

Beyond Gasoline: Renewable Jet Fuel, Diesel, and Chemicals Using Rentech's Technologies

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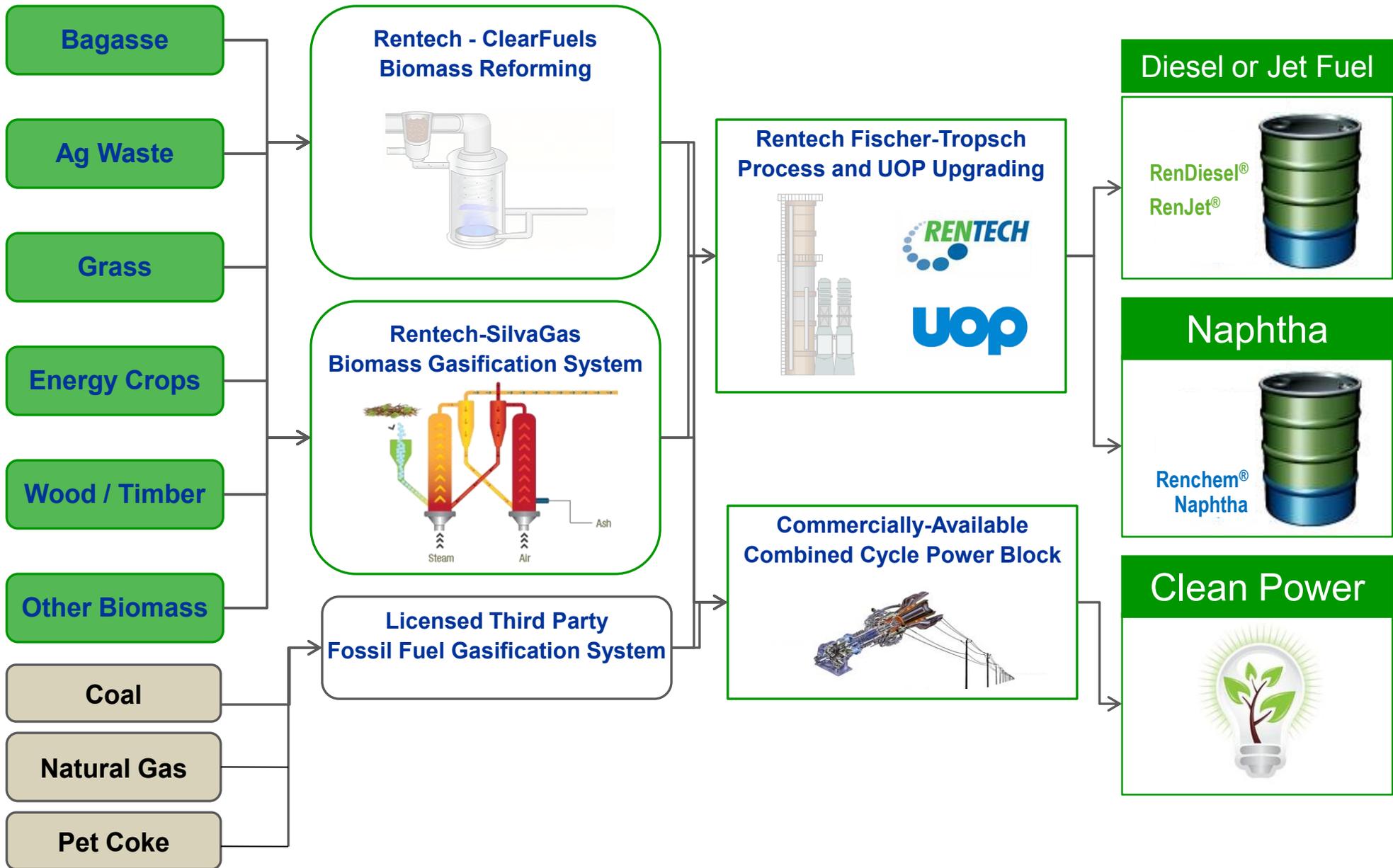


\$150 Million Fully Integrated Biomass Synthetic Fuels, Power and Chemicals Facility

- Established in 1981
- Employees: 250+
- Revenue: ~\$200 million
- Publicly-traded: NYSE AMEX: “RTK”
- Locations:
 - Los Angeles, CA (Headquarters)
 - Commerce City, CO (BECE location)
 - Atlanta, GA
 - Natchez, MS
 - Honolulu, HI
 - East Dubuque, IL
- 30 years of technology operating experience
- 40 years of syngas production experience
- Nitrogen fertilizer facility: 600K tons/y
- BioEnergy Center of Excellence “BECE”
 - \$150 Million Fully Integrated Biomass Synthetic Fuels, Power and Chemicals Facility



Low Cost Inputs to High Value Outputs



Integrated BioRefinery Project



- In 2010, ClearFuels and Rentech awarded \$23 million from DOE for IBR project at Rentech's facility in Colorado; Rentech invested \$13 million
 - 20 DTPD of Woody Biomass or Bagasse
- Rentech and the DOE are seizing the moment – by building together an Integrated BioRefinery Demonstration in Colorado

ClearFuels Renewable F-T
Diesel Commercial
Demonstration Site



"As we recover from this recession, the transition to clean energy has the potential to grow our economy and create millions of jobs - but only if we accelerate that transition. Only if we seize the moment."

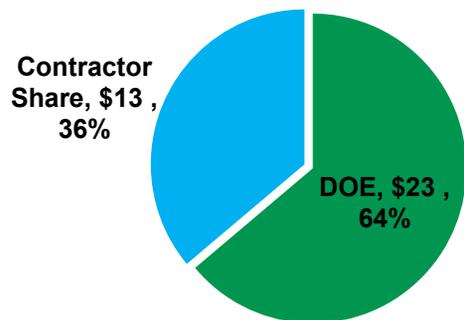
- President Barack Obama

Timeline

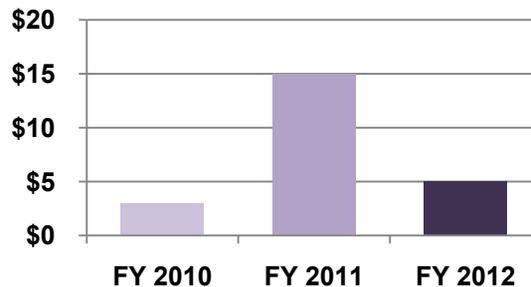
- Project start date(s)
 - BP 1 - 12/04/09 – 10/17/10
 - BP 2 - 10/18/10 – 04/1/12
- Project end date
 - Mechanical Completion 09/30/11
 - Start up Complete- 11/30/11
- Percent complete
 - 38.8% as of 5/30/10

Budget

Project Funding (\$MM)



DOE ARRA Funding (\$MM)



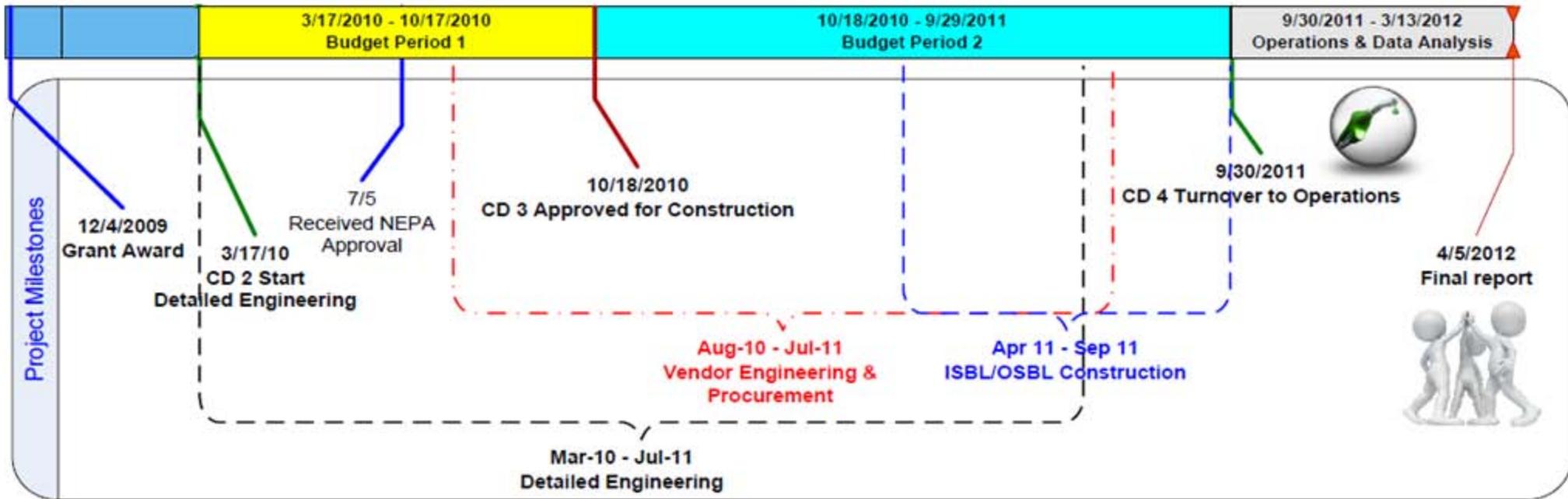
Project Development

- Currently in the Construction Phase
 - Civil Construction 78% (7/6/11)
 - Mechanical Construction 12% (7/6/11)
 - Electrical Construction – 1% (7/13/11)
- Mechanical Completion Forecasted for September 2011

Project Participants

- ClearFuels/Rentech partnership
- ClearFuels Technology (Reformer License plus patent pending)
- Rentech Fischer Tropsch (Patented)
- Technology Integration (Patent Pending)
- URS is providing Engineering and Procurement Services and Construction Management
- National Renewable Energy Laboratory (NREL) providing TMBMS
- Hawaii Natural Energy Institute (HNEI)

IBR Project Spend Plan & Key Milestones



- **RenDiesel®**
 - LAX ground equipment: Long-term agreement with 8 airlines for renewable RenDiesel from Rialto Project, for use in ground service equipment at LAX
 - Audi: Two Audi A3 TDIs powered by 100% RenDiesel during 1,000 mile California journey and on First Cross-Country on Synthetic Fuel
 - U.S. Military: Demonstrated in special all-terrain military vehicle
- **RenJet®**
 - Airline customers: MOU with 13 carriers to purchase RenJet fuel to be produced at Natchez Project; LOI for Solena European renewable jet fuel project using Rentech's FT technology
 - Commercial flight with United Airlines: First U.S. commercial flight flown on certified alternative fuel, powered by RenJet fuel
 - U.S. Air Force: Demonstrated in T-63 turbine engine



„Eureka! Diesel Drives the Future' event with Audi & Green Car Journal



RenJet fueling for United Airlines flight



- BTL fuels are hydrocarbon fuels that can be used in all turbine and diesel engine applications
 - ASTM D7566 approval
 - Meets ASTM D975 requirements
 - Approved for use in all but one USAF airframe
- BTL can utilize any carbon resource
 - Efficiently converts biomass into diesel/jet/power
 - Utilizes entire resource, not just oil content
- LCA of BTL fuels are lower than other biofuels
 - 95% lower than diesel
 - Co-production of power or diversion of biomass from landfills can lower Carbon Intensity (CI) further
- BTL fuels and other biofuels should be judged on their cost, CI, land use, competition for arable land, and efficiency of use of raw materials/feedstocks

BECE: BioEnergy Center of Excellence



- Integrated systems for BioFuel, Renewable Chemical, and Power Production; Biomass Gasification; Hydro-Processing; Catalyst Development and Testing Labs for Collaborative Technology Advancement(s)
 - Platform for development of BioEnergy technologies for commercial deployment
 - Designed to be highly flexible – “Plug and Play” for innovative new technologies
 - Produces ultra clean, certified aviation and diesel fuels, naphtha, power and chemicals
 - \$23 million DOE grant for a Rentech-ClearFuels biomass gasifier with an additional \$13 million invested by Rentech
- Produced Ultra-clean diesel & aviation fuels and naphtha
 - Diesel fuel meets ASTM, D97566 and EN 590 specs
 - “Drop in” fuels
- Testing syngas and fuels from variety of feedstocks:
 - Wood Waste
 - Corn Stover
 - Natural Gas
 - Bagasse
 - MSW/RDF
 - Others
- \$150 million technology and R&D center
- 70 scientists, engineers, technicians and operators
- 3 catalyst development and evaluation labs
- 1 analytical and fuels testing lab
- 1 wax/catalyst separation technology lab



- Capital Requirements for Technology Innovation

Problem	Solution
Raise Capital for new demonstration facility <ul style="list-style-type: none"> • Difficult in current economic environment • Expensive • Duplicative (why reinvent the wheel?) 	BECE has been operational since 2008 and can deploy capital directly into the development of new technologies

- Time to Development

Problem	Solution
Greenfield facilities to deploy technologies would likely be completed by 2016 at the earliest	BECE is currently operational and actively seeking partners to “Plug and Play” BioEnergy technologies

- Risk

Problem	Solution
<ul style="list-style-type: none"> • Technology risk • Operating risk • Execution risk 	BECE reduces capital per development dollar spent thereby reducing all risk exposures

BECE

Process Walk Through









End Product: “Drop-In” Fuels

