

Michigan Biomass Energy in CNF Update

June 7 Workgroup Meeting

Don's Decision Dictum

- ① Why care about bioenergy?
- ② What are the barriers?
- ③ Alternatives
- ④ Recommended actions & policies



Michigan's Major Bioresources

- Agricultural residues
 - Food processing residues & byproducts
- Forestry residues
 - Primary & secondary forest products residues & byproducts
- Urban solid wastes
- Wastewater Treatment Plants
- Energy crops

Biofeedstock Categories: Wet / Green

- Food processing wastes
- Animal Manures
- Residential landfill wastes
- Wet energy crops (oil, starch, sugar)



Biofeedstock Categories: Dry / Brown

- Solid urban waste & construction debris
- Agricultural field residues
- Forest products industries residues
- Dry energy crops (ligno-cellulose)



Bioresource Utilization

- Bioproduct
 - Food
 - Fiber
 - Feedstocks
 - Fuel
- Bioenergy/Biofuel
 - Thermal
 - Electric
 - Liquid
 - Gas

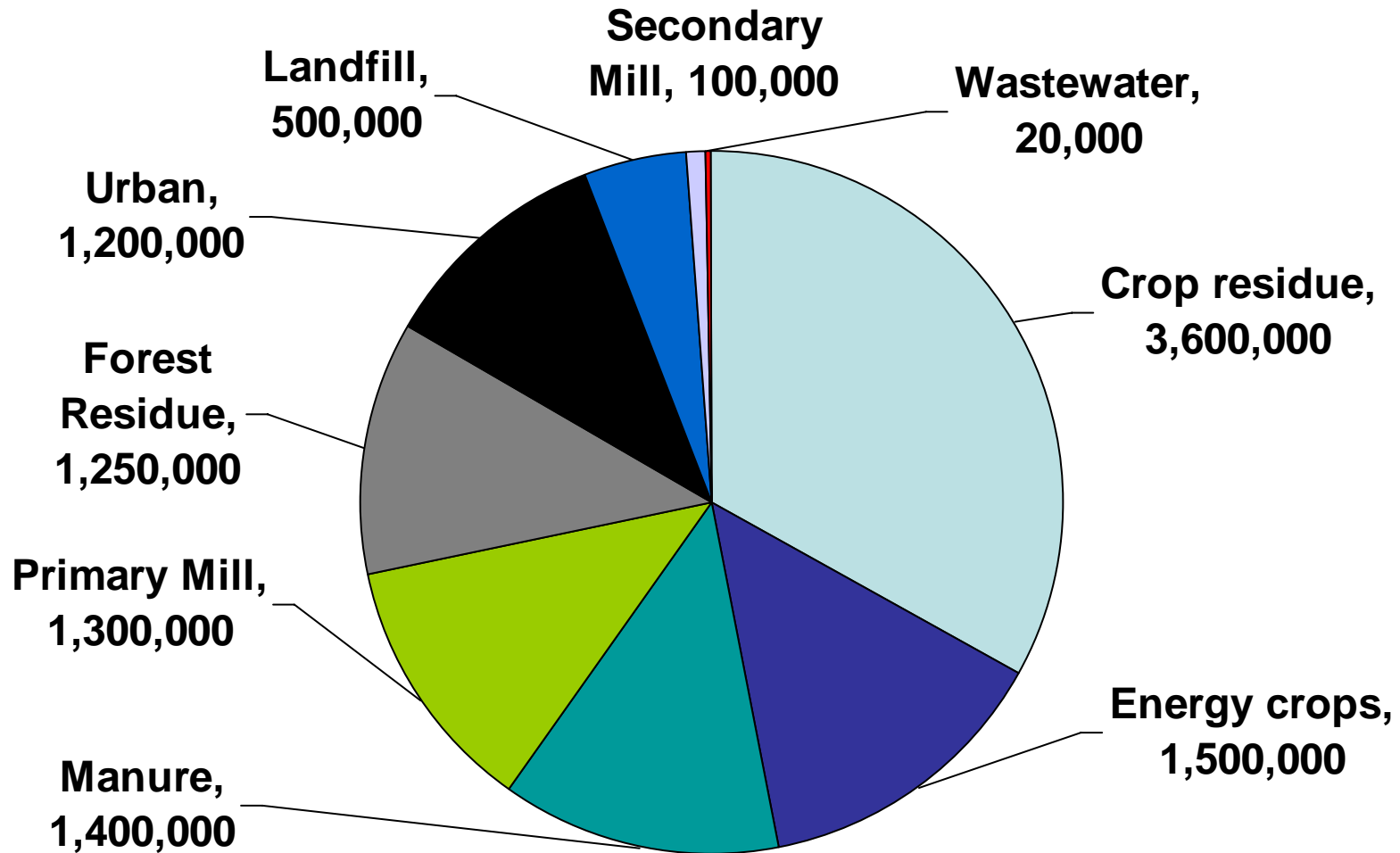
Competing Values & Uses

- Of feedstock
- Of fuel/energy
- By location



Estimated Michigan Resources

(dry tons per year (dty) equivalents)

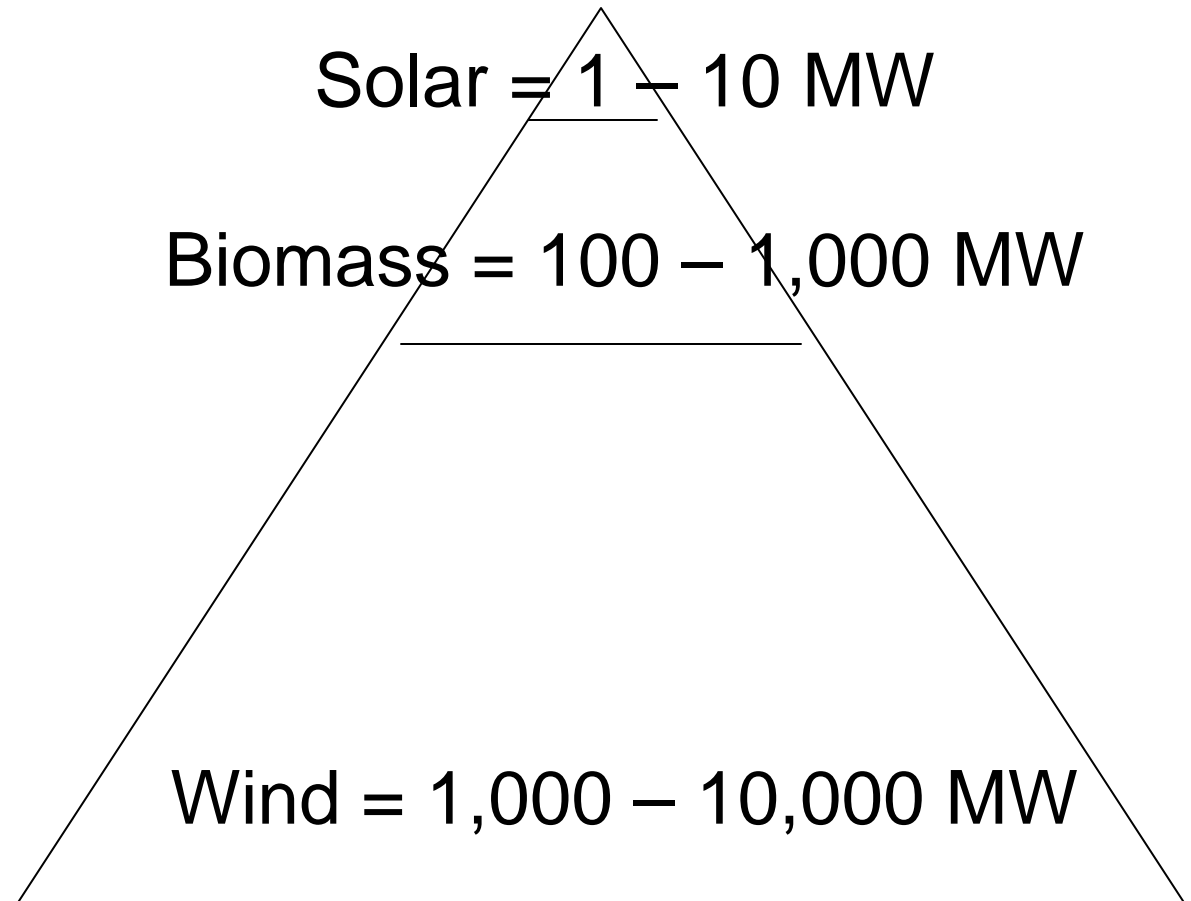


Sources: NREL 2005 estimates (rounded), with manure estimate from Michigan Biomass Energy Program Office



CNF Update Issues

- Time & resources available
- Resource magnitude
- How important to outcomes?



CNF Update Expectations

- Landfills – Done
- Anaerobic Digestion
 - Wastewater Treatment survey analysis
 - Animal & blended wastes spreadsheet analysis
- Solid fuel /urban wood rough estimate
 - Emerald Ash Borer

Special Cases / Sidebars

- Biorefineries & Eco-industrial Parks
- RightPlace Bioplastics Industry Initiative
- Biofueled plug-in electric hybrid vehicles
- Urban wastes (WTE)
- Ethanol – Oil – GHG
- Biodiesel – Oil – GHG

Next Steps

- June 22, 1 p.m. meeting at Energy Office, downtown
- By August 1... input data to CNF Modeling process

