Task Work Order #4: Economic Impacts of the Green Jobs Green New York Program

Agreement Number 22600

**RFP 1810 - Economic and Environmental Impact Evaluation
Contractor**

April 18, 2013

Background

The New York State Energy Research and Development Authority (NYSERDA) selected ICF Resources, LLC (ICF) to conduct studies related to economic and environmental impacts associated with NYSERDA's programs. The umbrella contract (#22600) states that NYSERDA will issue Task Work Orders to conduct individual projects. This Task Work Order authorizes ICF to conduct a study of the economic impacts of the Green Jobs Green New York (GJGNY) Program (Program). The economic analysis will be conducted in collaboration with NMR Group, Inc. who is tasked with collecting survey data associated with direct job impacts.

The specific objectives of the economic impact analysis include:

- Using direct job estimates and associated wage information provided by NMR Group, estimate the total indirect and induced jobs generated for 2013 and 2015 as a result of GJGNY-funded program activities;
- Determine other economic impacts, such as overall economic activity in terms of labor income, GSP and economic output;
- Estimate the jobs and other economic impacts in economically disadvantaged communities[1] in the State targeted by the Program;
- Conduct post-model wage comparison of direct GJGNY-funded jobs to publically-available industry wage averages.

This Work Plan describes the analysis to be conducted by ICF. It outlines the tasks, deliverables, schedule, staffing, and budget. It also presents the assumptions ICF used to develop the budget and timeline. Under a separate NYSERDA contract and separate deliverables, NMR Group, Inc. will lead the survey research and analysis that will serve as the foundation for the economic analysis to be conducted by ICF. ICF expects that each firm will have input and review responsibilities for the other's tasks.

Based on direction from NYSERDA, ICF will use IMPLAN to conduct the economic impact analysis. There will be one single modeling region: the State of New York. Based on direction from NYSERDA, the analysis will focus on the macroeconomic impacts (instead of net impacts), and it will not address the energy savings impact or other co-benefits of the program activities funded by GJGNY.

Tasks

The economic impact analysis will use the number of direct jobs obtained through the NMR-led survey as the model input to estimate the indirect and induced impacts for an overall assessment of the economic impact of GJGNY in New York State. This Work Plan comprises the five tasks presented below.

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[1] ICF will use the same definition of economically disadvantaged communities as NMR.

Task 1 – Finalize the Work Plan, and Provide Status Reports

ICF will finalize the Work Plan based on NYSERDA direction and input. ICF allocated 39 hours to finalize the Work Plan.

After the Work Plan is finalized, ICF will start the project work. ICF shall hold a kick-off meeting call with NYSERDA and all involved contractors (NMR, ICF, and EFG) to be held prior to the start of project work, depending on time and resource constraints.

ICF shall provide monthly status reports via e-mail by the first of each month. The monthly status reports will include a summary of the work performed, a description of technical progress, schedule status, and any concerns with recommendations on how to address them. ICF shall also include monthly budget tracking in these status reports.

As requested by the NYSERDA Project Manager, and at times and locations mutually acceptable, ICF shall be available for teleconferences with NYSERDA to present deliverables, discuss progress, exchange information, or resolve emerging technical or contractual issues.

For budgeting purposes, ICF has allocated 24 hours for the kick-off meeting, monthly reporting (over the approximate five month period of performance) and as-needed coordination with the NYSERDA Project Manager. ICF shall inform the NYSERDA Project Manager when resources beyond this level are required.

Deliverable(s):

- Monthly status reports

- Monthly budget tracking reports

- Status update teleconferences

Task 2 –Provide Input to the Survey Research and Develop Model Inputs

ICF shall provide input to the survey research and analysis led by NMR. Specifically, ICF shall review and provide input on the questions to be developed by NMR for inclusion in surveys and interviews of trade allies and program partners. ICF's review will be focused on ensuring that the questionnaires are designed to capture the information ICF needs for the economic impact analysis.

For purposes of budgeting, ICF has allocated approximately 44 hours for coordination with NMR on the surveys throughout the project. To the extent additional coordination is required; ICF will inform the NYSERDA Project Manager and discuss implications for project resources.

ICF shall use the spreadsheet of survey results developed by NMR to determine the inputs to the IMPLAN model. NMR shall deliver to ICF a spreadsheet with the number of direct jobs (by four- and five-digit NAICS codes, New York State region, and economically disadvantaged community status[2]) to the full program population. The spreadsheet will also include average hourly wages by NAICS code. The spreadsheet provided by NMR will contain two sets of figures: current (2013) and projected (2015) direct jobs as derived from the surveys. Upon receipt of the spreadsheet, ICF shall prepare the input

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[2] The regions and disadvantaged communities will be defined under NMR's SOW, and the direct jobs data by regions and disadvantaged communities will be provided to ICF by NMR.

template for the model by mapping four and five-digit NAICS codes in the spreadsheet to the IMPLAN industry codes or, when necessary, by determining a more appropriate industry code based on the activities of the job. ICF shall then create IMPLAN Activity Templates for each of the two model runs: 2013 employment and the projected (2015) employment.

ICF has allocated approximately 85 hours for preparation of the statewide modeling inputs. This estimate reflects ICF's expectations regarding the quality and format of the data to be received from NMR. ICF shall use the direct job estimates provided by NMR as the main modeling input. ICF shall also use wage information collected by NMR as a secondary input to ensure that the model accounts for any wage differentials. To the extent possible, ICF shall rely on survey data to account for any wage differentials associated with existing employment that required up-skilling. ICF shall prepare the input Activity Templates and a very brief memo describing the modeling input methodology for NYSERDA's review. NYSERDA shall have one review cycle to provide feedback. If appropriate, ICF shall provide additional explanation and finalize the Activity Templates based on NYSERDA feedback. To the extent the quality and format of the data are not as expected, and NMR is unable to deliver revised data, additional resources and time may be required for Task 2 and Task 3.

Deliverable(s):

- Review of the surveys and interview questions in the monthly reporting. No separate memo will be prepared (although NYSERDA will be copied on communications with NMR regarding the results of and observations from ICF's review).
- Activity Template of inputs and a very brief input methodology memo before commencing the modeling. ICF will make edits to the Activity Template based on NYSERDA feedback.
- To accommodate the aggressive schedule, the Final Activity Template of model inputs and final write-up on input methodology will be incorporated into the Draft Report.

Task 3 –Conduct Impact Modeling and Analysis

ICF shall run the IMPLAN model for two scenarios – current (2013) and projected (2015) direct jobs – in order to evaluate the annual economic impact of the GJGNY program. ICF shall present the following output metrics for each year and distinguish between direct, indirect, and induced impacts,[3] for each of the following metrics:

- Employment
- Labor income
- Gross State Product
- Gross State Product multipliers
- Economic output

ICF's analysis will provide findings for 2013 and 2015.

Because of the static nature of the analysis, which is based on annual job estimates, the IMPLAN model is the preferred tool. IMPLAN is considered a static model because the impacts derived by the model are estimates of the indirect and induced impacts for one time period (in this case, the year in which the spending occurs). While it is likely that once the job is created, it will be sustained, the purpose of this assignment is to assess the secondary impacts associated with direct annual jobs, and thus ICF shall report impacts in terms of annual impacts.

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[3] Indirect impact is the impact of local industries buying goods and services from other local industries, and induced impact is the response by an economy to an initial change that occurs through re-spending of income received.

The employment estimates reported in the analysis will represent the number of annual jobs supported. ICF shall present "annual jobs" to denote the number of "bodies" employed who otherwise would be unemployed. Furthermore, IMPLAN does not distinguish between full-time and part-time employment. Thus, impacts estimated in the analysis will equate to the number of "bodies" employed, rather than the amount of full-time employment activity generated. The rest of the outputs will be reported in dollars. ICF shall present labor income, which represents the income received from the increase in total employment. Gross State Product represents the value-added in the economy. Economic output represents the total value from the output created by the program. Finally, ICF shall report the amount of local, state, and federal tax revenues that are expected to be generated because of the increase in economic output.

For purposes of budgeting, ICF has allocated approximately 100 hours to run the statewide model twice (2013 and 2015) and conduct post-model regional wage analysis. After producing model outputs for the 2013 and 2015 runs, ICF shall determine the output multiplier associated with each output metric. Using this output multiplier, ICF shall allocate the impact regionally based on employment proportion. ICF shall then do the same for the region categorized as economically disadvantaged. ICF shall analyze the results for each of five output metrics for each year (2013 and 2015) for the State, each region, and economically disadvantaged communities.

In addition to the economy-wide impacts, ICF shall also identify the industry sectors (based on IMPLAN industry sectors[4]) that are expected to gain the largest number of total (i.e., direct, indirect, and induced) jobs and economic activity from the program statewide and in the economically disadvantaged areas. ICF shall present the results in terms of the sectors that experience the biggest job and GSP gains under each scenario.

For purposes of budgeting, ICF has allocated approximately 28 hours to conduct the industry-level analysis for the two modeling timeframes. After completing the modeling, ICF shall prepare a template of model outputs to present to NYSERDA. ICF shall present this to NYSERDA for feedback and make adjustment to the modeling runs, as needed. For budgeting purposes, ICF has allocated 30 hours to prepare the model outputs, respond to NYSERDA feedback, and make any necessary changes to the modeling runs.

Post-model, ICF shall compare the average hourly wages received from NMR to secondary source data to determine if wage differentials exist for GJGNY-funded jobs. The secondary source data may include QCEW, IMPLAN, and/or other sources, based on further discussion with NYSERDA and subject to time and resource constraints. ICF shall conduct the wage differential analysis at the industry-level; the granularity of the industry analysis is dependent on the quality of data received from the NMR survey effort. ICF shall present a spreadsheet of the wage analysis to NYSERDA for feedback and make adjustments to the analysis as needed. ICF has budgeted 56 hours for this analysis.

Throughout this task, ICF assumes some additional hours for coordination with NMR and NYSERDA to discuss project assumptions. ICF has set aside 20 hours (5 months * 4 hours).

> *Deliverable(s)*:
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> - Spreadsheet of IMPLAN model outputs for model runs (statewide 2013, 2015) and post-model regional and economically disadvantaged community analysis (2013, 2015).
> - Spreadsheet of wage analysis.

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[4] IMPLAN industry sectors are roughly comparable to 4 or 5-digit NAICS industry sectors in granularity.

Task 4 –Prepare Report

ICF shall prepare a written report (in draft and final forms) describing the results of the economic impact and wage analysis. The Report will include four sections: an introduction; a section on methodology that specifically denotes ICF's modeling approach, assumptions and limitations; and two results sections including a discussion of the analysis and key findings from both the impact modeling and wage analysis. The report will also include an appendix with detailed IMPLAN output tables as well as a high-level overview of the IMPLAN model.

For purposes of budgeting, ICF has allowed 160 hours for this task, based on the assumption that this is a high-level report (approximately 20 pages) focusing on high level and essential information, and that the review cycle is limited (one for the draft and one for the final) with comments from NYSERDA coordinated and harmonized by NYSERDA. Changes in these assumptions may affect the level of resources required.

ICF shall host a Webinar Presentation of the Draft Report with NYSERDA and related contractors to expedite the review process, as time and resource constraints permit. ICF shall present analysis findings to the GJGNY Advisory Council, per NYSERDA's request. For purposes of budgeting, ICF has estimated 60 hours for this task, based on the assumption that each Presentation will be a maximum of two hours. Additionally, ICF shall only make edits to the Final Report based on feedback from NYSERDA's official review. Thus, any feedback additional received during the Presentations that would require edits is expected to be included in NYSERDA's official review feedback (i.e. written comments, coordinated and harmonized by NYSERDA). Changes in these assumptions may affect the level of resources required, based on written direction from the NYSERDA Project Manager.

Deliverable(s):

- Draft Webinar
- Draft Presentation
- Final Report
- Final Presentation

Task 5 – Assist with Additional Job Impacts, Wage Comparison, and Benefit-Cost Analysis and Environmental Impacts

Task 5 includes several sub-tasks that may be required to further support Task 4. To the extent that resources allow and with written approval of the NYSERDA Project Manager, this task may also include a presentation for the ACEEE Energy Efficiency as a Resource Conference as well as any travel associated with this presentation or the GJGNY Advisory Council presentation. This task may also include additional edits to the Final Report based on feedback from GJGNY Advisory Council stakeholders. NYSERDA will be responsible for deciding what stakeholder feedback should be incorporated into the Final Report and consolidate edits for ICF.

To the extent that resources allow and with written approval of the NYSERDA Project Manager, ICF shall assist NYSERDA with additional jobs impacts, wage comparison, and/or estimating and reporting of environmental impacts and with reporting of benefit-cost analyses associated with the Program.

Deliverable(s):

Inclusion of activities in the monthly reports;

- Work plans and work products, within the allotted budget/hours, as requested by NYSERDA, via email, and approved by NYSERDA Project Manager and Program Manager;

- Presentation for the ACEEE Energy Efficiency as a Resource Conference;

- Travel associated with ACEEE Energy Efficiency as a Resource Conference or GJGNY Advisory Council presentation, as negotiated and approved by the NYSERDA Project Manager;

- Any additional edits to the Final Report based on feedback from GJGNY Advisory Council stakeholders. NYSERDA shall be responsible for deciding what stakeholder feedback should be incorporated into the Final Report and consolidate edits for ICF.

For purposes of budgeting ICF has assumed that the level of effort for this task is approximately 65 hours. Approximately 20 hours of this are expected to be required to support environmental impact analysis, with the remainder being allocated to benefit-cost analysis; this hour breakdown may change based on written direction from the NYSERDA Project Manager. ICF will keep the NYSERDA Project Manager informed as to expected level of effort on requested activities.

Schedule

Task 5 will be on-going and will continue until funds are expended, the contract term is expired, or at the written direction from the NYSERDA Project Manager. For all deliverables, there will be one (1) review cycle in which ICF shall make revisions based on consolidated NYSERDA input. To accommodate the aggressive schedule, deliverable review period is a maximum of one week, with the exception of the Draft and Final Report review periods, which are each a maximum of two weeks. Schedule of deliverables is based on specific submission and feedback deadlines. If there are any scheduled changes made to accommodate NYSERDA review timelines, then the overall schedule will adjust accordingly, pursuant to written direction from the NYSERDA Project Manager.

- Activity Template of inputs and an input methodology memo by May 31, 2013.
    - NYSERDA shall provide feedback within one week, by June 7, 2013.
- Spreadsheet of IMPLAN model outputs for model runs (statewide 2013, 2015) and post-model regional and economically disadvantaged community analysis (2013, 2015) by July 5, 2013.
    - NYSERDA shall provide feedback within one week, by July 12, 2013.
- Spreadsheet of wage analysis by July 5, 2013.
    - NYSERDA shall provide feedback within one week, by July 12, 2013.

- Final Report:
    - Draft Report by August 2, 2013.
        - NYSERDA shall provide consolidated edits within two weeks, by August 16, 2013.
    - Webinar material to be prepared for the GJGNY Advisory Council by August 26, 2013. Based on the GJGNY Advisory Council schedule the presentation may occur after August 26, 2013.
    - Final Report by August 30, 2013, or within two (2) weeks of receipt of consolidated input from NYSERDA on the Draft Report.

Staffing

Elizabeth Johnston will serve as the ICF Task Order Manager. Ms. Johnston is a Manager at ICF International with more than 7 years of economic and policy analysis experience. Ms. Johnston has a specialty in economic impact assessment, labor market analysis, and economic strategy development,

particularly related to the "green economy" and climate policy/regulation. She has used the IMPLAN model to assess the economic impacts of various industries, policies and institutions including the green sector in the DC Metro Area and the federal Immigrant Investor program. She is also currently managing a green-job survey and assessment in the State of Ohio. Ms. Johnston has extensive experience conducting impact assessment of industry and policy using a variety of economic impact models, calculators and data, including the REMI model, the IMPLAN model, BEA's RIMS II multipliers as well as various other public, private, and institutional job calculators. Ms. Johnston completed the management of a system-wide assessment of the California State University's 25 campuses using the IMPLAN model to assess the impact of the University system on its surrounding communities.

Dr. Federico Garcia will serve as a senior advisor to the project. He is a Ph.D. economist with 17 years of experience in workforce research, cost-benefit analysis, and regional economic impact analysis. Dr. Garcia, a Vice President at ICF, led the labor market analysis as part of a green jobs survey for Maryland, Virginia, and the District of Columbia. His analysis involved quantification and categorization of green jobs, existing and future job opportunities, number of vacancies, recruiting challenges, geographic distribution of the jobs, and analysis of wages. He is currently working on a renewable energy and energy efficiency job study for the State of Ohio. He led a project for the National Renewable Energy Laboratory that calculated how many jobs are created with each megawatt (MW) of photovoltaic panels manufactured and installed. In another project, Dr. Garcia evaluated Texas' economic development efforts in the energy sector. Using an economic impact analysis model, he produced a 10-year forecast of the workforce gap for each sector, including wind, solar, and hydroelectric energy and power transmission and distribution. Dr. Garcia's analysis has been published in the *Federal Register* as part of federal regulation and quoted in a variety of publications and in congressional testimony.

Alex Moscoso is an ICF economist with four years of consulting experience in economic impact analysis, regulatory impact analysis, non-market valuation, cost-benefit analysis, cost-risk analysis, and lifecycle cost analysis. Mr. Moscoso has provided analytical support for numerous economic impact analyses and labor studies for clients such as the U.S. Department of Transportation, Virginia Department of Rail and Public Transportation, and CSX. Mr. Moscoso has experience using economic impact modeling software such as IMPLAN. Mr. Moscoso is also proficient in several programming languages, and he has developed economic tools for use in lifecycle cost analyses, optimization, and risk analyses.

An **ICF junior economist** with experience in economic impact analysis will support the modeling effort.

Juanita Haydel is the ICF manager of the umbrella contract.

Project Assumptions

This Work Plan was prepared using the following assumptions. These assumptions impact the deliverables, cost, and schedule. Modification of the nature and/or scope of these tasks and deliverables may affect the proposed cost, schedule, and timetable.

- The period of performance for this project is November 19, 2012 (the date when the project work planning process was initiated) to August 30, 2013. If the period of performance is extended beyond this period for the client's convenience, the price bid may need to be adjusted to reflect the increase in ICF's costs for performing the work that remains. ICF's allocation of effort by task and labor category reflects ICF's best estimate of what will be required for the various tasks. However, ICF reserves the right to reallocate the hours across tasks and staff labor categories as required during performance of this project, within the overall constraint of the contracted price.

- ICF will receive the required data as follows:

  - NMR: Spreadsheet with survey research data (discussed in Task 3 above) by May 17, 2013.

- ICF will submit to NYSERDA the deliverables listed in Section III above by the time frame indicated. For all deliverables there will be one (1) review cycle in which ICF will make revisions based on NYSERDA input. Any delays in NYSERDA feedback will result in equal delays in the overall project schedule.

- The NYSERDA technical point-of-contact will assume responsibility for coordinating reviews of deliverables and ensuring that a consolidated set of written comments is provided to ICF. Consolidation requires that all feedback and comments be combined so that the requested revisions are presented in "one voice," without contradictory feedback. The NYSERDA technical POC will act as the final arbiter of content-related questions related to accuracy, completeness, and priority.

- The economic impact analysis will be conducted at the aggregate level for all GJGNY components as captured by the NMR survey; the analysis will not be conducted at the individual GJGNY component level.

- The Final Report will be developed by ICF with review input from NYSERDA. The report will focus on the analysis conducted by ICF; it will not contain a detailed description of the data collection and analysis led by NMR.

- ICF will use IMPLAN to conduct the economic impact analysis. There will be one single modeling region: the State of New York.

- No long distance travel is required, unless directed by the NYSERDA Project Manager.