

APPALACHIAN LANDSCAPE CONSERVATION COOPERATIVE GRANT 2013 PROGRESS REPORT

Quarter: (circle one)

2013 1st

2013 2nd

2013 3rd

2013 4th

Grant Number and Title: 2012-02; Assessing Future Impacts of Energy Extraction in the Appalachian LCC

Grant Receipt/Organization: The Nature Conservancy

Grant Project Leader: Joseph Kiesecker/Judy K. Dunscomb

Were planned goals/objectives achieved last quarter? YES

ALCC Need Addressed: Forecasting Resource Extraction

Progress Achieved: (For each Goal/Objective, list Planned and Actual Accomplishments)

Coal Model: Minor revisions have been made to the final report submitted last quarter, including a quantitative validation of the model, and clarification of the description of some input variables. The final report and datasets can be accessed [here](#).

Shale Gas Model: The previous [LCC-wide shale model](#) has been revised (Figure 1) through the inclusion of approximately 4,000 wells which serve as training and validation points. About 115 of these are in the southern portion of the study area. The Utica shale model has also been revised, specifically; the analysis boundary has been changed to correspond to the full extent of the Utica formation. The input data for this model are almost exclusively wet gas wells, meaning that while the Utica model is a good model for wet gas it does not predict dry gas development in the region.

Wind Development Model: The [wind model](#) was also revised with an expanded input dataset. (Figure 2)

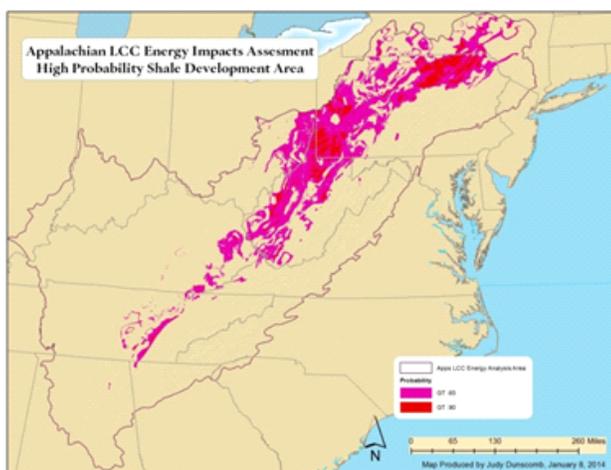


Figure 1: LCC Shale Gas Probability Model Output

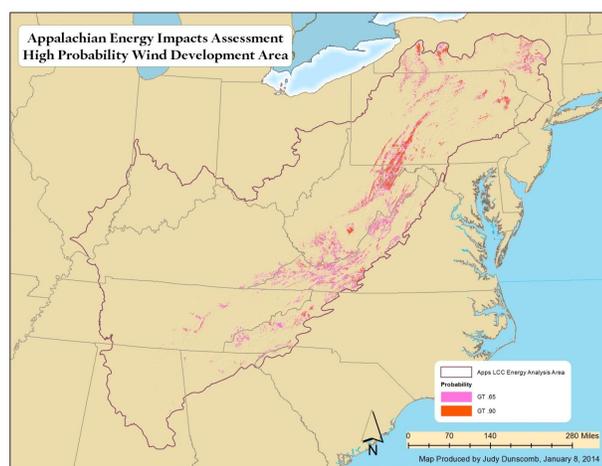
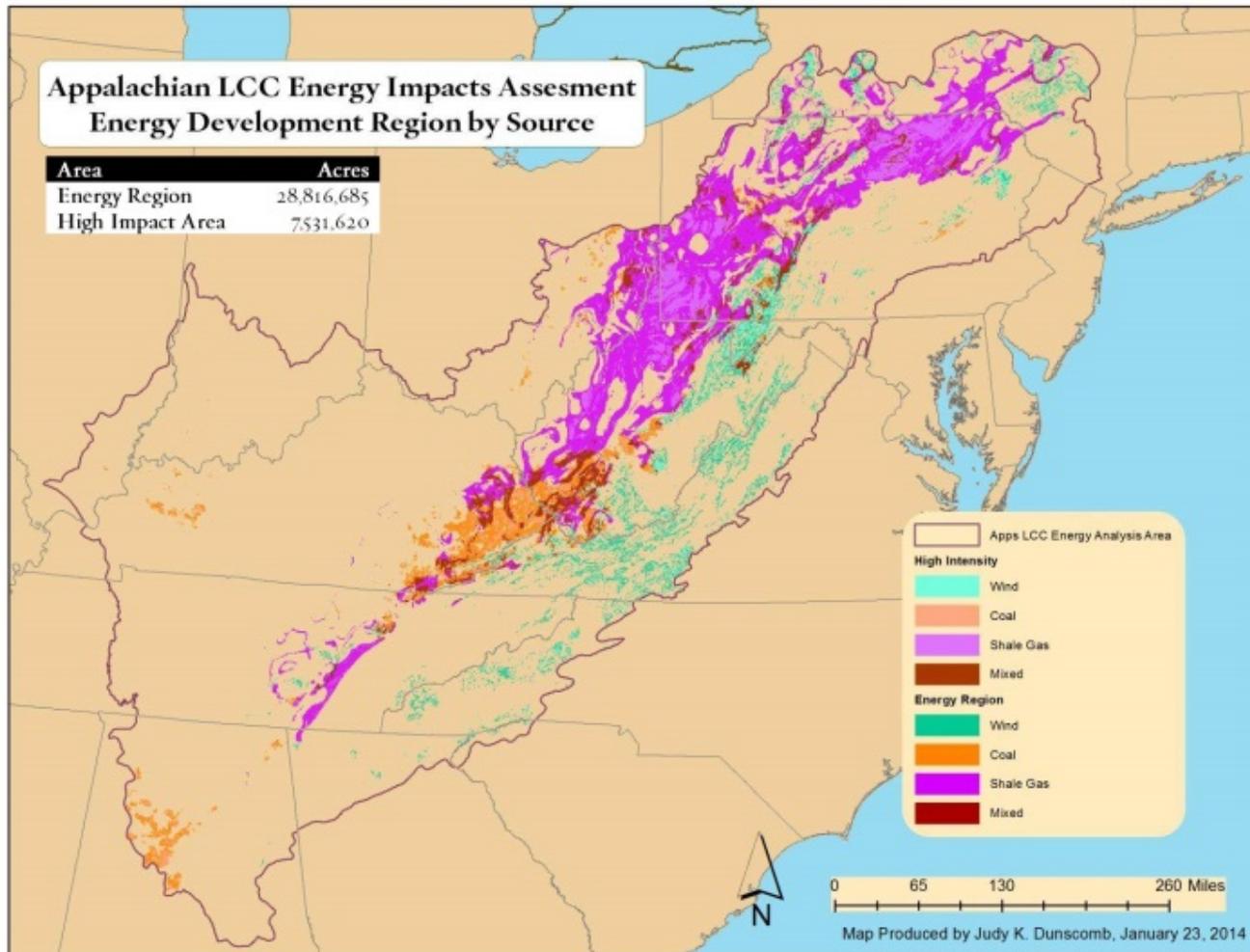


Figure 2: LCC Wind Probability Model Output



Resource Layers: We have worked with the Technical Oversight team and the LCC GIS manager to compile a set of resource data layers to analyze for the risk of potential energy impacts and we are currently developing a methodology to relate our estimates of future potential development with risk for the various resource layers. Layers we have compiled are:

- 1) Forests
 - a. Forest Cover
 - b. Large Interior Forest Patches
 - c. TNC Terrestrial Portfolio
 - d. Audubon Forest Habitat Prioritization
 - e. Globally/Continentially Significant IBAs
- 2) Freshwater
 - a. Watershed Impervious Cover Class
 - b. TNC aquatic portfolio
 - c. Ohio River Partnership Important fish and mussel watersheds
 - d. Stream System Types (requested, not yet obtained)
 - e. Eastern Brook Trout Distribution Data
- 3) Cave/Karst Conservation Areas (requested, not yet obtained)
- 4) Ecosystem Services
 - a. Important Drinking Watersheds
 - b. Scenic Byways and Trails

Web Map Server: New data sets have been uploaded to the web-map server as they are being developed.

Summary of Progress: Models that depict the probability of coal, shale gas, and wind energy development across the Appalachian Landscape Conservation Cooperative have been improved, and resource layers for energy impacts analyses have been compiled in consultation with the Technical Oversight Team. We are finalizing our approach to estimate potential energy impacts and will include these in our final report.

Difficulties Encountered: As noted above, although the data for shale gas model is much improved, coverage across the southern portion of the LCC is limited, reducing the ability of the model to accurately predict shale gas development in the region. Similarly, the data available for the Utica shale are wet gas wells, meaning that the model we have produced is a wet gas model and does not accurately predict the probability of dry gas development.

Activities Anticipated Next Quarter: Finalize resource overlays; create final report; complete metadata associated with GIS datasets; populate web map server with resource analyses.

Expected End Date: April 30, 2014. Final report to be delivered by 2/28/2014.

Costs:

Funds Expended to Previous to this Report: \$61,380.00

Amount of ALCC Funds Requested within this Report: \$105,923.37

Total Approved Budgeted ALCC Funds: \$216,329.13

Are you within the approved budget plan? YES

Are you within approved budget categories? YES

Signature:



Date: 1/30/2014