

Climate and Energy Permanent School Trust Fund Advisory Committee



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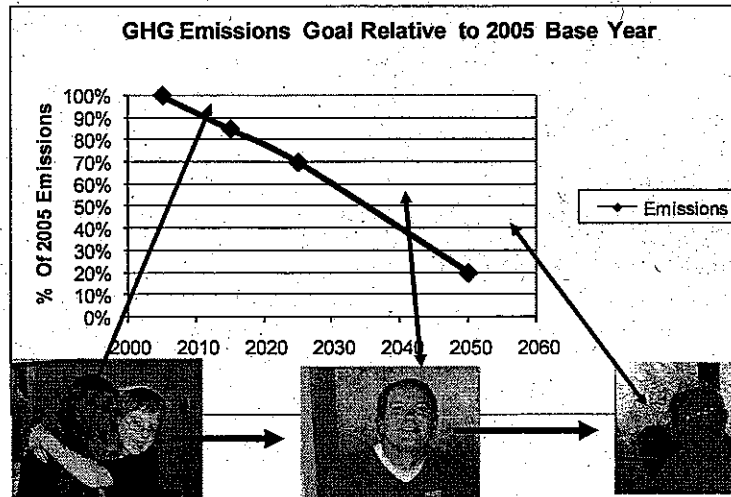
Goals of Renewable Energy Policy

- “Affordable” and stable prices
- Climate neutral and “sustainable”
- Drive local and regional economic gains
- Secure (physical access and without financing tyrants or terrorists)

Note: Not all goals are fully compatible



Next Gen Energy Act



Trust Fund Revenue Opportunities

- "Carbon Credits"
 - Changed forestry practices
- Renewable Energy Development
 - Wind
 - Biomass Production



Carbon Credits

- Carbon credits are commoditized commitments to reduce or avoid emissions of carbon dioxide or other greenhouse gasses.
- Markets for Carbon Credits are currently limited to voluntary purchases
- Cap and trade policy will spur a more robust market, when implemented



Carbon Credits

- To have value credits must be:
 - Permanent (or at least 100 years)
 - Long term strings to management choices
 - Additional
 - Resource management agencies have to prove they are doing something above and beyond
 - Verifiable



Carbon Credits

- **Uncertainty and Risk**

Which management actions will increase carbon stocks on Trust Fund lands, or avoid release of carbon that is likely to happen

What happens if there is a fire, blow down, pest outbreak, or decline in forest health / productivity due to climatic factors? What structures are in place to ensure contractual performance.



Carbon Credits

- Carbon credits can come from energy use reductions, fuel shifting (ie. Coal to Nat. gas), or land use / management changes

- Offsets major debate in Cap and Trade Policy design

Include credits from outside regulated sectors

Include land use credits, and if so what is in or out...



Wind Energy

- Minnesota at 1,400 MW
- Minnesota will need, under current policy
~5,000 MW
- Wind resource matters / though wind
technology and infrastructure make a
wider range of sites competitive
- Dakota wind versus MN Wind



Wind Energy Options

- Do not pursue
- Be open to proposals
- Aggressively Market
- Seek to make the trust fund an equity
partner in projects



Wind Energy Revenue Potential

Capacity Factor	Electric Price for project	Gross Revenue, MW	Royalty payment at 2%
25	\$0.05 / kwh	110,000	\$2,200
30	\$0.05 / kwh	131,000	\$2,600
35	\$0.05 / kwh	153,000	\$3,100



Protecting Wind Assets

- Current Minnesota policy and practice is to minimize wind resource impacts across ownerships through use of industry standard "Wind Buffers"
- House File 863 would eliminate the use of wind buffers in MN and allow encroachment on Trust Fund Land wind resources.



Trade Offs

- Lost timber revenue
- Lost natural resource values
 - DNR internal guidance
 - Do not give up irreplaceable resources
 - Give up replaceable resource, if the return exceeds the value of lost resources
- Lost recreational opportunities



Biomass Production

- Assumed to be primarily woody biomass
 - Brush land a significant undeveloped resource
 - Grass resources could be significant too
- We need to integrate into broader timber production and forest management strategies.
- Opportunity to accelerate forest management strategies



Biomass Markets

- Difficult market now: Benchmarked against coal and cheap gas
- DNR price - \$0.75 per green ton
- Federal policy
 - Cellulosic RFS, Renewable Electricity Standard and Cap and Trade can change dynamics

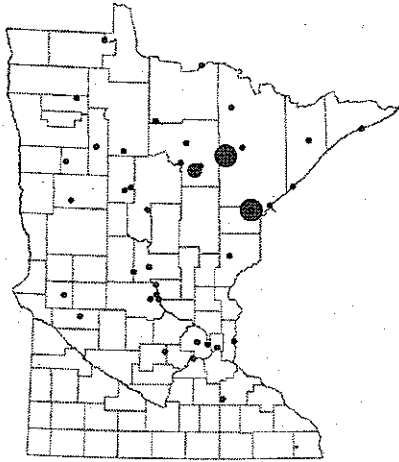


Biomass Strategy

- Biomass resource is "small" compared to energy economy
- Energy likely to add less value than traditional forest products
- Thoughtful strategies are needed for state policy to work with market pressures and federal policy to encourage strategic investments



Woody Biomass Market



Thank You

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MN's Woody Biomass Update Summary

Current Use

- 54 Wood Energy Facilities in the State (excluding landscape/mulch industry)
- Of those 54 facilities, 7 Facilities use over 200,000gt annually
- Current statewide demand for open-market non-mill residue is 900,000gt (only a portion of this is forest-derived)
 - All available mill residue in the state is utilized

Proposed Facilities

- Currently, there are 25 proposed biomass facilities for the state
 - More are announced every week
- Of those 25 proposals, 4 proposals have made public announcement or begun the environmental permitting process
 - Renewafuels (Cleveland Cliffs Subsidiary) (Location TBD) 200,000gt
 - Central Minnesota Ethanol Cooperative (Little Falls) 400,000gt
 - Mountain Timber (Mountain Iron) 200,000gt
 - US Steel Keetac Expansion (Keewatin, MN) 200,000gt

Available Supply

- Estimated annual statewide supply of **logging residue** 1,700,000gt (assumes a 3.7million cord harvest level and 50% recoverability)
 - On DNR lands, not more than 25% of available biomass is being utilized
- Estimated annual statewide **brushland** material 1,000,000gt (assumes 15 yr rotation and does not account for recoverability)
 - Need procurement equipment and commitment to periodic offering of brushlands for this resource to become available
 - Proposals into stimulus \$\$ and LCCMR for equipment development week
- Estimated annual statewide **TSI/Pre-commercial material** 400,000gt (high-range estimate that does not account for recoverability)
 - Biomass harvesting here will not make TSI profitable, just offset the costs and provide for more healthy and productive forests