THE STATE OF NEW HAMPSHIRE
BEFORE THE
NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

SEC DOCKET NO. 2019-02

APPLICATION OF CHINOOK SOLAR, LLC FOR A CERTIFICATE OF SITE AND FACILITY FOR THE CHINOOK SOLAR PROJECT IN FITZWILLIAM, NEW HAMPSHIRE

PREFILED TESTIMONY OF MATTHEW MAGNUSSON
ON BEHALF OF
CHINOOK SOLAR, LLC
OCTOBER 14, 2019

1 **Qualifications of Matthew Magnusson**

2 **Q. Please state your name and business address.**

3 A. My name is Matthew Magnusson. I am owner of Seacoast Economics. My
4 business address is 144 County Farm Cross Road in Dover, NH.

5 **Q. Please describe the services provided by Seacoast Economics.**

6 A. Seacoast Economics provides project-based economic analytics and research
7 consulting services. The firm has typically focused on analysis and evaluation of New
8 Hampshire ("NH") based projects and policies. Seacoast Economics has provided
9 economic analysis for several NH-based clients including the New Hampshire Port
10 Authority, Department of Health and Human Services, the Community College System
11 of New Hampshire, the Nature Conservancy, and the NH Community Development
12 Finance Authority.

13 **Q. Briefly summarize your educational background and work experience.**

14 A. I am a graduate of the University of New Hampshire's Peter T. Paul School of
15 Business and Economics with a Master of Business Administration. I have also earned a

Master of Computer Science from Georgia Institute of Technology. I have performed economic analytical research on four commercial wind farms currently operating or being developed in New Hampshire. I have also performed economic analyses on energy policy in the state of New Hampshire, including the NH Renewable Portfolio Standard, the Regional Greenhouse Gas Initiative, the NH Greenhouse Gas Emissions Reduction Fund, and the NH Better Buildings program.

Additional detail regarding my education, background, and experience is contained in my curriculum vitae which is attached hereto as Attachment A.

Q. Have you previously testified before this Committee and/or any other state permitting agencies?

A. Yes. I presented testimony to this Committee regarding the potential effect of the Antrim Wind Project on regional employment, economics, and property values in connection with Antrim Wind Energy, LLC's ("AWE") application for a Certificate of Site and Facility in Docket 2012-01 and Docket 2015-02.

Q. Are you familiar with the Chinook Solar Project (the "Project")?

A. Yes, I am familiar with the Project. I have received information on the Project's characteristics and financial information from Chinook Solar, LLC ("Chinook Solar") and consultants involved with the Project so that I could perform an economic impact analysis. I have also viewed the site from public roads in the Town of Fitzwilliam, reviewed satellite imagery of the Project site, and reviewed documents submitted as part of the application for the Project.

1 **Purpose of Testimony**

2 **Q. What is the purpose of your testimony?**

3 A. The purpose of my testimony is to provide the Site Evaluation Committee
4 ("SEC") with information on the economic effect of the proposed Chinook Solar Project
5 on the host community, nearby communities, Cheshire County, and the State. More
6 specifically, my testimony includes discussion of job activity and economic value
7 supported during the construction and operation of the Project. My testimony also
8 addresses potential economic impacts to property values, tourism and recreation. I will
9 also testify on my analysis of impacts to community services and infrastructure.

10 **Economic and Employment Impacts**

11 **Q. Please describe the methodology that you employed to assess the potential**
12 **effects of the Project on regional employment and economic activity.**

13 A. To determine the macroeconomic effects during the construction phase, I
14 collected estimates of in-state construction labor expenditures from Chinook Solar for the
15 Project and utilized publicly available labor statistic data from the National Renewable
16 Energy Laboratory and the Bureau of Labor Statistics to develop a point estimate of the
17 number of full-time equivalent ("FTE") on-site construction jobs expected to occur
18 during the construction phase of the Project. The number of jobs and estimated burdened
19 wages were then applied to the IMPLAN economic model using the latest available
20 (2017) economic multipliers for New Hampshire. The IMPLAN model is a commonly
21 used software package for economic impact analysis that has been in existence since the

1 mid-1970s. The model provided estimates of the "ripple" effect on jobs and economic
2 value added to the economy attributable to the Project to allow for an indication of the
3 overall economic impact expected in the state.
4 To determine the macroeconomic effects expected to occur after the construction
5 phase of the Project, estimates were developed of expenditures by Chinook Solar in the
6 local and state economy. Benchmarked values from the National Renewable Energy
7 Laboratory ("NREL") were utilized to estimate expenditures directly attributable to
8 Project operations and maintenance. Chinook Solar provided estimates of state taxes and
9 land lease payments. Chinook Solar has not yet formalized a Payment In Lieu of Taxes
10 ("PILOT") agreement with the Town of Fitzwilliam. In the nearby Town of Hinsdale,
11 NH, a $500,000 PILOT agreement was signed for the 50-MW AC Chariot Solar Project.
12 In this analysis, the assumption was made that this linearly scales to a $300,000 annual
13 PILOT payment to the Town of Fitzwilliam given that the project is 30 MW AC. These
14 inputs were applied to the IMPLAN model to obtain an estimate of total job activity and
15 economic value attributable to the Project on an annual basis.
16 **Q. Please summarize the results of the economic analysis.**
17 A. Over a 20-year period, the Project is expected to support $18 million in economic
18 value in NH. The macroeconomic impact analysis indicates that during the construction
19 phase of the Project the economic benefits of the Project will be the greatest. During
20 construction, the Project is expected to support 127 FTE NH-based jobs paying
21 approximately $10.7 million in wages and $10.4 million in economic value in NH. Of the

127 FTE jobs anticipated, 58 are expected to be direct construction jobs and 31 are expected to be indirect jobs and 38 are predicted to be induced jobs supported by the spending of salaries by direct and indirect workers on the Project. Examples of industries with indirect jobs predicted by the model include wholesale suppliers and engineers. Induced jobs predicted by the model include employment in the real estate, hospitals, and full-service restaurants industries. The construction jobs on the Project are expected to be well paying at an average annual salary of $62,625. This is 9% greater than the average annual wage in NH of $57,534.

Long-term, on-going benefits from purchasing local goods and services, landowner lease payments, and tax/tax equivalent payments to local and state government are expected to result in 4 to 6 FTE jobs paying $0.2 to $0.4 million in wages in New Hampshire during Project operations. This would be expected to support $0.4 to $0.5 million in economic value annually in NH. Of the FTE operations jobs, 1.4 to 4 are predicted to be direct FTE jobs, 0.1 to 0.5 are expected to be indirect FTE jobs, and 1.5 to 2.5 are predicted to be induced FTE jobs. Direct jobs supported by the Project operations are expected to include jobs within state and local government due to the increased tax-related revenue from the Project. The Economic Impact Assessment is included as Appendix 18 to the Application.

Q. How did you determine the construction jobs that would be based on contractors located in New Hampshire?

A. Chinook Solar provided an estimate that 60% of the total labor force would be expected to be from New Hampshire-based firms. On a previous similar project in Vermont, the 20 MW Coolidge project, 85 out of a total 130 jobs (65%) were locally based. Based on this information, a 60% estimate of in-state labor for the Project was plausible and utilized in the economic analysis.

Q. **Did you develop estimates of job and economic activity for the local economy during the construction period of the Project?**

A. No, there was insufficient information to estimate the number of construction jobs that would come from the host community the Town of Fitzwilliam, or communities in Cheshire County (the "local region"). This is because awarding contracts is a competitive process and has not yet occurred for the Project. To the extent that local contractor firms from these towns are employed on the Project during construction or post-construction, then the greater the extent that the $10.4 million in positive economic value expected to occur in the overall state would concentrate in those communities. The positive economic impact expected to occur within the state during the construction period was not directly attributed to any specific region in NH. An analysis of skilled labor using publicly available economic data and a commonly used economic metric called Location Quotients did indicate Cheshire County would be expected to be competitive in being awarded jobs during the construction period due to the presence of industries expected to be required by the Project.

1 Q. **Is there an economic benefit for the Town of Fitzwilliam during the**
2 **operations period of the Project?**
3 A. Yes, the Town of Fitzwilliam is expected to experience a positive net impact due
4 to the increased tax-related revenue and landowner lease payments from the Project after
5 it is constructed. The increased funding that would result from anticipated PILOT
6 payments, which was assumed to be $300,000 annually in this study, would be a positive
7 economic factor for the Town of Fitzwilliam. The funds would provide additional
8 financial flexibility to the Town which could be applied in different combinations in the
9 areas of property tax reduction and increased resources/services for the Town and would
10 serve to enhance the welfare of the local population.
11 Q. **What is the state tax revenue attributable to the Project?**
12 A. Chinook Solar provided an estimate that $160,000 in taxes are expected to be paid
13 annually to New Hampshire by Chinook Solar during the operations phase of the Project.
14 This was the value used in modeling for economic impact.
15 Q. **Based on your analysis, what are your conclusions regarding the economic**
16 **effects of the Project?**
17 A. It is my opinion that the Project will have a positive economic impact on the
18 Town of Fitzwilliam and the State of New Hampshire. The greatest impact will occur
19 during the construction phase but will continue during the operational life of the Project.
20 The extent to which the communities in Cheshire County benefit during the construction
21 phase is dependent upon the percentage of in-state work awarded to construction firms

1 and employees of those firms located in Cheshire County. Based on my complete
2 analysis, I do not expect the Project to have any significant negative economic impact
3 upon local or regional property values, tourism and recreation, and community services
4 and infrastructure.

5 **Property Values**

6 **Q. Please summarize the approach that you performed regarding the Project's**
7 **anticipated impacts on area property values.**

8 A. The approach taken to answer these questions was to conduct a literature review,
9 examine single family home property transactions in the immediate area surrounding one
10 of the current largest solar projects in NH, and review the real estate market
11 characteristics of the towns of Fitzwilliam, Jaffrey, and Rindge. The intention was to
12 identify what could be learned about the general relationship between utility-scale solar
13 and property values and then apply that information in a context that is specific to the
14 unique characteristics of NH and the local communities within the Project region.

15 **Q. Describe how you selected the towns of Fitzwilliam, Jaffrey, and Rindge for**
16 **your analysis.**

17 A. These communities were selected for the following reasons. The Project footprint
18 is exclusively in the Town of Fitzwilliam and therefore was included. The towns of
19 Jaffrey and Rindge were included in the obstructed terrain analysis performed by
20 Chinook Solar's visual consultant (T.J. Boyle Associates, LLC) for the Project which
21 indicates that these communities may have properties with views of the Project. The other

abutting towns of Troy and Richmond were not included as neither of these towns were modeled as having views of the project in the obstructed viewshed analysis performed by T.J. Boyle Associates, LLC and are located 2 miles or greater away from the Project.

Q. Please summarize your findings from the literature review.

A. Studies on wind farms and utility-scale solar were reviewed. There is limited research on the impact of utility-scale solar on property values, but wind farms have been well-researched regarding property values. Because wind farms are a type of renewable energy infrastructure that is built in inhabited regions, the research performed on wind farms may also apply to utility-scale solar. Wind farms, which may be considered to have higher visual impacts than solar projects, have been well-studied and there has not been a meaningful, consistent relationship established between this form of renewable energy resource and residential property values.

Specific to utility-scale solar, two studies released in 2018 were identified where appraisers performed matched-pair analysis to examine the impacts of utility-scale solar on residential property values. Kirkland (2018) conducted matched-pair analysis of 22 residential properties around a 6.7 MW solar project in North Carolina and found there had not been an impact on sale price for residential, agricultural, or vacant residential land that adjoins the existing solar projects.

McGarr and Lines (2018) studied the value of a total of 87 residential properties with 17 adjoining properties and 70 comparable sales that adjoin 6 solar projects in

1 Illinois and Indiana. They also did not find evidence of impact and concluded that
2 property proximity to panels did not have an impact on property values.
3 The existing literature base does not indicate widespread, consistent patterns of
4 impact on residential property values as a result of the development of solar projects or
5 wind farms that are operating within compliance of their regulatory standards even when
6 considering proximity and view. However, none of the studies can be used to rule out the
7 possibility that an individual property may experience an impact from any form of
8 electrical infrastructure, including utility-scale solar.
9 **Q. Please summarize your findings of the 2 MW New Hampshire Electric**
10 **Cooperative solar project located in Moultonborough, NH.**
11 A. Residential market activity was reviewed in the Town of Moultonborough, NH
12 for the time period before and after the construction of the 2-MW New Hampshire
13 Electric Cooperative ("NHEC") Project in 2017. An analysis of 166 sales totaling $92
14 million in Moultonborough between 2016 and 2019 did not indicate any broad changes in
15 the real estate market. Total sales increased by $5.3 million (18.3%) in the year following
16 the project's construction. Statistical analysis of sales price to pre-sales assessed value
17 did not indicate a negative relationship for the time period after the construction of the
18 NHEC Project nor did it establish any relationship when considering distance of
19 residence from the NHEC Project. Both statistical tests are supportive of the statement
20 that the NHEC Project did not have any impact on single family home residential values
21 in Moultonborough.

Q. **Please summarize your findings about the potential visual impacts on properties in the Town of Fitzwilliam or surrounding communities.**

A. A total of 96 parcels in the towns of Fitzwilliam, Jaffrey, and Rindge, including the 7 parcels participating in the Project, were identified as having a potential view of the Project from at least one point within the property based on the obstructed viewshed analysis performed by T.J. Boyle Associates, LLC. There are 69 parcels in Fitzwilliam, 8 in Jaffrey, and 19 in Rindge for a total assessed property value of $15.5 million. The total assessed value for the parcels were $8.6, $2.7, and $4.2 million in Fitzwilliam, Jaffrey, and Rindge respectively. The total area of parcels that may have a potential view from at least one point on the property is 5,659 acres (including participating parcels). However, the total calculated area of visibility by T.J. Boyle Associates, LLC is 379.2 acres or 7% of total parcel area. The total area within a six-mile distance of the Project is 69,400 acres, and therefore the potential area with a view is 0.5% of the total possible area. When adjusted by excluding participating parcels, the area of potential visibility is approximately 250 acres out of 5,076 acres of non-participating parcels or 5% of non-participating parcel area. Eighty percent of the total parcel area is owned by local/state government or non-governmental organizations ("NGOs"). The remaining 20% of total parcel area are residential, commercial or other use with single family residences accounting for 17% of total parcel area. For all parcels with a potential view, four parcels are commercial/industrial at 10% of total assessed value for the parcels. Other categories

are multi-family (1 at 2% of value), NGO/Government (10 at 25% of value), single-family (38 at 56% of value) and privately owned but undeveloped (40 at 6% of value).

In considering only single family residences, there are 25 in Fitzwilliam including the 2 parcels participating in the Project, 3 in Jaffrey, and 10 in Rindge for a total assessed property value of $8.7 million (approximately 56% of the total assessed value of all parcels with a potential view of the Project). The total assessed value for the parcels were $5.7, $0.9, and $2.1 million in Fitzwilliam, Jaffrey, and Rindge respectively. This was 2.6%, 0.2% and 0.5% of the total assessed value in 2017 (residential land + residential buildings) of the towns of Fitzwilliam, Jaffrey and Rindge respectively. The average acreage per single family residence was 24.8 acres.

Q. Are there any factors specific to the Project that were considered in your findings about property values?

A. Chinook Solar is purchasing 6 of the 7 properties where panels are to be located. The purchase of these properties limits the number of properties that are in close proximity to the Project and therefore would be expected to limit the potential for negative impact.

The obstructed viewshed analysis developed by T.J. Boyle Associates, LLC indicates limited view opportunities. Low visibility reduces the argument for negative impact due to changes in existing view, especially at properties not in close proximity to the Project.

In addition, potential impact may be further limited by the large amount of potentially viewable parcel acreage (80%) owned by NGOs, local or state government and privately-owned that is undeveloped.

Q. Based on your analysis, what are your conclusions regarding the economic effects on property values from the Project?

A. The Project has a low-visibility profile and will be built on land of which almost all will be owned by the developer. This would be expected to mitigate any potential impacts to property values even if negative impacts were known to be associated with utility-scale solar. However, the existing literature has not indicated this to be the case. Based on the analysis performed in this study, there is no evidence based on objective, economic data to indicate that the Project would have a wide-spread, consistent impact on property values in the Town of Fitzwilliam or surrounding communities. While this study does not rule out isolated impacts for properties due to the Project, it is unlikely that the Project would negatively impact the overall local real estate markets.

<u>Tourism and Recreation</u>

Q. Please summarize the approach that you performed regarding the Project's anticipated impacts on area tourism and recreation.

A. A literature review was performed to establish the generally accepted, contemporary thought on the relationship between utility-scale solar and tourism/recreation economic activity. A tourism/recreation resource inventory for the immediate region around the Project was constructed to identify any resources that could

be at direct risk of economic impacts from the Project. Several economic indicators were also collected for the immediate area around the 2MW NHEC solar project. As it is the currently one of the largest solar installations in NH, it is one of the most similar examples in NH to the Project to analyze for any changes in tourism and recreational economic activity. The final step was to draw upon what was learned from the literature review, the analysis of resources in the Town of Fitzwilliam and the surrounding area, and the information obtained on the NHEC Project to create an informed conclusion of the likelihood and magnitude of the tourism and recreation economic impacts from the Project.

Q. Please summarize the results of the literature review.

A. As was performed for the property value analysis, literature on wind farms was reviewed to better understand its impact on tourism and recreation. Many of the studies reviewed are survey-based and are based on stated opinions of travelers, although a few reviewed based their findings on observable economic data.

There appears to have been a number of studies investigating the relationship between tourism and wind farms. The majority of wind farm studies reviewed did not indicate a significant negative impact due to the construction of a wind farm. In fact, there is a frequent finding of the potential for increased tourism and recreation visits due to eco-tourism or curiosity visits where visitors are attracted to view the wind farm. Gottlob (2013) examined and compared economic trends in the region before and after the construction of the Lempster Wind Power Project located in Sullivan County, NH.

This study found that the introduction of the project appears to have had little or no impact on economic indicators commonly associated with tourism in the region where the wind farm is located. This includes meals and rooms sales, state park revenues, and traffic volume.

There were no studies identified on the impact of utility-scale solar on tourism. However, an intercept survey performed for the Project on a resource of high recreational importance in New Hampshire, Mount Monadnock, indicated that only 1% of visitors may be slightly less likely to visit the site if the Project were constructed. This is far smaller than other studies which have found a higher stated avoidance for wind farm projects with values closer to 10%.

Drawing on the research performed in relation to tourism and wind farms, there was no conclusive evidence uncovered that renewable energy generation facilities has a significant positive or negative impact on tourism. The results of the intercept survey on Mount Monadnock are consistent with this finding.

Q. Please describe your approach and analysis of the tourism/recreation resources inventory.

A. An inventory was developed to identify tourism/recreation resources that contribute to economic activity in the local area as highlighted through the Town of Fitzwilliam website. This work supplements independent analysis performed by T.J. Boyle Associates, LLC in its viewshed analysis for the Project. A total of 7 visitor attractions in Fitzwilliam and 10 visitor attractions outside of Fitzwilliam were identified.

1 The inventory of places of tourism and recreation significance did not indicate any of
2 these areas were located within the Project footprint. Based on the vegetated viewshed
3 analysis only two of the locations identified, Mount Monadnock in Jaffrey and Telemark
4 Hill in Fitzwilliam is anticipated to have a view of the Project.

5 **Q. Did you consider outdoor recreational activities including wildlife watching,**
6 **fishing, and hunting?**

7 A. Yes, those areas were studied. I did not uncover any evidence that wildlife
8 watching or fishing are a popular activity in the Project footprint. However, it was noted
9 that the Town of Fitzwilliam appears to have hunting activity above the regional average.
10 It is unknown to the extent that hunting occurs within the Project footprint, but the extent
11 to which the Project marginally prevents access to previously accessible hunting areas
12 may reduce economic activity related to hunting in the Town of Fitzwilliam. There is
13 insufficient information to quantify the potential negative impact with certainty, but, if
14 the Project were to limit previous levels of hunting activity, it may result in a relatively
15 small, negative impact most likely from the hundreds to thousands of dollars. Any
16 actions that Chinook Solar takes to manage any potential loss of previously accessible
17 hunting areas would be expected to mitigate any potential negative economic impacts
18 from the Project related to hunting activity.

19 **Q. Please describe your analysis of the 2 MW NHEC solar project in relation to**
20 **tourism and recreation.**

A. Common economic indicators of tourism were reviewed for the NHEC solar project to identify any evidence of changes in economic activity related to tourism. The total meal and rentals receipts for the Carroll County region were $258 million in 2016, $279 million in 2017, and $282 million in 2018. The annual growth rate for each year was 4.5%, 5.7%, and 3.5% respectively. While the growth rate in 2018 was lower than the two previous years, there is no indication that this is outside a range that might otherwise be expected as the recent years of 2011, 2012 and 2015 also experienced growth rates under 4%. The two traffic sites nearest the NHEC Solar Project indicate a small, but positive increase in average annual daily traffic in the years of construction and post-construction. This does not indicate that construction of the facility caused any significant change to traffic patterns in the immediate or surrounding area. In addition, hunting is an activity that occurs in Moultonborough. None of the collected kill statistics demonstrate a significant downward drop in 2018 and therefore it is unlikely that the NHEC Project had an overall impact on hunting activity in the region after its construction and entry into operations. A search of public documents available through the Town of Moultonborough's website, such as memorandums produced by the Office of the Town Administrator, did not uncover any indications that the NHEC project was impacting tourism or recreation in the area.

Q. Did you consider the impact of traffic during the construction phase related to the Project on tourism and recreation in your analysis?

A. Yes, during the construction period, it is expected that on the main routes, Routes 119 and 12, in the Town of Fitzwilliam, that there will be a 4 to 5% increase in traffic volume based on information provided by Chinook Solar and traffic counts available through the NH Department of Transportation. Chinook Solar has stated that it does not expect there to be traffic delays.

However, the relationship between traffic congestion and tourism was investigated in the event that the Project does have periods of traffic delays. While there is mixed evidence as to whether traffic congestion impacts recreation and tourism visitation, a consistent relationship between traffic congestion and visitation has not been established. If the Project does cause short-term delays during the construction period, the delays would not be expected to cause any long-term changes to visitation to the area. Given that there is no evidence to indicate that the Project will cause traffic delays along major routes, it is unlikely that the traffic associated with the construction will have a negative economic impact on tourism and recreation in the local area. A well-developed traffic management plan may help to mitigate any potential traffic delays during the construction period.

Q. Based on your analysis, what are your conclusions regarding the economic effects on tourism and recreation from the Project?

A. The Town of Fitzwilliam and the surrounding region provide many different recreational and tourism opportunities involving the outdoors. An analysis of business

1 composition and measures of tourism-spending indicates that the region may be slightly
2 more dependent than the overall state on tourism and recreation.
3 Drawing on the research performed in relation to tourism and wind farms, there is
4 no conclusive evidence to suggest that renewable energy infrastructure has a significant
5 net impact (either positive or negative) on tourism and recreation. This finding coupled
6 with the results of the Mount Monadnock intercept survey are not indicative of the
7 Project having an economic impact on tourism or recreation.
8 Based on a combination of information obtained from literature review, combined
9 with actual observations of the characteristics of the local area around the Project, and
10 observations of tourism-related activity around one of the currently largest utility-scale
11 solar projects in NH, there is no evidence based on objective, economic data to indicate
12 that the region will experience a significant negative economic impact in tourism and
13 recreation from the Project. It also is possible that there may be some increase in
14 visitation to the region for curiosity and eco-tourism related visits which may have an
15 additional positive impact on the local economy not quantified in the study.
16 **<u>Community Services and Infrastructure Impact</u>**
17 **Q. What communities did you evaluate for potential community services and**
18 **infrastructure impact from the Project?**
19 A. The Town of Fitzwilliam was the only community assessed for community
20 services and infrastructure impact as it is the only community hosting the Project and the
21 only community expected to receive direct tax-related revenue from the Project. The

other abutting communities were not included due to the limited visibility, their distance from the Project, and the fact that they were not expected to receive any direct tax-related revenue from the Project.

Q. Please describe the approach taken to understanding community services and infrastructure impacts.

A. A case study-based approach was taken to try and identify experiences from other NH communities that may help identify community services and infrastructure impacts that the Town of Fitzwilliam might be expected to experience from the Project. Public documents originating from several NH towns' websites, including Town Annual Reports and public meeting minutes, were reviewed to identify stated impacts to community services and infrastructure related to utility-scale solar projects. Public documents from the Town of Fitzwilliam were also reviewed. Other information resources were reviewed as needed, such as studies that may have been performed to better understand a specific aspect of a potential community service impact.

Public records from two NH communities identified as having public meetings involving utility-scale solar in their communities were reviewed to identify any community services impacts and associated costs for utility-scale solar. The towns of Moultonborough and Hinsdale have both generated public documents that record the involvement of town administration with utility-scale solar.

Q. Please summarize any observations of other communities that you believe may be relevant to the Town of Fitzwilliam?

A. In general, the documents reviewed in the towns of Moultonborough and Hinsdale did not mention direct changes or changes in costs to community services due to any proposed utility-scale projects. It appears that there is the potential for professional services impacts, specifically in the areas of assessment, engineering, and legal services, for communities which host or are considering hosting electrical infrastructure. For example, it appears that $4,000 in the Town of Moultonborough, may have been allocated to the Town Engineer before or during the construction period to monitor the NHEC Project. In Magnusson (2012), it was noted that the Lempster Wind Power Project resulted in a couple of abatement requests in the Town of Lempster in the period after the wind farm was constructed.

Q. Please discuss any observations you made in your review of documents for the Town of Fitzwilliam.

A. The review of public documents for the Town of Fitzwilliam indicated that additional professional consulting services, including legal, may be helpful for the community in working with Chinook Solar during the development phase of the Project. This is because it may require skills and knowledge above the existing available resources of the town administration and contracting for these services would be expected to bring an added cost to the town. In my review, I also noted that limited resources for emergency services was an area of concern for Fitzwilliam including rising call volumes with decreased personnel availability.

Q. Please describe any direct positive impacts on community services and infrastructure for the Town of Fitzwilliam from the Project.

The additional revenue from the Project to the Town of Fitzwilliam from an anticipated PILOT agreement would provide the town with flexibility to fund existing community services and infrastructure or to cover the cost of new or expanded community services and infrastructure. This would be expected to positively impact the welfare of the community.

Q. Based on your analysis, what are your conclusions regarding community services impact from the Project?

A. This analysis uncovered some areas of potential community impact with tangible costs. One is near-term consulting assistance for the Town so that it is able to negotiate a PILOT and Memorandum of Understanding ("MOU") with Chinook Solar that provides favorable terms for the Town, while also allowing Chinook Solar to economically pursue the Project. In the period after the construction of the Project, there are areas where additional professional services might be required, including assessment and legal. However, a well-developed PILOT and MOU may help to mitigate the risk of the Town incurring longer term costs in legal and other professional services.

Another area of potential impact identified is long-term emergency management planning. Review of the Town Annual Reports indicates that members of the Town of Fitzwilliam Fire Department would likely be under resourced in the event of a significant wildfire event, and that the Town participates in a mutual aid program to support the

1 Town's emergency service needs. Additional financial resources may be required for an
2 emergency plan to be developed that identifies any resource gaps in the Town of
3 Fitzwilliam's emergency services related to the presence of the Project and that
4 coordinates the resources of the departments in the mutual aid program if an incident
5 were to occur at the Project.
6 A positive impact on the Town of Fitzwilliam is the increased funding that would
7 result from anticipated PILOT payments. The funds would provide additional financial
8 flexibility to the Town which could be applied in different combinations in the areas of
9 property tax reduction and increased resources/services for the Town. Even when
10 considering the potential for additional professional services costs, the revenue from the
11 PILOT payments would be expected to be of far greater magnitude and thus result in a
12 positive net benefit for the community.
13 **Conclusion**
14 **Q. In your opinion, taking into consideration potential economic, employment**
15 **and property value impacts, tourism and recreation impacts, and community**
16 **services and infrastructure impacts will the Project unduly interfere with the**
17 **orderly development of the region?**
18 A. No. In my opinion, the Project will have a positive impact upon the local and
19 state economy and employment and will not adversely affect local or regional property
20 values and tourism and recreation. The Project is expected to bring positive net benefit to
21 the Town of Fitzwilliam that exceeds any potential additional costs to community

1 services and infrastructure. Therefore, the Project will not unduly interfere with the

2 orderly development of the region.

3 **Q. Does this conclude your testimony?**

4 A. Yes, this concludes my testimony at this time, though I reserve the right to file

5 supplemental testimony in accordance with the Committee's procedural schedule.

ATTACHMENT A

Matthew Magnusson

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Experience:

2016 - Present **University of New Hampshire, Durham, NH**
Lecturer
Taught undergraduate-level computer science coursework. Instruction included lesson planning, grading, and course development. Research concentration in data science and information retrieval.

2012 – 2016 **Community College System of New Hampshire, Portsmouth, NH**
Grant Researcher & Analyst
Responsible for establishing reporting systems, ensuring compliance with U.S. Dept. of Labor performance reporting, and evaluating grant performance across 8 different consortium campuses for $19.1 million Trade Adjustment Assistance Community College and Career Training Grant awarded to NH Community College System. Designed, programmed, and released ASP.net based reporting system that was recognized by the Dept. of Labor. Reported student outcomes from Oracle and Cognos.

2012 - Present **KPItrac, LLC d.b.a Seacoast Economics, Dover, NH**
Owner
Provide data collection, analysis, presentations and report authoring on project-based energy and economic research.

- **2017 – New Hampshire's Electricity Markets: Natural Gas, Renewable Energy, and Energy Efficiency**
  Sponsor: The Nature Conservancy and NH Community Development Finance Authority

- **2016– New Hampshire Medicaid Program Enrollment Forecast SFY 2016-2019**
  Sponsor: New Hampshire Department of Health & Human Services

- **2015 - Economic Impact of the Proposed 28.8 MW Antrim Wind Power Project in Antrim, New Hampshire**
  Sponsor: Antrim Wind Energy, LLC

- **2014 – Impact of the Lempster Wind Power Project on Local Residential Property Values Update**
  Sponsor: Antrim Wind Energy, LLC

- **2014– New Hampshire Cleantech 2014 Market Report**
  Sponsor: New Hampshire Cleantech Council

- **2014– New Hampshire Medicaid Program Enrollment Forecast SFY 2014-2016**
  Sponsor: New Hampshire Department of Health & Human Services

- **2013 - The Impact of the Wild Meadows Wind Farm on Local Residential Property Values**
  Sponsor: Iberdrola Renewables, LLC

- **2013 – An Evaluation of the NH BetterBuildings Program**
  Sponsor: NH Community Finance Development Authority

- **2012– Climate Impacts on the Winter Tourism Economy in the United States**
  Sponsor: Natural Resources Defense Council, Protect Our Winters

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- **2012 – The Economic Impact of the Piscataqua River and the Ports of Portsmouth and Newington**
  Sponsor: Piscataqua River Economic Development Committee

- **2012 - Economic Impact of the Proposed Antrim 30 MW Wind Power Project in Antrim, New Hampshire**
  Sponsor: Antrim Wind Energy, LLC

- **2012 - Impact of the Lempster Wind Power Project on Local Residential Property Values**
  Sponsor: Antrim Wind Energy, LLC

2005–2013 **University of New Hampshire, Durham, NH**
Research Associate (Most recent official position: Project Director II)
Provide project leadership, data collection, analysis, presentations and report authorship on project-based grant-funded research.

Summary of Work

- **2013– New Hampshire Medicaid Program Enrollment Forecast**
  Sponsor: New Hampshire Department of Health & Human Services

- **2012 – Energy & Economic Impacts of the NH Greenhouse Gas Emissions Reduction Fund**
  Sponsor: New Hampshire Public Utility Commission

- **2012**– **"The Sustainable Business Case Book",** co-author with Professor Ross Gittell and Professor Michael Merenda textbook published by Flat World Knowledge

- **2010 – The Economic Impact of the Local Sea Food Industry in New Hampshire – Opportunity for Sustainability**
  Sponsor: University of New Hampshire Cooperative Extension

- **2010 – New Hampshire Medicaid Program Enrollment Forecast SFY 2011-2013 Update**
  Sponsor: New Hampshire Department of Health & Human Services

- **2010 – The Economic Impact of Local Food Systems in New Hampshire - Current Status and Prospects for Growth**
  Sponsor: University Office of Sustainability, NH Charitable Foundation

- **2010 – Economic Impact of the Proposed Groton Wind 50 MW Wind Power Project in Groton, New Hampshire**
  Sponsor: Groton Wind LLC

- **2009** – **"Sustainability and Business"** Chapter in "Exploring Business" textbook published by Flat World Knowledge

- **2009 – Economic Impact of Granite Reliable Power Wind Power Project in Coos County, New Hampshire**
  Sponsor: Granite Reliable Power LLC

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- **2009– Economic & Greenhouse Gas Impacts of the New 2009 Fuel Economy (CAFE) Standards in New England**
  Sponsor: Carbon Solutions New England

- **2009– New Hampshire's Green Economy and Industries: *Current employment and future opportunities***
  Sponsor: Rockingham Economic Development Committee (REDC), U.S. Dept. of Commerce-Economic Development Administration

- **2009 – Economic Analysis of Policies Proposed by the NH Climate Change Policy Task Force for the Governor's NH Climate Change Action Plan**
  Sponsor: New Hampshire Charitable Foundation

- **2008 - Economic Impacts of Regional Greenhouse Gas Initiative on New Hampshire**
  Sponsor: New Hampshire Department of Environmental Services, The Energy Foundation

- **2007- Economic Impacts of a State Renewable Portfolio Standard in New Hampshire**
  Sponsor: New Hampshire Department of Environmental Services

- ***2006*- Economic Modeling of Low Sulfur Heating Oil in the Northeast**
  Sponsor: Northeast States for Coordinated Air Use Management (NESCAUM)

2012 **University of New Hampshire, Durham, NH**
Adjunct Lecturer
Taught senior-level undergraduate Sustainable Business Models course. Instruction included lesson planning, grading, and course development.

2005–2012 **University of New Hampshire, Durham, NH**
Lead Recitation Instructor
Lead classroom instruction for the Introduction to Business course. Instruction included managing Blackboard, coordinating recitation instructor activity across 20 sections, grading, leading classroom discussion and course development.

2000–2008 **University of New Hampshire, Durham, NH**
Information Technologist III
Project manager for UNH Information Technology projects including management reporting and ERP system. Responsible for employee training of new IT related systems. Web application and database development of in-house applications for undergraduate student admissions.

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Education:

Candidacy	**University of New Hampshire, Durham, NH** PhD in Computer Science
2017	**Georgia Institute of Technology, Atlanta, GA** Masters of Computer Science: Interactive Intelligence
2005	**Peter T Paul School of Business and Economics, University of New Hampshire, Durham, NH** Masters Degree in Business Administration
1997	**University of New Hampshire, Durham, NH** Bachelor of Science Degree in Kinesiology