

North Dakota Renewable Energy Program Status Report

Recipient: c2renew

Contract Number: R-025-035

Report for time period of: May 2, 2019

DESCRIPTION OF PROJECT

Please provide a brief description of the project:

The objective of the project is for a pilot scale operation to measure and validate expansion of c2renew corporations' production and development with existing collaborators; Bobcat Co., John Deere Co., Earth-Kind Inc. and Toshiba Corp., as well as new customers, Fargo 3D Printing, Intelligent Agricultural Solutions, Bogobrush, etc. The pilot facility will include a 75 mm twin screw extruder and ancillary processing equipment.

PROJECT TASKS

Please describe the progress on all project tasks achieved during the reporting period:

Purchase of: Twin Screw Extruder, Polymer Dryer, Air Compressor, Dust Collector, and Chiller

We are currently installing ventilation equipment in our new space. We waited until the weather warmed up as we will need to punch a hole in our walls to vent outside. We brought on Patrick Simpson to equipment install, maintenance and oversight. Patrick also modified our pelletizer as well as our polymer dryer that we brought in.

We are testing a new system for our biomass drying with the dryer manufacturer. So we have been sending them material for preparing the equipment and providing us details on equipment set up.

Throughput Rate – measure percent change from current production to production in pilot facility and how additional extruder lines impact the rate.

- We have currently oversold the current capacity on our existing extruder line and are assessing whether to add a second shift of production once our large scale biomass dryer is at full operational capacity. This would allow us to evaluate the economics of how multiple shifts impact the throughput of our equipment.

This is currently still the state we are in as we have added additional work during our move.

Unit Economics – analyze the difference in the cost of goods, personnel cost and shipping with an expansion of production (i.e. IAS and Toshiba)

- We continue to analyze the unit economics have started to get better margins as we continue to purchase larger amounts of biomass as well as working out larger biomass supplier agreements.

Cost of Production – measure the change in scrap rate, equipment up-time and extruder profile change over.

- Can't be measured at this time.

Production Scheduling – refine production schedule and define a manufacturing ERP system for scaled growth.

- We are working to address our production scheduling but unlikely will be able to implement any software as our budget is focused on equipment.

DELIVERABLES

Please describe the progress on project deliverables, as stated in your contract, achieved during the reporting period:

***Production Growth: Expand production to 6 million pounds per year.**

(*noted added by c2renew...this is 6 million pounds of finished product per year)

FEEDSTOCK	POUNDS PROCESSED PER YEAR
Hemp	30,000
Flax	15,000
Barley	3,000

Production Efficiency: Lower costs of production to \$0.20 to \$0.25 range

Customer Acquisition: Intent is to grow the customer base

We continue to expand our customer base and the type of work we are doing. We currently working a number of “hybrid” projects in which we are developing products as well as producing the materials.

Job Growth - increasing the number of team members between 4 to 6

We have added 2 new contractors since our last report and through our collaborative work, 3DFuel has added four new employees.

Rural Development - expansion of facilities in Colfax, North Dakota

We have decided to locate our newest production facility in Fargo, ND. Although it is Fargo, we are located in what is defined by the state of North Dakota as an Opportunity Zone, which is an area that is economically distressed area that needs investment.

New Technology Development

As I indicated in a confidential report to the full council we have developed a new material for large industrial company that is expanding into large format additive manufacturing. We currently are scaling production up but have received the first purchase order for 22,000 lbs.

EXPENDITURES

Please provide a breakdown of expenditures. Include all sources of match. Provide supporting documentation as a separate attachment.

EXPENDITURES FOR THIS REPORTING PERIOD ONLY				
Project Expense	NDIC	REP Recipient	Other Sponsor	Total
Contractors	12,000	5168		
Equipment		3,231.67		
Scott Equipment		5,305		
Total	12,000	13,393.41		

CUMULATIVE EXPENDITURES				
Project Expense	NDIC	REP Recipient	Other Sponsor	Total
Total				

EXPENDITURE JUSTIFICATION

Use this space to explain how costs relate to the project as necessary.