



Review of Modeling Results

*State of Wisconsin
Governor's Global Warming Task Force*

May 29, 2008

Agenda:

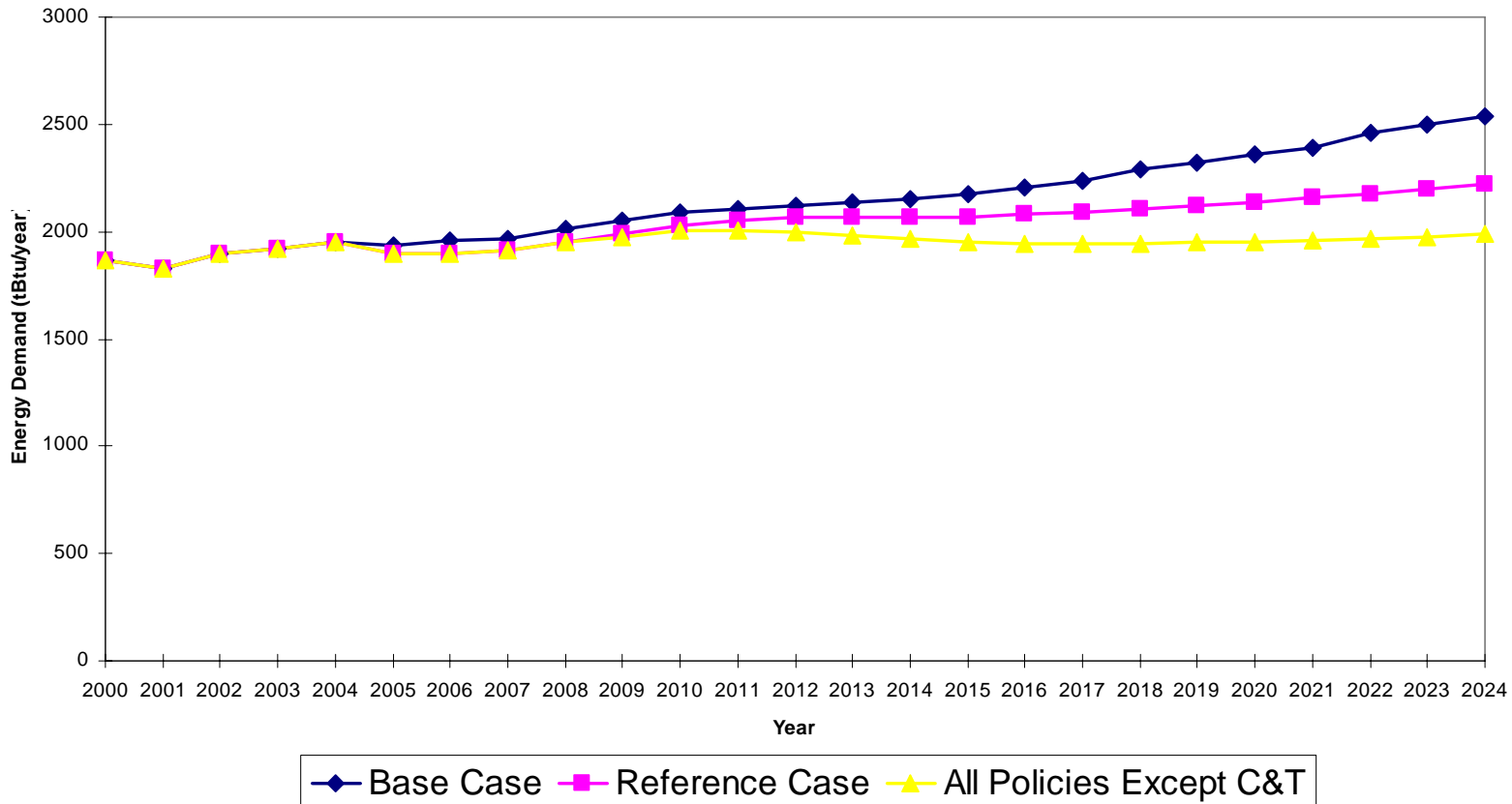
1. Review of Policies Modeled
2. Energy Changes from Policies To-Date
3. High Energy Price Scenario – Reference Case
4. High Energy Price Scenario – Policy Case 01
5. Questions?

Modeling Includes “All Policies”

Policy No.	Policy Title
C&EE 01	Enhanced Energy Efficiency Program
C&EE 02	Residential & Commercial Energy Efficiency & Green Building Codes
C&EE 03	State Appliance Efficiency Standard
C&EE04	Residential Rental Lighting Standard
F&A 01	Urban Forestry
F&A 08	Biomass Use in State Facilities.
Trans 01	CO2 Emission Standards, Commonly Called “California Car” Standards
Trans 02	Low Carbon Fuel Standard
Trans 03	Reform Planning and Funding Policies to Reduce VMT
EG 01	Enhanced Renewable Portfolio Standard

Change in Wisconsin Energy Demand

Wisconsin Total Energy Demand



Overall fuel use in the state drops by 24% from initial BAU forecast due to EISA and “all policies” policies.

Change in Wisconsin Energy Demand

Change As a Result of EISA and "All Policies Except C&T"		Change in Total Energy Demand
Residential		18.7%
Commercial		31.5%
Industry		17.0%
Passenger		38.7%
Freight		9.8%
	Total -	24.1%

- High energy prices, Energy Independence and Security Act and “All Policies Except C&T” result in energy use declining about 24% from BAU.

High Energy Price Case *Sensitivity Run*

High Price Scenario – Reference Case

A sensitivity run was completed in ENERGY2020 and run with the REMI macro-economic model to test the effects of much higher energy prices on policy results:

Modeling Assumptions:

- Prices for oil, natural gas, coal and biomass all increased by 50% from levels used in Reference and other policy cases.
- Increase applied to world oil price and well head price for natural gas.
- Change in delivered price less than 50% depending on share of delivered cost attributable to actual input energy.
- Reference Case and Policy Case 01 modeled with “build on reserve margin” approach in power sector.

High Price Scenario – Reference Case

- Comparison of Reference Case with 50% higher prices to prior Reference Case:
 - Electricity sales decline in Wisconsin and most regions on the order of 1% by 2024.
 - Electricity generation shifts slightly between regions as gas, oil and coal generation decline slightly while renewable sources expand.
 - Natural gas/oil generation decline is partially offset by increase in coal generation.

High Price Scenario – Reference Case

- Comparison of Reference Case with 50% higher prices to prior Reference Case (cont'd.):
 - Transportation efficiency shows a modest increase but VMT reduced (7.3% for freight) as modal shift occurs.
 - Total energy use declines by about 3%, with natural gas, diesel and oil prices showing larger declines.
 - Overall GHG emissions fall by about 3% across the U.S.
 - Wisconsin emissions declined by about 6%.

High Price Scenario – Policy Case 01

Policy Case 01 (All Policies except C&T) with 50% higher energy prices was compared to the prior Reference Case with 50% higher energy prices:

- Electricity sales decline by 17% while total generation output decreases by 6%.
- Vehicle efficiency changes and VMT reductions show a similar pattern to the original policy case, with VMT decreasing by about 25%.
- Biofuel levels reach 16% of total gasoline use by 2024.
- Total fuel use shows a similar decline to the original policy case; implying a slightly greater increase in total compared to the original Reference Case.
- Total GHG emissions in WI decrease by almost 18Mt. Emissions outside of WI remain unchanged.

High Price Scenario – Policy Case 01

Economic Impacts

Policy Case 01 with 50% Higher Energy Prices Change from Reference Case	2010	2015	2020	2024
Total Employment (Thous)	(0.1)	13.8	9.3	16.9
Total GRP (Bil Fixed 2000\$)	0.2	1.3	1.1	1.6
Real Disp Pers Inc per Cap (Thous Fixed 2000\$)	0.0	0.0	(0.0)	0.0

Policy Case 01 with 50% Higher Energy Prices Change from Reference Case	2010	2015	2020	2024
Total Employment (Thous)	0.0%	0.4%	0.2%	0.4%
Total GRP (Bil Fixed 2000\$)	0.1%	0.5%	0.3%	0.5%
Real Disp Pers Inc per Cap (Thous Fixed 2000\$)	0.0%	0.1%	0.0%	0.1%

- **Policy Case with higher prices results in overall positive impact on the economy when compared to the original policy case.**
- **Impacts are quite small in terms of the total economy (less than 1% by 2024). For example, personal disposable income is projected to grow by more than 26% by 2024. The combined effect of higher prices plus the policies would increase this by 0.1%.**

High Price Scenario – Policy Case 01

Economic Impacts

Policy Case 01 with 50% Higher Energy Prices

Employment (thousands) Change from Reference	2010	2015	2020	2024
Commercial	2	7	7	13
Paper	0	0	0	0
Energy Intensive	0	0	0	0
Other Industry	1	3	0	0

Employment (thousands) Change from Reference	2010	2015	2020	2024
Commercial	0.1%	0.3%	0.3%	0.5%
Paper	0.0%	0.2%	0.3%	0.4%
Energy Intensive	0.0%	0.4%	0.4%	0.6%
Other Industry	0.1%	0.5%	0.0%	0.1%

- **Positive impact of combined policies and higher energy prices is distributed relatively evenly across sector.**

Questions and Discussion