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Date of Hearing: November 28, 2012

Case No. 12-160-EL-BGN - Volume XI

PUCO Case Caption: In the Matter of the Application of Champaign Wind LLC for a Certificate to Construct a Wind-Powered Electric Generating Facility in Champaign County, Ohio.

List of exhibits being filed:

County/Townships Exhibit No. 10

Reporter's Signature: Maria D'Paolo Jones

Date Submitted: _____

BEFORE THE OHIO POWER SITING BOARD

- - -

In the Matter of the Application of Champaign Wind LLC for a Certificate to Construct a Wind-Powered Electric Generating Facility in Champaign County, Ohio.	: : : : : :	Case No. 12-0160-EL-BGN

- - -

PROCEEDINGS

before Ms. Mandy Willey Chiles and Mr. Jonathan Tauber, Administrative Law Judges, at the Public Utilities Commission of Ohio, 180 East Broad Street, Room 11-A, Columbus, Ohio, called at 9:00 a.m. on Wednesday, November 28, 2012.

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VOLUME XI

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State and Local
Climate and Energy Program

Assessing the Multiple Benefits of Clean Energy

A RESOURCE FOR STATES

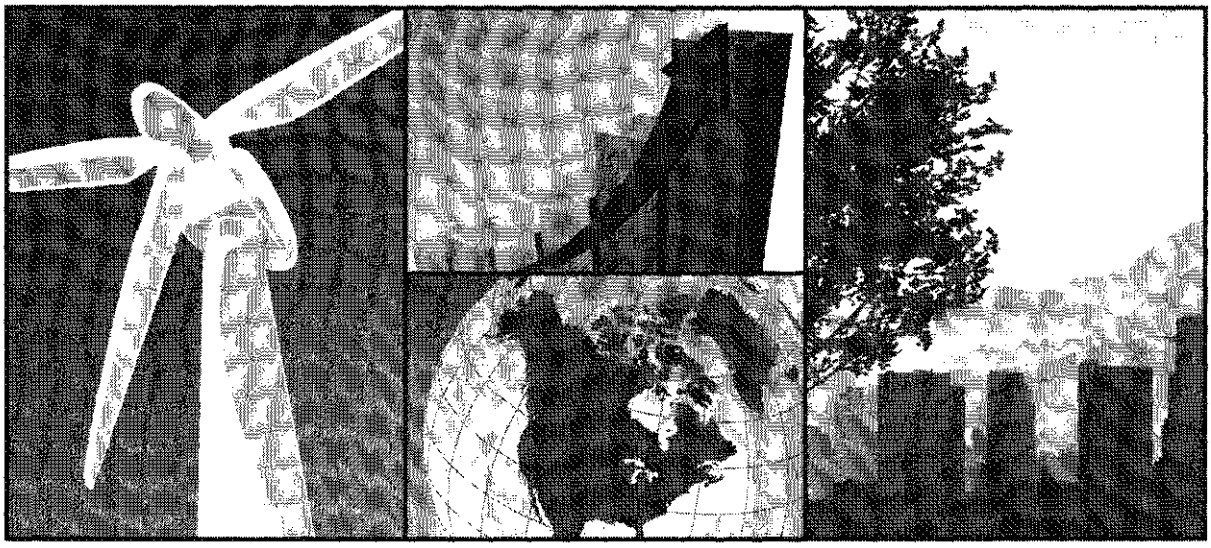

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TABLE 5.2.1 COMPARISON OF BASIC AND SOPHISTICATED APPROACHES FOR QUANTIFYING MACROECONOMIC EFFECTS OF CLEAN ENERGY INITIATIVES

Type of Method	Sample Tools or Resources	Advantages	Disadvantages	When to Use this Method
Basic Approaches: ▪ Rule-of-thumb estimates and ▪ Screening models	▪ Rule-of-thumb Factors ▪ Job and Economic Development Impact (JEDI) Model ▪ RMI Community Energy Opportunity Finder ▪ Renewable Energy Policy Project Labor Calculator	▪ May be transparent ▪ Requires minimal input data, time, technical expertise, and labor. ▪ Inexpensive, often free.	▪ Overly simplified assumptions ▪ Approximate results ▪ May be inflexible.	▪ When time and resources are short ▪ For high-level, preliminary, analyses ▪ To get quick estimates of employment, output and price changes ▪ When screening a large number of policy options to develop a short list of options for further analysis.
Sophisticated Approaches: ▪ Input-Output; ▪ Econometric; ▪ Computable General Equilibrium; and ▪ Hybrid Models	▪ IMPLAN, ▪ RIMS II ▪ RAND econometric model ▪ BEAR ▪ REMI Policy Insight	▪ More robust than basic modeling methods. ▪ May be perceived as more credible than basic methods. ▪ Provides detailed results ▪ May model impacts over a long period of time ▪ May account for dynamic interactions within the state/ regional economy.	▪ May be less transparent than spreadsheet methods. ▪ May require extensive input data, time, technical expertise, and labor commitments. ▪ Often high software licensing costs. ▪ Requires detailed assumptions that can significantly influence results.	▪ When policy options are well defined ▪ When a high degree of precision and analytic rigor is desired ▪ When sufficient data, time and financial resources are available.

Basic Approaches for Macroeconomic Impact Analysis

At the simpler, less resource-intensive level, screening tools and approaches provide quick, low-cost analyses of policies and require less precise data than needed for a rigorous, advanced analysis. These screening methods provide rough estimates of impacts and give a sense of the direction (i.e., positive or negative) and magnitude of the impacts upon the economy. They provide a useful screening device when many options are under consideration and limited resources are available to conduct advanced analyses. For example, a state considering a lengthy list of climate change mitigation options can use a screening tool to help rank the candidates to create a short list of options that warrant further analyses with more sophisticated tools. Screening approaches, such as rule-of-thumb job factors and tools (e.g., NREL's JEDI model, the RMI Community Energy Opportunity Finder, and REPP's Labor Calculator), are described below.

Rule-of-Thumb Economic Factors

States can apply rules of thumb or generic economic factors to their program results to estimate the economic impacts of clean energy measures in their states. These rules of thumb are typically drawn from more rigorous analyses and can be used when time and resources are limited. However, they provide only rough approximations of clean energy program impacts and so are most applicable for use as screening-level tools for developing preliminary benefit estimates and for prioritizing potential clean energy activities. Table 5.2.2 lists several rules of thumb that states have used to estimate the income, output, and employment impacts of energy efficiency and renewable energy programs.

TABLE 5.2.2 RULES OF THUMB FOR ESTIMATING INCOME, OUTPUT, AND EMPLOYMENT IMPACTS OF CLEAN ENERGY ACTIVITIES

Rule of Thumb	Source
TYPE OF IMPACT: Income/Output	
1 MW of wind generated requires $1 billion investment in wind generator components.	REPP, 2005 *http://www.repp.org/articles/static/1/binaries/Ohio_Manufacturing_Report_2.pdf*
$1 spent on concentrated solar power in California produces $1.40 of additional GSP.	Stoddard et al., 2006 *http://www.nrel.gov/docs/fy06osti/39291.pdf*
$1 spent on energy efficiency in Iowa produces $1.50 of additional disposable income.	Weisbrod et al., 1995 *http://www.edrgroup.com/library/energy-environment/iowa-energy.html*
$1 million in energy savings in Oregon produces $1.5 million of additional output.	Grover, 2005 *http://www.oregon.gov/ENERGY/CONS/docs/EcoNW_Study.pdf*
TYPE OF IMPACT: Employment	
$1 million in energy savings in Oregon produces about $400,000 in additional wages per year.	Grover, 2005 *http://www.oregon.gov/ENERGY/CONS/docs/EcoNW_Study.pdf*
$1 billion investment in wind generator components creates 3,000 full-time equivalent (FTE) jobs.	REPP, 2005 *http://www.repp.org/articles/static/1/binaries/Ohio_Manufacturing_Report_2.pdf*
$1 million invested in energy efficiency in Iowa produces 25 job-years.	Weisbrod et al., 1995 *http://www.edrgroup.com/library/energy-environment/iowa-energy.html*
$1 million invested in wind in Iowa produces 2.5 job-years.	Weisbrod et al., 1995 *http://www.edrgroup.com/library/energy-environment/iowa-energy.html*
$1 million invested in wind or PV produces 5.7 job-years vs. 3.9 job-years for coal power.	Singh and Fehrs, 2001 *http://www.repp.org/articles/static/1/binaries/LABOR_FINAL_REV.pdf*
1 GWh of electricity saved through energy efficiency programs in New York yields 1.5 sustained jobs.	NYSERDA, 2008 *http://www.nyserda.org/pdfs/Combined Report.pdf*
$1 million of energy efficiency net benefits in Georgia produces 1.6-2.8 jobs.	Jensen and Lounsbury, 2005 *http://www.gefa.org/Modules/ShowDocument.aspx?documentid=46*

As shown in Table 5.2.2, for example, the Renewable Energy Policy Project (REPP) estimates that every $1 billion of investment in the components that make up wind generators creates 3,000 full-time equivalent (FTE) jobs. REPP also finds that every megawatt (MW) of wind requires a $1 billion investment in the generator components (REPP, 2005). If a state has estimated the amount of renewable (wind) electricity that will be generated from its clean energy programs, it can use these factors to determine the amount of jobs that could be created.

The New York State Energy Research and Development Authority (NYSERDA) has developed a similar jobs factor for energy efficiency programs. It estimates that every GWh of electricity saved through energy efficiency programs yields 1.5 sustained jobs.[5] This factor is derived from a more sophisticated analysis of the macroeconomic impacts of the New York Energy $mart Program through 2007. This analysis estimated that the program had created, on average, 4,700 net jobs each year between 1999 and 2007 while saving about 3,164 GWhs in electricity (NYSERDA, 2008). Dividing the

[5] *By sustained, it means that the job is expected to last 15 years.*