BIODICO
SUSTAINABLE BIOREFINERIES

Russ Teall, JD, President & Founder
RTeall@Biodico.com

The Basic Facts

Biodico designs, builds, owns, and operates sustainable biorefineries that produce renewable fuel and power.

A. Five commercial facilities since 1999
B. CEC grants to reduce Carbon Intensity
C. Demand, Commercialization & Financing

Biodico licensed facility New South Wales, Australia 5.8 million gallons of biofuel per year capacity in 2012, commissioned in 2003.

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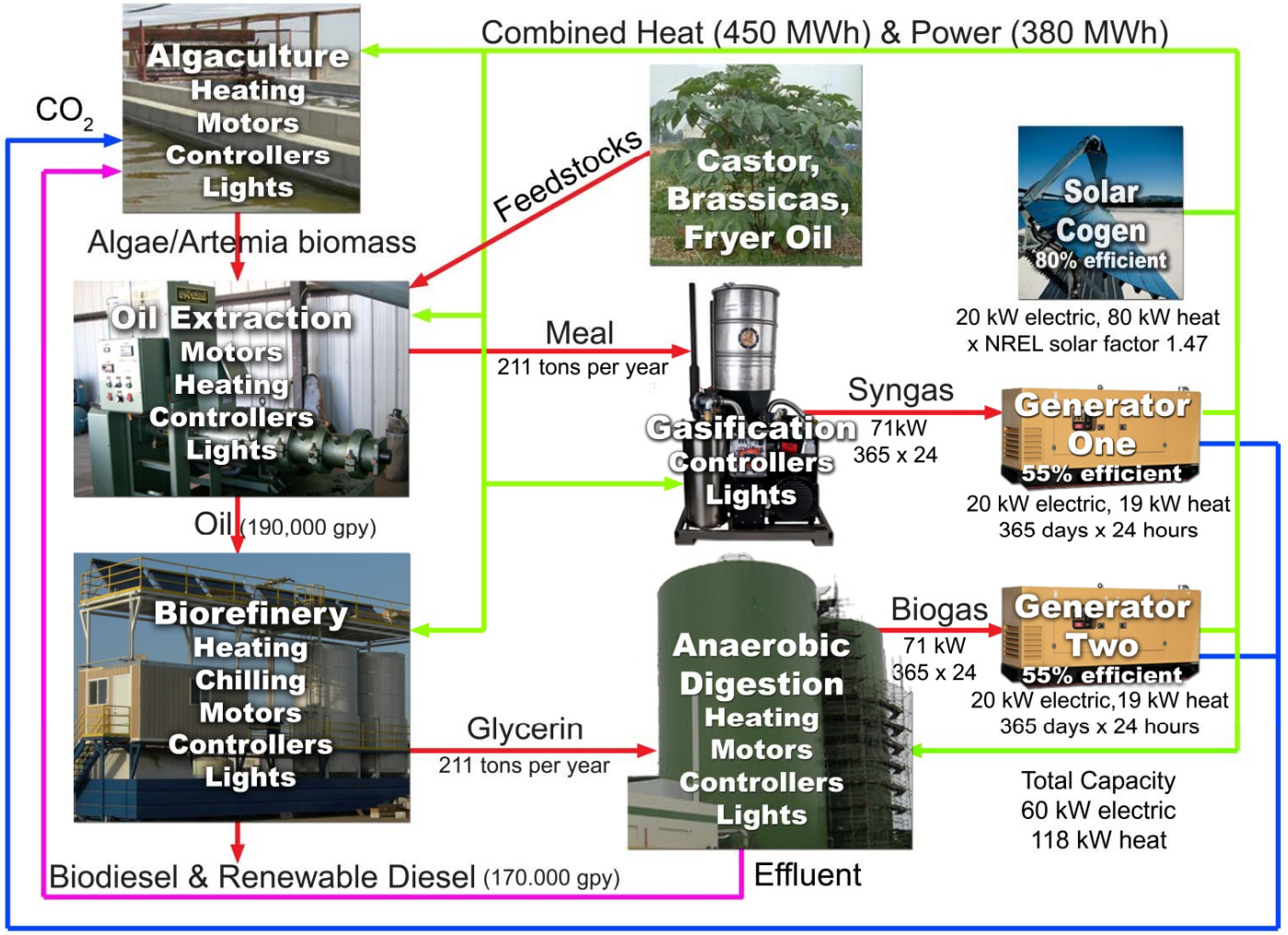
Reducing Carbon Intensity



The objective is to reduce CI below 20 by using low ILUC feedstocks and on-site renewable CHP .

Modular Replicable Model

Year			2020	
Diesel Fuel Consumption[1] (in millions)			4,271	
GHG Reduction Targets			10.00%	
		CI	CI's Needed	
Petroleum Diesel		94.71	40,451.59	
Fuels	Pathway Identifier	CI	% of Diesel	Mil Gal
Biodiesel	ultralow biodiesel	20.00	12.68%	541.45
Soy	BIOD001	83.25	82.64%	3529.81
Yellow Grease Cooking Required	BIOD002	15.84	12.01%	512.89
Yellow Grease No Cooking Required	BIOD003	11.76	11.42%	487.66
Yellow Grease Cooking Midwest	BIOD004	18.44	12.42%	530.37
Yelow Grease no Cooking Midwest	BIOD005	13.53	11.67%	498.30
DDG Cornoil	BIOD007	5.90	10.66%	455.48
Renewable Diesel				
Soy	RNWD001	82.16	75.47%	3223.23
Tallow High Energy Rendering	RNWD002	39.33	17.10%	730.44
Tallow Low Energy Rendering	RNWD003	19.63	12.61%	538.78
CNG				
CA NG	CNG001	67.70	35.06%	1497.65
North American NG	CNG002	68.00	35.46%	1514.47
Landfill Gas	CNG003	11.26	11.35%	484.74
Dairy Biogas to CNG	CNG004	13.45	11.66%	497.80
LNG				
NA NG 80% efficiency	LNG001	83.13	81.79%	3493.23
NA NG 90% efficiency	LNG002	72.38	42.41%	1811.54
Overseas NG via Baja 80% eff.	LNG003	93.37	706.79%	30187.75
Overseas NG via Baja 90% eff.	LNG004	82.62	78.34%	3345.87
Overseas NG via Long Beach 80% eff.	LNG005	77.50	55.03%	2350.47
Landfill Gas 80% eff.	LNG006	26.31	13.85%	591.40
Landfill Gas 90% eff.	LNG007	15.56	11.97%	511.08
Dairy Biogas 80% eff.	LNG008	28.53	14.31%	611.24
Dairy Biogas 90% eff.	LNG009	17.78	12.31%	525.82
Hydrogen				
Reforming w/ Renewables	HYGN005	76.10	50.89%	2173.65

540,000,000 gallons of Ultra Low Carbon Intensity Diesel will be needed by 2020 to meet the LCFS goals for diesel alone.

A similar model should be generated for ethanol and other gasoline equivalents to CARBOB.

54 facilities at 10 mgy, 27 facilities at 20 mgy, etc.

Existing in-state capacity is insufficient.

Feedstocks & production will be the keys.

Centralized command & control enables smaller regionally distributed facilities.

Must ultimately be competitive with fossil fuels.

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Commercialization & Finance

1. Goal must be to become competitive in the commodities market – price, quality & service.

2. The financial market requires a validated technology, feedstock supply agreements and product off-take contracts that show profitability.

2. New facilities and feedstocks need to be developed with the help of leveraged financial support by government in terms of continued R&D, product demand, and capital guarantees.

3. Financial models should be encouraged that include investment by all members of the value chain – farmers, technology providers, distributors and consumers… creating a vested interest in vertical integration.

4. CA DGS is soliciting input right now about aggregated government purchase contracts for advanced biofuels (less than 24 CI).

RFI DGS 1207-013

https://www.surveymonkey.com/s/DGS-PD-Renewable-Fuels

Dry land oilseed crops

4 months from ground breaking to production