

Biomass Power in Michigan
 House Energy Policy Committee
 February 26, 2020

Michigan Biomass

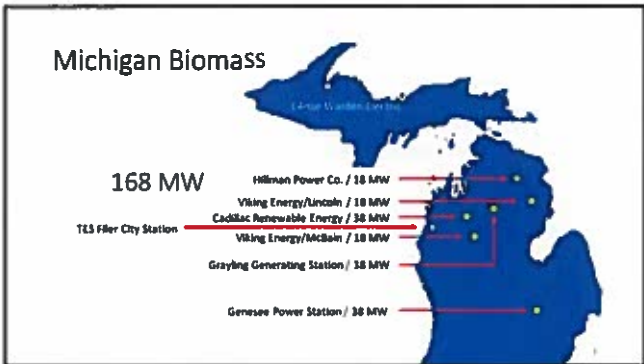
Home-grown, Michigan-made renewable energy

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Michigan Biomass

- Cadillac Renewable Energy (*Atlantic Power*)
- Genesee Power Station (*CMS Enterprises/Forlistar*)
- Grayling Generating Station (*Atlantic Power/CMS Enterprises/Forlistar*)
- Hillman Power Co. (*Forlistar*)
- Viking Energy of Lincoln (*Engie*)
- Viking Energy of McBain (*Engie*)

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Technology



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Background

- Independent power producers
- Grid connected
 - FERC licensing
 - *Not* regulated by MPSC
 - PURPA contracts w/CECo.
 - Commissioned 1985-1994



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Background



Renewable energy resource

"Wood and Wood Derived Fuels includes paper pellets, railroad ties, utility poles, wood chips, bark, red liquor, sludge wood, spent sulfite liquor, and black liquor, with other wood waste solids and wood-based liquids."

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Background PA 295 of 2008

Renewable energy resource

- Agricultural crops and crop wastes
- Short-rotation energy crops
- Herbaceous plants
- Trees and wood...261c of PA 431 1984
- Paper and pulp products
- Precommercial wood thinning waste, brush, or yard waste
- Wood wastes and residues from the processing of wood products or paper
- Animal wastes
- Wastewater sludge or sewage
- Aquatic plants
- Food production and processing waste

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Background

Production

2018 Biomass Production

State	Total MWh	Total Rank
CA	1,700,821	1
ND	1,247,755	2
IA	1,204,216	3
NE	1,022,537	4
MI	871,721	5

0.75% of MI total generation 2018

Source: U.S. Energy Information Administration, Net Generation, 1990-2018 (total)

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Background

Economics

2017	Direct	Induced
Total economic impact	\$123 million	\$219 million
Labor	\$22.5 million	\$59.5 million
Jobs	151	953*

***Fuel market economics**

1. 13,000 tons/MW/yr.
2. 5,000 tons/person/yr.

13,000 tons / 5,000 = 2.6 FTE/MW
2.6 jobs x 168 MW = 436.8 jobs


Source: Ongoing study, Michigan DNR 2013-2017

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Background

Fuel		2018
Tons of wood		1,239,777
Dollars spent*		\$24,961,179
\$/ton of wood		\$20.13

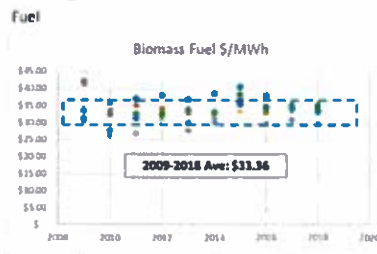
Number of scrap tires		1,165,018
Dollars spent*		\$1,301,807
\$/tire		\$0.41



* Source: Consumers Energy Power Supply Cost Recovery Reconciliation Cost No. 14-20202

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Background



Byproducts = non-commodity resource

Stable fuel costs

Source: Consumers Energy Power Supply Cost Recovery Reconciliation, 2009-18

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Background


Regulation

Michigan
PA 341 of 1994 (MREPA)

- Fuels
 - Part 115 (wood)
 - Part 169 (tire derived fuel)
- Water — Part 31
- Air — Part 55


Federal

- Clean Air Act
- Clean Water Act
- Non-Hazardous Secondary Materials
- Renewable Fuel Standards
- Carbon neutral 



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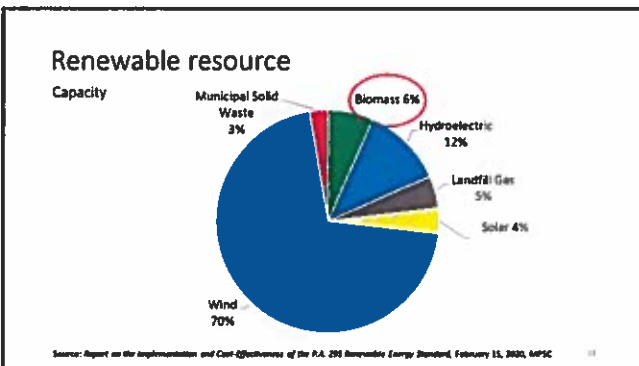
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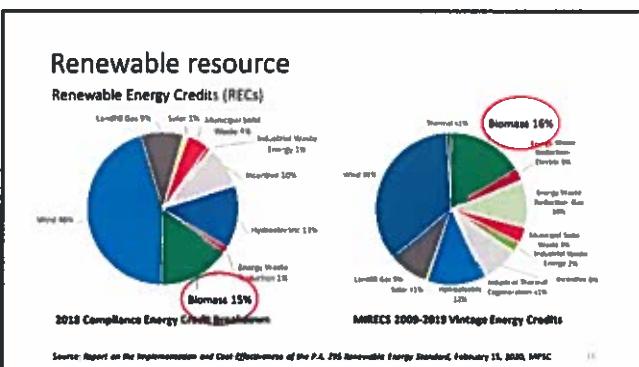
Regulation

- PSCR-R Utility power supply cost recovery (annually)
- U-17973 PURPA workgroup
- U-17981 PURPA complaint
- U-18090 Avoided costs (Consumers Energy Co.)
- U-18131 Renewable Energy Plan (REP)
- U-20165 Integrated Resource Plan (IRP)
- U-20344 Interconnections rules, LEO workgroups
- U-20464 Statewide Energy Assessment (Polar vortex response)

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Renewable resource


	Business	Wind	Solar
Production capacity	>95% ¹	27% ²	28% ²
Production (MWh)	8,300	2,365	1,314
Acres/MW capacity	.66 ³	.75	2-4

¹ Estimated average
 Average Michigan Business plant uses
[U.S. E.A. ENERGY FACTS](#)

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"It's not the energy we make, but how we make energy that matters"



- Diverse generation resource
- Renewable
- Energy "storage"
- Dispatchable baseload generation
- Enhances grid reliability, resiliency
- Beneficial reuse of byproducts



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Resource services

- Forest management**
 - Reduces risk of wildfire
 - Reduces risk of disease, infestation
 - Aids forest restoration
 - Reduces treatment costs
- Materials management**
 - Landfill diversions
 - Scrap tire management
 - Corporate "zero" waste goals
- Optimizes resource value**

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Fuel resources

We do not cut trees specifically for biomass power!

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Fuel resources

Sustainable fuel resources

- 1.23 million tons (2018)
- 50% forest-sourced
 - Forest health, stewardship, habitat
 - Commercial timber harvest
 - Salvage & sanitation
- 50% non-forest fiber
 - Mill and manufacturer byproducts
 - Landfill diversions

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Fuel resources

"Urban" fuels

- Landfill diversions
- Land clearing, development
- Landscaping debris
- Storm cleanup
- Right-of-way maintenance
- Clean, industrial wood

"Cradle to grave resource utilization"

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Alternative fuels

Tire-derived fuel (TDF)

- Michigan Scrap Tire Management Program (EGLE)
 - Whole tires banned in Michigan landfills
 - 10 million tires per year
 - Michigan Biomass = 3.1 million*
- Title transfer fees: Part 169/NREPA
 - Clean up grants
 - Enforcement
 - Market development
- Co-fire @ 3-5% = efficiencies, economics, lower emissions



*Source: EGLE TDF Mitigation Report 2012

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Alternative fuels

Railroad ties

- 530,000 annually
 - Co-fired w/ "green" wood = improves efficiencies, economics, emissions
 - Preserves landfill space
 - Beneficial reuse (Part 115 / NREPA)



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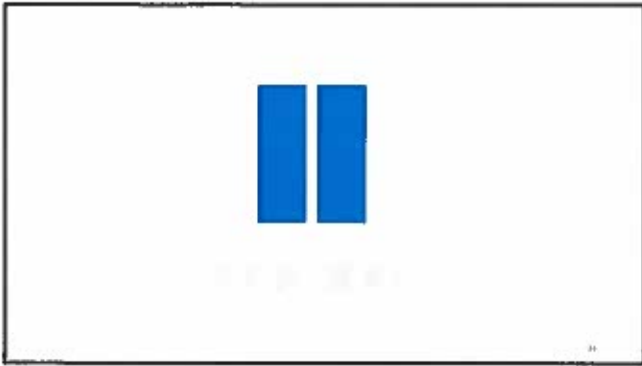
Policy

Legislation

- PA 141 of 2000 Deregulation
- PA 286 of 2008 Re-regulation
- PA 295 of 2008 Renewable Portfolio Standards
- PA 341 of 2016 Energy policy rewrite
- PA 342 of 2016 Amended RPS
- SB 943 of 2018 Landfill tipping fees



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- Ed Going, Manager Grayling Generating Station
- Thomas Vine, Manager Viking Energy/McBain
- Aaron Hess, Manager Mid-Michigan Recycling

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Grayling Generating Station

Heart of NLP wood basket

- AJD Forest Products
- Arauco
- Georgia-Pacific
- Hydrolake
- Weyerhaeuser

Consumption (daily)

- 780 tons wood
- 600 tires
- 150,000 gallons "gray water"
- 35 tons ash alternative daily cover
- Community brush/wood collection



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Viking Energy / McBain

McBain Industrial Park

- Blewer Lumber
- Hydrolake

Consumption (daily)

- 460 tons wood
- 2,900 tires
- 1,400 railroad ties



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Mid-Michigan Recycling

Wood marshaling yards

- Livonia
- Macomb

Capacity

- GPS 33% - 100%
- 400-1,200 tons/day
- 160,000-400,000/year

Sources

- Non-returnable dunnage
- Municipal tree trimming
- Wood manufacturers



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In conclusion...


- Diverse energy resource
- Reliable, baseload renewable
- "Most" reasonable & prudent resource
- Beneficial use of byproducts
- Supports rural economics
- Forest stewardship, wildlife habitat
- Flat energy demand
- Subsidized competition
- Rates don't value ancillary benefits



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Bacon, bacon, bacon, bacon, BACON!


Everything is better with Bacon



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Biomass, Biomass, Biomass, Biomass, Biomass!

Energy is better with Biomass



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It's not the energy we make, but how we make energy that matters

1. Energy diversity
2. Keeps energy dollars in rural Michigan
3. Dispatchable baseload renewable when and where it's needed
4. Supports the grid and makes it more reliable and resilient
5. Beneficial reuse of byproducts
6. Carbon neutral energy
7. Aids forest health, stewardship



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