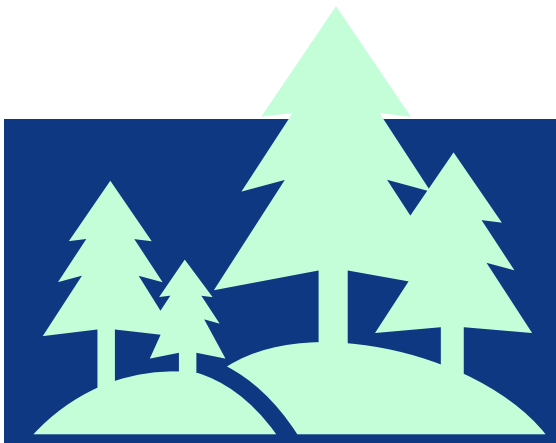
tcbiomass2024



CADA SynSel

BIOMASS TO FUEL WITH THE MODULAR DISTRIBUTED BIOREFINERY (MDB) MODEL

Biomass to Fuel with the Modular Distributed Biorefinery Model

CADA SynSel Energy Partners Caribbean-based biorefineries will transform biomass into synthetic gasoline and diesel fuels – expensive though essential commodities that presently must be delivered from the mainland.

The first plant is planned for Dominica as part of an Article 6 climate cooperation project finance vehicle with Switzerland. Under this "cooperative endeavors" initiative, CADA SynSel Energy Partners plans to build a total of 13 identical Modular Distributed Biorefineries (MDB's) in the Caribbean using proven, state of the art technology.

A Strategic Partnership

Formed to Develop Green Fuel Projects in the Caribbean

- Carbon Asset Developer Associates LLC (CADA) facilitates climate finance opportunities under the Paris Agreement's Article 6 offset markets. As both a project developer and contractor, CADA provides value propositions that earn its customers project equity and operating revenues.

- SynSel Energy, Inc. provides technical expertise to build and operate MDB's using proven, state-of-the-art technology.

Modular Distributed Biorefinery Model

Modular Distributed Biorefinery

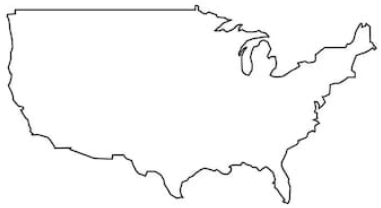
- Self-contained “transportable" modules manufactured off-site – may be collateralized
- 18-months Site Engineering and Installation
- Processes up to 200 dry tons of biomass per day to produce 17,200gallons of fuel
- Estimated CAPEX $160MM

Traditional Biorefinery

- Built on-site to permanent, stationary specifications – typically unable to collateralize
- 4-year Site Engineering and Construction
- Processes 1,000 dry tons per day of biomass to produce 86,000 gallons of fuel
- Estimated CAPEX $500MM

Communities in Economic Distress

In the Caribbean and in Rural America



Many communities continue to be faced with high unemployment and underutilized natural feedstock resources. Many of these affected Rural American Communities are experiencing an unprecedented decline in the demand for traditional timber industry operations.

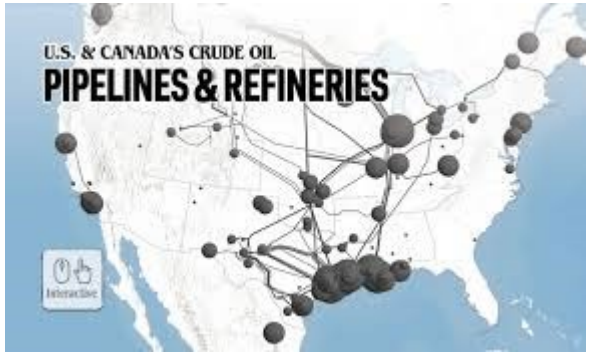
CADA/SynSel has solutions to revitalize these communities. The Modular Distributed Biorefinery (MDB) model places biorefineries close to the source of biomass feedstock, targets towns with an available workforce and established, idle industrial infrastructure.

Community Revitalization

A community's economic benefits from a CADA/SynSel Modular Distributed Biorefinery are tremendous:

- New construction jobs to install the biorefinery.
- Good paying, steady jobs to operate the biorefinery.
- New or revived jobs in feedstock harvesting and transportation.
- Strong tax base from the biorefinery.
- Additional manufacturing and services jobs to support increased economic opportunity within each community.

Strengthening Energy Independence



Eliminates Need for Traditional Pipelines and Petroleum Refineries

Oil company refineries traditionally receive crude oil and distribute finished, refined fuels to market using a network of large centralized pipelines. Crude oil is a a global commodity, and we have little control over the fluctuations in the price.

In contrast, the CADA/SynSel Modular Distributed Biorefinery model places MDB's at or near the source of readily available biomass feedstock. These plants create drop-in fuels, ready for the local market – no need for pipelines, costly transports, or foreign oil feedstock.

Our Preferred Technology

IH²® by GTI

- IH²® has highest yields of high-quality fuels from biomass.
- IH²® produces very high-quality gasoline directly. No other technology does that. All other bio conversion technologies require refinery upgrading.
- IH²® gasoline has an octane rating (RON) of 88. If desired, ethanol may be bought and blended in onsite for increased octane.
- IH²® operates well on a variety of biomass feedstock types.
- IH²® fits well in the Modular Distributed Biorefinery model where communities make their own clean fuels.
- IH²® minimizes production of CO_2.
- There is a high distribution demand for clean, synthetic, renewable fuels.
- Many places and customers are very interested in clean fuels of which the price and availability they control, increasing efficiency.

IH²® Gasoline Spec's

From Report "Long Term Processing Using IH²® for Production of Gasoline and Diesel"

Property	IH²® Gasoline Product	Specification D4814
%C	87.9	
%H	12.1	
%O	<.04	
RON	88	
Bromine Number	0	
Density g/m	0.76	
RVP,kPa	67	103, max
Oxidative Stability, Induction period min	960+	240, min
Distillation D86 T 10,C	51	70 ,max
Distillation D86 T50,C	89	121, max
Distillation D86 T90,C	173	190, max
Distillation FBP,C	195	225, max

IH² makes excellent gasoline - octane boost possible by blending ethanol

CADA/SynSel and SynSel MDB Project Plans

CCIP CADA/SynSel	FHM SynSel Only	NGL SynSel Only
• Caribbean Climate Investment Program • 13 MDB @ 100 TPD	• Family Health Ministries • 9 MDB @ 200 TPD	• Northern Great Lakes • 6 MDB @ 200 TPD

Caribbean Climate Invest Prog. (CCIP)

- Private Financing Advisory Network (PFAN) is a network of climate and clean energy financing experts that offers investment facilitation to promising climate adaptation and clean energy projects, at no cost to the developer.- destination Latin America and the Caribbean.
- CADA has been referred to PFAN by the Caribbean Climate Investment Program (CCIP) as the Project Preparation Facility for investment to the CADA/SynSel Dominican MDB project. CCIP is part of the U.S. Agency for International Development's Climate Finance and Development Accelerator.
- CCIP has made PFAN aware that the Swiss government issued a Letter of Intent a year ago for purchase of the carbon offsets generated by the CADA Dominica project.
- The equity from the carbon offset purchase may make the Project Investment grade once an IH^2 licensing quote by GTI Energy is provided.

Family Hope Ministries (FHM)

Each Green Village to include a 200 ton per day MDB with SynSel Fuel Station.

IH^2 is selected technology.

9 Ministry Campus Locations: Between 55 and 3,200 acres - Senior Living, Restaurants, Retail, Multi Family Housing, Emergency Medical, Pharmacy, Doctor's Offices, Greenhouse, Conservatory, Gardens, Hotel, Workforce Housing, Offices, Rec Centers, Hiking and Jogging Trails, **Green Village Energy**, Green Waste.

Northern Great Lakes (NGL)

200 TPD Demonstration Commercial MDB; located in Trego, Wisconsin; feedstock emphasis on sawdust and mill waste scraps

Largest lumber company in the North Great Lakes region. Could facilitate 5 MDB at 200 TPD; feedstock emphasis on “slash” – waste limbs and tops left in woods

Q & A

Thank You

Gary Clyne, CEO
1044 N Tower Road
Alamo, TX 78516
US Office: 956-601-0016
US Cell: 956-340-9103
gary@cadaenergy.com

www.cadaenergy.com

Tim Tawoda, CEO
750 Lee St.
Elk Grove Village, IL
Office: 630-516-1287
Cell: 312-296-3366
ttawoda@synsel.com

www.synsel.com