Escanaba Power Supply Evaluation

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Agenda

1. Changes in Utility Industry
2. Projection of Escanaba Costs
3. All Requirements Purchase Power Alternatives
4. Comparison of Options
5. Fuel Options – Western Coal and Biomass
6. Conclusions
7. Recommendations

1. Changes in Utility Industry

- Transmission
  - Open / Network Transmission
  - American Transmission Company
- Markets
  - Midwest ISO
- Global Trends
  - Industrial Development – Higher Prices
  - Increased Environmental Concerns

Impact On Escanaba

- Transmission
  - Change in UPPCO Interconnection Agreement
  - Potential for higher Costs
  - Northern Umbrella Plan
- Markets
  - Complicated Operations and Pricing
- Global Trends
  - Dramatic Increase in Cost of Resource Development

Escanaba Response

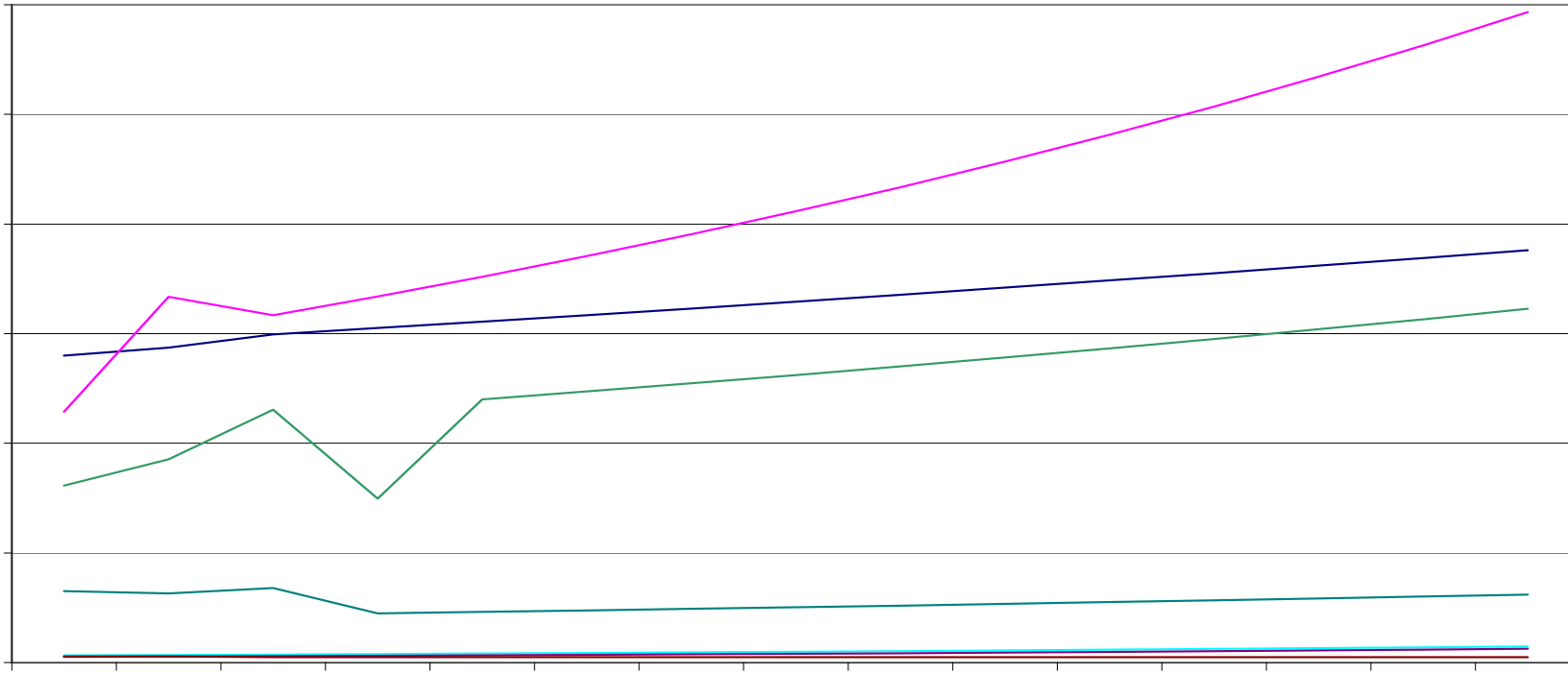
- Transmission
  - Maintain UPPCO Interconnection Agreement as long as possible
  - Using generation avoids need for new Transmission
- Markets
  - Outsource MISO Related Operations
- Global Trends
  - Avoid New Resource Development
  - Avoid Natural Gas Usage

2. Projection of Escanaba Costs

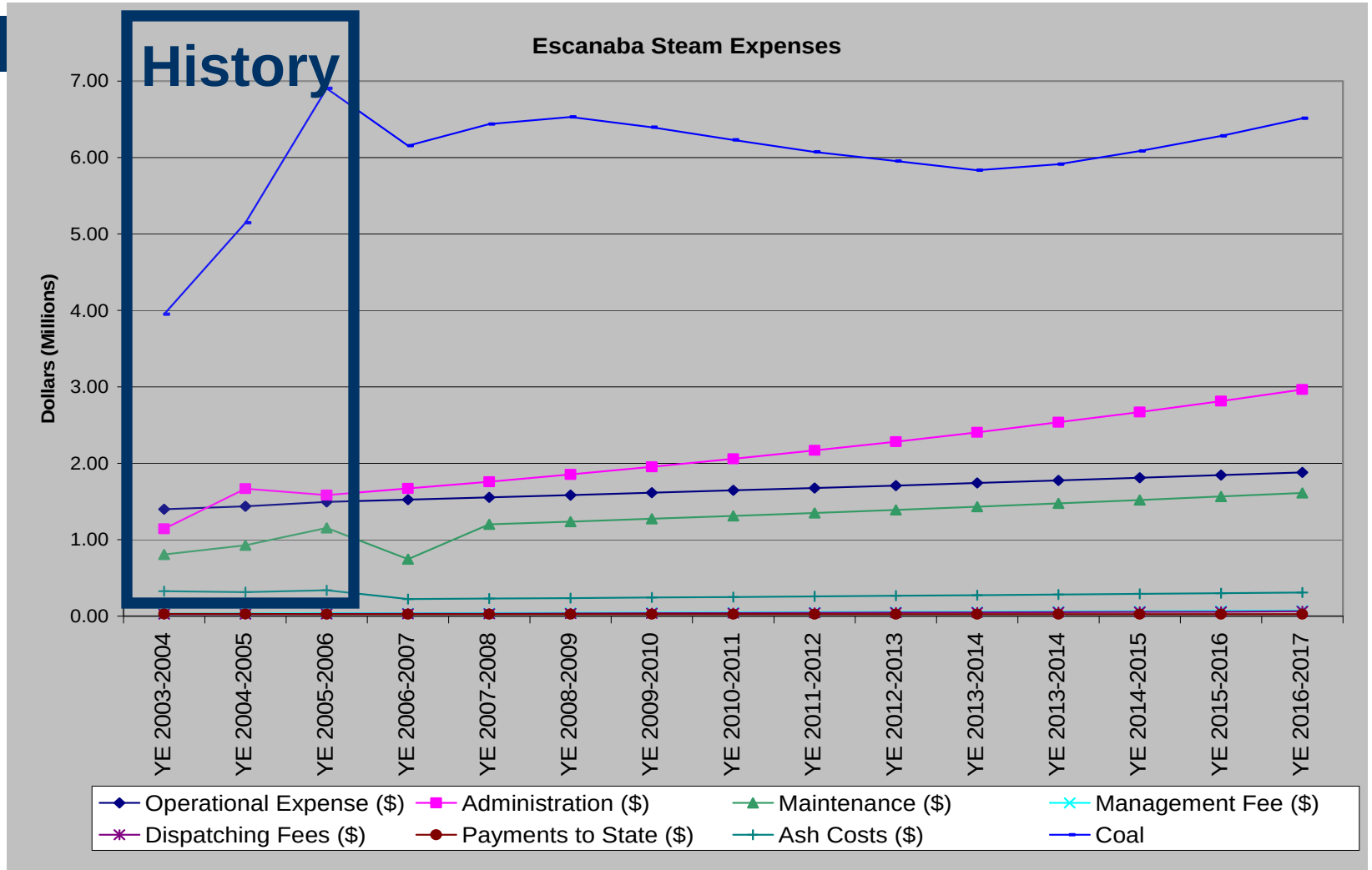
- Project Costs by Category
- Coal Costs Based on Annual Energy Outlook Coal Forecast
- Costs do not include distribution facilities

Cost Categories

- Operational Expense
- Fuel
- Administration
- Maintenance
- Management Fee
- Dispatching Fees
- Payments to State
- Ash Costs



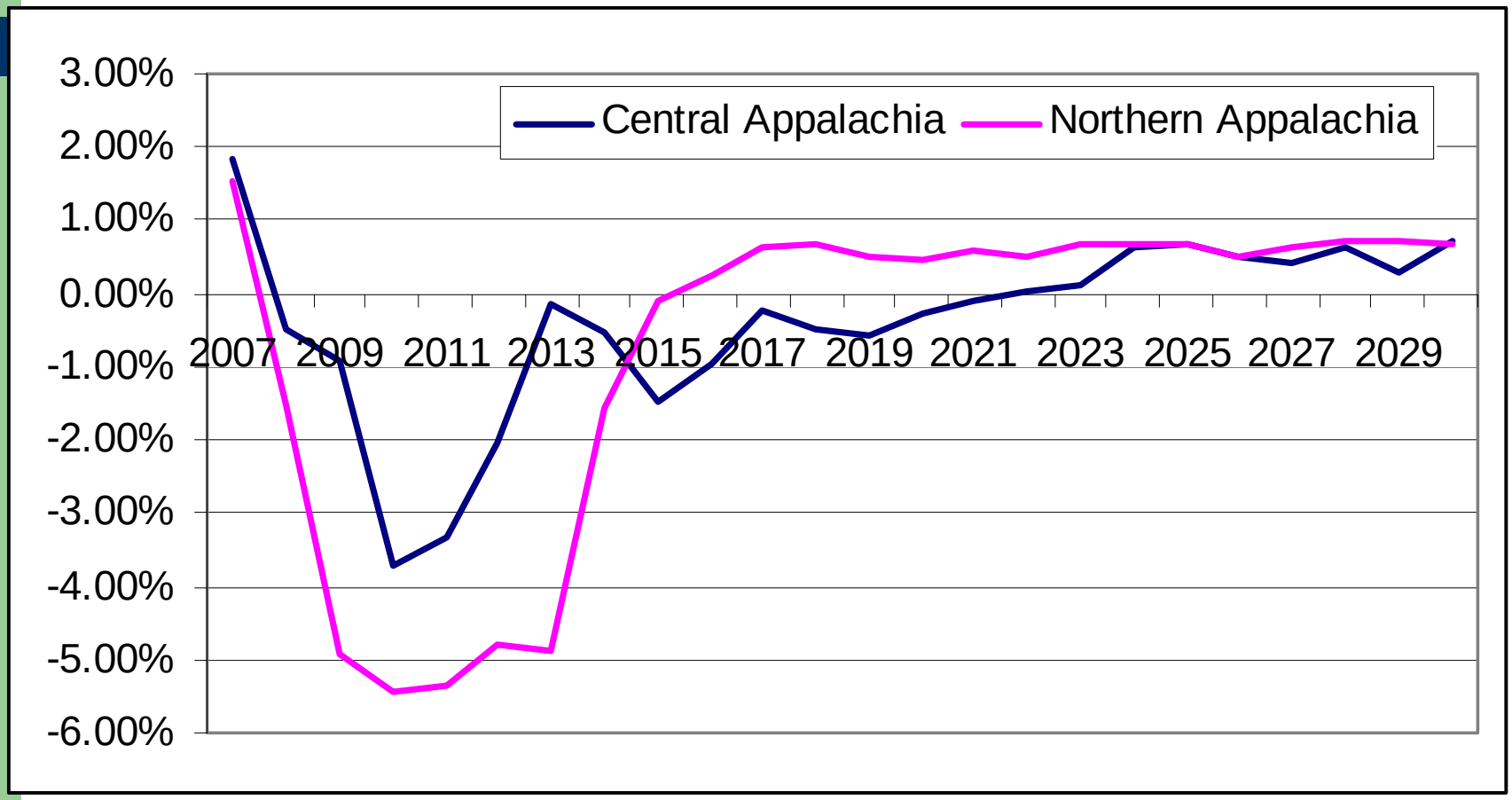
Previous
Projected Costs Including Coal



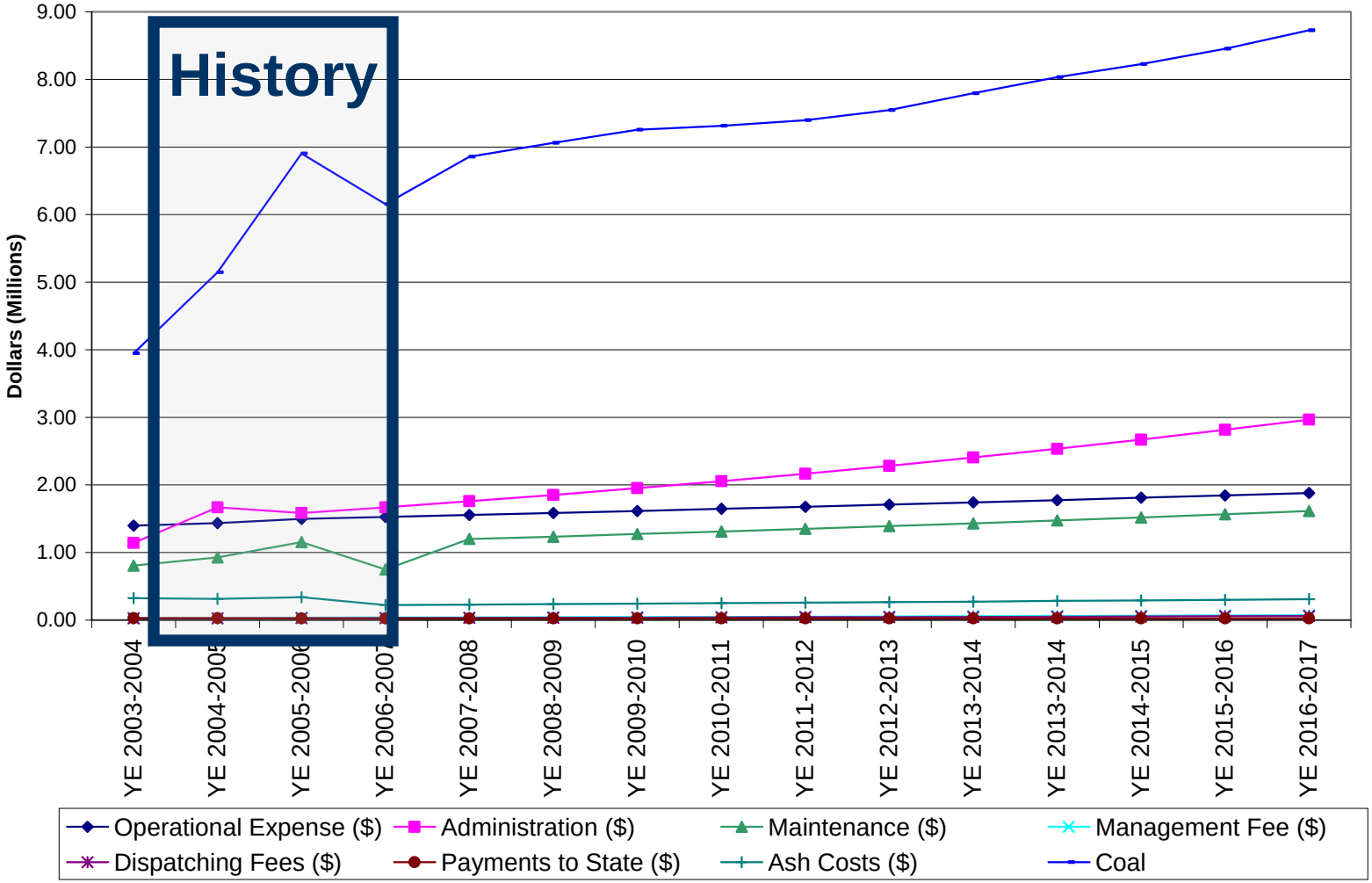
Updated Coal Projection

- Coal Indexed to AEO 2007
  - Central Appalachia Coal
  - Previous Northern Appalachia Coal
- Separate Transportation Cost
  - 2006-2007 23/ton
  - Escalated at 4% annually

AEO Coal Cost at Mine Growth Comparison



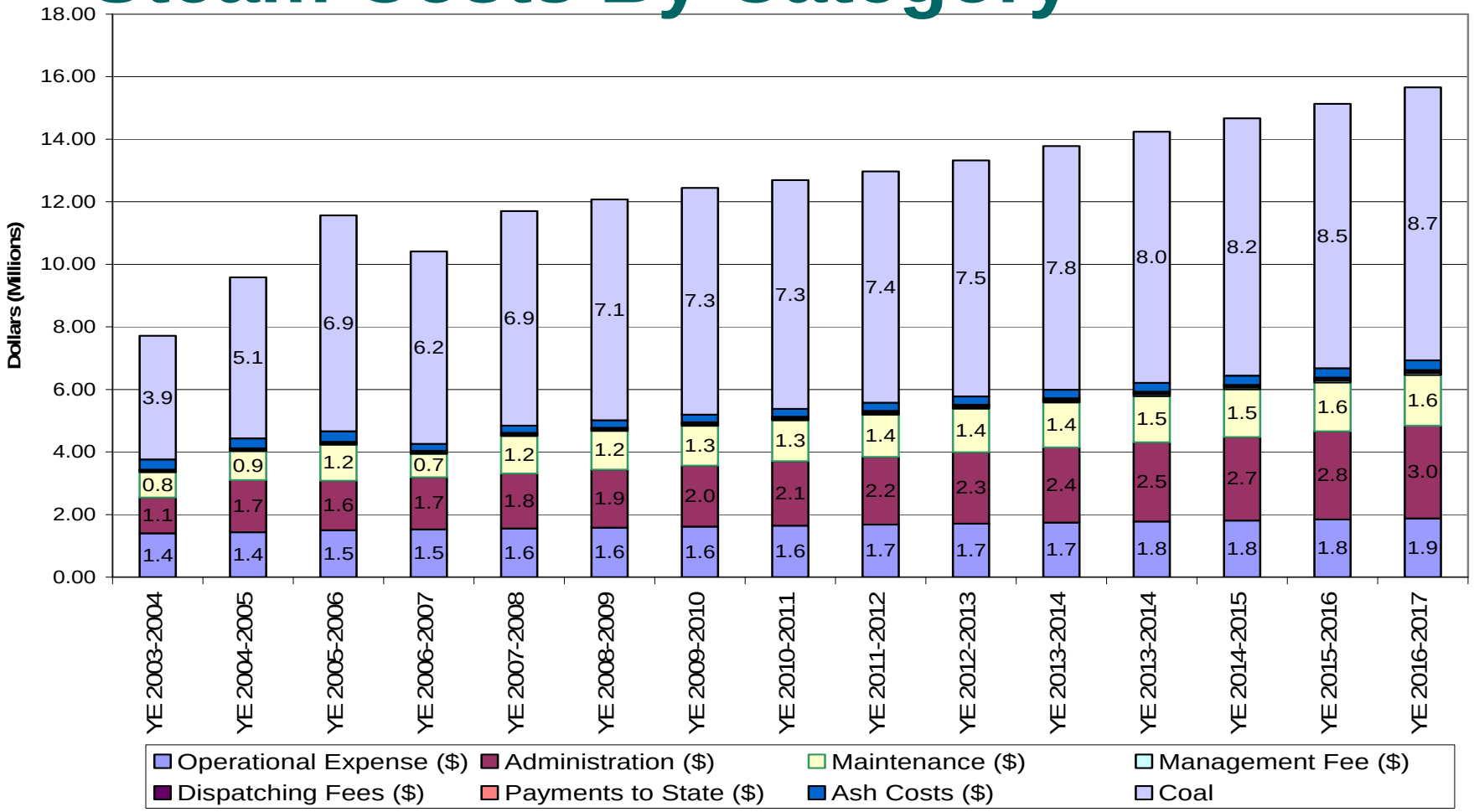
Updated Projected Costs Including Coal



Escanaba 2008 Expenses Breakdown

- Operational Expense – 12%
- Fuel - 59%
- Administration 15%
- Maintenance 11%
- Management Fee 0.4%
- Dispatching Fees 0.3%
- Payments to State 0.2%
- Ash Costs 2.1 %

Steam Costs By Category



3. Comparison with All Requirements Purchase Alternatives

- Three Proposals Considered
  - Two parties excluded
- Earliest Start Date – 2011
- Firm Transmission Required For All Requirements Purchase – 3 Years
- Generation not to serve load
  - Biomass Alternative Would allow use of Generation

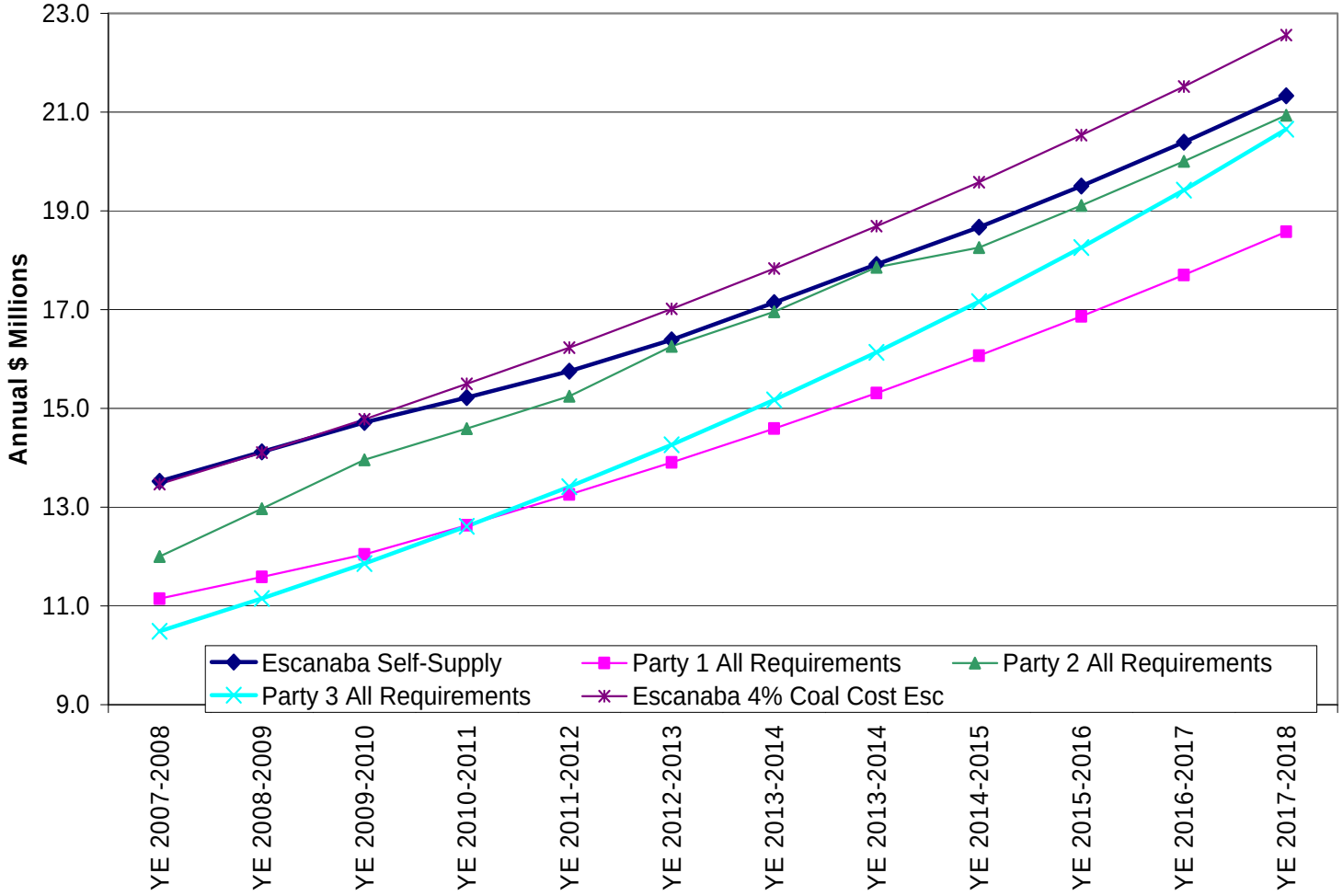
Other Key Assumptions

- Load Forecast
  - Historic Load Shape
  - Grow at 1.2% Annual Growth Rate
- Purchase Cost
  - Based on LMP Projection
  - LMP – Historic LMP Grow at 4%
- Sales Revenue
  - Actual based on Monthly Cost
  - Modeling used LMP projection

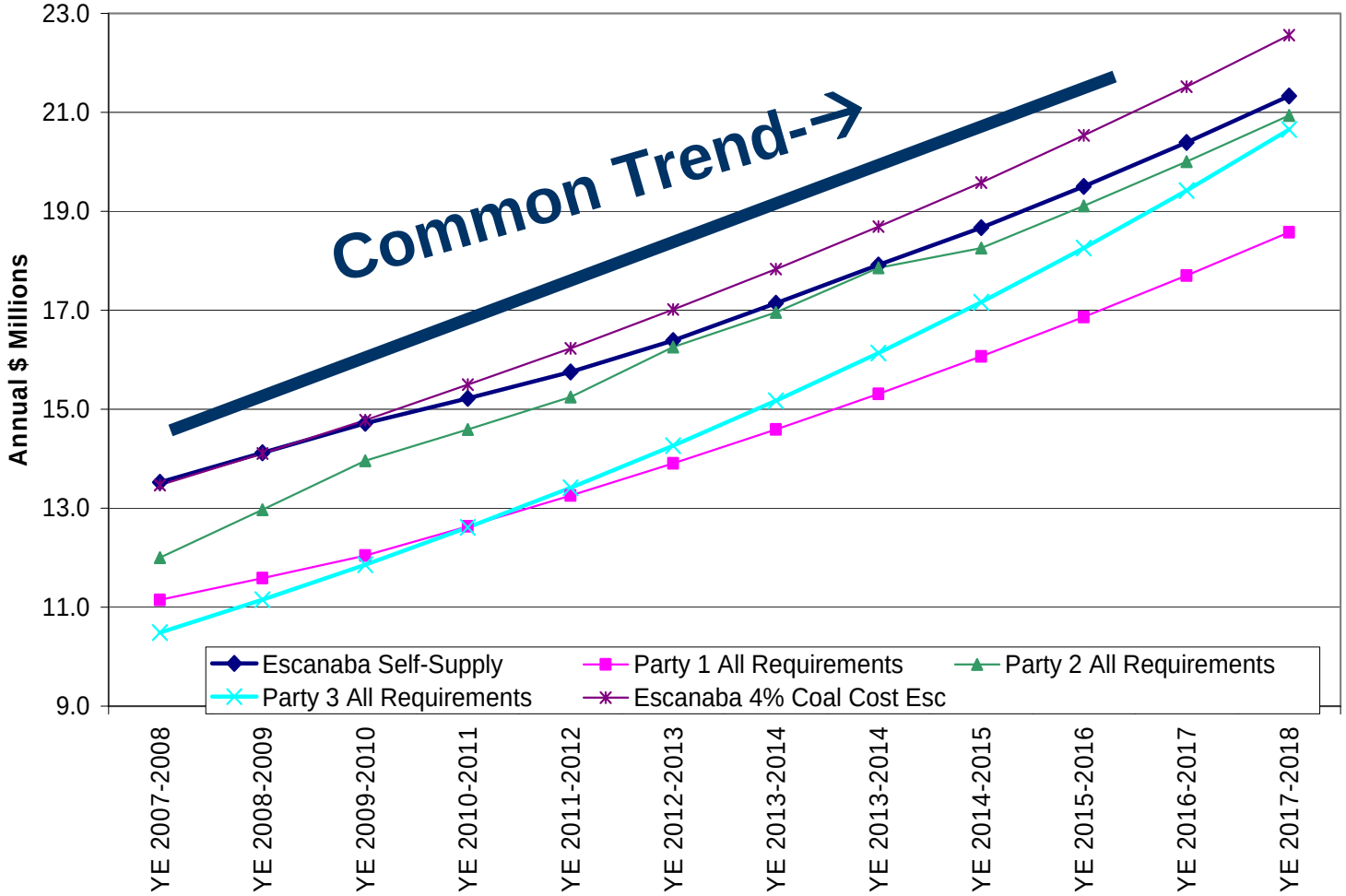
Transmission Costs

- All Requirements Option
  - Network Transmission Service
    - Buy Part of Overall System
  - Not Required with Self Generation
  - $1 M / Year
- Partial Requirements Option
  - Point to Point Transmission
    - Buy What you Need

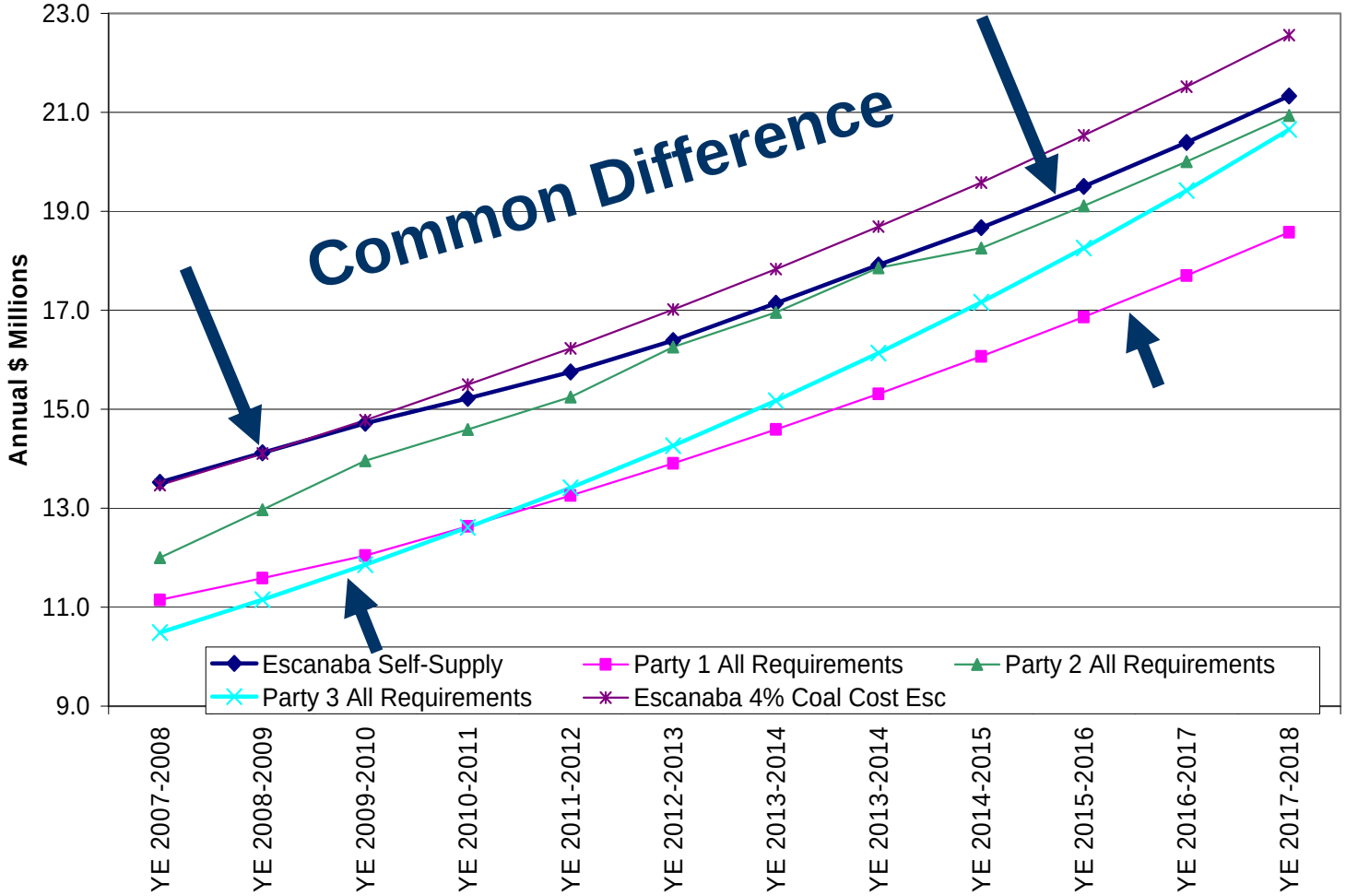
4. Comparison of Options



Comparison of Options - Trends



Comparison of Options - Difference



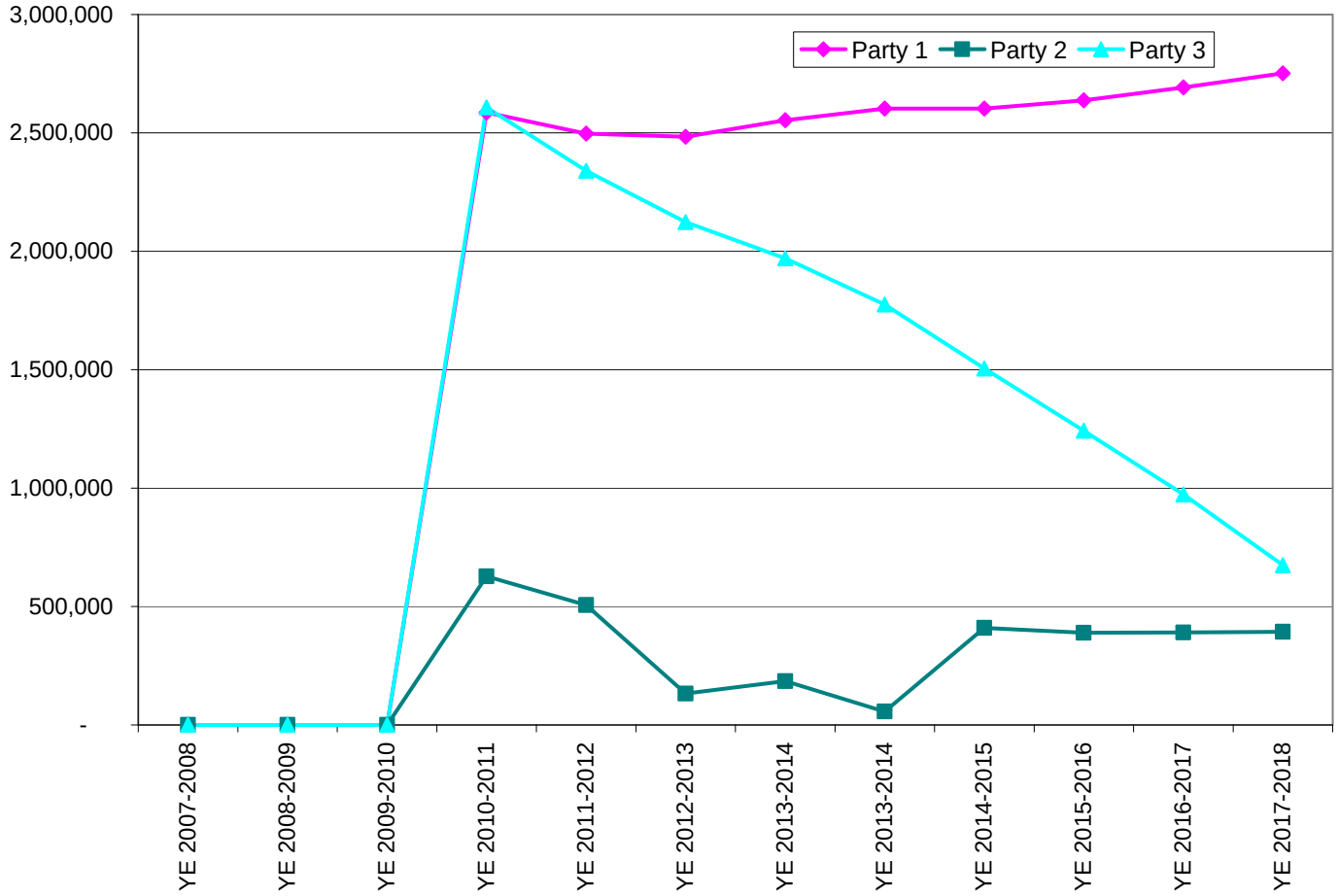
Cost Comparisons

- Self Supply – Consistent High End of Range
- Party 1 – Consistent Low End of Range
- Party 2 – Starts lower, but trends toward High End
- Party 3, Starts low, Increases to High End of Range

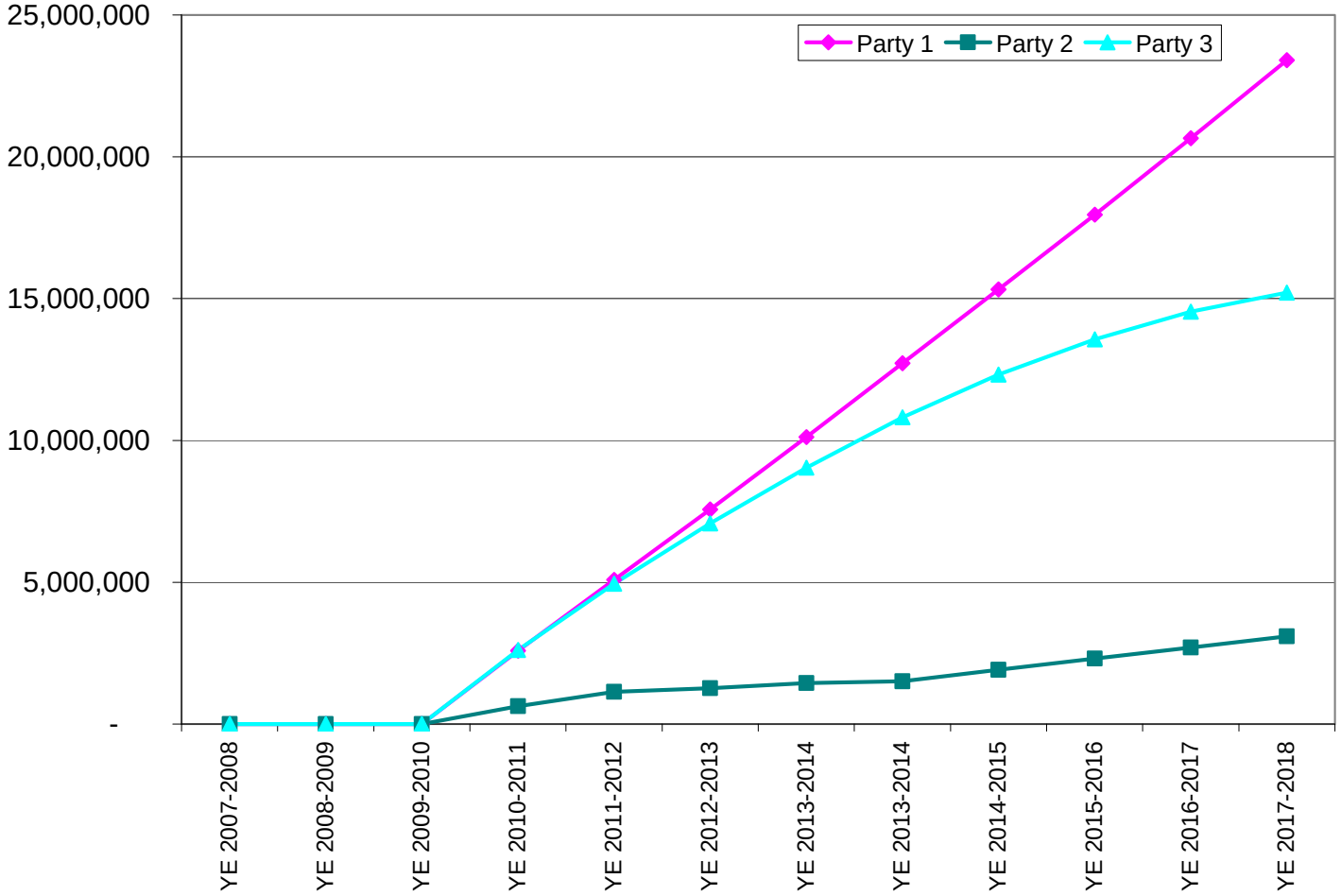
Cost Comparison

- Party 1
  - 2011 Annual Savings – $2 Million
  - 2015 Annual Savings – $2.6 Million
  - Over 30 Million in 10 Years
- Party 2
  - 14.8 Million Savings in 10 Years
- Party 3
  - 24.5 Million Savings in 10 Years

Cost Comparison – Annual



Cumulative Savings



5. Fuel Compare - Biomass Evaluation

- Wood Waste – 4,500 Btu/lb
- Cost $28/ton
- Additional Costs
  - Increased Ash Disposal
  - Decreased Output
- Prelim Annual Cost – $2.2 Million more
  - Increasing to $3 million by 2015
- Total Production Cost - 2011 = $101/MWh
  - Must Determine Any Needed Plant Addition Costs

Fuel Compare - Western Coal

- Created Western Coal Forecast
- Compare to Eastern Forecast
- Consider Additional Ash Disposal
- Net Present Savings
  - 5 Year $4.1 Million
  - 10 Year $8.1 Million

Conclusions

- Significant Purchase Power Savings – 20-30 Million for 10 year period
- Biomass option of continued Generation operation – Worth Exploring Further
  - Provide Renewable Resources
  - Avoid Need for Transmission Additions
  - Study Fuel Handling/Operations Feasibility

Recommendations

- For Self Serve – Consider Fuel Supply Strata
  - 1/3 Fuel Supply for 3 year term
  - 1/3 Fuel supply for 2 year term
  - 1/3 Fuel supply for 1 year term
- Determine Criteria of Minimum Savings
- Pursue Biomass Alternative
  - Capital Investment consideration