

**Yadkin Project (FERC No. 2197)  
Surrounding Counties Economic Impact Analysis  
Final Study Plan  
March 2004**

***Background***

Alcoa Power Generating Inc. (APGI) is the licensee for the Yadkin Hydroelectric Project. The Yadkin Project is currently licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2197. This license expires in 2008 and APGI must file a new license application with FERC on or before April 30, 2006 to continue operation of the Project.

The Yadkin Project consists of four reservoirs, dams, and powerhouses (High Rock, Tuckertown, Narrows, and Falls) located on a 38-mile stretch of the Yadkin River in central North Carolina. The Project generates electricity to support the power needs of Alcoa's Badin Works, to support its other aluminum operations, or is sold on the open market.

As part of the relicensing process, APGI prepared and distributed, in September 2002, an Initial Consultation Document (ICD), which provides a general overview of the Project. Agencies, municipalities, non-governmental organizations and members of the public were given an opportunity to review the ICD and identify information and studies that are needed to address relicensing issues. To further assist in the identification of issues and data/study needs, APGI has formed several Issue Advisory Groups (IAGs) to advise APGI on resource issues throughout the relicensing process. IAGs will also have the opportunity to review and comment on Draft Study Plans. This Final Study Plan has been developed in response to comments on the ICD and through discussions with the County Economic Impacts IAG, to provide additional information for consideration in the relicensing process.

***Organization of the Study Plan***

The Study Plan for the Surrounding Counties Economic Impact begins with a description of the regulatory setting in which the study takes place and a summary of the issues to be addressed. Next, the Study Plan specifies the objectives of the Study and presents the planned Technical Approach for analyzing each of the issue areas. Finally, the Study Plan describes the plan for reporting the Study findings to APGI and the IAG and presents the study schedule.

***Overview***

The Yadkin Division of APGI is in the process of relicensing its 216 MW Yadkin Hydroelectric Project, utilizing an enhanced version of the FERC three-stage relicensing process. One of the issues raised during the initial consultation and through the County Economic Impacts IAG relates to the impacts of the Project reservoirs on the economies of the surrounding five counties (Davidson, Davie, Montgomery, Rowan, and Stanly counties) under current reservoir operations and other water level scenarios. The Surrounding Counties Economic Impact study will examine the economic impact issues from several perspectives, as described below.

***Issues***

During the first County Economic Impacts IAG meeting, members identified questions relating to the reservoirs and their impacts on the counties' economies. These individual questions have been grouped into four overarching issue areas, as presented at the November 2003 meeting of the County Economic Impacts IAG. These issue areas are:

1. What are the reservoir related businesses in the five county area, what is their contribution to the economies of the five counties, and how are the businesses affected by the reservoirs?

2. What is the contribution of the reservoirs to surrounding property values and the county tax base?
3. What is the relationship between the reservoirs and recreation, tourism, and visitors?
4. What is the impact of alternative reservoir operating scenarios on the economies of the surrounding five counties (excluding recreation impacts).

### ***Objectives***

The overall objective of the Surrounding County Economic Impact Study is to document and analyze the relationship of the Project reservoirs to the economies of the surrounding five counties, under current reservoir operations and other alternative water level scenarios. Once appropriate alternative water level scenarios have been identified, RTI will use publicly available information to characterize the reservoir related business sectors, and to estimate the impacts of alternative water level scenarios on these business sectors. Similarly, RTI will use publicly available information to characterize the baseline effects of the reservoirs on property values and tax base within the five counties, and will characterize the impact of alternative water level scenarios on these endpoints.

RTI will also characterize tourism expenditures and opportunities at baseline and under alternative water level scenarios. To do this, RTI will combine information about reservoir recreation tourism collected by ERM, another consultant to APGI, with data on other tourism expenditures collected during the business inventory task.

Finally, RTI will combine the results of the recreation impact study being conducted by ERM with the findings from the surrounding counties impact study to present a comprehensive report on the impacts of alternative water level scenarios on the counties' economies. Examples of data that may be used for the analysis include Census data, data embodied in existing studies and plans (such as the Central Park Region studies, county economic development plans, the Shoreline Management Plan, etc.), county property tax records and property tax rates, Geographic Information Systems (GIS) data for each county available, and information provided by experts in the area.

### ***Technical Approach for Estimating Economic Impacts on Surrounding Counties' Economies***

RTI will confer with the IAG to identify business sectors that should be considered for inclusion in the analysis. These business sectors may include industrial, recreation businesses, non-recreation tourism, residential and commercial construction, agriculture, and others, to be determined in consultation with the IAG. RTI will use its professional judgment to determine which sectors should be considered reservoir-related, based on data it has collected and in consultation with the IAG. RTI will then prepare an inventory of existing, reservoir-related, businesses.

RTI will then characterize reservoir-related commercial and industrial sectors, including (depending on data availability), a descriptive characterization; an identification of number, type, and location of businesses in each affected sector; and/or estimated or actual sales and employment by business or by sector. (The exact definition of "sector" has yet to be determined, but one possible definition would be based on SIC codes.)

For these sectors, RTI will estimate the contribution to the county economies, and the reservoir-related share of employment and expenditures. A possible approach would use data from the IMPLAN input-output model of North Carolina to estimate county-wide indirect and induced expenditures resulting from the direct impact of these businesses on the county economies.

RTI will use the information described above to characterize baseline conditions for reservoir-related businesses. RTI will define the baseline as a continuation of current conditions.

RTI will then examine the relationship of the reservoirs and their water levels to these sectors. For each of the alternative water level scenarios (two or three alternatives are expected), RTI will estimate the direct impact of the water level scenario on the business sectors. Then, RTI will attempt to estimate the overall impact of the alternative water level scenarios on county economies as a result of these direct impacts. If IMPLAN is to be used, RTI will coordinate its use of IMPLAN with that of ERM to ensure that the assumptions underlying the two studies are consistent.

### ***Technical Approach for Estimating Property Value Impacts***

RTI will examine the relationship between property proximity to the reservoirs and property values, holding other factors constant. Then, RTI will attempt to evaluate the effect of alternative water level scenarios on property values. RTI will review the literature to identify studies that quantify the impact of reservoirs and reservoir water levels on property values. RTI will obtain Geographic Information Systems (GIS) parcel data for each county, where available, and will explore the availability of Multiple Listing Service data for the counties.<sup>1</sup> MLS data provide greater detail in parcel description and also provide sales prices. RTI will then estimate the property value premium associated with shoreline proximity, by comparing measures of value, including dollars per acre and dollars per square foot of residences on the parcels, for parcels at varying distances from reservoir shorelines. If the data is sufficient, RTI will use statistical techniques to isolate the share of property value attributable to proximity to the reservoir from other factors that also affect value. RTI will also attempt to distinguish property types (residential, commercial, industrial, agricultural, etc.).

RTI will estimate the share of the counties' tax base represented by Project-related businesses and residences, using assessed value data listed above.

RTI will estimate the impact of different water level scenarios, using information from the literature, from local and national experts in Real Estate including those at the National Association of Realtors and the Urban Land Institute, and possibly information from other "surrogate" reservoirs that are similar in character to the Yadkin Project reservoirs. RTI will explore the availability of information from other reservoirs to use in quantifying the impact of fluctuating water levels. RTI will seek to identify reservoirs in the Southeastern U.S. for which information is available on reservoir water level variability and on the parcel characteristics (from county-level GIS data) for parcels near the reservoirs. If data are available, RTI will build on the statistical work described above to attempt to estimate the impact of variability in water levels on the values of nearby properties.

### ***Integrating Recreation Impact Estimates with other Impact Estimates***

RTI will obtain the results of the ERM recreation impact study from APGI. RTI will work with ERM and APGI to ensure that analysis methods, data used, and other parameters of the two studies are compatible, to the extent possible. To provide a complete characterization of the impacts of alternative water level scenarios on the county economies, RTI will combine the results from this study with the results from ERM's recreation impact study to prepare an integrated evaluation.

### ***Reporting***

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<sup>1</sup> At the November, 2003 County Economics IAG meeting, IAG member Greg Scarborough of the Rowan/Salisbury Association of Realtors offered assistance in obtaining MLS data for Rowan County.

RTI will compile the data, methodology, and results of the analyses described above into a report for APGI and the County Economic Impacts IAG. The report will be comprehensive and also comprehensible. Detailed descriptions of data and analytical methods will be presented in appendices, along with other supporting information, so that the main body of the report is clear and thorough, but also easily understood.

RTI will prepare a draft report, which will be distributed to the County Economic Impacts IAG for review. RTI will meet with APGI and the County Economic Impacts IAG to present the findings of the analysis, discuss the draft report, and receive comments on the draft report.

After receiving comments from APGI and the County Economics IAG, RTI will revise the draft report as appropriate into a final study report.

***Schedule***

RTI expects to conduct the analyses described in this study plan over a period from February 2004 through October 2004. The following table provides a schedule for significant project activities.

| <b>Project Activity</b>   | <b>Anticipated Performance Period</b>      |
|---|--|
| <i>Task 1 Activities</i>  |  |
| Present Study Plan to IAG and prepare final Study Plan                                  | February 4, 2004 through February 13, 2004 |
| <i>Task 2 Activities</i>  |  |
| Collect data, review literature, inventory businesses, characterize baseline conditions | February 16, 2004 through April 30, 2004   |
| Assess impacts of alternative water level scenarios*                                    | May 1, 2004 through July 31, 2004*         |
| Prepare and deliver draft report of findings  | 4 <sup>th</sup> Quarter, 2004              |
| Prepare and deliver final report of findings  | 4 <sup>th</sup> Quarter, 2004              |

\* Evaluation of alternative water level scenarios must be done in conjunction with a similar analysis being done by ERM as part of the Recreation Economics Assessment.