

algae-based products for a sustainable future<sup>∞</sup>



## Cellana's ReNew Fuel

Second-Generation Biofuels from Multi-Product Biorefineries Combine Economic Sustainability With Environmental Sustainability

Martin Sabarsky, CEO July 30, 2014

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# Summary of Presentation



- With over \$100MM in private investment, over 25 MT of highly diverse algae have been produced at pilot- and demonstration-scale using Cellana's ALDUO<sup>™</sup> process.
- Cellana's multi-product business model, which is anchored by high-value Omega-3s, permits the profitable production of crude oil & animal feed at marketcompetitive prices based on <u>current yields</u>, <u>current costs</u>, & <u>current prices</u>.
- In 2013, Cellana successfully leveraged <u><\$10MM of DOE funding</u> & this technology/business model combination to sign one of the world's largest algae biofuel off-take agreements, with <u>Neste Oil</u>. This industry-leading agreement <u>validates</u> the Cellana model of combining economic sustainability with environmental sustainability for producing commercial-scale quantities of advanced biofuels.
- 4. To the extent that the prices of food/feed and crude oil continue to rise based on scarcity and population growth/increased demand, a two-product business model based <u>only</u> on food/feed and crude oil should become commercially viable, <u>especially</u> for companies at commercial scale who will have been able to increase biomass yield and lower unit production costs in parallel.
- 5. The strategic imperative is to accelerate commercial-scale production to **start** the process of increasing biomass yield & lowering production costs.

### Cellana's Biorefinery Business Model Builds on a Foundation of Biofuel Research to Address Additional Valuable Products

Omega-3 nutritional oils and high-value aquaculture / animal feed products are an extension of Cellana's core competency -- screening, developing, and producing algae biofuel feedstock.



## Flexible Biorefinery Production / Revenue Model Bioproducts Generated from the Use of the Entire Algae Biomass



\* Reflects recovery based on initial whole algae fraction of 6% Omega-3 oils, 25% Biocrude oil, 69% Algae Meal (Protein/Sugars/Minerals/Lipids/Micronutrients), and 11% total yield loss after two separations

#### Highly Profitable Production of Algae Bioproducts Projected Revenue & Costs per MT for 88-ha. Commercial-Scale Facility in USA, 2016

Estimated 46% Gross Margin and 62% Cash Margin <u>at current yields / costs</u> (Higher margins / lower unit costs at larger scale and over time)



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# Commercial-Scale Off-Take Agreement with Neste Oil Validates Multi-Product Model

- Off-Take Agreement for algae oil announced June 2013
- Neste Oil is the largest refiner of renewable diesel in the world
- Multi-year off-take agreement
- Commercial-scale quantities of algae oil as co-product to Omega-3/feed production
- Contingencies for Cellana production capacity, EU/US sustainability criteria, etc
- Non-Exclusive for both parties
- "Samples have shown that Cellana is able to produce algae oil suitable for renewable fuel production by Neste Oil."
- "The off-take agreement with Cellana allows us access to <u>commercial-scale</u> <u>volumes</u> of <u>cost-competitive algae oil</u> in the future."

# NESTE OIL









## Scaling of Algae Biofuel Industry – Easy as "A, B, C"





# Thank You

For further information please visit www.cellana.com

or contact:

Martin Sabarsky Chief Executive Officer martin.sabarsky@cellana.com (858) 774-7915