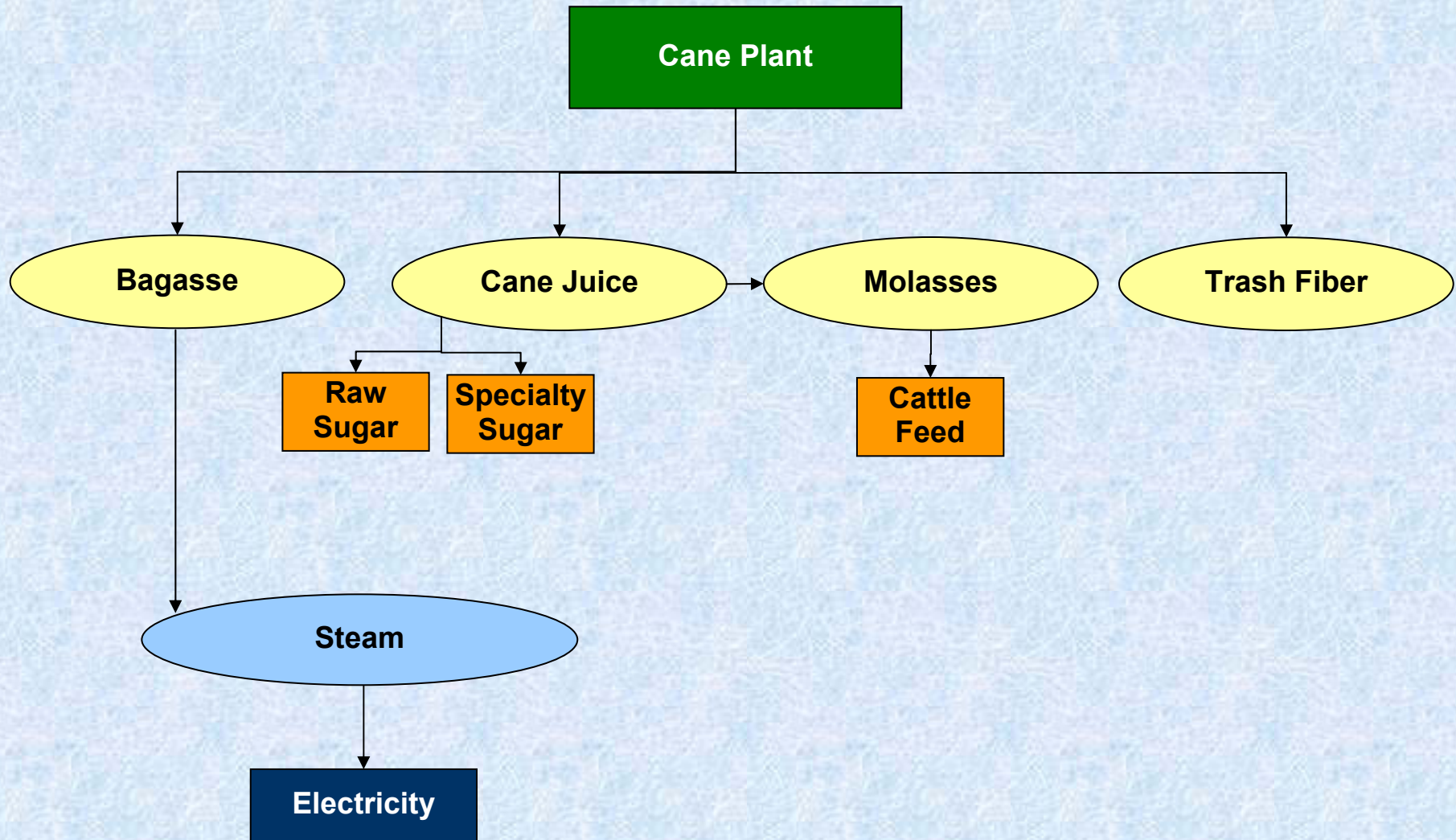




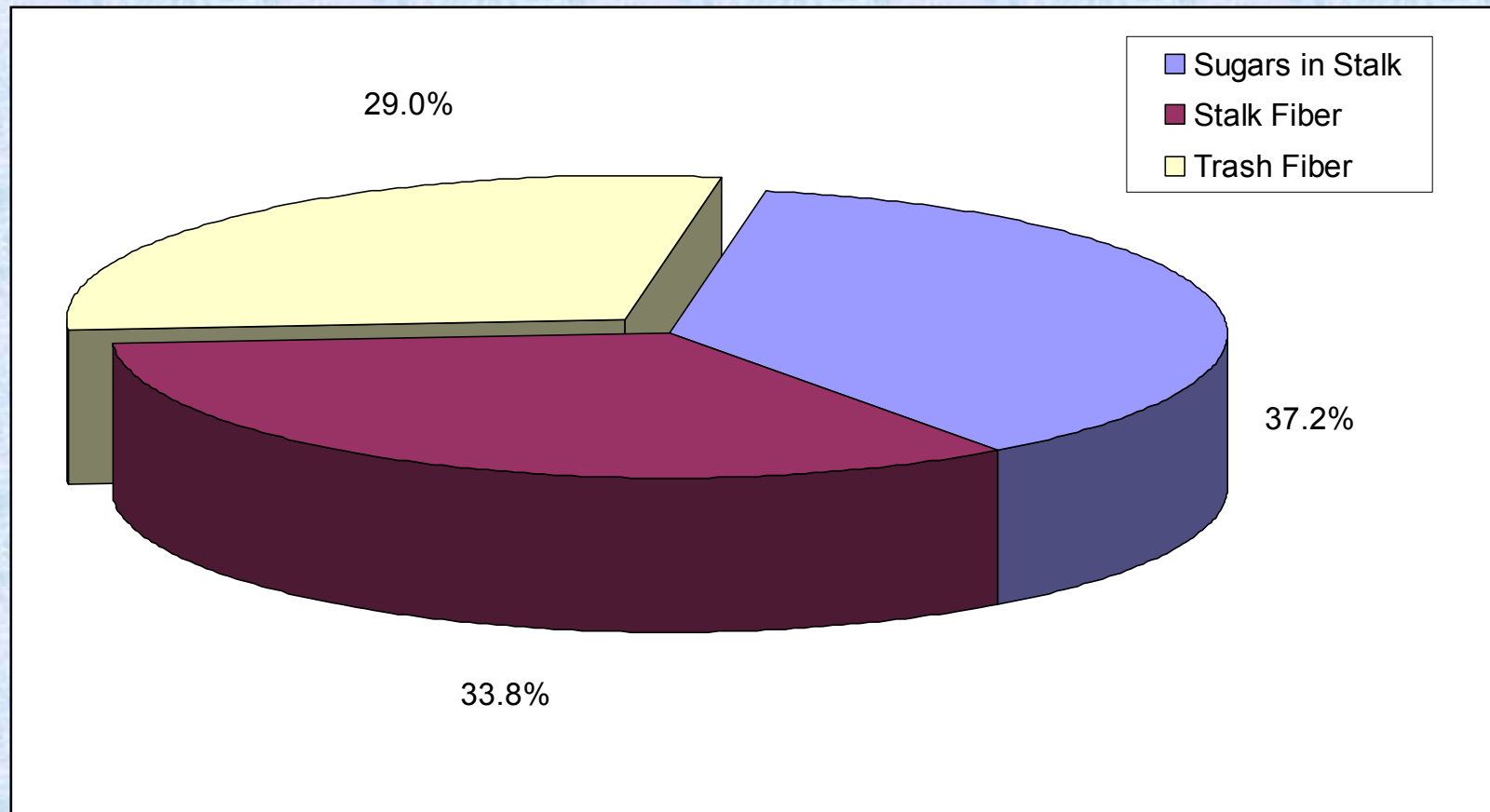
SUGARCANE BIOENERGY POTENTIAL

**Lee Jakeway
Hawaiian Commercial & Sugar Co.
October 27, 2006
Presentation to
Hawaii Agriculture Bioenergy Workshop**

Current Business Model



Cane Composition





BIO-BASED ELECTRICITY

Electricity Production, 2005



MWh

Generation

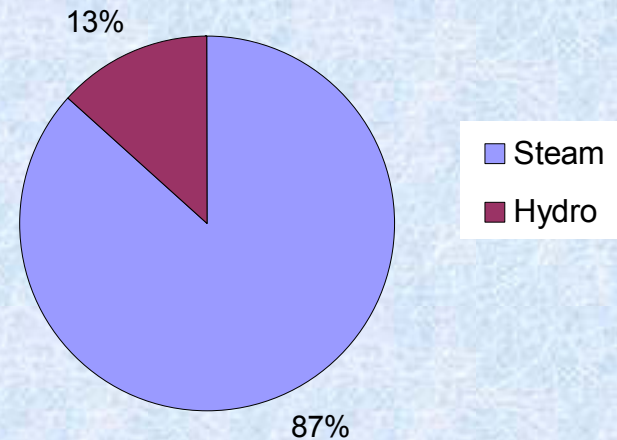
211,648

Steam

183,468

Hydro

28,180



Distribution

Consumption

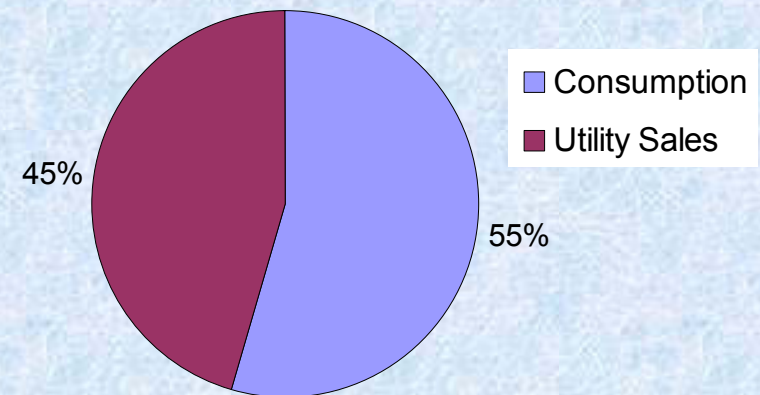
115,399

Utility Sales

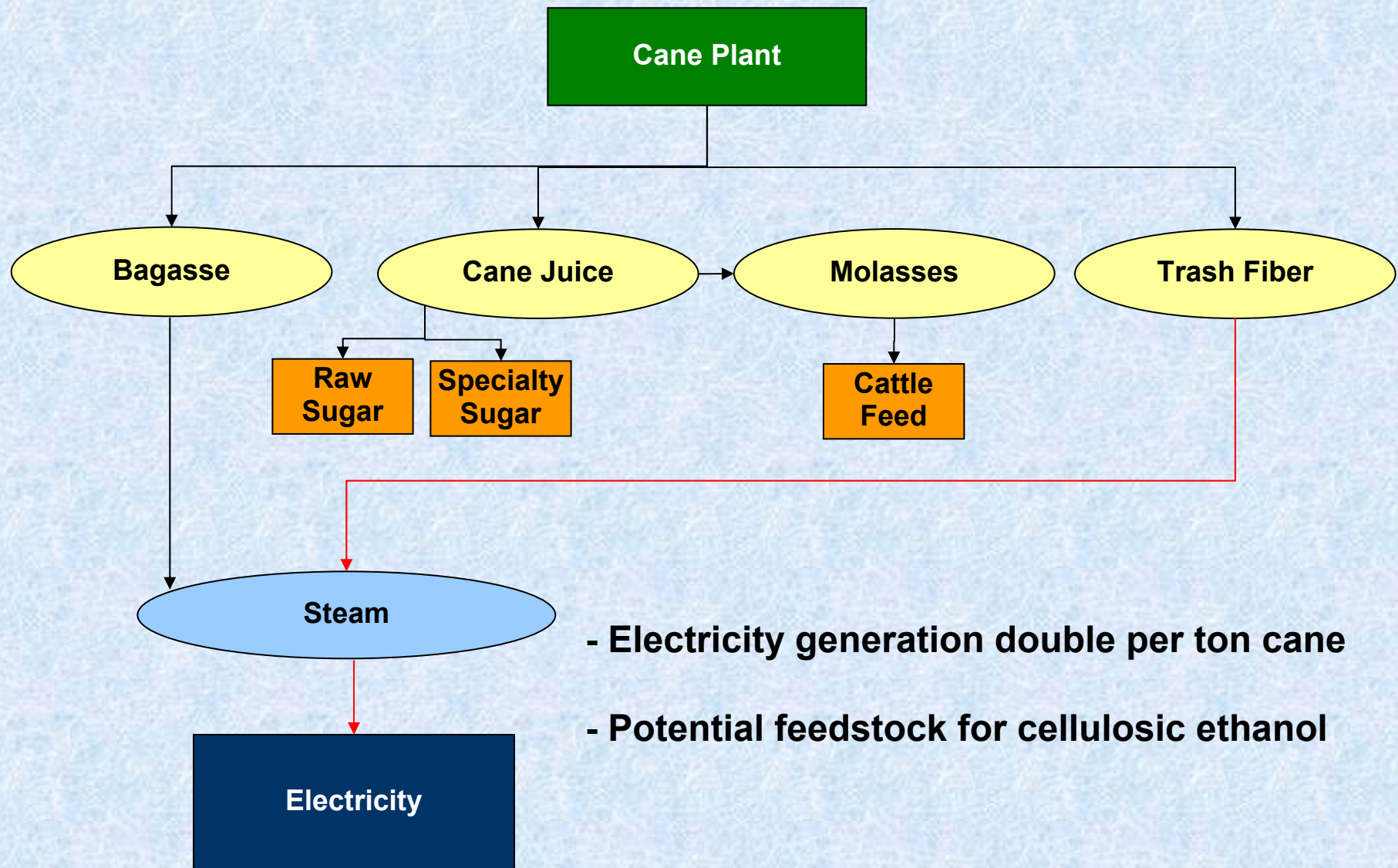
➤ 7% of Maui's need

➤ firm power

96,249



Biomass to Energy Model



BIOFUELS

Ethanol Distillery



- **Proven technology**
- **Used throughout world sugar industry**
- **5 MGPY for HC&S on 300 day operation using molasses only**

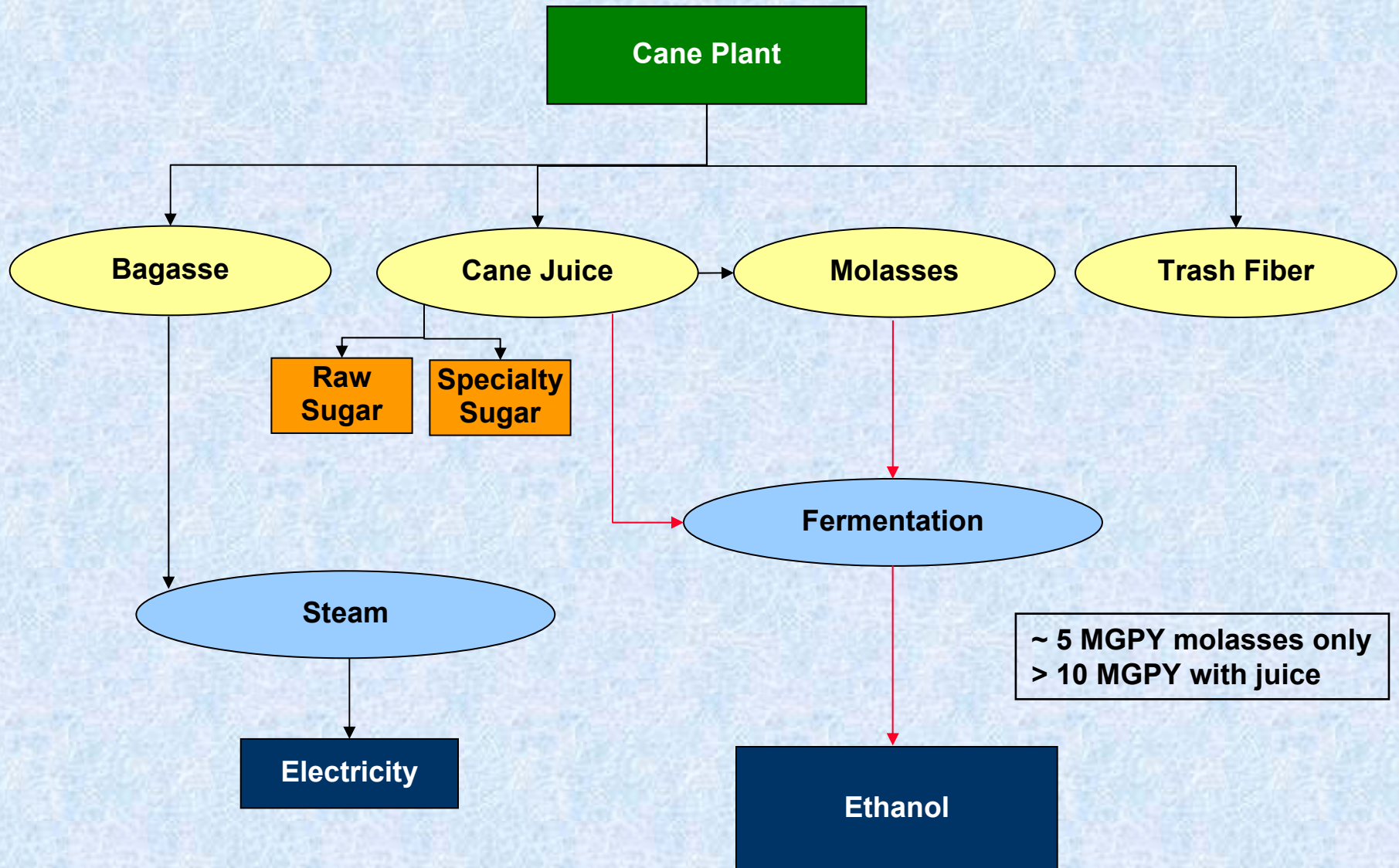


Brazilian Ethanol Distillery



- 40 MGPY capacity
- 200 day season
- Flexibility in sugar or ethanol production
- 70 new mills being built for sugar/ethanol

Ethanol Production Model





Ethanol Distillery Outputs

1. Ethanol

- Anhydrous denatured alcohol, 99.5%
- Must meet ASTM standard D4806-04a
- Cane juice more expensive feedstock

2. Vinasse

- 12 to 1 volume ratio of vinasse to ethanol
- Treatment requires AD or concentration
- Potential potassium fertilizer replacement

Value Added Co-Products Role

DISCOVER THE SWEETNESS OF THE ISLANDS

PREMIUM MAUI GOLD

It takes time and handcrafting to achieve the lustrous crystals and rich sugarcane taste that make our Premium Maui Gold the choicest, unrefined gourmet sugar available. Use PMG to enrich the taste of your favorite foods and beverages.



NATURAL WHITE

The natural alternative all-purpose sweetener, our light in color Natural White cane sugar lends just a hint of old-fashioned molasses flavor. Unlike refined sweeteners that can mask flavors, Natural White enhances the taste of beverages and recipes.





Summary

- **Sugarcane provides significant bio-based firm power electricity production on Maui with potential for more**
- **Ethanol production potential of 5 MGPY from molasses with higher capacities using other sugar feedstocks**
- **Vinasse volume poses significant operational issues for treatment and utilization**
- **Value-added co-products will play an important role in enhancing financial viability of bioenergy initiatives**