh/Turbine	11,200	11,900
Annual Net MWh for Array	495,000	524,000

To place these projections in context, there are very few operating wind farms with proven net capacity factors exceeding 50%. The improvement in wind turbine efficiencies with models like the GE-2.5-127 will facilitate superior wind regimes like the Christie Ranch to achieve such high net capacity factors.

Finally, you requested my opinion on potential revenue from wind turbine royalties, as most landowners have that kind of arrangement with wind farm owners. Typical royalty rates are 3-5% of the gross revenue generated by a wind farm. If we assume 500,000 new MWh per year, and an equivalent electricity sales price of \$20/MWh, annual gross revenue would be \$10 million, of which \$300,000-500,000 would be paid as landowner royalties per year. Should a royalty be negotiated on the production tax credit (which for a project built in 2018 would be about 60% of \$25/MWh, this would result in total royalties of \$450,000-\$650,000 per year. Please understand these are reasonable but hypothetical figures; the exact payments would depend on the specific lease terms.



Mr. Salem Abraham

Page 4

This concludes my report. Let me know if you have any other questions.

Sincerely,

Richard L. Simon

Richard L. Simon, President

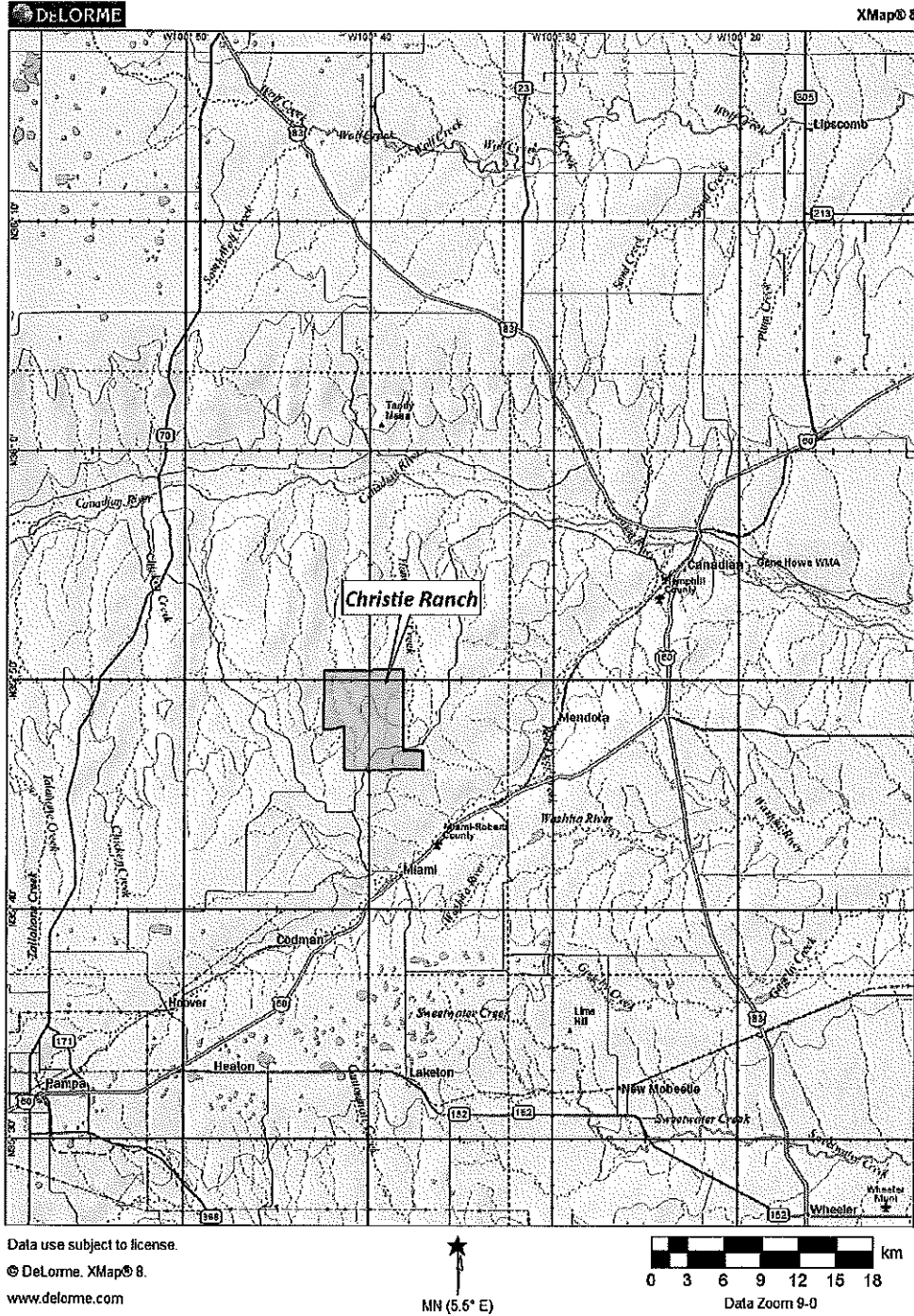


Figure 1. Regional Map of the Northeastern Panhandle, Showing the Christie Ranch

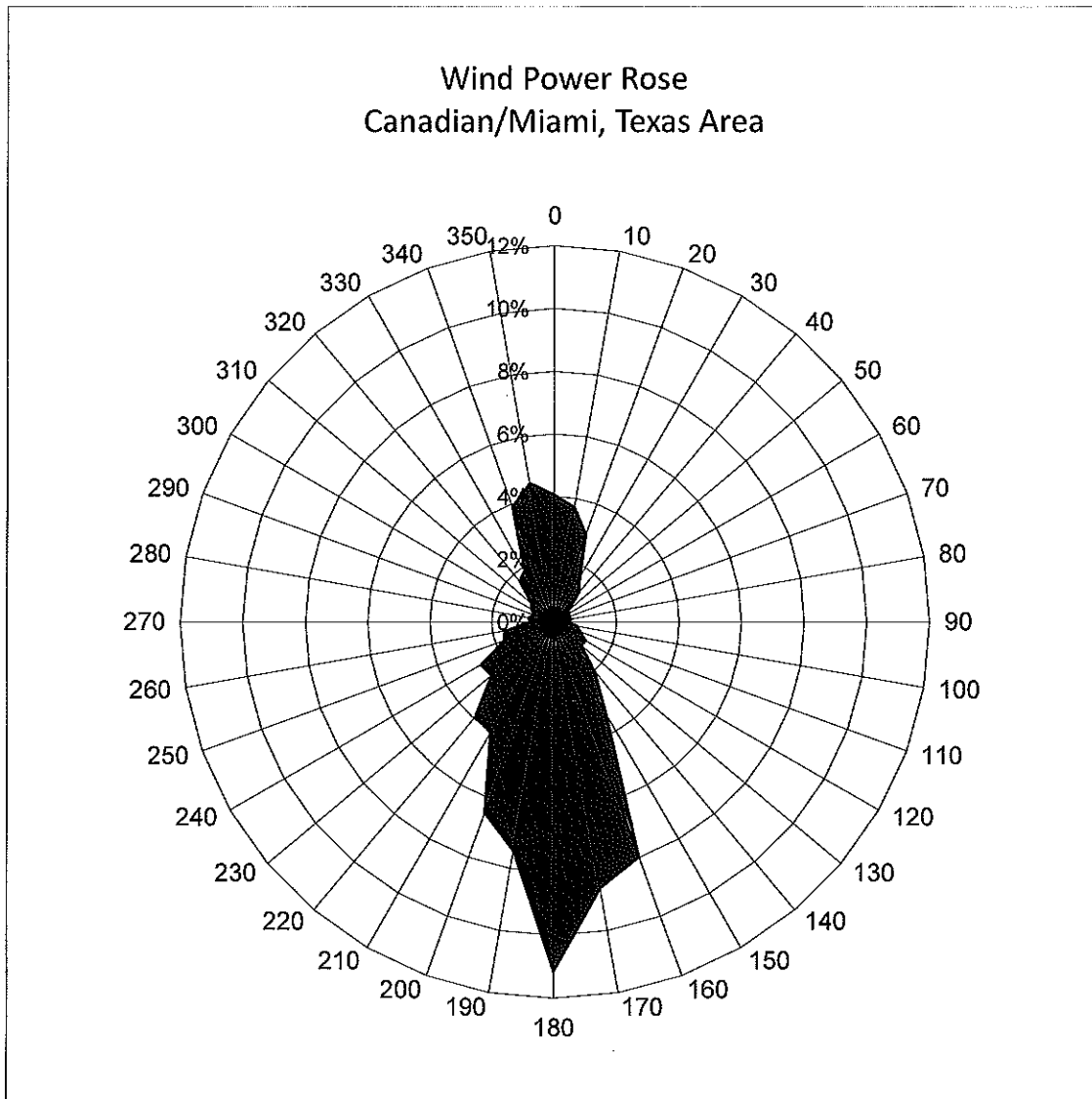


Figure 2. Wind Power Rose Reflective of the Christie Ranch. Wind directions represent the direction from which the wind blows (360° from the north, 90° from the east, 180° from the south, etc.), and the percentages reflect the percentage of annual wind energy potential for each 10-degree wind direction sector.

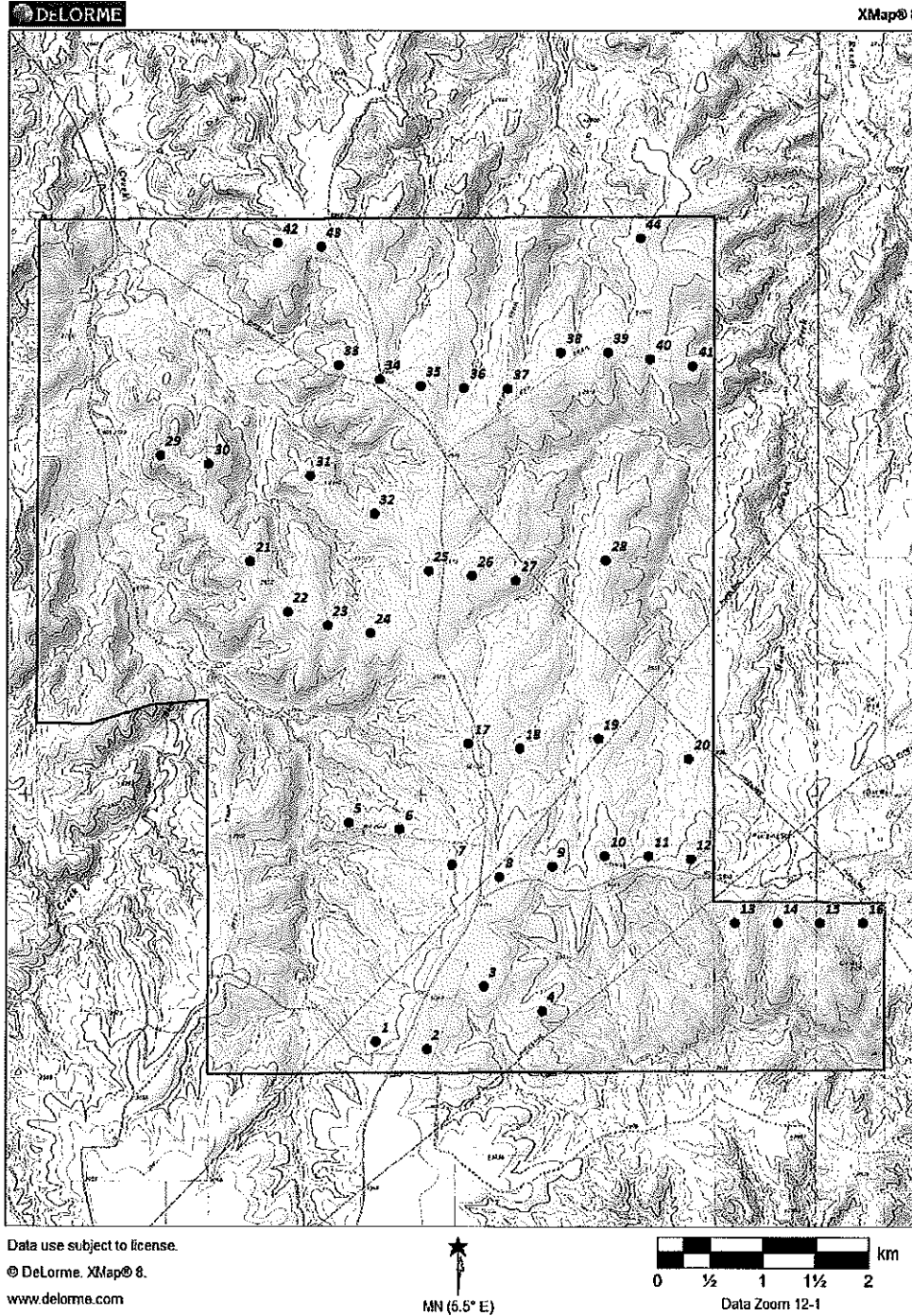
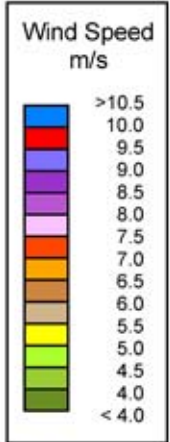
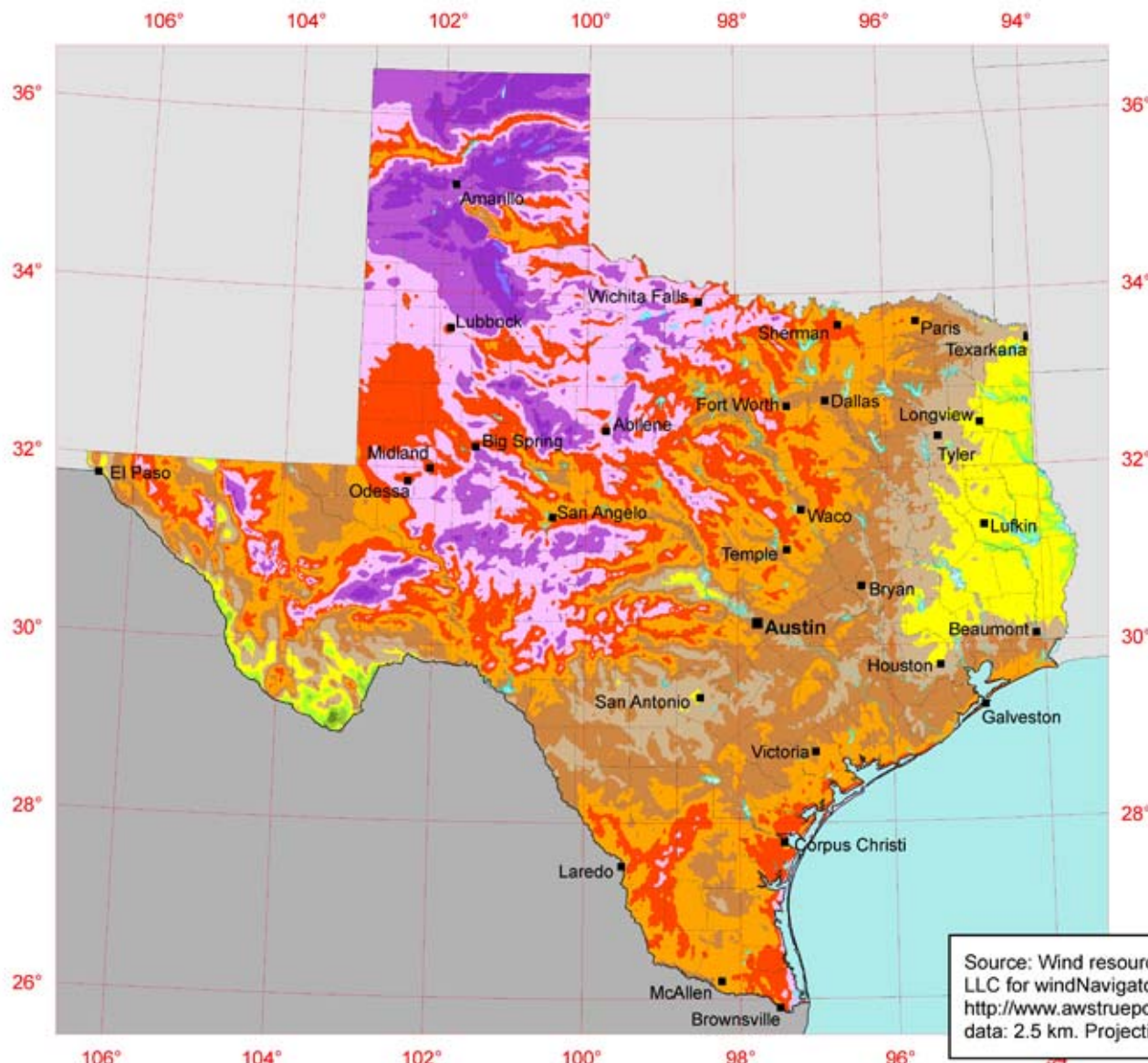


Figure 3. Prospective Array Plan for GE-2.5-127 Turbines, Christie Ranch

Texas Annual Average Wind Speed at 80 m



Source: Wind resource estimates developed by AWS Truepower, LLC for windNavigator®. Web: <http://www.windnavigator.com> | <http://www.awstruepower.com>. Spatial resolution of wind resource data: 2.5 km. Projection: UTM Zone 14 WGS84.

