

# Ethanol Summit 2011

**Virent Energy Systems** 

**Corporate Overview** 

Lee Edwards - CEO

**NOT FOR DISTRIBUTION** 

# Virent's BioForming® Technology



Sugar to renewable hydrocarbon fuels and chemicals.



Virent Biogasoline Demonstration Plant- Madison, WI

## Identical Drop-in Products

- Gasoline, Jet & Diesel
- Chemicals for plastics & fibers
- Infrastructure Compatible

#### Fast and Robust

- Continuous Process
- 90 minute conversion time
- Industry Proven Scalability

### Feedstock Flexible

- Conventional Sugars
- Non-Food Sugars

## Commercial Advantage

- Energy efficient
- Multiple products same plant
- Low Carbon Footprint

# **Virent Energy Systems Overview**







- Madison, Wisconsin
- 20+ R&D pilot plants in operation
- 10,000 gallon demonstration plant
- \$76M+ of venture financing
  - > \$46.4M Series C financing in 2010
- \$48M+ of development funding from government and industry
- 21 Patents issued, 138 pending
- 100 employees

# **Virent Conversion Platform**



#### **CURRENT PROCESS** -



#### **COMMODITY SUGARS**

- Corn Starch
- Sugar Cane
- Sugar Beet



Virent's proprietary process to transform cost-effective sugars into fuels and chemicals



#### **HYDROCARBON PRODUCTS**

- Gasoline
- Diesel
- Jet Fuel
- Chemicals
- Plastics

#### **IN DEVELOPMENT**

#### **NON-FOOD SUGARS**

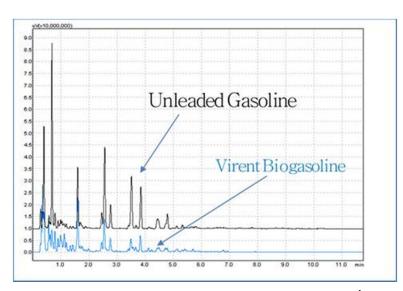
- Corn Stover
- Bagasse
- Switchgrass
- Miscanthus
- Wood

## DECONSTRUCTION TECHNOLOGIES

Liberate sugars from cellulosic Diomass cost-effectively

# **High quality, Drop-in Fuels**

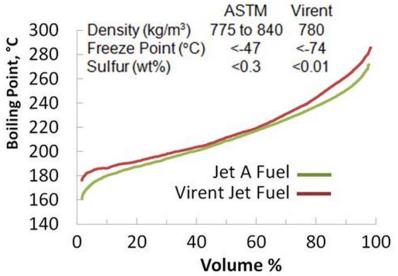




Premium Biogasoline – 120,000 Btu/gal



Virent fuel in Scuderia Ferrari race fuel



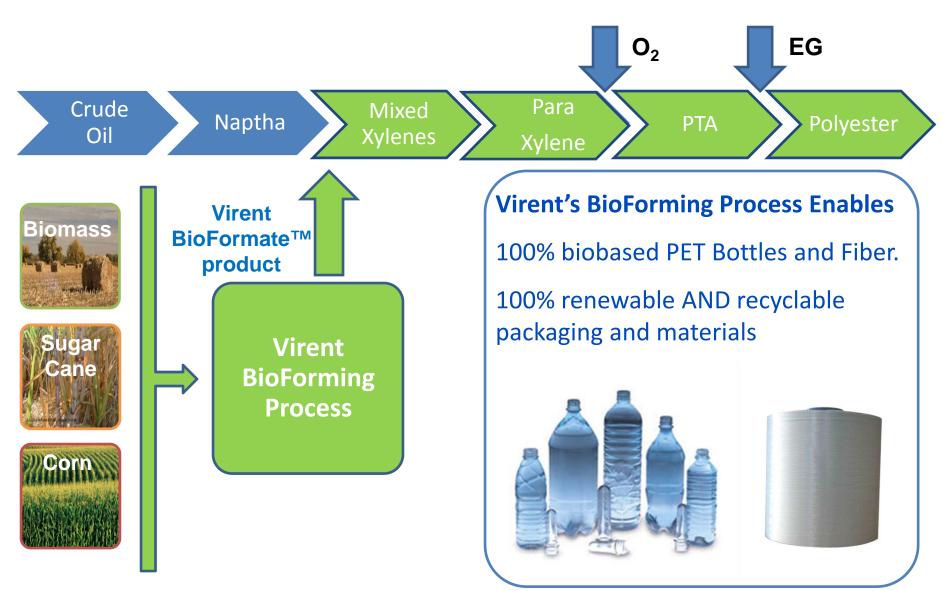
Virent Distillates meet ASTM Specifications



Energy dense, Drop-in Fuels

## **Virent Enables 100% Renewable PET**





# **Strategic Investors & Partners**











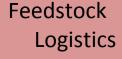




Conv

Deployment Opportunity

Customer Acceptance



Conversion Platform



- Major Shareholder
- Participating in feedstock development and commercial deployment



- Platform Research & Development
- Technology Provider
- Feedstock R&D
- Catalyst Development
- Operations



- Major Shareholder
- Development Partner
- Fuel Qualification
- Scale-Up Partner
- Market Channels

## **HONDA**

- Shareholder
- Support Efforts to Determine BioGasoline's Suitability in Current & Next Generation Engines

# **Development and Deployment**



## **Chemicals & Gasoline Commercial Scale:**

- > 20 million gallons annual capacity
- Chemicals collaboration with new partners
- Multiple Bio-product offers faster, smaller scale
- Integrated for lower capital

## **Distillate Demonstration Plant:**

- > 1 million gallons annual capacity
- Volumes for Jet certification and Diesel customer validation
- Feedstock flexibility
- Seeking off-take and access to capital









