Technical Oversight Team Comments
2nd Quarter Report, 2013 – The Nature Conservancy, Energy Forecast Project

Reviewer #1 - Regarding the Shale gas model and paucity of drilling information on the Utica shale, it is disappointing but I agree. New information appears becoming available daily and could help extend the model beyond the marcellus. For example, Ohio Department of Natural Resources appears to monitoring Utica shale activities
See http://www.dnr.state.oh.us/tabid/23014/default.aspx.

Reviewer #2 - At this point I do not have much to add. I agree with most comments already provided by team members. In terms of comments on the coal models, is it possible to provide the potential sources of the data folks think would be more meaningful to that effort? From my experience, the suggestions provided are good but I'm not sure about accessibility or the geographic scope. In terms of the section forecasting future coal productions (section 3), I think it should be rewritten. The detailed technical writing overshadows the findings of the work and I'm still unclear why some data were excluded. Perhaps the meeting in September will allow for further discussions on this section since the researcher was not on the conference call in July.

Reviewer #3 - What is going on now in the electric power market is unprecedented. Because of this, I believe we will have problems in using past data to understand future conditions. Historic conditions do not reflect today's rapidly accelerated plant closures – there is not a historic analog to current trends.
For corroboration of this, I refer you to the annual transmission expansion plan of one of our regional transmission organizations, PJM, here:
http://www.pjm.com/~/media/documents/reports/2012-rtep/2012-rtep-book-1.ashx . At the top of section 2.1 – the very first point made – is the historic volume of plant deactivation activity since 2011. In a 14 month period they saw plans for more powerplant deactivation than what they had seen over 9 years prior. While not all of this is coal-fired power, most of it is, and the scale of planned plant deactivations is very sizeable. Clearly, there is no way that the prior decade's data tells us very much about the future volume of demand for coal.

While the proposed analysis scenario for the LCC study of dropping out plants built before 1970 would drop out many of these same plants, I don't think that enables us to better predict where new mining would occur. We don't yet have any data that shows us what new mining looks like without those plants – because those plants have been in operation. We lack a historical record that corresponds to the rapid, industry-wide decommissioning of coal-fired power plants now identified for retirement by their owners.

Because there is no historical record against which to run this analysis, I don't think a series of scenarios is the way to analyze around this uncertainty.

I would like more scrutiny of the inclusion of coal-fired power plants as a predictive variable in the model and discussion on whether the model is better or worse for having this as one of the independent variables. Having distance to coal-fired powerplants as a predictive variable in the model gives me pause for two reasons:

1) I am not convinced that the causal link is in the direction of mining being located in proximity to power plants rather than the reverse

2) There is an historic degree of change underway now in the power market with unprecedented numbers of coal-fired plant closures in the last 2 years (still ongoing), and so this work has created a model which is grounded on a highly unstable predictive variable.

For these reasons, I feel that the variable on distance to powerplants may be a problematic element and I would be interested in seeing how the model performs with and without the powerplants component.

Even if we decide that power plants are a proper predictive variable for inclusion in the model, it appears that the current model fails to address the generation capacity of one plant relative to the next, essentially treating them as equals when they may be significantly different in their consumption of this fuel. I would think then that the distance to powerplants would need to be weighted for these differences – if we keep this variable and I am still questioning its inclusion. I tend to think the movement toward global markets makes this whole concept of weighting this variable moot.

So, I would like to see how the model performs with and without this variable and if its removal changes the location of the projected coal mining activity.

My second question relates to the model specification at the county level rather than a regional level. I recognize that source data is organized at the county level, but am asking whether we could or should aggregate that information to a supra-county level. It is unclear to me why we would want to silo the analysis into county-level findings. Wouldn't this interfere with our ability to spatially predict future mining activity across the LCC geography?