

North Dakota Renewable Energy Program Status Report

Recipient: c2renew

Contract Number: R-025-035

Report for time period of: June 17, 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 purchased additional equipment for the installation of the dust collector and polymer dryer.

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

- We have bumped up our throughput rate by adding a dryer which allows us to dry more on the front end. We also did maintenance on our spin dryer which allows us to mitigate post drying which would take up additional dryer space. When we bring on the additional extruder we will continue to pump up or production capacity.

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 have been able to drill down more closely on our unit economics by working with our suppliers and logistics company. We focus heavily on just in time manufacturing and have worked hand in glove with our suppliers to provide our monthly and quarterly projections to accommodate for this method. On certain formulations we have been able to tweak our formulation to increase our margins by 5-10%.

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

- With adding ancillary production equipment we have been able to increase our run times which has allowed us to dial in our scrap rate. Currently we are generating an estimated 3-6% scrap (the amount can change based on size of run...we have had higher scrap rates when running runs for filament) on up-time, purging and change overs.

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

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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.

FEEDSTOCK	POUNDS PROCESSED PER YEAR

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

Customer Acquisition: Intent is to grow the customer base

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

New Technology Development

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
Contractor	9,284.17	2,500		
Feeder		5,332		
Dryer Chute		1,252.17		
Total				

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.