North Dakota Renewable Energy Program
Interim Status Report

Recipient: Incoho Consulting Group and Newlight Technology
Contract Number: R-047-059
Total Award Amount: $192,250
Report for time period of: July 19, 2021 – October 29, 2021

Description of Project

The long-term objective of the project is to increase the demand for State’s renewable energy and plentiful methane gas or CO2 through the production of a natural, biodegradable material that is a viable alternative to single-use plastic – AirCarbon. Achievement of that long-term goal requires the execution of a set of near-term project phases. The first phase (of which the applicants are seeking partial funding from the State) will focus on assessing partners and locations for Newlight Technologies to build a large scale AirCarbon plant.

Each of the key inputs to the plant (renewable energy, gas feedstocks, water, labor and rail transportation facilities) will be assessed with regards to cost, quality/availability and accessibility, and longevity/duration. The solutions and partnerships that best meet the Newlight targets will determine if and where a Newlight AirCarbon plant might be located.

Project Tasks

The following Project Tasks are in various stages of completion:

- **Data Collection**: General assessment of gas, energy, water, labor, and rail resources. *(Complete)*
- **ESRI Mapping**: A detailed mapping using a 3D software that highlights gas pipelines, rail lines, water lines, energy transmission and ‘boundaries’, and gas processing plant. *(Complete)*
- **Requirements Matrix and scoring methodology**: Constructed a weighted scoring model was created with Newlight that ranks resource costs and availability across inputs. *(Complete)*
- **Sharing findings with Newlight**: Each week we review findings with Newlight and iterate our approach to align with Newlight’s understanding. *(Ongoing)*
- **Assessment of state resource availability and structural barriers to achieving project targets**: While there is ample resources in the state, acquiring them at the cost, realibility and quality required by Newlight’s process requires detailed discussions with industry partners and
government agencies in order to overcome structural impediments. Understanding those hurdles is the first step to overcome them. (Ongoing)

- **RFI to Commerce to discover obvious potential locations**: We issued a Request for Information to the Commerce Department that was sent to regional Business Development teams to discover if there were any opportunities presented by existing sites. (Ongoing)
- **Interviews, discussions, and negotiations with partners and agencies**: Armed with understanding about the structural barriers to achieve Newlight’s targets, we are now in discussions with industry players to see if we can find ways to work together to overcome those and achieve Newlight’s targets. These partnership discussions will ultimately be the key to site selection, as the these partnerships will have location implications. Stated more simply, getting a large amount of gas, electricity, and water to a single site in the volumes, qualities, and costs required will require us working with partners. The delivery mechanisms are the biggest hurdle the project must overcome. (Ongoing)

**Deliverables**

The project deliverables, as stated in the contract, have been fully or at least partially achieved during the reporting period:

- **Project Planning and Mobilization**: In cooperation with Newlight, all plant requirements have been documented and given a weighted criteria matrix to both direct the team’s efforts on the areas that have the most impact and to score high potential locations based on those requirements. (Complete)
- **Energy and Feedstock Resource Availability Assessment**: North Dakota has a wealth of resources available at many locations. Generally speaking, this work quickly became focused not on geographical locations of resources, but rather the structural barriers associated with delivering those resources to a single site, the industry and government partnerships that would be involved, and the location trade-offs each one presents. (Complete)
- **High Level Location/s Evaluation and Prioritization**: The project has identified several “high opportunity” areas that meet the general requirements. Further narrowing those to actual locations is requiring partnership discussions, and these partnership discussions will likely be the driver of final site selections. (Ongoing and near completion)
- **Key Location Evaluation, Selection and Prioritization**: Detailed operational, financial and capital modeling that will lead to selection of the “optimal” plant location and downstream manufacturing and local market assessment as well as Newlight visit to the locations which is in process of being scheduled. (Ongoing and near completion)
- **Identification of Gaps**: The team will identify potential issues that may need to be resolved in order for Newlight Technologies to select a site. Closing these gaps may require additional negotiations, or state and local support and will be addressed in future project phases. (Ongoing)
Expenditures: July through October 30, 2021

EXPENDITURES FOR THIS REPORTING PERIOD ONLY
(JULY THRU OCTOBER)

<table>
<thead>
<tr>
<th>Project Expense</th>
<th>NDIC</th>
<th>REP Recipient</th>
<th>Newlight Technologies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Fees (Labor)</td>
<td>$0.00</td>
<td>$245,730.00</td>
<td>$0.00</td>
<td>$245,730.00</td>
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</tbody>
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| • Jeff Elliott  
  • George Campbell  
  • Jack Dougan  
  • Matt Ward | | | | |
| Direct Expenses (project travel, lodging, meals, etc.) | $0.00 | $9,355.00 | $0.00 | $9,355.00 |
| Indirect Expenses Billed at 2.0% of Professional Fees (research team, software, hardware, office support/costs, etc.) | $0.00 | $4,915.00 | $0.00 | $4,915.00 |
| Total | $0.00 | $260,000.00 | $0.00 | $260,000.00 |

- NDIC’s Matching Portion 50%
- Newlight Matching Portion 50% with confirmation that Newlight’s matching payment has been received prior to billing the State (per the contract)

Summary of Findings to date

At this interim point in the project, it is clear that North Dakota has the general infrastructure to support the location of a Newlight AirCarbon plan:

- Supportive state and local government
- Access to plentiful and high service level electricity with a high preference for renewable generation
- A consistent supply of natural gas with a sufficient methane content
- Access to significant volumes of potable process water and cooling water
- Proximity to rail lines for inbound and outbound freight
- Availability of talented and trained labor to maintain and operate the facility
- Availability of a sufficient plot of land to support the plant and operations
• Unique options for carbon sequestration

These inputs are generally all available in the Bakken region, but there are limited points of intersection where all these resources are readily available. The existing gas pipelines, water pipelines, high voltage electrical lines, and rail lines wind through the region and there are many points where any two of these resources intersect. To cover the needs of Newlight, some of these pipelines or power lines will need to be extended or supplemented to address these structural barriers. In making the decision on site location, Newlight will require target economics and very high service levels for these inputs.

During the next step in the project, Incoho will be selecting the specific sites which offer the best mix of these inputs, scoring these locations on the costs and quality levels of the inputs available, and identifying the gaps in infrastructure or input costs at those sites. These gaps may become the focus of project next-steps, future negotiations, or possibly discussions with state and local government entities regarding approaches and support to address these issues and close these gaps.

Thanks for the support and we hope to bring this new technology to the State of North Dakota

Jeff, George, Matt and Jack
The Incoho Team