

# PJM Long-Term Load Forecasting Methodology: Proposal Regarding Economic Forecast (Agenda Item #8)

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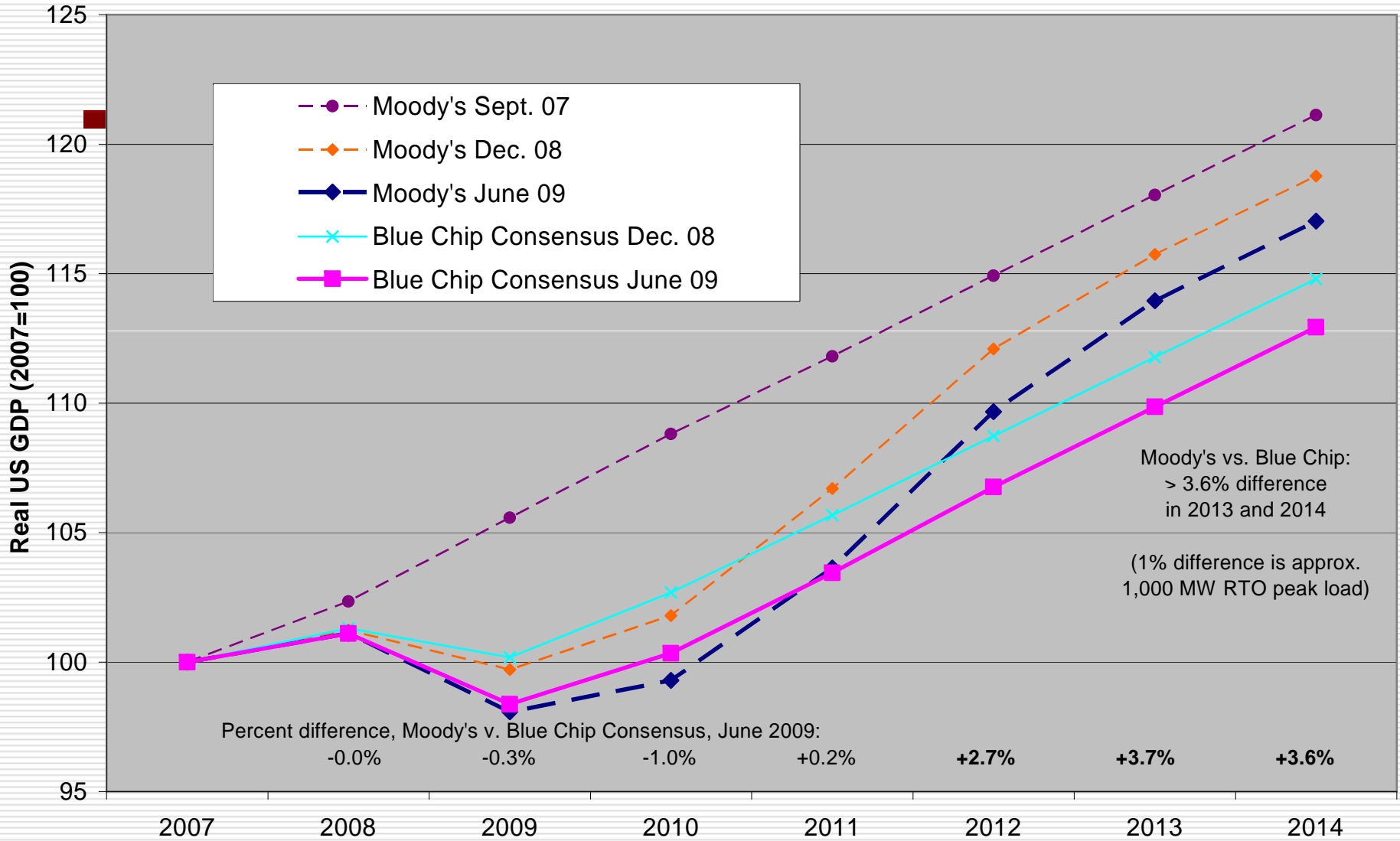
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# The Problem

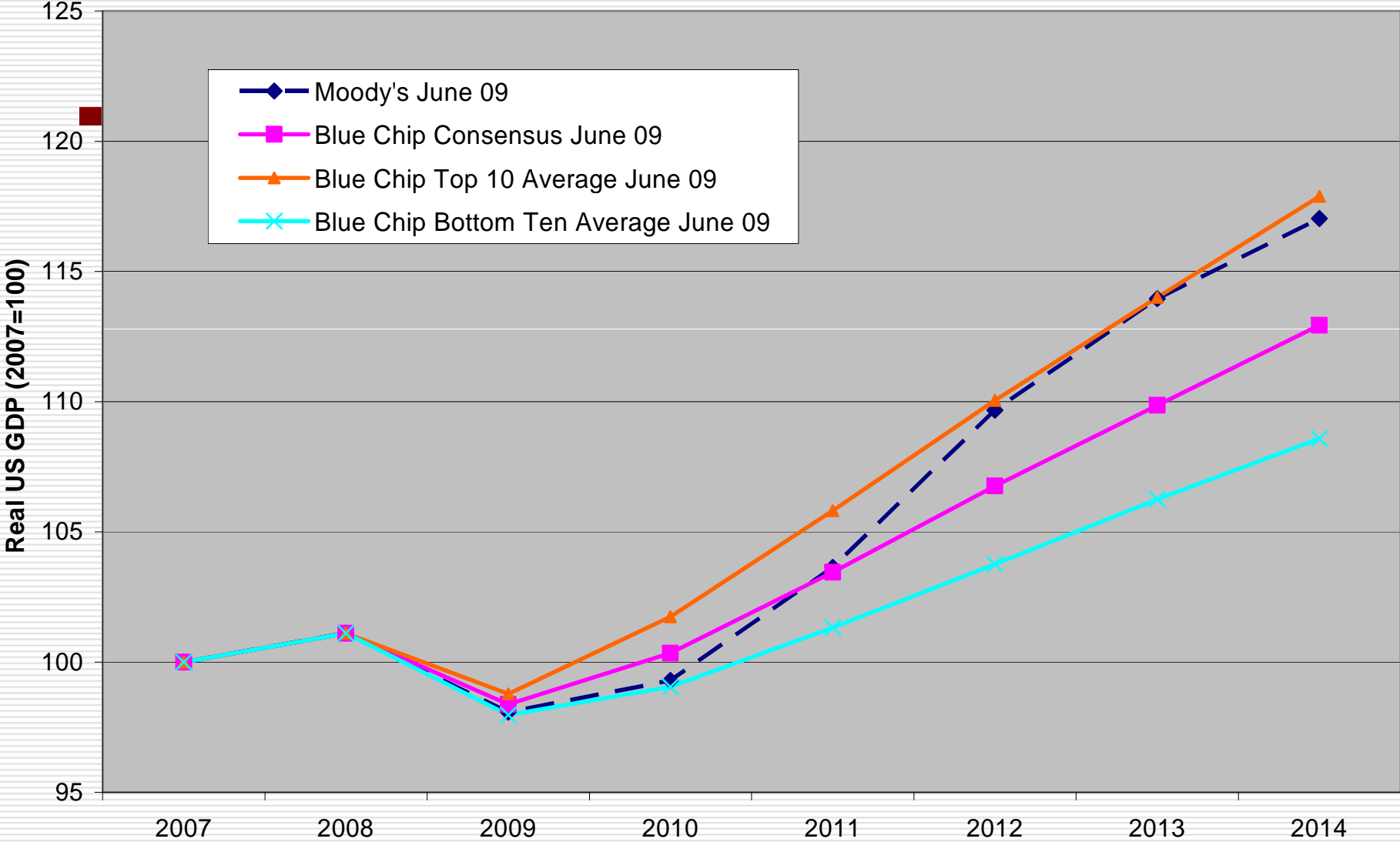
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- ❑ Economic growth drives peak load growth
- ❑ Economic growth is highly uncertain at present
- ❑ PJM's economic forecasts (based on Moody's Economy.com "Baseline") are much higher than the consensus of professional forecasters
  - > 3% difference for 2013, 2014 (~ 3,000 MW peak)

## US GDP Forecasts, June 2009 and Earlier



# US GDP Forecasts, June 2009



# Proposal

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If (only if) Moody's Baseline forecast (US GDP) differs from Blue Chip by  $> 0.5\%$  in any year:

*(didn't in 2007; did in 2008; likely will in 2009; 2010?)*

1. Moody's retained to produce alternative economic forecast within  $0.5\%$  of Blue Chip each year
  - a. Complete alternative scenario with all details and descriptive story, as for Baseline
  - b. An internally consistent macro scenario Moody's analysts are comfortable with; else relax constraint
  - c. Any/all guidance on developing the scenario is ex ante; rely on Moody's analysts, no "back and forth" on assumptions
  - d. Might start with one of their existing alternative scenarios

## Proposal (continued)

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2. PJM/LAS will have opportunity to review and comment on the scenario and all details; Moody's analysts to revise if very good cause (one iteration)
3. In years when the alternative macroeconomic scenario is triggered:
  - a. Both peak load scenarios included in Load Forecast Report
  - b. PJM to recommend which scenario (Moody's Baseline or Blue Chip) should be adopted as "official" PJM forecast, and explain its recommendation

*This proposal was further detailed and revised in response to the feedback received at the August 25 LAS meeting*

## Proposal: Timing

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- ❑ Blue Chip survey published October 10; Moody's October update available about a week later
- ❑ Moody's develops alternative macro scenario, provides all macro and GMP details by first week of November

## Benefits of an Alternative Economic Scenario

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- ❑ Acknowledges uncertainty and its impact on the peak load forecast, when significant (such as now)
- ❑ Provides useful information for judging the potential for future peak load growth
- ❑ The alternative scenario would reflect the views of a broad consensus of professional economic forecasters

# The Advantages of Pooled or Consensus Forecasts Are Well Established

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“...a common research finding is that the accuracy of macroeconomic forecasts can be improved by pooling forecasts from a number of sources”  
Batchelor (1990)

“Researchers have found that consensus forecasts are substantially more accurate than individual forecasts.” Laster, Bennett, Geoum (1997)

“The analysis shows that the Blue Chip Consensus Forecast, which is the average of the individual forecasts, performs better than any individual forecaster although several forecasters performed almost as well as the consensus...” Bauer, Eisenbeis, Waggoner, Zha (2003)

“The large literature on optimal forecast combination suggests that using the average or consensus forecast leads, in general, to greater forecasting precision by diversifying across different forecasting techniques and drawing on information from different sources.” Chun (2009)

## The Advantages of Pooled Forecasts: The “Reverse Lake Wobegon” Effect

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“This result is a “reverse Lake Wobegon” effect: none of the forecasters are better than the average forecaster...

There are superior forecasters, but no individual has access to all of the independent information from all of the forecasts that is incorporated into the consensus forecast.”

Bauer, Eisenbeis, Waggoner, Zha (2003)

# Consensus Forecasts: Summary of the Literature

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The substantial literature on pooled forecasts shows that a “consensus” forecast such as Blue Chip is expected to be:

- more accurate (*likely to be closer to actuals*)
- less statistically biased (*less likely to be chronically high/low*)
- more stable over time (*less likely to exhibit large swings*)  
and, ultimately
- more defensible

over time than the product of any one individual forecaster.

## Summary: Advantages of the Proposal

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1. Triggers only in face of substantial uncertainty
2. When triggered, would provide valuable additional information to stakeholders
3. Providing this information is feasible, low cost (\$\$, time)
4. The alternative scenario would have the expected benefits of a consensus forecast (accuracy, stability, lack of bias)
5. The alternative scenario can serve as the official forecast

*In uncertain times, why would you deny stakeholders this valuable additional information?*

Questions or Comments?

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# References

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- Aspen Publishers, Blue Chip Economic Indicators, Vol. 34 No. 6, June 10, 2009, and Blue Chip Financial Forecasts, Vol. 28, No. 6, June 1, 2009.
- Batchelor, R. A., & Dua, P. (1990). Product differentiation in the economic forecasting industry. *International Journal of Forecasting*, 6, 311-316.
- Bauer, A., R. A. Eisenbeis, D. F. Waggoner, and T. Zha (2003): "Forecast Evaluation with Cross-Sectional Data: The Blue Chip Surveys," Federal Reserve Bank of Atlanta, Economic Review, Second Quarter 2003.
- Chun, Albert Lee (2009): Forecasting Interest Rates and Inflation: Blue Chip Clairvoyants or Econometrics? EFA 2009 Bergen Meetings Paper.
- Laster, D., Bennett, P., & Geoum, I. S. (1999). Rational bias in macroeconomic forecasts. *Quarterly Journal of Economics*, 114, 293-318.

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# Additional Slides

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Proposal to develop economic forecasts for use in PJM's long-term peak load forecasting based on an alternative macroeconomic scenario close to the Blue Chip Consensus (proposal further detailed and revised August 31, 2009):

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1. Moody's "Baseline" US GDP scenario (October update) is compared to the Blue Chip Consensus long-term forecast (October update) on an absolute basis (GDP in each future year is compared, not annual growth values) for all future years of the Blue Chip long-term forecast (in 2009, it goes out to 2020). If the Blue Chip and Moody's Baseline forecasts differ by less than 0.5% each year (as was the case in 2007 for the 2008 Load Forecast Report), the Moody's Baseline is accepted and used to calculate the GMPs, as in the past.
  
2. If instead Moody's Baseline US GDP scenario differs from the Blue Chip Consensus by more than 0.5% in one or more future years, Moody's is retained to develop an alternative macroeconomic scenario that does meet this criteria. In particular, Moody's is provided the following guidance with respect to development of the alternative macroeconomic scenario:
  - a. Moody's will develop a complete alternative macroeconomic scenario, and corresponding state and metropolitan details, with the full detail available in the Baseline.
  - b. Moody's will provide the type of descriptive "story" about the alternative scenario that it typically provides with its Baseline and other alternative scenarios, however, Moody's is not asked to provide its opinion of the probability of the scenario, or of the economy performing better or worse.
  - c. The alternative scenario's US GDP will be within 0.5% of the Blue Chip Consensus US GDP in all future years covered by the Blue Chip long-term forecast. In the unlikely event that Moody's analysts are unable to develop an internally consistent macroeconomic scenario that they feel comfortable with under this constraint, the analysts will further relax that constraint as they deem necessary.

## Further detailed, revised proposal (continued)

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3. Other guidance to Moody's in developing the alternative macroeconomic scenario:
  - a. Moody's analysts may choose to use one of its alternative scenarios that is close to the Blue Chip Consensus as a starting point in developing the alternative macroeconomic scenario.
  - b. Moody's analysts may choose to use the various other October Blue Chip consensus values (personal income, housing starts, auto sales, etc. etc.) in developing the alternative macroeconomic scenario.
  - c. PJM retains Moody's to have their analysts use their judgment in developing the alternative macroeconomic scenario, exactly as Moody's analysts do in developing their Baseline and other alternative scenarios. All guidance on development of the alternative macroeconomic scenario will be provided ex ante (before development of the alternative scenario begins), not during the process. It is expected that this proposal contains sufficient guidance and flexibility for this process to be workable. However, if Moody's feels that further general advance guidance or flexibility may be needed, they will request it well in advance.
  - d. Once development of the alternative macroeconomic scenario has begun, Moody's analysts will use their judgment in developing the alternative macroeconomic scenario and will not present PJM/LAS/stakeholders with issues to resolve. As noted above, the final product will entail the scenario description and all details, as in Moody's Baseline and other alternative scenarios.

## Further detailed, revised proposal (continued)

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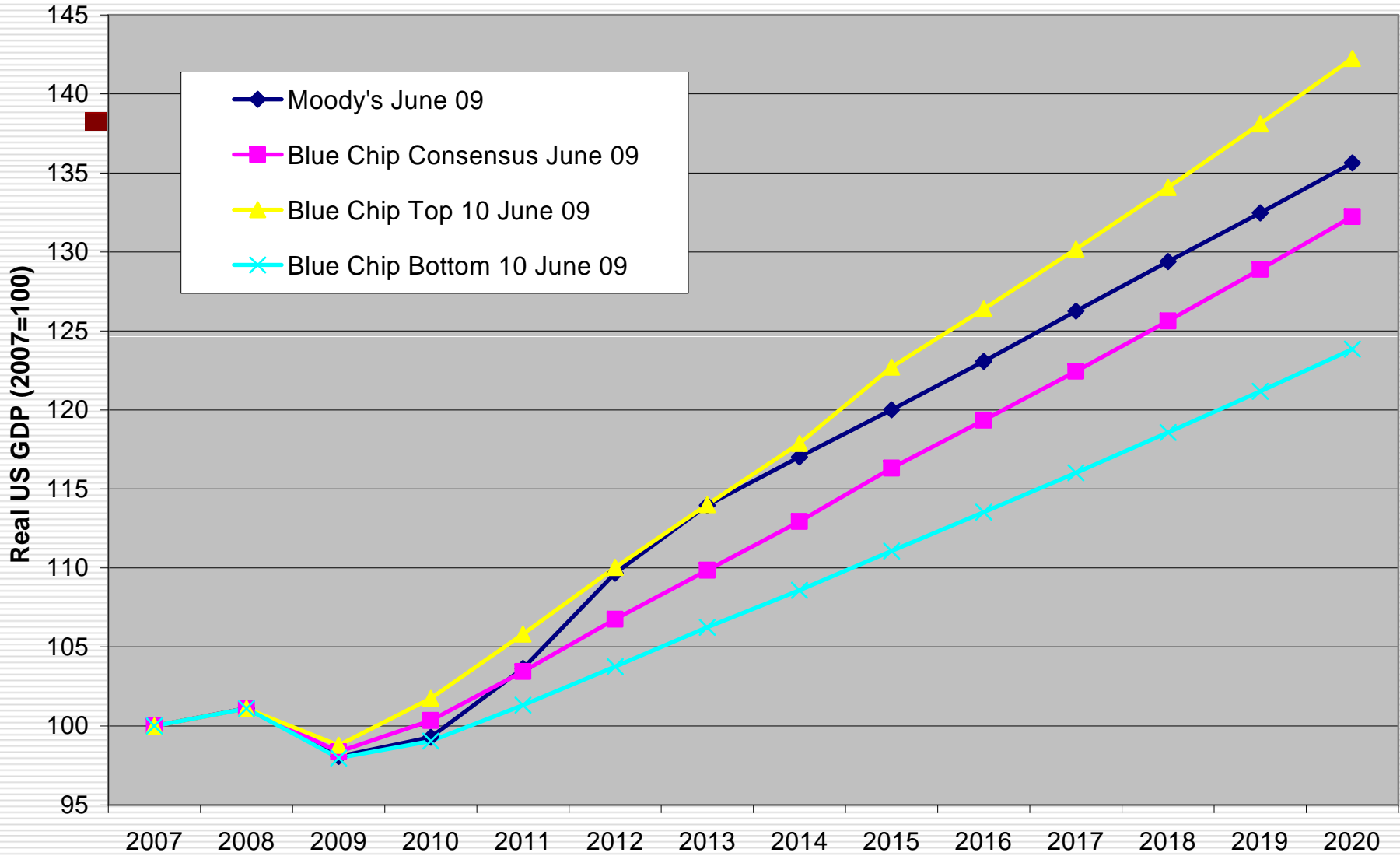
4. PJM/LAS will have an opportunity to review and comment on the alternative macroeconomic scenario and all details, as they always have in the past with the Moody's Baseline. In the unlikely event that there is very good cause (as judged by Moody's analysts), Moody's analysts may revise the alternative macroeconomic scenario based on that feedback (one iteration).
5. If an alternative macroeconomic scenario is developed, both peak load forecasts (based on the alternative macroeconomic scenario, and Moody's Baseline) will be included in the PJM Load Forecast Report. PJM staff will recommend which of the two forecasts to adopt as the official PJM forecast, and provide the basis for its recommendation.

# Aspen Publishers' "Blue Chip" Survey and the Blue Chip Consensus US GDP Forecast

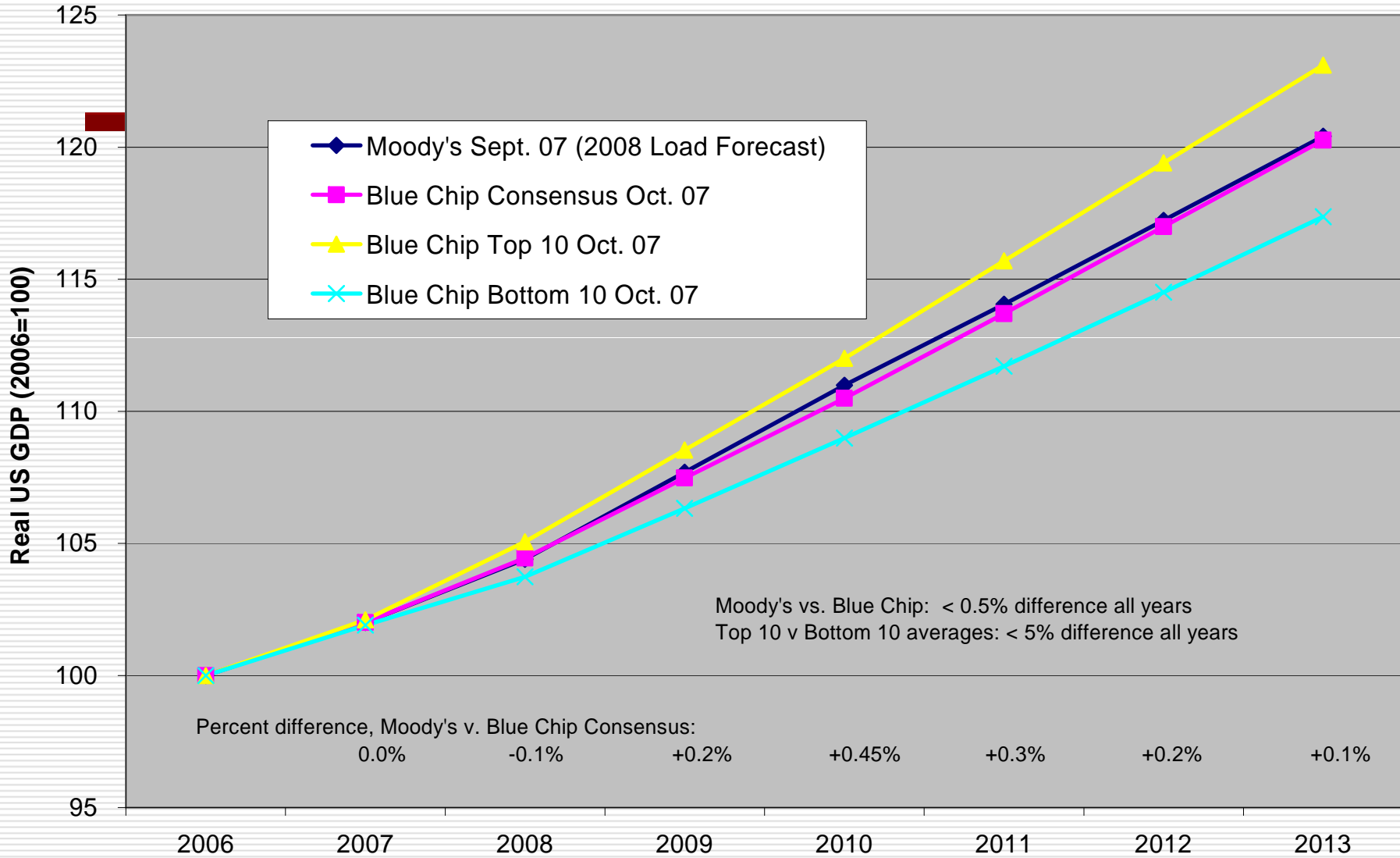
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- Survey of over 50 professional economic forecasters on a monthly basis
  - GDP and other leading economic indicators
  - "Consensus" – mean of all 50+ forecasts
  - "Top 10 average" (average of the 10 highest forecasts),  
"Bottom 10 average" (average of the 10 lowest forecasts)
  - Long Term Forecast survey 4 times per year; annual values out five years, and five year average beyond that (to 2020)

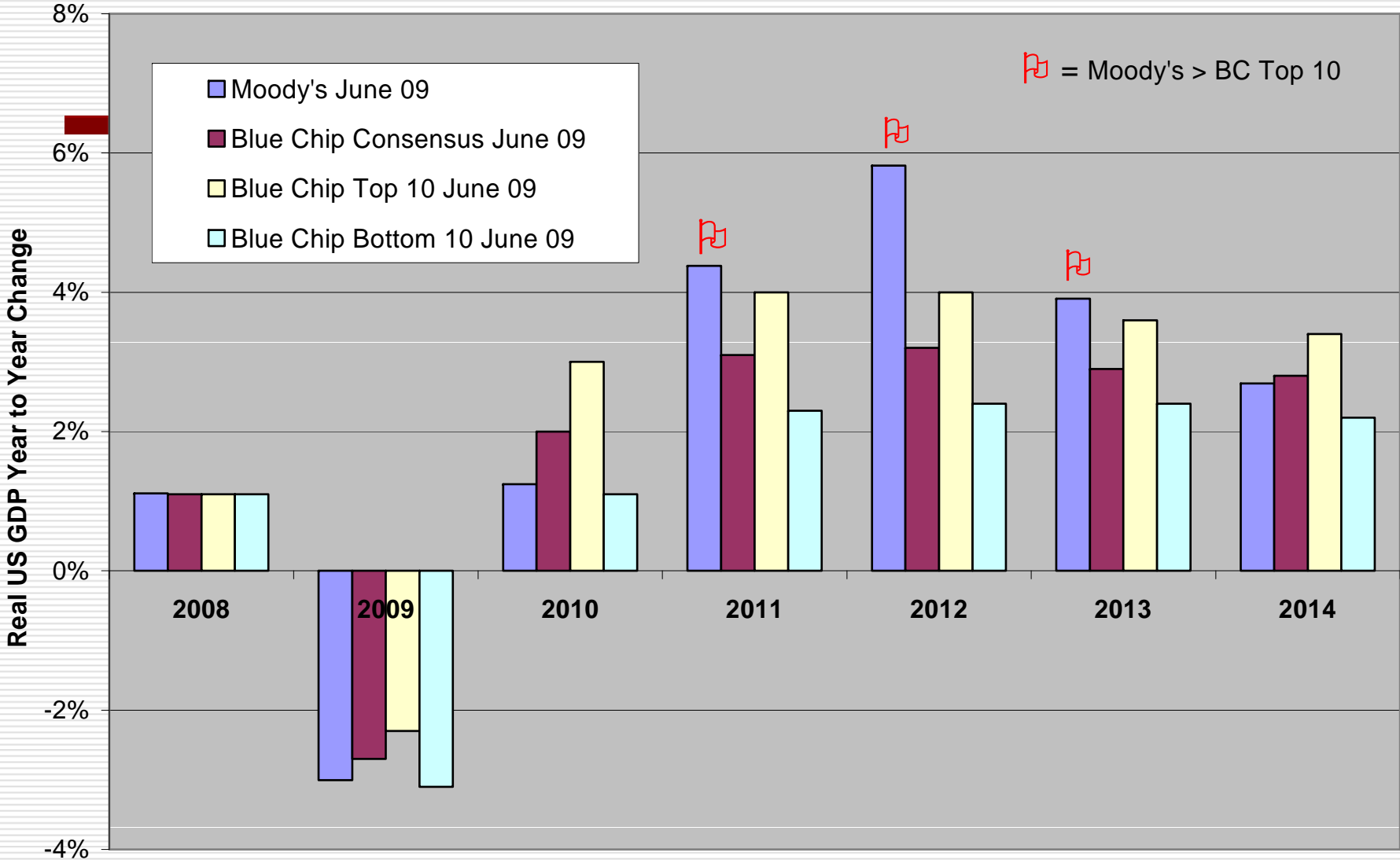
## US GDP Forecasts, June 2009 (to 2020)



## US GDP Forecasts, September-October 2007



# US GDP Forecasts, June 2009



## Moody's Economy.com Forecast of US GDP Growth Recently Has Exceeded the Blue Chip Top Ten Average

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Since December 2007, Moody's Economy.com's forecasts of GDP growth have been higher than nearly all other forecasts for some of the coming years

Forecast date	Forecast years for which Moody's > B.C. Top 10
Oct. 2007	None
Dec. 2007	2009, 2010
June 2008	2009, 2010
Oct. 2008	2010, 2011
Dec. 2008	2011, 2012, 2013
June 2009	2011, 2012, 2013