

MEMORANDUM

TO: Collin O'Mara
Robert Zimmerman

FROM: Bahareh van Boekhold

DATE: December 19, 2011

SUBJECT: DNREC Evaluation, Measurement and Verification Contract

The contract presented here is the outcome of the DNREC's "NAT11123EM&Veval" RFP for "Statewide Evaluation, Measurement and Verification (EM&V) contractor", issued on 8/18/2011. DNREC received seven competitive bids, from nationally recognized evaluation firms. The proposal evaluation team was made up of members from Delaware PSC, Division of Energy and Climate, NASEO, and Lawrence Berkley National Lab (LBNL). Interviews have been held for three top bidders and the Opinion Dynamic Corporation was selected as the winning bidder by the evaluation team.

The primary objectives of this contract are to;

- Establish a statewide EM&V Framework and build a rigorous and transparent EM&V process for all energy efficiency and demand response programs in Delaware using the EM&V Framework and annual EM&V Plans to create consistent data collection requirements; and ensure consistent program impact and process evaluations; and
- To perform the best possible impact and process evaluation of current programs to support the State's oversight of ARRA funded programs and assess progress on statewide targets

The contract is funded by the ARRA grant and has an aggressive timeline in order to meet the April and July 2012 ARRA deadlines. Due to the pressing timeline, your prompt review and approval of this contract is highly appreciated.

Attachment

cc:
Carolyn Snyder

PROFESSIONAL SERVICES AGREEMENT

This Agreement ("Agreement") is entered into as of December 12, 2011 ("Effective Date") and will end on December 31, 2012, by and between the State of Delaware, Department of Natural Resources and Environmental Control, Division of Energy and Climate ("DELAWARE"), and OPINION DYNAMICS CORPORATION, a corporation, with offices at 230 Third Avenue Waltham, MA 02451 ("OPINION DYNAMICS").

WHEREAS, DELAWARE desires to obtain services to evaluate, measure, & verify energy programs in the State of Delaware; and

WHEREAS, OPINION DYNAMICS desires to provide such services to DELAWARE on the terms set forth below;

WHEREAS, DELAWARE and OPINION DYNAMICS represent and warrant that each party has full right, power, and authority to enter into and perform under this Agreement;

FOR AND IN CONSIDERATION OF the premises and mutual agreements herein, DELAWARE and OPINION DYNAMICS agree as follows:

1. Services

1.1 OPINION DYNAMICS shall perform, for DELAWARE, the following services in accordance with the schedule detailed below.

The Statement of Work to this Agreement, attached hereto and made a part hereof, provides greater detail and guidance of how OPINION DYNAMICS shall perform the services specified above.

1.2 DELAWARE may, at any time, by written order, make changes in the scope of this Agreement and in the services or work to be performed. No services, for which additional compensation may be charged by OPINION DYNAMICS, shall be furnished without the written authorization of DELAWARE. When DELAWARE desires any addition or deletion to the deliverables or a change in the services to be provided under this Agreement, it shall notify OPINION DYNAMICS, who shall then submit to DELAWARE a "Change Order" for approval authorizing said change. The Change Order shall state whether the change shall cause an alteration in the price or the time required by OPINION DYNAMICS for any aspect of its performance under this Agreement. Pricing of changes shall be consistent with those established within this Agreement.

1.3 OPINION DYNAMICS will not be required to make changes to its Statement of Work that

result in OPINION DYNAMICS's costs exceeding the current unencumbered budgeted appropriations for the services. Any claim of either party for an adjustment under Section 1 of this Agreement shall be asserted in the manner specified in the writing that authorizes the adjustment.

1.4 This Agreement's budget and Statement of Work can be adjusted by contract amendments. The contract can be renewed for three one-year periods through contract amendments that may include revised Statements of Work.

2. Payment for Services and Expenses

2.1 The term of the initial contract shall be from December 12, 2011 through December 31, 2012.

2.2 DELAWARE will pay OPINION DYNAMICS for the performance of services described in the Statement of Work.

2.3 DELAWARE's obligation to pay OPINION DYNAMICS for the performance of services described in will not exceed the fixed fee amount of \$1,320,211.00. It is expressly understood that the work defined in the Statement of Work to this Agreement must be completed by OPINION DYNAMICS within project schedule and it shall be OPINION DYNAMICS's responsibility to ensure that hours and tasks are properly budgeted so that all services are completed for the agreed upon fixed fee. DELAWARE's total liability for all charges for services that may become due under this Agreement is limited to the total maximum expenditure(s) authorized in DELAWARE's purchase order(s) to OPINION DYNAMICS.

2.4 OPINION DYNAMICS shall submit monthly invoices to DELAWARE in sufficient detail to support the services provided during the previous month. OPINION DYNAMICS shall submit invoices no later than the following dates: June 15, 2012 for Tasks #1.1, #1.2, #1.3, #2.1, #3.1, #3.2, #3.3, #3.4, #3.5, and #4.2; July 15, 2012 for WAP and SEU work in Task #2.2; and December 5, 2012 for EECBG work in Task #2.2. DELAWARE agrees to pay those invoices within thirty (30) days of receipt. In the event DELAWARE disputes a portion of an invoice, DELAWARE agrees to pay the undisputed portion of the invoice within thirty (30) days of receipt and to provide OPINION DYNAMICS a detailed statement of DELAWARE's position on the disputed portion of the invoice within thirty (30) days of receipt. DELAWARE's failure to pay any amount of an invoice that is not the subject of a good-faith dispute within thirty (30) days of receipt shall entitle OPINION DYNAMICS to charge interest on the overdue portion at no more than 1.0% per month or 12% per annum. All payments should be sent to OPINION DYNAMICS, 230 Third Avenue Waltham, MA 02451.

2.5 Unless otherwise specified in the Statement of Work, all expenses incurred in the

performance of the services are to be paid by OPINION DYNAMICS. If the Statement of Work specifically provides for expense reimbursement, OPINION DYNAMICS shall be reimbursed only for reasonable expenses incurred by OPINION DYNAMICS in the performance of the services, including, but not necessarily limited to, travel and lodging expenses, communications charges, and computer time and supplies.

2.6 DELAWARE is a sovereign entity, and shall not be liable for the payment of federal, state and local sales, use and excise taxes, including any interest and penalties from any related deficiency, which may become due and payable as a consequence of this Agreement.

2.7 DELAWARE shall subtract from any payment made to OPINION DYNAMICS all damages, costs, and expenses caused by OPINION DYNAMICS's negligence, resulting from or arising out of errors or omissions in OPINION DYNAMICS's work products, which have not been previously paid to OPINION DYNAMICS.

2.8 Invoices shall be submitted to:
Division of Energy and Climate
1203 College Park Drive, Suite 101
Dover, DE 19904

3. Responsibilities of OPINION DYNAMICS

3.1 OPINION DYNAMICS shall be responsible for the professional quality, technical accuracy, timely completion, and coordination of all services furnished by OPINION DYNAMICS's principals, officers, employees, agents, and subcontractors under this Agreement. In performing the specified services, OPINION DYNAMICS shall follow practices consistent with generally accepted professional and technical standards. OPINION DYNAMICS shall be responsible for ensuring that all services, products, and deliverables furnished pursuant to this Agreement comply with the standards promulgated by the Department of Technology and Information ("DTI") published at <http://dti.delaware.gov/>, and as modified from time to time by DTI during the term of this Agreement. If any service, product, or deliverable furnished pursuant to this Agreement does not conform to DTI standards, OPINION DYNAMICS shall, at its expense, either (1) replace it with a conforming equivalent or (2) modify it to conform with DTI standards. OPINION DYNAMICS shall be, and remain, liable in accordance with the terms of this Agreement and applicable law for all damages to DELAWARE caused by OPINION DYNAMICS's failure to ensure compliance with DTI standards.

3.2 It shall be the duty of the OPINION DYNAMICS to assure that all products of its effort are technically sound and in conformance with all pertinent federal, state and local statutes, codes, ordinances, resolutions and other regulations. OPINION DYNAMICS will not produce a work product that violates or infringes on any copyright or patent rights. OPINION DYNAMICS shall,

without additional compensation, correct or revise any errors or omissions in its work products.

3.3 Permitted or required approval by DELAWARE of any products or services furnished by OPINION DYNAMICS shall not in any way relieve OPINION DYNAMICS of responsibility for the professional and technical accuracy and adequacy of its work. DELAWARE's review, approval, acceptance, or payment for any of OPINION DYNAMICS's services herein shall not be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement, and OPINION DYNAMICS shall be, and remain, liable in accordance with the terms of this Agreement and applicable law for all damages to DELAWARE caused by OPINION DYNAMICS's performance or failure to perform under this Agreement.

3.4 OPINION DYNAMICS shall appoint a Project Manager who will manage the performance of services. All of the services specified by this Agreement shall be performed by the Project Manager or OPINION DYNAMICS's principals, officers, employees, agents, and subcontractors under the personal supervision of the Project Manager.

3.5 OPINION DYNAMICS shall furnish, to DELAWARE's Designated Contact(s), copies of all correspondence to regulatory agencies for review prior to mailing such correspondence.

3.6 OPINION DYNAMICS agrees that its officers, employees, and subcontractors will cooperate with DELAWARE in the performance of services under this Agreement and will be available for consultation with DELAWARE with advance notice as to not conflict with their other responsibilities.

3.7 OPINION DYNAMICS has or will retain such employees as it may need to perform the services required by this Agreement. Such employees shall not be employed by DELAWARE or any other political subdivision of DELAWARE.

3.8 OPINION DYNAMICS will not use DELAWARE's name, either express or implied, in any of its advertising or sales materials without DELAWARE's express written consent.

3.9 The rights and remedies of DELAWARE provided for in this Agreement are in addition to any other rights and remedies provided by law.

4. Time Schedule

4.1 A project schedule is included in the Statement of Work.

4.2 Any delay of services or change in sequence of tasks must be approved in writing by DELAWARE.

4.3 In the event that OPINION DYNAMICS fails to complete the project, or any phase thereof, within the time specified in the Statement of Work, or with such additional time as may be granted in writing by DELAWARE, or fails to prosecute the work, or any separable part thereof, with such diligence as will insure its completion within the time specified in this Agreement or any extensions thereof, DELAWARE shall suspend the payments scheduled as set forth in the Statement of Work.

5. State Responsibilities

5.1 In connection with OPINION DYNAMICS's provision of the Services, DELAWARE shall perform those tasks and fulfill those responsibilities specified in the Statement of Work.

5.2 DELAWARE agrees that its officers and employees will cooperate with OPINION DYNAMICS in the performance of Services under this Agreement and will be available for consultation with OPINION DYNAMICS with advance notice as to not conflict with their other responsibilities.

5.3 The Services performed by OPINION DYNAMICS under this Agreement shall be subject to review for compliance with the terms of this Agreement by DELAWARE's Designated Contacts. DELAWARE's Contacts may delegate any or all responsibilities under the Agreement to staff members, and shall inform OPINION DYNAMICS by written notice before the effective date of each such delegation.

5.4 The review comments of DELAWARE's Designated Contacts may be reported in writing as needed to OPINION DYNAMICS. It is understood that DELAWARE's Contacts' review comments do not relieve OPINION DYNAMICS from the responsibility for the professional and technical accuracy of all work delivered under this Agreement.

5.5 DELAWARE shall, without charge, furnish to or make available for examination or use by OPINION DYNAMICS as it may request, any data which DELAWARE has available, including as examples only and not as a limitation:

- a. Copies of reports, surveys, records, and other pertinent documents;
- b. Copies of previously prepared reports, job specifications, surveys, records, ordinances, codes, regulations, other document, and information related to the services specified by this Agreement.

OPINION DYNAMICS shall return any original data provided by DELAWARE.

5.6 DELAWARE shall assist OPINION DYNAMICS in obtaining data on documents from public officers, public agencies, private citizens, and business firms whenever such material is necessary for the completion of the services specified by this Agreement.

5.7 OPINION DYNAMICS will not be responsible for accuracy of information or data supplied by DELAWARE or other sources to the extent such information or data would be relied upon by a reasonably prudent contractor.

5.8 DELAWARE agrees not to use OPINION DYNAMICS's name, either express or implied, in any of its advertising or sales materials. OPINION DYNAMICS reserves the right to reuse the nonproprietary data and the analysis of industry-related information in its continuing analysis of the industries covered.

6. Work Product

6.1 All materials, information, documents, and reports, whether finished, unfinished, or draft, developed, prepared, completed, or acquired by OPINION DYNAMICS for DELAWARE relating to the services to be performed hereunder, shall become the property of DELAWARE and shall be delivered to DELAWARE's designated representative upon completion or termination of this Agreement, whichever comes first. OPINION DYNAMICS shall not be liable for damages, claims, and losses arising out of any reuse of any work products on any other project conducted by DELAWARE. DELAWARE shall have the right to reproduce all documentation supplied pursuant to this Agreement.

6.2 OPINION DYNAMICS retains all title and interest to the data it furnished and/or generated pursuant to this Agreement. Retention of such title and interest does not conflict with DELAWARE's rights to the materials, information and documents developed in performing the project. Upon final payment, DELAWARE shall have a perpetual, nontransferable, non-exclusive paid-up right and license-to-use, copy, modify, and prepare derivative works of all materials in which OPINION DYNAMICS retains title, whether individually by OPINION DYNAMICS or jointly with DELAWARE. Any and all source code developed in connection with the services provided will be provided to DELAWARE. The aforementioned right and license shall apply to source code. The parties will cooperate with each other and execute such other documents as may be reasonably deemed necessary to achieve the objectives of this Section.

6.3 In no event shall OPINION DYNAMICS be precluded from developing for itself, or for others, materials that are competitive with the deliverables of this Agreement, irrespective of their similarity to the deliverables of this Agreement. In addition, OPINION DYNAMICS shall be free to use its general knowledge, skills and experience, ideas, concepts, know-how, and techniques within the scope of its consulting practice that are used in the course of providing the services.

6.4 Notwithstanding anything to the contrary contained herein or in any attachment hereto, any and all intellectual property or other proprietary data owned by OPINION DYNAMICS prior to the effective date of this Agreement ("Preexisting Information") shall remain the exclusive

property of OPINION DYNAMICS even if such Preexisting Information is embedded or otherwise incorporated into materials or products first produced as a result of this Agreement or used to develop such materials or products. DELAWARE's rights under this section shall not apply to any Preexisting Information or any component thereof regardless of form or media.

7. Confidential Information

To the extent permissible under 29 Del. C. § 10001, et seq., the parties to this Agreement shall preserve in strict confidence any information, reports or documents obtained, assembled or prepared in connection with the performance of this Agreement.

8. Warranty

8.1 OPINION DYNAMICS warrants that its services will be performed in a good and workmanlike manner. OPINION DYNAMICS agrees to re-perform any work not in compliance with this warranty brought to its attention within a reasonable time after that work is performed.

8.2 Third-party products within the scope of this Agreement are warranted solely under the terms and conditions of the licenses or other agreements by which such products are governed. With respect to all third-party products and services purchased by OPINION DYNAMICS for DELAWARE in connection with the provision of the Services, OPINION DYNAMICS shall pass through or assign to DELAWARE the rights OPINION DYNAMICS obtains from the manufacturers and/or vendors of such products and services (including warranty and indemnification rights), all to the extent that such rights are assignable.

9. Indemnification; Limitation of Liability

9.1 OPINION DYNAMICS shall indemnify and hold harmless the State, its agents and employees, from any and all liability, suits, actions or claims, together with all reasonable costs and expenses (including attorneys' fees) directly arising out of (A) the negligence or other wrongful conduct of the OPINION DYNAMICS, its agents or employees, or (B) OPINION DYNAMICS's breach of any material provision of this Agreement not cured after due notice and opportunity to cure, provided as to (A) or (B) that (i) OPINION DYNAMICS shall have been notified promptly in writing by DELAWARE of any notice of such claim; and (ii) OPINION DYNAMICS shall have the sole control of the defense of any action on such claim and all negotiations for its settlement or compromise.

9.2 If DELAWARE promptly notifies OPINION DYNAMICS in writing of a third party claim against DELAWARE that any deliverable infringes a copyright or a trade secret of any third party, OPINION DYNAMICS will defend such claim at its expense and will pay any costs or

damages that may be finally awarded against DELAWARE. OPINION DYNAMICS will not indemnify DELAWARE, however, if the claim of infringement is caused by: (1) DELAWARE's misuse or modification of the deliverable; (2) DELAWARE's failure to use corrections or enhancements made available by OPINION DYNAMICS; (3) DELAWARE's use of the deliverable in combination with any product or information not owned or developed by OPINION DYNAMICS; (4) DELAWARE's distribution, marketing or use for the benefit of third parties of the deliverable; or (5) information, direction, specification or materials provided by Delaware or any third party. If any deliverable is, or in OPINION DYNAMICS's opinion is likely to be, held to be infringing, OPINION DYNAMICS shall at its expense and option either (a) procure the right for DELAWARE to continue using it, (b) replace it with a non-infringing equivalent, (c) modify it to make it non-infringing. The foregoing remedies constitute DELAWARE's sole and exclusive remedies and OPINION DYNAMICS's entire liability with respect to infringement.

9.3 DELAWARE agrees that OPINION DYNAMICS's total liability to DELAWARE for any and all damages whatsoever arising out of, or in any way related to, this Agreement from any cause, including but not limited to contract liability or OPINION DYNAMICS negligence, errors, omissions, strict liability, breach of contract or breach of warranty shall not, in the aggregate, exceed fees paid to OPINION DYNAMICS. In no event shall OPINION DYNAMICS be liable for special, indirect, incidental, economic, consequential or punitive damages, including but not limited to lost revenue, lost profits, replacement goods, loss of technology rights or services, loss of data, or interruption or loss of use of software or any portion thereof regardless of the legal theory under which such damages are sought, and even if OPINION DYNAMICS has been advised of the likelihood of such damages.

10. Employees

10.1 OPINION DYNAMICS has and shall retain the right to exercise full control over the employment, direction, compensation, and discharge of all persons employed by OPINION DYNAMICS in the performance of the services hereunder; provided, however, that it will, subject to scheduling and staffing considerations and attempt to honor DELAWARE's request for specific individuals.

10.2 Except as the other party expressly authorizes in writing in advance, neither party shall solicit, offer work to, employ, or contract with, whether as a partner, employee or independent contractor, directly or indirectly, any of the other party's Personnel during their participation in the services or during the twelve (12) months thereafter. For purposes of this Section 10.2, "Personnel" includes any individual or company a party employs as a partner, employee or independent contractor and with which a party comes into direct contact in the course of the services.

11. Independent Contractor

11.1 It is understood that in the performance of the services provided herein, OPINION DYNAMICS shall be, and is, an independent contractor, and is not an agent or employee of DELAWARE and shall furnish such services in its own manner and method except as required by this Agreement. OPINION DYNAMICS shall be solely responsible for, and shall indemnify, defend and save DELAWARE harmless from all matters relating to the payment of its employees, including compliance with withholdings, wages, salaries, benefits, taxes, exactions, and regulations of any nature whatsoever.

11.2 OPINION DYNAMICS acknowledges that OPINION DYNAMICS and any of its subcontractors, agents or employees shall not, under any circumstances, be considered employees of DELAWARE, and that they shall not be entitled to any of the benefits or rights afforded employees of DELAWARE, including, but not limited to, sick leave, vacation leave, holiday pay, Public Employees Retirement System benefits, or health, life, dental, long-term disability, or workers' compensation insurance benefits. DELAWARE will not provide or pay for any liability or medical insurance, retirement contributions or any other benefits for or on behalf of OPINION DYNAMICS or any of its officers, employees, or other agents.

11.3 OPINION DYNAMICS shall be responsible for providing liability insurance for its personnel.

11.4 As an independent contractor, OPINION DYNAMICS has no authority to bind or commit DELAWARE. Nothing herein shall be deemed or construed to create a joint venture, partnership, fiduciary, or agency relationship between the parties for any purpose.

12. Suspension

12.1 DELAWARE may suspend performance by OPINION DYNAMICS under this Agreement for such period of time as DELAWARE, at its sole discretion, may prescribe by providing written notice to OPINION DYNAMICS of at least 30 working days prior to the date on which DELAWARE wishes to suspend. Upon such suspension, DELAWARE shall pay OPINION DYNAMICS its compensation, based on the percentage of the project completed and earned until the effective date of suspension, less all previous payments. OPINION DYNAMICS shall not perform further work under this Agreement after the effective date of suspension. OPINION DYNAMICS shall not perform further work under this Agreement after the effective date of suspension until receipt of written notice from DELAWARE to resume performance.

12.2 In the event DELAWARE suspends performance by OPINION DYNAMICS for any cause other than the error or omission of the OPINION DYNAMICS, for an aggregate period in excess of 30 days, OPINION DYNAMICS shall be entitled to an equitable adjustment of the compensation payable to OPINION DYNAMICS under this Agreement to reimburse OPINION DYNAMICS for additional costs occasioned as a result of such suspension of performance by

DELAWARE based on appropriated funds and approval by DELAWARE.

13. Termination

13.1 Through no fault of the terminating party, this Agreement may be terminated, in whole or in part, by either party in the event of substantial failure of the other party to fulfill its obligations under this Agreement, but only after the other party is given not less than 30 calendar days written notice of intent to terminate and an opportunity for consultation with the terminating party prior to termination.

13.2 This Agreement may be terminated, in whole or in part, by DELAWARE for its convenience, but only after OPINION DYNAMICS is given not less than 30 calendar days written notice of intent to terminate and an opportunity for consultation with DELAWARE prior to termination.

13.3 If termination for default is effected by DELAWARE, DELAWARE will pay OPINION DYNAMICS that portion of the compensation which has been earned as of the effective date of termination with the exception of:

- a. No amount shall be allowed for anticipated profit on performed or unperformed services or other work;
- b. Any payment due to OPINION DYNAMICS at the time of termination may be adjusted to the extent of any additional costs occasioned to DELAWARE by reason of OPINION DYNAMICS's default; and
- c. Upon termination for default, DELAWARE may take over the work and prosecute the same to completion by agreement with another party or otherwise. In the event OPINION DYNAMICS shall cease conducting business, DELAWARE shall have the right to make an unsolicited offer of employment to any employees of OPINION DYNAMICS assigned to the performance of this Agreement, notwithstanding the provisions of Section 10.2.

13.4 If after termination for failure of OPINION DYNAMICS to fulfill contractual obligations it is determined that OPINION DYNAMICS has not so failed, the termination shall be deemed to have been effected for the convenience of DELAWARE.

13.5 The rights and remedies of DELAWARE and OPINION DYNAMICS provided in this section are in addition to any other rights and remedies provided by law or under this Agreement.

13.6 Gratuities.

13.6.1 DELAWARE may, by written notice to OPINION DYNAMICS, terminate this Agreement if it is found, after notice and hearing, by DELAWARE that gratuities (in the

form of entertainment, gifts, or otherwise) were offered or given by OPINION DYNAMICS or any agent or representative of OPINION DYNAMICS to any officer or employee of DELAWARE with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending or making of any determinations with respect to the performance of this Agreement.

13.6.2 In the event this Agreement is terminated as provided in 13.6.1 hereof, DELAWARE shall be entitled to pursue the same remedies against OPINION DYNAMICS it could pursue in the event of a breach of this Agreement by OPINION DYNAMICS.

13.6.3 The rights and remedies of DELAWARE provided in Section 13.6 shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

14. Severability

If any term or provision of this Agreement is found by a court of competent jurisdiction to be invalid, illegal, or otherwise unenforceable, the term or provision shall not affect the other terms or provisions of this Agreement, but such term or provision shall be deemed modified to the extent necessary in the court's opinion to render such term or provision enforceable, and the rights and obligations of the parties shall be construed and enforced accordingly, preserving to the fullest permissible extent the intent and agreements of the parties herein set forth.

15. Assignment; Subcontracts

15.1 Any attempt by OPINION DYNAMICS to assign or otherwise transfer any interest in this Agreement without the prior written consent of DELAWARE shall be void. Such consent shall not be unreasonably withheld.

15.2 Services specified by this Agreement shall not be subcontracted by OPINION DYNAMICS, without prior written approval of DELAWARE.

15.3 Approval by DELAWARE of OPINION DYNAMICS's request to subcontract or acceptance of or payment for subcontracted work by DELAWARE shall not in any way relieve OPINION DYNAMICS of responsibility for the professional and technical accuracy and adequacy of the work. All subcontractors shall adhere to all applicable provisions of this Agreement.

15.4 OPINION DYNAMICS shall be, and remain, liable for all damages to DELAWARE caused by negligent performance or non-performance of work under this Agreement by OPINION DYNAMICS, its subcontractor, or its sub-subcontractor.

15.5 The compensation due shall not be affected by DELAWARE's approval of the OPINION

DYNAMICS's request to subcontract.

16. Force Majeure

Neither party shall be liable for any delays or failures in performance due to circumstances beyond its reasonable control.

17. Non-Appropriation of Funds

17.1 Validity and enforcement of this Agreement is subject to appropriations by the Delaware General Assembly of the specific funds necessary for contract performance. Should such funds not be so appropriated, DELAWARE may immediately terminate this Agreement, and absent such action, this Agreement shall be terminated as to any obligation of the State requiring the expenditure of money for which no specific appropriation is available, at the end of the last fiscal year for which no appropriation is available or upon the exhaustion of funds.

17.2 Notwithstanding any other provisions of this Agreement, this Agreement shall terminate and DELAWARE's obligations under it shall be extinguished at the end of the fiscal year in which DELAWARE fails to appropriate monies for the ensuing fiscal year sufficient for the payment of all amounts which will then become due.

18. State of Delaware Business License

OPINION DYNAMICS and all subcontractors represent that they are properly licensed and authorized to transact business in the State of Delaware as provided in 30 *Del. C.* § 2301.

19. Complete Agreement

19.1 This Agreement and the Statement of Work shall constitute the entire Agreement between DELAWARE and OPINION DYNAMICS with respect to the subject matter of this Agreement and shall not be modified or changed without the express written consent of the parties. The provisions of this Agreement supersede all prior oral and written quotations, communications, agreements and understandings of the parties with respect to the subject matter of this Agreement.

19.2 If the scope of any provision of this Agreement is too broad in any respect whatsoever to permit enforcement to its full extent, then such provision shall be enforced to the maximum extent permitted by law, and the parties hereto consent and agree that such scope may be judicially modified accordingly and that the whole of such provisions of the Agreement shall not thereby fail, but the scope of such provision shall be curtailed only to the extent necessary to conform to the law.

19.3 OPINION DYNAMICS may not order any product requiring a purchase order prior to

DELAWARE's issuance of such order. The Statement of Work, except as its terms otherwise expressly provides, shall be a complete statement of its subject matter and shall supplement and modify the terms and conditions of this Agreement for the purposes of that engagement only. No other agreements, representations, warranties, or other matters, whether oral or written, shall be deemed to bind the parties hereto with respect to the subject matter hereof.

20. Miscellaneous Provisions

20.1 In performance of this Agreement, OPINION DYNAMICS shall comply with all applicable federal, state and local laws, ordinances, codes, and regulations. OPINION DYNAMICS shall solely bear the costs of permits and other relevant costs required in the performance of this Agreement.

20.2 Neither this Agreement nor the Statement of Work may be modified or amended except by the mutual written agreement of the parties. No waiver of any provision of this Agreement shall be effective unless it is in writing and signed by the party against which it is sought to be enforced.

20.3 The delay or failure by either party to exercise or enforce any of its rights under this Agreement shall not constitute or be deemed a waiver of that party's right thereafter to enforce those rights, nor shall any single or partial exercise of any such right preclude any other or further exercise thereof or the exercise of any other right.

20.4 OPINION DYNAMICS covenants that it presently has no interest and that it will not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement. OPINION DYNAMICS further covenants, to its knowledge and ability, that in the performance of said services no person having any such interest shall be employed.

20.5 OPINION DYNAMICS acknowledges that DELAWARE has an obligation to ensure that public funds are not used to subsidize private discrimination. OPINION DYNAMICS recognizes that if they refuse to hire or do business with an individual or company due to reasons of race, color, gender, ethnicity, disability, national origin, age, or any other protected status, DELAWARE may declare OPINION DYNAMICS in breach of the Agreement, terminate the Agreement, and designate OPINION DYNAMICS as non-responsible.

20.6 OPINION DYNAMICS warrants that no person, or selling agency, has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission or a percentage, brokerage, or contingent fee. For breach or violation of this warranty, DELAWARE shall have the right to annul this contract without liability or at its discretion deduct from the contract price or otherwise recover the full amount of such

commission, percentage, brokerage, or contingent fee.

20.7 This Agreement was drafted with the joint participation of both parties and shall be construed neither against nor in favor of either, but rather in accordance with the fair meaning thereof.

20.8 OPINION DYNAMICS shall maintain all public records, as defined by 29 Del. C. § 502(7), relating to this Agreement and its deliverables for the time and in the manner specified by the Delaware Division of Archives, pursuant to the Delaware Public Records Law, 29 Del. C. Ch. 5. During the term of this Agreement, authorized representatives of DELAWARE may inspect or audit OPINION DYNAMICS's performance and records pertaining to this Agreement at the OPINION DYNAMICS business office during normal business hours.

20.9 OPINION DYNAMICS shall obtain pre-approval from DELAWARE to replace key personnel identified at section 4.0 of the Statement of Work.

21. Insurance

21.1 OPINION DYNAMICS shall maintain the following insurance during the term of this Agreement:

- a. Worker's Compensation and Employer's Liability Insurance in accordance with applicable law; **and**
- b. Comprehensive General Liability - \$1,000,000.00 per person/\$3,000,000 per occurrence; **and**
- c. Medical/Professional Liability - \$1,000,000.00 per person/\$3,000,000 per occurrence; **or**
- d. Miscellaneous Errors and Omissions - \$1,000,000.00 per person/\$3,000,000 per occurrence, **or**
- e. Product Liability - \$1,000,000.00 per person/\$3,000,000 per occurrence, **and**
- f. If required to transport state employees, Automotive Liability Insurance covering all automotive units used in the work with limits of not less than \$100,000 each person and \$300,000 each accident as to bodily injury and \$25,000 as to property damage to others.

21.2 OPINION DYNAMICS shall provide ten (10) days written notice of cancellation or material change of any policies.

21.3 Before any work is done pursuant to this Agreement, the Certificate of Insurance and/or copies of the insurance policies, referencing the contract number stated herein, shall be filed with the State. The certificate holder is as follows: In no event shall the State of Delaware be named as an additional insured on any policy required under this agreement.

21. Assignment of Antitrust Claims

As consideration for the award and execution of this contract by the State, OPINION DYNAMICS hereby grants, conveys, sells, assigns, and transfers to DELAWARE all of its right, title and interest in and to all known or unknown causes of action it presently has or may now or hereafter acquire under the antitrust laws of the United States and the State of Delaware, relating to the particular goods or services purchased or acquired by the State pursuant to this contract.

23. Governing Law

This Agreement shall be governed by, and construed in accordance with, the laws of the State of Delaware, except where federal law has precedence. OPINION DYNAMICS consents to jurisdiction venue in the State of Delaware.

24. Notices

Any and all notices required by the provisions of this Agreement shall be in writing and shall be mailed, certified or registered mail, return receipt requested. All notices shall be sent to the following addresses:

TO DELAWARE:

Division of Energy and Climate
1203 College Park Drive, Suite 101
Dover, DE 19904

TO OPINION DYNAMICS:

Opinion Dynamics Corporation
230 Third Avenue
Waltham, MA 02451

SIGNATURE PAGE TO FOLLOW

IN WITNESS THEREOF, the Parties hereto have caused this Agreement to be duly executed as of the date and year first above written.

STATE OF DELAWARE,
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

Witness

Name:

Date:

12/21/11

Title:

Secretary

Date:

12/21/11

OPINION DYNAMIC CORPORATION

Witness

Name:

Date:

12/16/2011

Title:

President and CEO

Date:

12/16/2011

Attachment A: STATEMENT OF WORK

**STATEMENT OF WORK FOR THE PROFESSIONAL
SERVICES FOR THE EVALUATION, MEASUREMENT, &
VERIFICATION OF ENERGY EFFICIENCY AND DEMAND
RESPONSE PROGRAMS IN DELAWARE**

Prepared for:

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

Prepared by:

OPINION DYNAMICS CORPORATION



TABLE OF CONTENTS

1.0 STATEMENT OF WORK..... 1

2.0 PROJECT SCHEDULE AND DELIVERABLES 27

3.0 INVOICING SCHEDULE 28

4.0 STAFFING & SUBCONTRACTING PLAN 29

5.0 BUDGET 31

1.0 STATEMENT OF WORK

This document presents the Statement of Work (“SOW”) – for professional services for the evaluation, measurement, and verification (“EM&V”) of energy efficiency and demand response programs – to be performed by the Opinion Dynamics Corporation for the Department of Natural Resources and Environmental Control (“DNREC”). The Opinion Dynamics Team (“Team”) will use the following locations to satisfy the requirements of this project:

- Opinion Dynamics: Waltham, MA; Oakland, CA; Madison, WI
- Nexant: Malvern, PA; White Plains, NY; Atlanta, GA; Boulder, CO
- TecMarket Works: Oregon, WI
- Building Metrics Inc: Boulder, CO
- Integral Analytics: Cincinnati, OH
- Populus Group: Delaware-based resources (MBE)

Activity 1: Needs Assessment and Revised Scope and Budget

Task# 1.1 Review Background Materials and Assess Delaware’s EM&V Research Needs

Immediately upon contract award, the Team will review all relevant background resource documents and determine how best to use these resource documents in Delaware’s framework development, scope and budget development, and technical reference manual (“TRM”) development processes. For this opening task, the Team will conduct a thorough review of: Delaware and regional past, current and planned programs; market assessment studies, PJM demand protocols; and other relevant reports and documents. The Team will provide a list of such resource documents reviewed as well as electronic copies to DNREC and shall comply with DNREC requests to review other such resources. The Team will provide a brief written assessment of resource documents and the impact of these resources on other Tasks and deliverables. Further, the Team will assess costs and processes to participate in the PJM Capacity Market and voluntary carbon markets.

The Team will conduct a kick-off meeting with the EM&V Stakeholder Group to present background on EM&V, suggest a set of EM&V topics for which stakeholders could provide input, and facilitate the providing of such input. This will include proposing and gathering input on at least the following (a) goals and objectives of each of the first year EM&V activities, (b) evaluation metrics, (c) interim and final report contents and schedules, (d) expected evaluation budgets, and (e) accuracy of reported metrics. The Team will also gather input from stakeholders on the research needs of the program administrators, implementers, participants and other Delaware stakeholders and to gain an understanding of the research needs in the State. The Team will prepare materials, organize, participate in, present at, and facilitate the kick-off meeting.

Simultaneous with this Task, the Team will conduct Task #2.1 as outlined below. The deliverables and due dates for Task #1.1 are:

- i. List, and electronic copies, of resources reviewed, February 15, 2012;
- ii. Brief written assessment of resource documents and the impact of these resources on the other deliverables for this Agreement, February 15, 2012;
- iii. Written assessment of costs and processes to allow for Delaware's energy efficiency programs to participate in the PJM Capacity Market and voluntary carbon markets, March 31, 2012; and
- iv. Planning support, presentation materials, presentation, responses to the questions and issues raised in meeting(s), and meeting notes for kick-off meeting with EM&V Stakeholder Group that will be scheduled in coordination with DNREC. Meeting notes are due one week after meeting.

Task# 1.2 Revise Scope and Budget

The Team will propose a reallocated budget and detailed evaluation schedule to account for input from DNREC and stakeholders and the EM&V Plans as determined and documented in Tasks #1.1 and #2.1, respectively. The total budget for Year One will not change, but the detailed activities and budget associated with each Task will be modified to meet the overall needs of Delaware. As part of this Task, the Team will provide not-to-exceed budgets for each Task indicating assigned personnel, fully loaded hourly billing rates, hours, direct costs, and an expenditure timeline. The Team will provide a draft scope, budget, and schedule to DNREC. Upon receipt of comments from DNREC, the Team will prepare a final scope, budget and schedule. The Team will work with DNREC to execute a contract amendment that reflects a revised SOW (including final evaluation plans for Year One programs), budget, and schedule.

The deliverables and due dates for Task #1.2 are:

- i. Draft expenditure schedule, budget, and SOW, February 15, 2012; and
- ii. Final expenditure schedule, budget, and SOW, February 22, 2012.

Task# 1.3 Reporting for Year One

For the Year One evaluation period (effective date of contract to July 15, 2012), the Team will

- Conduct bi-weekly conference calls, at minimum, with DNREC staff and/or working group members. These calls will be designed to keep DNREC informed of progress in the implementation of Tasks, resolve issues, and coordinate upcoming activities. Ms. Van de Grift will initiate the calls and will include key Team members relevant to issues being discussed in the calls.
- Provide a monthly report that will include: updates on Task implementation; activities conducted in the month; activities to be completed in the following month; and budget status per Task (total amount billed, billed compared to budget, budget remaining, and percent budget spent compared to percent Task complete). Monthly reports will be utilized as a project management tool that will (1) ensure activities are being executed in a manner consistent with this SOW, (2) maintain ongoing mutual understanding of the progress of Task implementation, and (3) identify future issues and how they have been or will be addressed,

- Provide an annual report (for Year One Activities) as discussed for Task #4.3 below. The deliverables and due dates for Task #1.3 are:
 - i. Monthly reports, 15 days after the end of each calendar month

Activity 2: Year One EM&V for Selected State and SEU Programs

In the process of developing the Year One evaluation plans, the Team will communicate and work closely with DNREC and the EM&V Stakeholder Group to inform the selection and prioritization of evaluation efforts. The Team understands that the evaluations slated for Year One will focus on programs that may have ended and programs that might benefit from timely feedback, thus the Team will complete evaluation plans and begin program evaluation activities in parallel to our development of an EM&V Framework.

A critical element in the planning and rollout of EM&V implementation includes prioritizing evaluation efforts and resources across various programs and alternative evaluation methods. The Team will prioritize based on three factors, in consultation with DNREC staff:

- 1) An assessment of energy and demand risk to the portfolio (i.e., rolling out evaluation on programs with the highest expected impacts has the highest risk since the entire portfolio might not make its savings goals if these programs fall short)
- 2) Where the program is in its lifecycle. The end of a lifecycle may not correlate with a quick EM&V launch. For programs like the ENERGY STAR Appliance program, a quick implementation will help ensure participants have enough collective memory to provide feedback on a program that concluded in 2010. In other cases, priority might be given to programs that are in process over those that are ending, to provide real-time feedback that can improve program delivery and achievement.
- 3) Whether the evaluation has inherent uncertainties that might require more resources.

Task #2.1 Develop EM&V Plan for Selected State and SEU Programs to be Implemented in Year One

The Team will work collaboratively with DNREC to establish the most appropriate Year One evaluation plans for each program. This will require balancing the competing evaluation demands with a limited evaluation budget, the need for primary versus secondary research, and the need to utilize industry best practices and regional resources (such as the Regional EM&V Forum's Mid-Atlantic TRM and TRMs from other neighboring states) with the parallel effort to develop a Delaware specific EM&V Framework and TRM. Priorities are expected to shift during the planning process and the Team will leverage the Year One EM&V work in a manner that can influence and inform the Framework development and the TRM development. As such, the Team will consider these evaluation plans to be living documents. The Team will revisit the portfolio evaluation plan as necessary throughout the evaluation period and, with approval from DNREC, make quarterly adjustments to reflect those changing priorities and the evolving EM&V landscape in Delaware.

There is considerable overlap in the type of activities conducted in process and impact evaluations. For programs where process evaluation is the key emphasis, the Team will develop interviews that focus on the operational components of a program, where changes can be made, what is working well, etc. In an impact evaluation, interviews will focus on the influence of the program on a decision of an energy consumer/end-user.

Each program evaluation plan will include the following (subject to modification as a result of Task #1.2):

- Descriptions of program theory, objectives, and performance metrics for each program and the portfolio as a whole;
- Description of data requirements and expected sources;
- Sampling plans and data collection plans;
- Detailed specification of the analytic and data collection design including an outline of all proposed methodologies, quality assurance/quality control (“QA/QC”) procedures, and data tracking systems used;
- Evaluation QA/QC protocols;
- Project management plan;
- Description of impact evaluation for each program including:
 - Selected EM&V approach, key assumptions, required data, data collection approach, equations, expected level of rigor/reliability of results, and quality control plan;
 - Explanation of basis for selected approach and rigor, including any decisions to use deemed savings approaches versus measurements;
 - Indication and basis for decision to report net or gross savings, and the definition of net savings as appropriate;
 - Assess program cost-effectiveness; and
 - If using measurement and verification methods, provide the survey design, sampling strategies, testing, data collection, timeline, and other relevant information.
- Description of process evaluations for each program, including:
 - Evaluations of program design, delivery, and implementation;
 - Comparative analyses of alternative program designs;
 - Identification of ways to improve current programs and mechanisms for prompt and regular program feedback;
 - Quality assurance and control procedures;
- Description of market effects evaluation for each program;
- Costs for the tasks and activities required to complete the impact, process, and market effect evaluations;
- Format for EM&V reports listed in Task #4.3;
- Reporting formats for the data and information needed from DNREC, utilities, and other agencies with dates that the data will be needed;
- Budget; and
- Schedules for work including reporting timetables.

In addition, the Team will develop the detailed evaluation plan for Year One in a way that acknowledges the need for work to be completed in a manner that provides feedback, as appropriate, to the development of the EM&V Framework discussed under Task #3.1.

The deliverables and due dates for Task #2.1 are:

- i. Draft EM&V Plan for each program, January 30, 2012; and
- ii. Final EM&V Plan for each program, February 15, 2012.

Task #2.2 Implement EM&V Plans and Provide EM&V Reports for State and SEU Programs
The Team will implement the EM&V plans for WAP, EECBG, and Sustainable Energy Utility ("SEU") programs as soon as possible after development of the plans.

The Team will tap into its full tool kit when implementing the EM&V for the WAP, EECBG and SEU programs. Below are summaries of proposed approaches for each program to be evaluated in Year One. The Team will revise these approaches as necessary based on the work in Tasks #1.1 and this Task #2.1.

The deliverables and due dates for Task #2.2 are:

- i. Draft EM&V report for each program, June 15, 2012;
- ii. Final EM&V report for each program with the exception of EECBG, July 15, 2012;
- iii. Interim EM&V report for EECBG, July 15, 2012; and
- iv. Final EM&V report for EECBG program, December 1, 2012

WAP

Evaluation type: Impact & Process

The Delaware Weatherization Assistance Program (WAP) has existed for decades. Using a network of community service organizations, weatherization services are being provided to Delaware's low-income community.

Several challenges are expected in the evaluation of the WAP program, including:

- Obtaining participation and installation records and identifying the actions that were taken in each home;
- Data cleaning and quality issues, which require significant over-sampling and data QA/QC;
- Identifying the true cause of energy consumption levels within homes that are in a constant state of flux with regards to occupancy, appliance mix, income, health status, and other conditions; and
- Reaching low-income participants and non-participants to conduct surveys and obtain use conditions and characteristics data, especially with the relocation rates of this population and the level of suspicion that can exist.

The Team will evaluate energy and non-energy benefits, answering specific questions using specific tasks further described below. The evaluation will assess:

- Impacts of WAP only and impacts of WAP implemented in conjunction with other programs;
- Energy impacts and non-energy benefits of WAP; and
- WAP costs and cost effectiveness.

The Team's evaluation of WAP will address the following questions:

Energy Benefits: What is the impact of WAP on the gas and electric usage of participants? What is the impact of WAP on participants in its ability to avoid service disconnection? How do the impacts of WAP compare to previous evaluations and to other weatherization efforts in Delaware and nationally? How effectively is this potential being used? Would it be an effective system for identifying households (based on usage information, customer shortfall, etc.) who have the most to gain from participation in the program?

Non-Energy Benefits: What impact does WAP have on the economy of Delaware in terms of job creation and avoided energy imports? What are the environmental impacts associated with the energy savings produced by WAP? What other non-energy benefits does WAP provide?

Costs and Cost Effectiveness: Is WAP cost effective and how do the costs of WAP compare to costs identified in previous evaluations and to other weatherization efforts in Delaware and nationally?

To address these questions, the Team will work cooperatively with DNREC and the EM&V Stakeholder Group to define an evaluation plan and approach that may include the following components:

- **Billing analysis** to evaluate program impacts on consumption of natural gas (and other fossil fuels) and electricity. The billing analysis will consist of an econometric analysis using billing data from participants (both pre- and post-participation, or "panel data"), program tracking data, and weather data. A critical step in the billing data analysis will be the development of the data used in the analysis. For each participant, it is important to carefully investigate their monthly consumption history, both around the participation period, as well as during the same period in the prior year (to capture seasonal effects). This investigation commonly uses graphs as well as simple descriptive statistics. So as not to bias the analysis, the Team will note customers with large changes in consumption, either increases or decreases, but not automatically eliminate them from the analysis.
- **Disconnection, collection action, and payment analysis** to examine whether the program made bill payment easier for participants and to determine whether participants were less likely to have utility service disconnected. Where data is available, the Team will analyze the impact of WAP on payment histories, disconnection, and collection actions of participants and nonparticipants. The Team will use statistical method to assess the program's impact on payments, disconnections, and collections. The results indicate percent improvement or frequency of occurrence for both participants and non-participants.
- **Non-energy benefit analysis** to evaluate environmental, economic, and health benefits of the program. The proposed impact evaluation will discuss the WAP's contribution to numerous non-energy benefits including economic benefits and job creation, environmental benefits, and health and safety benefits. The Team will use

input-output modeling to quantify the effect of monetary shifts individually, as well as the impact on the Delaware economy as a whole. This method of modeling allows for an in-depth look at individual economic segments, as well as the effect on the entire economy.

- **Benefit-cost analysis** to determine if the benefits of WAP outweigh its costs. The analysis will consider cost-effectiveness ratios from both the program's perspective and the societal perspective for selected home and fuel types as well as the program overall.
- **Site visits** to explore persistence of measures, quality of weatherization, and what factors might have contributed to poorly performing weatherized homes.

EECBG

Evaluation type: Impact & Process

The American Resource and Recovery Act ("ARRA") Energy Efficiency and Conservation Block Grant (EECBG) provided Delaware with \$5.46 million to invest in energy saving projects across the state. To date, the program is providing support to 40 small municipal government projects across the state, as well as on some state facilities. The grants can be used for three opportunities – Energy Audit Grants, Formula Grants, and Competitive Grants.

These programs have multiple priorities that need to be considered as part of any holistic evaluation including:

- The reduction of fossil fuel emissions;
- Reduction of total energy use;
- Improvement of energy efficiency in the building sector, the transportation sector, and other appropriate sectors;
- Creation and retention of jobs; and
- Economic stimulus.

The Team will work to develop Year One EM&V Plans that allocate appropriate resources towards each of the priorities, balancing the needs of DNREC to measure the specific goals provided by the U.S. Department of Energy ("DOE"). The Team will place priority on conducting a systematic data collection approach that provides an early snapshot of where the project funded through the program sits today and lays the groundwork for determining impact in future years. For the EECBG only, the Year One evaluation period extends past July 15, 2012 and a Final EM&V Report for EECBG is due on December 1, 2012.

The Team will address questions that include the following in our evaluation:

Energy saving estimates: How consistent are the energy impacts and saving? Are they deemed savings? If so, where are those savings coming from, are they consistent between project and grantees? If not, why not? If they are custom, are they accurate?

Project types: What types of programs and opportunities are the grants funding and what types of technologies are installed through the program?

Management capacity: What type of capacity do the grant recipients have to both implement and track the projects funded through the grants? The municipal government sectors are often human resource constrained, do they not have capacity to manage these grants? Is the process they have in place for running the grant working well? Do they have the expertise they need on staff to support the programs?

Data tracking: How are they tracking the programs? Will the tracking systems in place suffice for doing the type of impact tracking that will need to be completed in Year Two and beyond?

To address these questions, the Team will work cooperatively with DNREC and the EM&V Stakeholder Group to define an evaluation plan and approach that may include the following components:

- **Project manager interviews** – With the project managers at the grantee municipalities to understand how they are managing the projects funded through the grant.
- **Database review** - Reviewing databases to see how the grantees are not only tracking the programs/projects but also the money.
- **Engineering review** – In the cases of deemed savings, identifying where the savings assumptions came from, noting if they are consistent across projects within each city and across grantee cities or if they are not consistent, and understanding why. In the case of custom savings, reviewing the calculations to see if the actual savings meet the expectations participants had in the modeling process.
- **Customer interviews** – With participating customers for selected projects. Customer interviews can give the municipalities feedback they can use to improve program process and increase impacts during the remainder of the funding period.

By exploring what is in place within the grantee municipalities, who is touched, what works, what does not, and where help is needed, the Team will set the framework for the future impact evaluation approaches and programs for municipalities.

Efficient Lighting

Evaluation type: Verification & Process

The Efficient Lighting program provided discounts on qualified lighting. ARRA funded the program with support from DNREC. The program was discontinued on August 25, 2011. According to the Energize Delaware website, the program sold more than 800,000 discounted efficient light bulbs while in operation.

Because the program ended recently, the Team recommends focusing efforts on developing an approach for the ex-post verification of impact metrics and on process evaluation opportunities that will provide insight into the broader market impacts achieved during the program's operation. The Team will also use the process work to explore additional opportunities in the lighting market given the pending rollout of the 2007 Energy Independence and Security Act (EISA) standards for lighting. The Team will use the EM&V plan development phase to work with DNREC and the EM&V Stakeholder Group to identify

evaluation objectives that will provide the insight needed to both retrospectively review the success of the program, and prospectively identify potential future lighting opportunities.

The Mid-Atlantic TRM will be cross-referenced with other manuals available in the Northeast as a source for garnering key inputs (hours of operation, energy savings algorithms, etc.) for ex-post verification of savings. The Team will finalize methodology after learning more about the program and working with DNREC and the EM&V Stakeholder Group.

The key issues for effectively evaluating this program include:

Attribution: How many of the bulbs sold through this program would have been sold anyway? Are other utility-sponsored programs also promoting lighting efforts? Is there overflow between programs? Discussions with DNREC and the EM&V Stakeholder Group as well as the evolving evaluation Framework will help to inform this issue.

Identifying Participants: These programs typically do not include a way to definitively provide participant information, so conducting research with true participants is often not a viable methodological approach.

Spillover: Upstream lighting programs can often have spillover effects. Retailers may become more comfortable with the product category, causing them to increase year-round shelf space dedicated to high efficiency lighting products. They may bring in additional categories of products (i.e., fixtures, portable lamps, and specialty bulbs) believing that the utility-sponsored program may serve as a sales leader for additional high efficiency products or increase customer comfort with the product leading to sales that occur outside the promotional period.

Some key methodological considerations the Team will consider when launching the EM&V implementation for the ENERGY STAR Lighting program include:

- **Interviews with trade allies.** The Team will conduct interviews with key participating and non-participating retailers. The Team expects to focus on the corporate level to get better estimates of sales and the overall market “lift” that resulted from the program. Trade ally interviews will also address program process, spillover impacts, and EISA impacts, as identified above.
- **Tracking system review:** By reviewing the tracking and data systems used by the program administrator, the Team can verify the number of units incentivized through the program, conduct a delta watts analysis, and confirm that the reimbursement approach (was it at point of sale, at shipping, through a coupon submittal, etc.) and payment amounts accurately reflect units sold versus units shipped.
- **Top line sales/gross margin.** The Team has also been using an approach to estimate net-to-gross (“NTG”) and baseline sales that relies on the retailer sales policies regarding gross sales. This research indicates that most retailers seek to “true up” their gross sales margins on compact fluorescent lamps (CFLs) absent the value of the incentives, and the ability to do so is a key determinant of whether to participate in upstream programs. In other words, a 50% incentive would require retailers to

expect to double their sales through program participation. In this way, gross sales data from participating retailers can be used to help calculate assumptions regarding baseline sales, which is a key input to determining program- influenced sales and NTG.

Home Performance

Evaluation type: Verification & Process

The Home Performance with ENERGY STAR Program provides Delaware residents with a comprehensive energy audit conducted by a BPI-certified Home Performance contractor. Through diagnostic testing, residents receive an audit report that includes recommended energy-saving improvements. Both rebates and low interest financing are included in this program offering.

During the EM&V plan development phase, the Team proposes to work with the DNREC and the EM&V Stakeholder Group to identify the key researchable questions that need to be explored to verify program impact and market effects, and provide insight on process that can lead to operational efficiencies and greater impact.

Key evaluation issues include:

Market Impacts: How has the infrastructure development provided by the program affected both the quantity and quality of home retrofit projects occurring in the territory? Are there services in the market that would not exist without the program? Is the program influencing best practices that are spilling over into non-program projects in the territory?

Gross Impacts: What are the achieved savings? There is likely a need for primary research specific to Delaware that can determine the actual savings achieved through the installation of measures in homes. Often retrofit programs rely on deemed averages that might undercount the value of gross savings.

Attribution: Of those gross savings, what are attributable to the program? In addition to free ridership, is there spillover that, because of program training, market development, or best practices, should be attributed to the program?

In developing the EM&V plan for this program, the Team will weigh the need for primary research against what is readily available. If this program continues to operate, the Year One evaluation efforts should focus on process, allowing timely feedback to the implementation contractor for use in years two and three.

Some key methodological considerations the Team may employ include:

- **Program documentation review.** The Team will conduct a review of program data tracking and the QA/QC that occurs at each step of the application information flow. This will include understanding what happens to the application data, when does it

happen, who manipulates (or handles) the data, etc.

- **Implementation contractor interviews.** The Team will conduct interviews with program stakeholders, including the program manager, the implementation contractor, and participating subcontractors, to ensure that all aspects of the program are working as expected.
- **Interviews with program participants.** Participant surveys will inform the process evaluation, measuring customers' satisfaction with the program and the rebate process and assessing the effectiveness of program marketing efforts.
- **Billing analysis.** The Team will conduct billing analysis for program homes to help quantify energy savings achieved through program participation.

In addition, because TRMs typically provide very little data on building shell measures, the Team will work to identify what primary research will be needed to both support the program itself and ensure inclusion of whole house measures in the Delaware TRM, which we will deliver under Task #3.2.

Green for Green

Evaluation type: Verification & Process

The Green for Green program, administered by the SEU, leverages existing national green certification programs to promote the construction of new green homes by offering home builders incentives to achieve certification from National Green Building Standard (NGBS) or Leadership in Energy and Environmental Design (LEED). To qualify for an incentive, the home must achieve one of the following levels of certifications:¹

- NGBS Silver;
- NGBS Gold;
- NGBS Emerald; or
- LEED Silver or better.

The evaluation approach will seek to identify how the program is functioning, ways to improve its effectiveness, and to quantify the impacts of a "green" new home relative to a "typical" new home. The evaluation will address the following key research questions:

- Are builders embracing the program and is the network of participating builders growing at a level sufficient to impact the market?
- What are trends of market transformation resulting from the program?
- Do homeowners recognize the value of a green new home and, more importantly, are they willing to pay for it?
- What is the efficiency level of "typical" new homes being constructed outside of the program (i.e., code-compliant, beyond code, etc.)?
- What are the energy and demand savings and other non-energy benefits?

¹ As of September 1, 2011, no rebate is pending, approved, or paid for a LEED Silver or better certification.

The Green for Green program is similar to ENERGY STAR New Homes programs in that it applies to new construction homes and encourages a comprehensive approach to look at all systems within a home. The Team will leverage prior evaluation experience of these programs and customize the evaluation plan to address the unique challenges of the Green for Green program to execute the evaluation within the given schedule.

A challenge in evaluating this type of program is that the program encourages improvements not directly associated with energy efficiency, such as the Location and Linkage credits for LEED and the Resource Efficiency chapter for NGBS. These additional improvements have the potential to spur job growth and achieve air emissions reductions through community development, promotion of alternative modes of transportation, and resource conservation (e.g., water and construction materials). These benefits, which are uncommon for a standard equipment rebate program, require special consideration to be accurately quantified. The Team will work with the DNREC and other stakeholders to determine the scope of the Year One evaluation including the importance of addressing these non-energy benefits.

Most certified homes tend to follow a performance path to achieve the energy efficiency requirements. This leads to two evaluation challenges:

- 1) The performance path requires a software simulation of the energy consumption of the new home compared to a “standard” new home defined by the relevant code. The output from such models is typically sufficient for program administration purposes but insufficient to verify that the actual model was developed correctly and that energy savings were appropriately claimed.
- 2) The models focus on energy savings and do not present an accurate assessment of the demand savings without proper calibration. Alternative techniques may be employed to fill in data gaps to conduct evaluation activities. Our evaluation plan will clearly delineate each review activity including alternative methods and their applications.

After achieving consensus on the Year One evaluation approach with DNREC and the EM&V Stakeholder Group, the Team will implement an approach that will focus on quantifying the energy efficiency component of the certification programs. Both certifications award points using either a “performance path” (a documented analysis using software models demonstrating energy performance of a whole home compared to code) or a “prescriptive path” (analysis of energy performance of qualifying high efficiency equipment compared to code). Adjustments will be made where differences exist between NGBS and LEED. The base approach consists of review of project files and third party verifier’s documentation. For performance path projects, this includes review of REM/Rate or Energy Gauge models (as available) and output reports. For prescriptive path projects, this includes review of certification checklists, product literature, and labels and leveraging existing TRMs to verify savings. Supplemental approaches may include:

- **Benchmarking.** Benchmarking the program against other new homes programs around the nation to assess the validity of deemed savings approaches from existing TRMs and/or program planning manuals.

- **Billing analysis.** Conducting billing analysis from interval meters to develop daily and annual load shapes and calibrate REM/Rate and Energy Gauge models for program homes.
- **On-site inspections.** On-site work can allow the Team to independently verify key performance characteristics of the program.
- **Control group analysis.** Comparing performance of participating and non-participating homes.

The Team will leverage surveys to collect information for both impact and process evaluations. Surveys will explore motivations for participation in the program, satisfaction with the program, transformation of standard practice, as well as supplementary benefits of green homes beyond energy savings. Optional approaches include surveys of participating buyers and third-party verifiers to investigate similar issues, focusing on performance of energy efficiency and satisfaction with the home for buyers and market assessment for third-party verifiers.

The construction schedules of the participants may affect the evaluation. Although the process evaluation can begin before construction is complete, it is difficult to conduct verification activities for the impact evaluation before construction is complete. In particular, the components of the home cannot be verified until installed and a green verifier is able to verify the home.

Efficiency Plus Business

Evaluation type: Verification & Process

The Efficiency Plus Business program is a comprehensive non-residential program that offers incentives and loans to encourage installation of high efficiency equipment and building improvements to reduce energy costs, including a loan and energy audit reimbursement component. The program provides a prescriptive and custom path for incentives.

The Delaware Efficiency Plus Business program is similar to many other commercial and industrial incentive programs that the Team has evaluated in the past, but also presents some unique aspects. For example, coupling the incentive program with a loan and audit component presents added value to the program delivery mechanism and will need consideration when developing the process evaluation approach.

The Team will work closely with DNREC and the EM&V Stakeholder Group to develop a plan that will pay careful attention to the several evaluation challenges offered by non-residential programs. This is of particular importance because of the unique decision-making process in businesses. Successful business programs target all the key decision-makers within an organization, which may include financial officers as well as senior management and facilities staff. Small commercial customers tend to look more like residential customers in terms of their decision-making, so any programs that are targeted to both large and small

non-residential customers need to be flexible enough to appeal to all the appropriate decision-makers.

A second key consideration is the period over which businesses make facility-related decisions. For example, homeowners tend to purchase new equipment when the old equipment fails, or when they are undertaking renovations. Business customers, however, schedule changes far in advance, and may have a decision cycle of up to 18 months for efficiency improvements. Thus, these programs tend to begin slowly and show higher savings in later years than in the first year of operation.

The evaluation approach will seek to identify how the program is functioning, how to improve its effectiveness, and how to quantify the impacts of the efficiency improvements. The evaluation will address the following key research questions:

- Are the current incentive levels sufficient to induce market transformation, especially given the current economic climate?
- Are contractors and equipment vendors incorporating the rebate offering into their sales and marketing activities?
- Are customers aware of energy efficient opportunities and the types of equipment that are eligible because of program outreach?
- Do customers find the program offering easy to understand with straightforward participation?
- Does the custom path provide sufficient financial support and technical assistance to minimize occurrences of lost opportunity?
- What effect do energy audits have on encouraging customers to engage in additional energy efficient practices?
- What equipment specifications and/or customer characteristics need to be collected to accurately estimate savings?
- What are the energy and demand savings and other non-energy benefits?

The impact evaluation approach for the Efficiency Plus Business programs will distinguish between prescriptive and custom projects. Prescriptive incentives, which are relatively straightforward, include specific equipment types, efficiency levels, and rebate amounts that feed directly into the quantification of energy and demand savings. The base approach will include review of the measure worksheets and other project-related files. The prescriptive program offerings fall into standard categories (such as lighting, HVAC, motors and drives, and appliances) and follow generic savings algorithms that can be leveraged from existing TRMs. Custom incentives are much more complex and can consist of non-standard equipment or special applications of standard equipment.

The base evaluation approach for primary data collection will include developing project-specific M&V plans to clearly identify the International Performance Measurement and Verification Protocol (IPMVP) option and metering approach used to calculate ex-post savings. IPMVP options B and D will most commonly be used for large custom projects with high uncertainty in the savings calculations. IPMVP Option A may be used for small custom projects with low uncertainty in the savings calculations.

For the primary data collection activities, the Team recommends site inspections for a sample of the projects to verify conditions on-site and take direct measurements to estimate savings where projects have high uncertainty and high impacts. The Team will develop M&V plans prior to any on-site inspection. Typical information gathered includes:

- Baseline case and efficient case energy consumption;
- Operating hours;
- Controls and sequence of operation;
- Set-points; and
- Power metering of end use equipment if necessary.

For the non-residential programs in particular, the Team recommends site visits to provide the level of rigor needed to confidently assess energy savings. In viewing the actual conditions found on-site, auditors can often spot inconsistencies with the rebate application and ask more probing questions. Based on the Team's experience evaluating customer projects in the commercial sector, we recommend approximately 50% of projects be subject to on-site trend measurements because of certainty of the variables and/or available trustworthy customer data measurements.

According to the Efficiency Plus Business program website, rebate applications are no longer being accepted as of September 10, 2011. Therefore, evaluation of this program may begin immediately after the EM&V plan is approved. The Team will give consideration to the loan program, which will continue to operate until April 30, 2012.

Low Income Multi-Family

Evaluation type: Verification & Process

The Low Income Multi Family program works to support the development and renovation of affordable, energy efficient multi-family housing including working to increase the energy efficiency of multi-family housing and increase the availability of affordable, energy-efficient, multi-family housing. The program provided low cost construction financing.

Since participation in this program was limited, the Team will focus evaluation activities on understanding possible different program implementation approaches or other ways the program could be structured to increase its effectiveness. The Team will conduct interviews with program staff, review past research regarding other similar low income multi-family programs to determine successful practices and utilize Team members who are expert in low income programs. The Team will also conduct a program materials review and review the program databases as necessary.

ENERGY STAR Appliances

Evaluation type: Verification & Process

The ENERGY STAR Appliance Rebate program provided Delawareans rebates to replace old,

inefficient appliances. During the program, nearly 16,000 appliances received rebates through ARRA funding. The program ended on August 31, 2010.

Some of the key participant areas and the corresponding researchable question that can be explored through the program evaluation include:

Customer: Did the program result in increased sales and true early retirement of less efficient appliances or did it simply shift when they made their purchase? What efficiency level would they have purchased or installed in the absence of the program? Did the program include any process barriers (i.e., proof of recycling, the requirement to use a participating contractor, etc)?

Trade Allies: Did retailers find that the program had any significant economic impact? Did the program increase or simply shift sales? Did they notice any changes in the sales of high efficiency products occurring outside the program? Was there any administrative burden to participating?

Administrator: Were there process barriers due to the U.S. Department of Energy's (DOE) requirements that created challenges for implementing the program? Are there changes that could have been made to ease implementation or delivery? How effective was the U.S. DOE information sharing and reporting process?

Given that this program ended in August 2010, the Team will quick start this evaluation and develop an EM&V plan that allows us to provide relevant feedback and results while balancing the value of significant budget investments in gathering feedback on a program that is not likely to be repeated. During the development phase, the Team plans to work with DNREC and the EM&V Stakeholder Group to identify research priorities for this program, which can include:

- **Ex-post impact verification.** The Team will rely on program-captured data. To determine gross impacts, the Team will develop engineering estimates of electric and gas savings for each program measure based on product-specific information gathered from the tracking database. The Team will also develop engineering estimates of electric and gas savings for each program measure based on product-specific information gathered from the tracking database. We can compare the savings used in the program (acquired from U.S. DOE and DEER) with the regionally developed savings for the same technologies provided in existing TRMs.
- **Participant Surveys.** Surveys of a statistically valid sample of program participants could be used to gather information regarding the environment in which the measures were installed and key measure use parameters, as well as to verify measure installation. That noted, the Team recommends there be discussion around the value of conducting customer interviews at this late date. While the Team can provide a participant survey instrument that would include a battery of questions designed to assess savings attribution and gather information to evaluate and update the program NTG ratio, the Team does not recommend this approach at this time.

- **Trade Ally Interviews.** As stated above, given the unlikely nature that this program will repeat itself, there may be limited value in investing in extensive process evaluation. That noted, exploration of how successful the ARRA funded appliance program was at achieving some of the non-energy goals outlined by the U.S. DOE could be considered. Through retailer and contractor interviews, the Team can gather information on the program's success in spurring economic development, retiring and recycling existing appliances, and broader market transformation impacts that might have occurred.

We propose to address planning for this program quickly upon award of the program contract to mitigate the impact of the time that has already passed since the program closed on the evaluation results. The Team will work with DNREC to establish the most appropriate evaluation plan for the ENERGY STAR Appliance program while balancing competing evaluation demands with a limited evaluation budget.

Activity 3: Development of EM&V Standards and Processes for Years Two and Beyond

Task #3.1 EM&V Framework

Mr. Hall will lead the development of the Delaware EM&V Framework, working with key staff from Opinion Dynamics, Nexant, and Building Metrics to ensure that the Framework is accomplished in the Delaware Way. Mr. Gogte will co-manage this effort. The Framework will encompass practices that will suit the unique needs of not only the programs, but also the State, drawing on industry references such as the *Regional EM&V Methods and Savings Assumptions Guidelines*, the National Action Plan *Model Energy Efficiency Program Impact Evaluation Guide*, *Theory-Driven Evaluations²*, *Sampling Techniques*, *Impact Analysis for Program Evaluation*, and *Evaluation: a Systematic Approach and Evaluation*.

The Team will prepare a draft Framework outline to start the EM&V development process. During the Framework development, the Team will work directly with DNREC and the EM&V Stakeholder Group to identify the subjects and content that will be incorporated into the Framework.

The Team will work to create ample discussion, transparency, broad stakeholder input into the Framework development by striving to develop consensus on the Framework in EM&V Stakeholder Group meetings. In advance of one of these meetings, the Team will provide possible Framework topics for consideration by DNREC and the EM&V Stakeholder Group. Providing a selection of topics in advance of the EM&V Stakeholder Group meeting will allow ample time for attendees to review the topics and consider how these can or should fit into the Framework.

During the Framework development meetings, the Team will lead discussions focusing on the topics and issues that must be considered by DNREC and the EM&V Stakeholder Group as they make decisions about EM&V approaches. Throughout this process, the Team will convey the importance, scope, and function of each topic to DNREC and the EM&V

Stakeholder Group using this information to facilitate a forum that ensures ample opportunity for both discussion and feedback. The will use these meetings and associated follow-up discussions, e-conference meetings, and e-messaging, to provide the basis for the development of a draft Framework for review and consideration by DNREC and the Stakeholder Group. Feedback will be gathered from DNREC and the EM&V Stakeholder Group on the draft, using that insight to develop the final Framework.

The Framework will be a living document that will be updated or modified as appropriate. In a state like Delaware that is evaluating programs for the first time, developing an EM&V framework illuminates the need for sensitivity, clarity, and flexibility while still preserving the integrity of the evaluation when accommodating new decision-making processes in a regulatory environment. Through a collaborative process with DNREC and the EM&V Stakeholder Group, the Team may issue policy papers intermittently to address evaluation issues specific to the Delaware programs. These papers will be included to updates of the Framework to formally memorialize all decisions.

The Team will work to address the following topics for consideration during development of the Framework:

- Function, scope, and purpose of the Framework
- Evaluation objectives and metrics
- Schedule of evaluation and reporting
- Cost effectiveness tests and their formulas and definitions
- Appropriate approaches for gross and net savings analysis
- Use of TRM values prospective versus retrospective
- Evaluation budget
- Evaluation standards, ethics, and expertise
- Transparency of the evaluation efforts and results
- Timing of the evaluation planning cycle
- Early feedback policy and approach
- Effective-useful-life of technologies and behaviors
- Discounting, carbon values, avoided cost values, and other key cost effective metrics
- Rigor of the evaluation efforts
- Risk mitigation approaches for program and portfolio level reliability
- Types of analysis appropriate for evaluation (impact, process, market effects, etc.)
- How threats to reliability and uncertainty should be handled
- Attribution approaches
- Sampling protocols and levels of precision
- Field M&V efforts and IPMVP or other protocols
- Standards and approaches for surveys and interviews
- Logic models and program theories
- Incorporation of results into forward program planning and goal setting

The Team will also address the importance of certain non-energy benefits and the level of rigor to apply to the evaluation of those non-energy benefits.

The deliverables and due dates for Task #3.1 are:

- i. Draft Outline for EM&V Framework, February 15, 2012
- ii. Presentation for EM&V Stakeholder Group meeting, scheduled in coordination with DNREC;
- iii. Draft EM&V Framework, March 30, 2012; and
- iv. Final EM&V Framework, April 30, 2012.

Task #3.2 Uniform EM&V Methodology and TRM Development

The Framework developed in Task #3.1 will, in part, identify energy and demand response programs to be evaluated in Year Two. Guided by the Framework, the Team will develop uniform EM&V methodology (or methods) documents to standardize and define how impact evaluations are to be conducted for energy efficiency programs, demand response programs, and/or specific measures used in programs. Contents of a uniform EM&V methods document might include specific methodology to use, rigor requirements (e.g., sample size and confidence levels), evaluation timing, and reporting requirements. In developing these methodologies, the Team will use (and modify, when appropriate) the following resources, listed in order of priority:

1. EM&V Forum;
2. Other relevant national resources (e.g., IPMVP and the National Action Plan Model *Energy Efficiency Program Impact Evaluation Guide*);
3. Regional resources, including PJM and other states' standards and protocols; and
4. Contractor-developed original methodologies.

A more in-depth development process may be necessary for programs/measures less commonly evaluated such as voluntary load control, combined heat and power, building codes, and fuel switching, but which are considered important by Delaware's stakeholders.

The Delaware TRM will be an electronic warehouse of stipulated savings values, as well as incremental costs, measure lives, and research documentation. The TRM will cover prescriptive and quasi-prescriptive measures being offered in current programs or likely to be offered in future programs. The Mid-Atlantic TRM will be the base for the Delaware specific TRM. The Team will develop a Delaware-specific TRM that provides additional Delaware-specific standardized savings calculations for weather dependent measures and adds additional sections addressing new measures not included in the Mid-Atlantic TRM. Where secondary data appropriate for use in the Delaware TRM is not available, the Team will develop this data using a combination of engineering, modeling, and primary data collection, as necessary. The Team will also review and update algorithms as necessary to provide a clear link between algorithm parameters and ex-post evaluations study results.

The Team will also be responsible for maintaining and updating the TRM as well as identifying next steps for the evaluation and improvement of the TRM as an ongoing effort. The TRM will be developed through a collaborative process with the EM&V Stakeholder Group to ensure measures are well vetted by all parties.

The Team will compile one consolidated measure list offered by Delaware programs. Measure classifications (i.e., weather or non-weather sensitive and either prescriptive or

quasi-prescriptive) will also be determined and specified during this activity. The Team will prioritize the list in terms of the expected contribution to savings and the uncertainty of the deemed savings estimates. The Team will compare the consolidated measure list to the current Mid-Atlantic TRM to ensure overlap. The Team will identify any measures not covered or measures requiring Delaware-specific parameters.

The measure descriptions and input fields will include the following:

Measure Description

- Classification (Deemed, Partially Deemed or Custom)
- Fuel Type (Natural Gas or Electricity)
- Sector (Residential, Commercial, Industrial, Agricultural, or Government)
- Segment (Weather Sensitive or Non-Weather Sensitive)
- Category or End-Use (Appliance, Heating, Cooling, Lighting, etc.)
- Subcategory or Equipment Type (Dishwasher, Boiler, Air Conditioner, CFL, etc.)
- Common Name (High Efficiency Furnace)
- Unique Identification Code (RES-001-LI-CFL-2011-v1)
- Revision History
- Early replacement, normal (replace on failure) and new construction scenarios

Engineering Variables

- High-Efficiency Full-Measure Name and Description (e.g., NG Furnace, 94% AFUE)
- Baseline Full Measure Name and Description (e.g., NG Furnace, 78% AFUE)
- Hours of Operation, Equivalent Full-Load Hours, or Cycles per Year
- Capacity (e.g., HP, Tons, etc.)
- Coincidence Factor
- High Efficiency Energy Consumption (kWh/year, peak kW, or therms/year)
- Baseline Energy Consumption (kWh/year, peak kW, or therms/year)
- Building Type (Single Family, Multi-Family, Retail, School, etc.)
- Delivery Mechanism or Program (Direct Install, Upstream, Rebate, etc.)
- Climate Zone or Location
- Product Effective Useful Life (EUL)
- Application or Measure Type (Retrofit, Early Replacement, Replace-on-burnout, New Construction, Major Renovation)
- Interactive Effects (Indirect impacts of lighting, motor replacements etc. on the heating and cooling system)
- Cost Basis (Incremental Measure Cost or Total Measure Cost)
- Cost of water and water treatment per gallon for water-use related measures

Savings and Costs

- Annual Savings (kWh, peak kW, or therms)
- Other resource savings (as appropriate)
- Life cycle savings, including dual baseline for early replacement measures.
- Incremental Cost (\$/Unit)
- Full Measure Cost (\$/Unit)

The Team will conduct a review of the existing deemed savings assumptions and other ancillary data sources identifying any that may need to be updated to reflect Delaware's specific geography. Our goal for this activity is to validate pre-existing energy and demand savings values and to identify any missing measures included in the Delaware programs but not included in the Mid Atlantic TRM. We will include the identification and evaluation of change in the applicable local, state, and federal energy codes and standards that have an impact on the efficiency levels of the baseline equipment since publication of the Mid Atlantic TRM. We will consider both existing standards and codes and future revisions. The Team will review current assumptions and provide recommendations for modification as necessary, including the following attributes:

1. Measures will be well defined and organized to allow for ease of use during program implementation (tracking and reporting) and evaluation. The Team will structure the project deliverables to ensure the results can be easily incorporated by providers in program tracking tools. The Team will develop algorithms with parameters that are deemed, extracted from rebate applications, and/or updated from evaluation studies. This will improve the future evaluability of programs. The source and update path of each parameter will be identified.
2. For new measures (not included in the Mid Atlantic TRM) baseline assumptions, the Team will validate them against local, state, and federal energy standards and codes as well as current market conditions. During the review of each measure, the Team will examine and understand the relevant codes and standards and market conditions (if available) that may affect the baseline assumptions. The Team will consider replacement scenarios (new construction, early replacement, and replace on burnout) that affect baseline assumptions and we will align them with program implementation to ensure that the measure savings reflect the program logic.
3. Calculations, assumptions, and sources will be transparent and well documented to allow for easy review. The Team will structure our reports and project deliverables to ensure transparency and full documentation. Hyperlinks from the TRM to the relevant research documents will be provided. Uncertainty in key parameters will be assessed in order to identify primary research needs. The Team will meet the research needs through a combination of targeted primary data collection, engineering modeling, or evaluation studies as appropriate.

To ensure accurate results, the Team recommends a comparison of new measures (not included in the Mid Atlantic TRM) with other data sources and deemed savings measure lists. The list of possible data sources includes:

- New Jersey Energy Savings Protocols
- The NYSERDA Deemed Savings Database
- Connecticut Energy Efficiency Fund UI and CL&P Program Savings Documentation
- Pennsylvania Act 129 and Act 213 TRM
- Ohio TRM
- Minnesota Department of Commerce DSD
- California Database for Energy, Efficiency Resources (DEER)
- Consortium for Energy Efficiency
- Efficiency Maine TRM

- Efficiency Vermont TRM
- Massachusetts Deemable Savings Database
- Michigan Deemed Savings Database
- Wisconsin Deemed Savings Manual
- New York State Technical Reference Manual

The Team will recommend a schedule, process, and scope for periodic updates to the TRM (in consultation with the Framework) that will consider the lead-time required to modify program design, application files, incentive levels, and marketing documents. The Team expects the TRM to be a living document that is updated in a collaborative process involving DNREC and the EM&V Stakeholder Group.

The deliverables and due dates for Task #3.2 are:

- i. Draft uniform EM&V methodology and TRM, March 30, 2012; and
- ii. Final uniform EM&V methodology and TRM, April 30, 2012.

Task #3.3 Develop EM&V Plan for all Delaware Programs to be Implemented in Years Two and Beyond

The Team sees our role as facilitating collaboration with all stakeholders such that all of the stakeholders are afforded the opportunity to contribute and have positive interactions throughout the development of the plans. While the evaluation plans for Year Two and beyond will be informed by the EM&V Framework developed under Task #3.1, the Team will also ensure that the plans comply with PJM EM&V requirements and the protocols outlined by the EM&V Forum. The EM&V plans are expected to address the following issues:

- Program theory, objectives and performance metrics for each program and the portfolio as a whole;
- Discussion of key evaluation issues;
- Description of data requirements and expected sources;
- Sampling plans;
- Data collection plans;
- Detailed specification of the analytic and data collection design including an outline of all proposed methodologies, QA/QC procedures and data tracking systems used;
- Evaluation QA/QC protocols;
- Discussion of tradeoffs in allocating budget to proposed methodology and tasks and the rationale for selecting those tradeoffs;
- Detailed work plan, schedule with milestones, and staffing plan;
- Project management plan;
- Description of impact evaluation for each program including (see Section 1.1 for metrics):
 - Selected EM&V approach, key assumptions, required data, data collection approach, equations, expected level of rigor/reliability of results, and quality control plan
 - Explanation of basis for selected approach and rigor, including any decisions to use deemed savings approaches versus measurements;
 - Indication and basis for decision to report net or gross savings, and the definition

- of net savings as appropriate;
- Assess program cost-effectiveness; and
- If using measurement and verification methods, provide the survey design, sampling strategies, testing, data collection, timeline, and other relevant information.
- Description of process evaluations for each program, including:
 - Evaluations of program design, delivery, and implementation;
 - Comparative analyses of alternative program designs;
 - Identification of ways to improve current programs and mechanisms for prompt and regular program feedback;
 - Quality assurance and control procedures;
- Description of market effects evaluation for each program;
- Format for EM&V reports listed in Task #4.3;
- Reporting formats for the data and information needed from DNREC, utilities, and other agencies with dates that the data will be needed;
- Description of the costs and processes to participate in the PJM Capacity Market; and
- Schedules for work including reporting timetables.

Throughout this planning process, the Team will work with DNREC and the EM&V Stakeholder Group to establish the most appropriate evaluation plans for each program, balancing competing evaluation demands with a limited evaluation budget.

The deliverables and due dates for Task #3.3 are:

- i. Draft EM&V Plan; March 30, 2012; and
- ii. Final EM&V Plan, April 30, 2012.

Task #3.4 Program and Policy Support and Stakeholder Involvement

The Team understands that the clear and transparent reporting of results is critical to maintaining support for both publicly funded and ratepayer funded energy efficiency programs. The Team also understands that our work must pass scrutiny with regulators, and our ability to provide expert testimony is crucial to allowing all of our work to be understood and adopted.

Sara Van de Grift will leverage the expertise of our team including Brad Kates, Nick Hall and Salil Gogte when providing support to both program and policy objectives and while facilitating stakeholder involvement. The Team will provide supporting material and our technical experts for regulations, hearings, workshops, and other meetings as required by DNREC. This will include:

- Participating in regular meetings with stakeholders and entities responsible for EM&V implementation and oversight in Delaware to get input and review major findings, collect observations, review project implementation plans, and recommend updates to the EM&V Plan based on the most current information available ensuring the EM&V accurately reflects the reality of programs.
- Using our experience to develop an overall system of records that includes the data, information, and reporting formats needed for:

- Evaluation of programs;
- DNREC reporting requirements in Task #4.3; and
- Public reporting of energy efficiency and demand response savings and program achievements in job creation and emission reduction.
- Working with DNREC and the EM&V Stakeholder Group to decide on the content and the approach for public reporting of program results on a State-maintained web-based portal. This includes making the information not only accessible but also understandable to all vested parties including policy makers, ratepayers, and utility and SEU staff.

The deliverables and due dates for Task #3.4 are:

- i. Draft system of records and content for public reporting, March 30, 2012; and
- ii. Final system of records and content for public reporting, April 30, 2012.

Task #3.5 Market Evaluation and Potential Study

Understanding market potential is key to determining the best way to allocate funding to address the measures that the people of Delaware most need to install. The Team will review current potential studies applicable to Delaware, both state-specific and regional, and report a summary of key findings. The Team will then determine the need for embarking on a potential study and the costs associated with it versus the need to evaluate the success of current programs and to develop the Framework and TRM. Next, the Team will determine the need for and costs of embarking on a potential study versus the need to conduct a baseline study. Should the decision be made to conduct a baseline study, it will be developed to help Delaware understand what is currently in place in the State – providing the baseline needed to develop more targeted, measure-driven or program-driven assessments of potential opportunities. For Year One, the Team expects to conduct more targeted, measure-driven assessments of potential, as opposed to a blanket potential study, which often times does not provide specific direction as to where the most measure opportunities exist.

The Team will conduct interviews with DNREC, utilities, and other key members of the EM&V Stakeholder Group to identify measures and programs that are being considered for adoption. The Team will then perform applicable secondary research to determine if these measures or programs have the chance to provide enough energy savings to be adopted. In certain key cases, the Team will conduct primary research to determine market potential. This research could include such methodologies as telephone surveys, in-depth interviews with industry experts, on-site visits, or other key attributes. The Team will also provide recommendations for future research priorities including potentials for future regional partnerships.

The deliverables and due dates for Task #3.5 are:

- i. Draft report of key findings regarding market evaluation and potential studies applicable to Delaware, March 30, 2012; and
- ii. Final report of key findings regarding market evaluation and potential studies applicable to Delaware, April 30, 2012.

Activity 4: EM&V Implementation in Years Two and Beyond

The Team will develop appropriate budgets for Year Two evaluation period activities towards the end of the Year One evaluation period.

Task #4.1 Implementation of EM&V

The Team's implementation of the EM&V in the Year Two evaluation period will occur in alignment with the approaches outlined in the collaboratively-developed Framework. In short, the Framework and EM&V plans developed under Activity 3 will serve as the implementation guideline for evaluations in Year Two and beyond. As noted previously, prioritization among evaluation efforts and the rigor of evaluation methods will be determined with consideration given to (1) energy and demand risk to the portfolio; (2) where the program is in its lifecycle; and (3) whether the evaluation has inherent uncertainties that might require more resources.

Task #4.2 Implementation of Market Assessment Studies

The Team will conduct market assessment studies as necessary and identified in Tasks #1.1 and #3.5. The Team will review secondary sources of information to assess the energy efficiency market may include conducting interviews with key stakeholders to better interpret any secondary data we may utilize. The Team will also review information from other states, NEEP, the Consortium for Energy Efficiency, the Association of Energy Services Professionals State of the Industry report, and other relevant pieces of data as necessary. Through this work, the Team will support future program planning by identifying additional program opportunities, approaches, and/or measures that DNREC and the EM&V Stakeholder Group may want to consider for implementation or inclusion in programs.

Task #4.3 Reporting

The Team will provide feedback in monthly, semiannual, and annual reports. The Team will also provide feedback on a more immediate basis on issues that are time sensitive.

Monthly Reports will be provided to DNREC and will serve as a tool for providing updates on EM&V activities and, as noted earlier, will be a means for ensuring the project is executed in a manner consistent with the evaluation plan. These reports will provide a status report chronicling work completed in the previous month, and work to be performed in the next month. The status report will also include any potential issues or challenges and a look at the budget and timeline to date

Semi-Annual Reports will provide updates on the statewide energy and demand savings, identify any key or emerging issues, and include a review of major findings, a review of evaluation efforts to date, and any recommended changes to the EM&V plan.

Annual Reports will be developed so they can serve as a tool for communicating results to both stakeholders (DNREC, utilities, SEU, etc.) and the general public. The Team will provide impact results by program and portfolio and a summary of all EM&V activities that occurred during the given time period. In addition, annual reports will discuss key process findings, issues, and resolutions encountered during the course of the year and overall progress

towards meeting statewide and utility goals.

Information Requests. The Team will act as DNREC's evaluation research partner; providing program evaluation support is a core function of the Team. Although these needs are uncertain at this point, the Team will make every effort to ensure that project staff with the needed expertise and qualifications is available to support these needs.

The deliverables and due dates for Task #4.3 are:

- i. Draft annual report, June 15, 2012; and
- ii. Final annual report, July 15, 2012.

2.0 PROJECT SCHEDULE AND DELIVERABLES

Opinion Dynamics shall provide the following deliverables in accordance with the following schedule. The dates for these deliverables could be adjusted after Task #1.2.

Deliverables	Task	Date
Draft EM&V Plans for WAP, EECEBG, and SEU programs	2.1	January 30, 2012
List, and electronic copies, of resources reviewed	1.1	February 15, 2012
Brief written assessment of resource documents	1.1	February 15, 2012
Draft expenditure schedule, budget, and SOW	1.2	February 15, 2012
Draft outline for EM&V Framework	3.1	February 15, 2012
EM&V Plan for WAP, EECEBG, and SEU programs	2.1	February 15, 2012
Final expenditure schedule, budget, and SOW	1.2	February 22, 2012
Draft EM&V Framework	3.1	March 30, 2012
Draft Methodologies and TRM	3.2	March 30, 2012
Written assessment of costs and processes to allow for Delaware's energy efficiency programs to participate in the PJM Capacity Market and voluntary carbon markets	1.1	March 30, 2012
Draft system of records and content for public reporting	3.4	March 30, 2012
Draft EM&V Plan	3.3	March 30, 2012
Draft report of key findings regarding market evaluation and potential studies applicable to Delaware	3.5	March 30, 2012
Final EM&V Framework	3.1	April 30, 2012
Final methodologies and TRM	3.2	April 30, 2012
Final EM&V Plan	3.3	April 30, 2012
Final system of records and content for public reporting	3.4	April 30, 2012
Final report of key findings regarding market evaluation and potential studies applicable to Delaware,	3.5	April 30, 2012
Draft report on EM&V of WAP and SEU Programs	2.2	June 15, 2012
Draft Annual Report	4.3	June 15, 2012
Final Annual Report	4.3	July 15, 2012
Final report on EM&V of WAP and SEU Programs	2.2	July 15, 2012
Interim report for EECEBG,	2.2	July 15, 2012
Final report for EECEBG Programs	2.2	December 1, 2012
Policy support and stakeholders review and feedback	3.4	Throughout term of contract
EM&V Stakeholder Group meeting notes	1.1	One week after meeting
Monthly Status Reports	1.3	15 days after end of each month

3.0 INVOICING SCHEDULE

Opinion Dynamics will invoice DNREC for work completed under each Tasks in accordance to the following schedule.

Completed Work	Invoice No later Than
Tasks: #1.1, #1.2, #1.3, #2.1, #3.1, #3.2, #3.3, #3.4, #3.5, and #4.2	June 15, 2012
WAP and SEU work in Task #2.2	July 15, 2012
EECBG work in Task #2.2	December 5, 2012

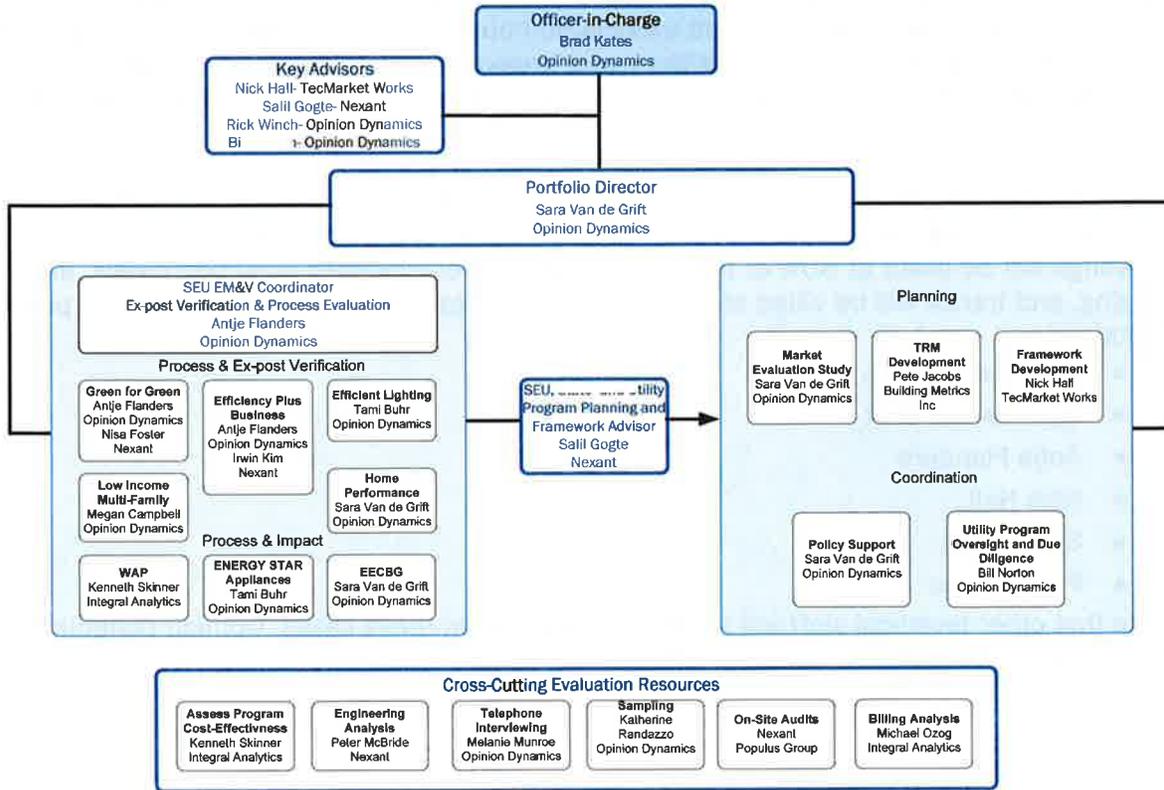
4.0 STAFFING & SUBCONTRACTING PLAN

Opinion Dynamics's Sara Van de Grift will serve as the overall project manager and day-to-day primary contact person, working to coordinate efforts across the managers for each piece of this project – evaluation, Framework development, and TRM development – and will ensure efficiencies of delivery. Antje Flanders of Opinion Dynamics will provide direct oversight on all program specific ex-post verification and process evaluations. Nick Hall of TecMarket Works will serve as the lead on the EM&V Framework. Salil Gogte of Nexant and Pete Jacobs of Building Services, Inc. will serve as the leads on the development of the TRM. Ken Skinner of Integral Analytics will provide support on billing analysis and serve as an M&V advisor for the project. Nexant will serve as the lead on engineering, site work and field QA/QC activities. Nexant will also contribute to our impact analysis for program EM&V as appropriate (including impacts on year one EM&V for Green for Green and Efficiency Plus Business).

The management approach noted above will ensure each team member is focused on their specific area of expertise, with coordination of the many moving parts managed by Ms. Van de Grift who will provide a project approach that will ensure only those resources needed for each piece of the project are leveraged, mitigating the risk for complex bureaucracy in delivery approach. This project requires multiple disciplines working in synchrony to ensure all work is performed to the level necessary to meet the Delaware Way. The Team will ensure that we will take a custom approach to this work, and our team members will collaborate with each other to ensure we create a model that will be the one emulated by all other states. To this end, Brad Kates, President and CEO of Opinion Dynamics, will serve as Officer-in-Charge ensuring that the best staff from each company will be brought to bear on this effort and that our work will exceed the expectations of DNREC. Sara Van de Grift will serve as the Portfolio Manager. Ms. Van de Grift will work with various stakeholder groups to get things done on time and on budget.

The organizational chart below provides our management approach to this work. We understand the Framework and planning issues are parallel efforts to the EM&V implementation. We will link the Year One EM&V to the Framework development in a way that ensures lessons learned during the EM&V are appropriately fed into the Framework and TRM development. Salil Gogte, will play this feedback role. Our senior-level cross cutting resources will provide input on such wide ranging issues as sample design, policy support, on-site audits, billing analysis, telephone interviewing, and engineering analysis, among others.

Organizational Chart



5.0 BUDGET

The following pages provide the Team's projected budget for Year One activities and a spreadsheet with expected tasks and associated hours per task of key staff, along with our billing rates. The Team will finalize the exact breakdown of this budget by task after the evaluation plans have been finalized and provide this revised budget as part of a contract amendment.

Opinion Dynamics commits to conducting the Year One work for a budget of \$1,320,211.00. All travel costs will be included in the Material Costs budget. Time spent in transit for meetings will be billed at 50% of the billable rate, travel expenses including meals, airfare, lodging, and transit will be billed at the actual costs. Staff expected to travel for this project includes:

- Brad Kates
- Sara Van de Grift
- Antje Flanders
- Nick Hall
- Salil Gogte
- Pete Jacobs

Note that other technical staff will travel for site visits. In these cases, Opinion Dynamics will bill the full amount of time for travel between site visits in Delaware.

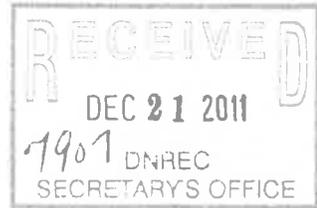
Name:	Opinion Dynamics
-------	------------------

Staffing Rates

Job Title	Employee Name	Prime or Sub-Contractor	2011-2012 \$ Rate	2012-2013 \$ Rate
President	Brad Kates	Prime	\$250	\$265
Vice President	Bill Norton	Prime	\$225	\$239
Director	Rick Winch	Prime	\$200	\$212
Project Director	Sara Van de Grift/Antje Flanders/ Tami Buhr	Prime	\$190	\$201
Sr. Project Manager	Megan Campbell	Prime	\$180	\$191
Research Coordinator	Various	Prime	\$125	\$133
Field Research Manager	Melanie Munroe	Prime	\$175	\$186
Senior Analyst	Various	Prime	\$165	\$175
Project Analyst	Various	Prime	\$155	\$164
Field Research Staff	Various	Prime	\$105	\$111
Telephone Interview Staff	Various	Prime	\$43	\$46
Principal	Salil Gogte	Sub-Contractor	\$216	\$229
Senior Project Manager	Patrick Burns	Sub-Contractor	\$184	\$195
Senior Project Engineer	Peter McBride/Irwin Kim	Sub-Contractor	\$151	\$160
Project Engineer	Nisa Foster	Sub-Contractor	\$130	\$137
Analyst	Pranav Jampani	Sub-Contractor	\$130	\$137
Vice President	Kenneth Skinner	Sub-Contractor	\$211	\$223
Vice President	Michael Ozog	Sub-Contractor	\$211	\$223
Market Research Manager	May Wu	Sub-Contractor	\$211	\$223
Framework Lead	Nick Hall	Sub-Contractor	\$211	\$223
TRM Lead	Pete Jacobs	Sub-Contractor	\$194	\$206

BUDGET

Tasks	Opinion Dynamics										Nextant				Populus			TechMarket Works		Integral Analytics		Building Metrics		Task Cost \$		
	President and CEO Kates	Vice President Norton	Director Winch	Project Director Flanders, Blair	Sr. Project Manager Van de Grift, Campbell	Field Research Manager Munnice	Senior Analyst Various	Project Analyst Various	Research Coordinator Various	Field Research Staff Various	Telephone Interviewing Staff Various	Principal Gogts	Senior Project Manager Burns	Senior Project Engineer McBride, Kim	Project Engineer Foster	Project Analyst Jampani	Project Manager TBD	Senior Engineer TBD	Project Engineer TBD	Project Framework Lead Hall	Vice President Skinner, Ozag	Manager Market Research Wu	TRM Developer Jacobs		Total Hours	Material Costs \$
Hourly Rates (2011-2012)	\$250	\$225	\$200	\$180	\$180	\$175	\$165	\$155	\$125	\$43	\$216	\$184	\$151	\$130	\$130	\$151	\$119	\$97	\$211	\$211	\$211	\$194				
Task #1.1: Research	2	8	12	40	40		40	16			8				24				8		8		174	\$5,000	\$95,743	
Task #1.2: Revise Scope and Budget	16		16	40	40		32				32	40		20					16		16		244		\$46,378	
Task #1.3: Monthly Status Reporting	4		4	40	40			40			8								4				104		\$17,348	
Task #2.1: EM&V Plan State/SEU	12	12	12	24	60		40				40												200		\$38,700	
Task #2.2: Implement State/SEU EM&V																										
WAP	4		12	40	40						40	100		300												
EECBG	8	12	12	30	70	40	100	75	100	300	10										120	60	1016		\$167,348	
Efficient Lighting	12	20	20	120	80	60	80	80	200	800				100									857		\$98,585	
Home Performance	8		12	20	80		80	80	40	400											100		900		\$99,860	
Green for Green	2		8	100			120		40	200	40	40	40	60									650	\$5,000	\$88,508	
Efficiency Plus Business	2		100	100	100		160		40	200	40	40	40	100	120	40	80	80			80		1222	\$10,000	\$177,420	
Low Income Multi-Family			20	60																			80		\$14,600	
Energy Star Appliance	2		12	32	40		100	100	40	20													346		\$35,280	
Task #3.1: EM&V Framework	24	40	40	60	60						40	40							120	8		8	380	\$10,000	\$88,296	
Task #3.2: Methods/TRM	4		20	40	40						100	40							8			140	352		\$70,045	
Task #3.3: EM&V Plan	16	16	16	60	40		40	20			40	40							8		8		312		\$60,009	
Task #3.4: Policy Support	20	12		80	80						8								8			8	136	\$10,000	\$37,068	
Task #3.5: Market Evaluation and Potential Study	4		12	40	40		80					20							4			4	164		\$29,092	
Task #4.2: Market Assessment	4		12	32	32		80					20							4			4	156		\$27,652	
Total Cost \$	\$36,000	\$27,000	\$44,000	\$103,740	\$169,560	\$17,500	\$157,080	\$57,505	\$27,500	\$50,400	\$81,700	\$69,768	\$72,576	\$75,168	\$18,862	\$6,048	\$7,776	\$37,908	\$71,604	\$12,636	\$38,880				\$1,320,211	



Request for Action by

Cabinet Secretary

Deputy Secretary

Action Requested

Distribution Requested

For Your Approval/Signature
 Review & Comment
 For Your Information

Return to: Bahareh van Boekhold- Division of Energy and Climate
Mail to _____
Other _____

Due Date: 12/22/2011 _____

Approvals Required Prior to Submission:

	<u>Initials</u>	<u>Date</u>
Carolyn Snyder Ph.D _____	CS	12/19/11
Robert Zimmerman _____		
_____		12/26/2011

Remarks:

See attached Memo

From: Bahareh van Boekhold

Initials

Date

BVB

12/19/2011

Division: Energy and Climate

Phone: 302-7383480

