Dynamic Stability Study

Niue Power Corporation (NPC)
Proposal Number 11-3157
Prepared by KEMA Inc
July 27, 2011
Table of Contents

1. Introduction .................................................................................................................................... 1-1
2. About KEMA .................................................................................................................................... 2-2
   2.1 Company Data ............................................................................................................................ 2-2
   2.2 KEMA’s Organization .................................................................................................................. 2-3
   2.3 Experience in Island Systems .................................................................................................... 2-5
   3.1 Background .............................................................................................................................. 3-7
   3.2 Scope of Work ........................................................................................................................... 3-7
4. KEMA Qualifications - Power System Analysis/Dynamic Stability ........................................ 4-9
5. KEMA’s Selected References ........................................................................................................ 5-10
   Power System Analysis/Dynamic Stability .................................................................................... 5-10
6. Qualifications of Key Staff ........................................................................................................... 6-12
7. Financial Proposal ........................................................................................................................ 7-15
   7.1 Estimated Cost ........................................................................................................................... 7-15
   7.2 Payment Terms .......................................................................................................................... 7-15
   7.3 Proposal and Information Confidentiality .................................................................................. 7-16
   7.4 Proposal Validity and Personnel Availability .......................................................................... 7-16
   7.5 Terms and Conditions ............................................................................................................... 7-16

List of Exhibits:

Table 1 - Estimated Labor Costs for Key Tasks ........................................................................... 7-15
1. Introduction

KEMA Inc. is pleased to present this Proposal to Niue Power Corporation for conducting a dynamic stability study for the island of Niue.

It is our understanding that for this project it will be of importance to work closely with NPC to collect the required data and discuss findings; model various PV scenarios and assess their impact on island unit stability, and document findings and recommendations in a final report.

The study involves analyzing the electrical system dynamic performance under critical disturbances and recommending technical solutions (if needed) to improve system stability. A final report documenting simulations studied, performance results, and recommendations for improved system performance will be presented at the completion of the study.

KEMA Inc is pleased to inform the NPC about its extensive experience in the fields of expertise needed to perform this stability study.

In this Proposal we will first provide you with information about our company, KEMA Inc, showing you information about our core business and the years we are active in this business. In addition to that, we also will describe our specific experience in small isolated island systems, especially in the field of system studies.

In the sections following the company information we will describe our qualifications in the area of power system analysis and distribution planning.
2. About KEMA

A U.S. subsidiary of KEMA N.V. in The Netherlands, KEMA Inc. has its headquarters in Burlington, Massachusetts, USA and offices all over the USA and worldwide. KEMA Inc’s staff of more than 500 full-time professionals includes leading experts from many facets of the utility industry.

KEMA is a world-renown engineering and consulting firm with headquarters in The Netherlands. With offices in the United States, mainland Europe and the UK, Asia, Brazil, Colombia, the Caribbean and Australia, KEMA employs over 1,800 professionals and has annual revenues of over Euro 250 million.

KEMA is independent and is not affiliated with any vendor, product, or proprietary technology. Because of this impartiality, KEMA is able to assure that its consulting opinions and recommendations are objective and solely directed to the best interests of each client.

KEMA was founded in 1927 by the Dutch Electric Utilities and nowadays its shareholders are still the Power Generation and T&D Companies of The Netherlands. KEMA enjoys a reputation for integrity, reliability, and outstanding expertise. This reputation serves as the cornerstone from which KEMA has been actively expanding its scope of expertise and services to most effectively meet clients’ needs in the evolving marketplace. KEMA has executed a large variety of consulting projects for more than 1000 clients in more than 100 countries. KEMA has also participated in a large number of projects funded by multilateral and bilateral donors (including the World Bank, Inter-American Development Bank, EBRD, Asian Development Bank, EU-Phare/Tacis, US TDA, etc.).

Furthermore we will provide you with CV’s of key staff, proposed by KEMA for this project.

2.1 Company Data

Legal Name: KEMA, Incorporated

Legal representative properly authorized to sign the declaration for and on behalf of the firm: Mr. Hugo van Nispen, President/Managing Director
Address:

KEMA, Inc.
67 South Bedford Street
Suite 201E
Burlington, MA 01803
USA
Tel: +1-781-273-5700
Fax: +1 781-229-4867

Project Contact Person: Roel Verlaan, Director Business Development Caribbean & Pacific
Cell Phone: +5999 565 5351
roel.verlaan@kema.com

Please visit our web site www.kema.com for further information on KEMA’s, organization, financial statements, annual reports and on our many different services.

2.2 KEMA’s Organization

KEMA’s core activities are Testing, Consulting and Quality Management. Internationally KEMA is recognized as the world’s leading testing firm in the fields of medium and high voltage equipment and other power system equipment. KEMA has many laboratories and testing facilities in not only The Netherlands and the USA, but also in Asia, including China. KEMA’s Quality Management Group is also located in many places of the world and is performing quality audits and quality certifications, such as according to ISO 9001 or ISO 14001 for many different companies worldwide.
KEMA’s consulting activities are being provided out of KEMA’s European Offices as well as KEMA Inc’s Offices in the USA, Brazil, Colombia and the Caribbean. With its Consulting Services KEMA is able to cover all needs in the Power Sector, from the Generator to the Consumer, including Market Structures, Regulation, Energy Policy, Strategic Studies, Cost of Service and Tariff Studies, Power System Planning and Design, Renewable Energy and all other services related to the power sector, including control centers, distribution automation, automated metering infrastructure and last but not least: Smart Grid.

Without mentioning all details of services that can be provided in the different fields of the power sector, the core activities of KEMA’s consulting activities can be summarized as follows:

- Management Consulting, Operational Audits
- Market restructuring, Regulation,
- Financial Modeling, Cost of Service, Tariff Design
- Strategic and Operations Management
- Smart Grids, Utility of the Future
- Asset Management
- Power Generation, Renewable Energy
- T & D System Analysis & Design
- T & D Planning, System Studies, Engineering
- Protection and Control Studies, Settings, and Design
- Condition assessment and lifetime extension
- Automation, Control Centers, IT Infrastructure
- Demand Side Management
- Renewable Energy technologies and Implementation
- Electricity storage feasibility and testing
2.3 Experience in Island Systems

KEMA has built up experience and knowledge of island systems, which have special characteristics, being isolated and having no significant economies of scale. KEMA has provided consulting services in many fields of expertise to islands worldwide and has references, for example, in 20 Caribbean islands. In recent years, KEMA has also been doing work for 20 island systems in the Pacific Region in the field of supply-side energy efficiency.

KEMA is an Allied Member of the Pacific Power Association and is an Associate Member of Carilec, the association of electric utilities in the Caribbean. At Carilec KEMA is also represented in the Board of Directors. For Carilec KEMA has developed a Position Paper on Energy Policy as well as on Regulation, with emphasis on Minimization of Barriers and Provision of Incentives for Renewable Energy Technologies and Alternative Fuels. For different island utilities KEMA has provided Strategic Plans as well as Operational Support.

Since the year 2002 KEMA has performed a yearly Benchmark Study for over 20 Caribbean island utilities, covering performance indicators in financial/economical, organizational, technical, commercialization and environmental fields. Also, a multi-dimensional benchmark study has been performed for Carilec, a Data Envelopment Analysis, in order to determine relative efficiencies of the utilities within their peer group. In the fields of Benchmark Studies KEMA has also contacts for cooperation with the Pacific Power Association and NESIS, the association of European Islands, being a sub-organization of Eurelectric, the European Association of electric utilities.

KEMA’s services to the island utilities and governments cover a wide range of areas, such as:

- Energy Policy
- Regulation, Regulatory Frameworks
- Power Sector Reform
- Benchmark Studies
- Renewable Energy from feasibility studies to implementation
- Selection of power projects developers
- Power Purchase Agreements
- Fuel hedging
- Alternative fuels
- Strategic Studies
- Business Plans
- Control Centers, EMS, SCADA
- AMR/AMI
- Power Plants
- Transmission and Distribution systems
- Loss reduction studies
- Operational audits
- Efficiency audits
- Others

3.1 Background

On the Island of Niue, the maximum load is approximately 500 kW, the average load is 350 kW, and minimum load is 250 kW. NPC has four 500 kW generators connected to a bus and from there two separate 11 kV feeders extend out to supply power to the island. At several locations, there are solar power plants connected to the grid (60 kW in total) and approximately 70 kW of additional solar generation will be added this year. There are plans for even more solar power in future years.

There are two customers with "large" motors of 10 kW each (a quarry and a wharf). If these companies start with their operations, the power company must start up a second generator, because otherwise they have stability problems when starting these motors. The Niue Power Corporation is concerned that as more solar power plants are added, they will have further stability problems, especially due to the intermittent output characteristics of the solar panels. Therefore, they would like an outside consultant to study the problem, determine its causes, develop possible solutions, and recommend a course of action to eliminate stability problems for future system operation.

3.2 Scope of Work

1) Meet with NPC management and staff members to provide a thorough understanding of the problems. Gathering data at the beginning of the project is critical to the development of an accurate model. KEMA will require input from the NPC project team to develop the most accurate model possible for this endeavor. KEMA will also prepare the project work plan and discuss with NPC project management for agreement and approval.

2) Develop acceptable system model and analysis approach. KEMA intends to use the NPC system model that was developed for the PPA South Energy Efficiency Project with input from the NPC project team. KEMA consultants have developed this model utilizing the Easy Power software and are familiar with the NPC 11 kV distribution system layout. Updating this model for dynamic stability studies only
requires the addition of dynamic load models and generating unit data, aside from any minor network updates from the NPC project team.

3) Validate model by demonstrating the described stability problems. The initial results obtained by KEMA consultants will be benchmarked against any known stability problems or dynamic data recordings of disturbance events on the NPC system.

4) Propose solutions and demonstrate their effectiveness. Dynamic results of proposed solutions will be documented and presented to the NPC project team to demonstrate the effectiveness of proposed solutions.

5) Review results with NPC project manager and team. Questions and input from the NPC team will help to improve the proposed solutions and ensure a stable NPC system under all expected conditions.

6) Recommend best solution(s) based on cost and technical performance. KEMA will compare the technical performance of each alternative solution and recommend a preferred plan based on economic cost, which will be documented in the final report.

7) Prepare brief written report, documenting all findings and recommendations.
4. **KEMA Qualifications - Power System Analysis/Dynamic Stability**

KEMA’s expertise in dynamic stability studies for electric utilities is combined with an unmatched economical and technical experience in planning, operations and business processes within the electricity supply industry. At the same time this combination of technical and economic insight in the power sector adds important value to KEMA’s capabilities in the field of Power System Studies.

Dynamic stability involves matching load and resources, economic generator dispatch, reserve margin, and various system control settings to maintain a stable operating electric system. Fluctuations in PV generator output and voltage can have a significant impact on electric system operations and stability, especially as PV generator penetration increases. Our experienced staff can analyze the performance of the electric system and develop strategies and settings to improve operating performance and help prevent stability problems in the future.

KEMA has assisted many utilities, both large and small, in the development of stability base cases, identification and verification of performance issues, and recommendations for improved system performance. Important aspects are reduced unit and system outages, improved voltage performance and stability, and improved reliability of supply, thus reducing the costs of service due to reduced outage costs.

KEMA has helped clients throughout the world to address these kinds of challenges and improve their electric system performance, reliability, and cost of service.
5. **KEMA’s Selected References**

All references as selected for this Proposal are related to projects performed in the period 2000 to 2011, with most of the references being not older than 5 years.

**Power System Analysis/Dynamic Stability**

1) **Dominion Virginia Power**: KEMA conducted independent studies to assess the need for a proposed 500 kV transmission line from 502 Junction (in PA) to Mt. Storm (in WV) to Meadow Brook and Loudoun County (both in VA) for Dominion-Virginia Power. The work involved technical analysis, needs assessment, system planning analysis, and extensive review of planning criteria, assumptions, and results. All reasonable alternatives were considered, including other transmission additions, generation solutions, DSM solutions, and reasonable combinations of these alternatives. Subsequently, KEMA presented expert testimony before the Virginia Corporation Commission on behalf of Dominion.

2) **Singapore**: KEMA comprehensively studied and recommended appropriate measures to minimize the grid costs for handling fault current contribution and to encourage industry to minimize fault current contribution, taking into consideration the practices adopted in other jurisdictions. The Consultant is expected to also review the grid charging framework and recommend adjustments to the grid charging framework.

3) **American Electric Power**: KEMA developed plans that addressed reliability problems identified based on existing and expected reliability standards. The studies covered summer peak and shoulder-peak load conditions, generation sensitivity analysis, transfer scenarios, and integration of potential new generation. KEMA also evaluated the impact of new renewable generation and potential generation retirements.

4) **Arizona Corporation Commission**: The Arizona Corporation Commission biennially reviews ten-year plans filed by the state’s utilities intending to construct transmission facilities at 115 kV or above, and issues a written decision regarding the adequacy of the existing and planned transmission facilities to reliably meet the present and future needs of the state. KEMA assisted the Staff in reviewing and analyzing the ten-year plans and related filings, issued data requests, conducted workshops for stakeholder input, and drafted this Sixth Biennial
Transmission Assessment report. KEMA used an open, transparent and collaborative process to obtain utility and stakeholder input, including two public workshops.

5) **Los Angeles Department of Water and Power (LADWP):** KEMA supported LADWP’s reactive power management plan. KEMA reviewed a wide range of reactive power issues affecting the LADWP system. In addressing all these issues KEMA reviewed existing LADWP documents, experience and key personnel, relevant documents, materials and personnel.

6) **Seminole Electric Cooperative:** KEMA performed stability analyses to determine relay/breaker settings to maintain stability for a proposed 600 MW coal plant in Florida. The study evaluated various alternatives for substations in the 115 kV, 230 kV, and 500 kV transmission networks.

7) **Confidential major western US utility:** KEMA performed a technically complex study of the impact of high levels of renewable generation on a major western US utility. The analysis included stability studies of the western US transmission network and evaluated innovative and conventional solutions to mitigate the identified risks.

8) **Oncor Electric, Dallas:** KEMA performed extensive stability studies of the Dallas/Fort Worth region of Texas. The analyses focused on the 115 kV and 345 kV transmission networks in the area that serves more than 7,000 MW of load.

9) **Singapore:** KEMA performed stability analyses to determine the impact of various operating reserve policies on system frequency response and stability. The Singapore system faced the possibility for a significant increase in the customer-owned generation that would not respond to system frequency changes.
6. Qualifications of Key Staff

Kevin Chen has been involved in a variety of consulting projects with KEMA, including power electronics energy conversion, battery energy storage systems, renewable energy and smart grid, transmission and distribution system study. His expertise is in the areas of power electronics, power quality, and renewable energy systems. He also has expertise in transmission and distribution system modeling, steady-state and dynamic analysis using PSS/E, PSLF, PowerFactory, EasyPower, etc. Mr. Chen has a Master degree in Electrical Engineering. He did research work of harmonic elimination of PWM boost type rectifier and received the best thesis award during his study at Cleveland State University. He received his bachelor degree from Tsinghua University, China.

Neil Crandell has over 30 years of professional engineering experience with a major focus in power system studies and planning. His background in power systems analysis includes load flow, short circuit, dynamic stability, voltage stability, transfer capability, reactive power planning, reliability, operations planning and operating guides, switching transients, protection coordination, distribution feeder analysis, and economic evaluation. He has performed numerous dynamic stability studies for various clients and made recommendations to improve system performance.

Mr. Crandell has performed area coordinator responsibilities for system studies and served on numerous reliability council working groups and energy advisory committees. He also has experience in underground systems, including UG transmission and distribution designs, UG cable ratings, and UG secondary networks. Mr. Crandell received his degree in Electrical Engineering from Ohio University in 1978 and has held professional engineering licenses in the states of Louisiana, Maryland, and Florida.

Jeffrey Palermo has more than 30 years of experience in the power sector, with specific expertise in system planning and sector restructuring. While at KEMA Mr. Palermo has been responsible for system planning and operating studies of generation and transmission systems within a range of multi-utility coordination schemes.

Mr. Palermo has advised utilities across the United States and Canada, Australia, China, Costa Rica, the Dominican Republic, Egypt, Belgium, Hong Kong, Iceland, Indonesia, Japan, Malaysia, New Zealand, Peru, the Philippines, Russia, Singapore, South Africa, Taiwan, Venezuela and Vietnam regarding these issues.
Mr. Palermo advised and assisted these utilities in developing and evaluating transmission plans. This assistance included a wide range of system analyses using a variety of steady-state and dynamic system analysis tools and techniques.

Mr. Palermo has appeared as an expert witness before FERC, Congressional committees, state legislatures, state and federal courts, arbitration panels, and state and provincial utility commissions. He has provided numerous lectures on restructuring, system planning and system operation.

Mr. Palermo’s academic qualifications include both a Masters in Electrical Engineering and a Masters of Business Administration in Finance. He is a registered professional engineer.

Roel Verlaan has more than 40 years of experience in the energy industry. He is a highly qualified Principal Consultant and Advisor with experience in both the private and public sectors. In the latest ten years he has been engaged in both consulting activities as well as in business development for KEMA. Mr. Verlaan also serves as a Board Director for Carilec, the Association of Caribbean Electric Utilities, as a representative of the Associate Members.

Mr. Verlaan is experienced in both the technical and the managerial fields of the energy industry and has also been active in projects for Energy Policy, Power Sector Reform, Regulation, and Benchmarking. He also specializes in “optimizing the business of T&D”, efficiency improvement, asset management and in the specific technical and business issues of Island Systems.

Dr. Khoi Vu has 20 years of experience with energy and utility systems. He has experience in utility information systems, protective relays, transmission planning and operation. He leads the development of KERMIT, a KEMA’s tool to analyze impact of intermittent renewable on grid operation, with a time scale of hours and days. This tool has been used in a number of studies in the US, such as California and Hawaii.

Before joining KEMA, Dr. Vu worked with various business units in ABB, and took up long-term assignments in Norway and Finland. He led a team in asset management to develop software tools to extract health-related information from data collected by IEDs (Intelligent Electronic Devices) at substations. He developed software tools for power-quality simulation and analysis, and for IED testing. He worked on algorithms related to fault locating in distribution networks, and performed reactive-power planning for transmission systems. He developed software for price forecasting in the day-ahead electricity market. He also performed business-case analysis for several ABB’s strategic projects (demand response, dry-type transformer monitoring, SW
project valuation). Prior to ABB, Dr. Vu taught courses in Power Engineering at Clemson University.

Dr. Vu graduated from the University of Washington (B.S., M.S. and Ph.D. in Electrical Engineering). He also earned an M.B.A. from the University of North Carolina—Chapel Hill.

Eileen Zhang has worked in a variety of projects in areas such as power network modeling, contingency analysis, power flow analysis, short-circuit analysis, relay coordination study, and distribution reliability assessment. She has six years of experience working on configuration, design, development, test and fix in the whole life cycle of EMS projects. Her expertise is in areas such as power network data modeling, power system analysis and applications. Ms. Zhang has a both a Master’s and Bachelor’s degrees in power system engineering. She did research in transmission network analysis and loss optimization in deregulated power systems during her master’s program in Clemson University.
7. Financial Proposal

7.1 Estimated Cost

The estimated cost to NPC for KEMA to perform this scope of work is provided below in Error! Reference source not found..

Table 1 - Estimated Project Costs by Task

<table>
<thead>
<tr>
<th>Task</th>
<th>Cost ($US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct initial meetings with NPC</td>
<td>4,800</td>
</tr>
<tr>
<td>Develop model and validate its performance</td>
<td>10,800</td>
</tr>
<tr>
<td>Investigate possible solutions to stability problems</td>
<td>17,360</td>
</tr>
<tr>
<td>Review results with NPC project team</td>
<td>1,440</td>
</tr>
<tr>
<td>Recommend solutions &amp; prepare study report</td>
<td>7,200</td>
</tr>
<tr>
<td><strong>Total Labor Cost</strong></td>
<td><strong>41,600</strong></td>
</tr>
<tr>
<td>Direct Expenses for travel and lodging (estimated)</td>
<td>6,400</td>
</tr>
<tr>
<td><strong>Total Project Cost</strong></td>
<td><strong>48,000</strong></td>
</tr>
</tbody>
</table>

7.2 Payment Terms

We propose the following payment schedule:

- 30% at project start,
- 70% at submission of the Final Report
7.3 Proposal and Information Confidentiality

It is requested that this proposal be used only by NPC staff or a designated representative to evaluate KEMA's capability to provide the services desired. The proposal should not be disclosed or distributed outside of NPC without the expressed, written consent of KEMA.

7.4 Proposal Validity and Personnel Availability

This proposal and the prices quoted herein are valid for 90 days. KEMA will consider any request by NPC for extending the validity period. Such a request may call for a reconsideration of the availability of proposed KEMA project personnel.

7.5 Terms and Conditions

Please find attached KEMA’s Terms and Conditions

We thank you once more for giving KEMA the opportunity to bid for this important Project. We hope that our Proposal will fulfill your requirements in a satisfactory way.

If you need any more information or have questions regarding our Proposal, we will be glad to provide our answers as quickly as possible. You can also contact Mr. Roel Verlaan of our KEMA Office in Curaçao (by e-mail roel.verlaan@kema.com or by telephone: office + 5999 747 0916 or cell phone + 5999 565 5351).

Agreed to and accepted by:

KEMA, Inc.  Niue Power Corporation

Signature:  Signature:

Name: Roel Verlaan  Name: 
Title: Director Business Development  Title: 
Caribbean & Pacific
Date: July 27, 2011  Date: 

Attachment:

- KEMA’s Terms and Conditions
KEMA Inc.
Terms and Conditions

1. SERVICES TO BE PERFORMED: KEMA shall provide certain services to Client in accordance with KEMA’s proposal as submitted herein or modified in accordance with KEMA and Clients mutual agreement and documented in writing. Unless otherwise agreed upon, all work performed hereunder shall commence upon written authorization by Client via an authorized Purchase Order or other authorized instrument (hereinafter referred to as “Agreement”) from Client and shall be governed by the terms contained herein.

2. INDEPENDENT CONTRACTOR: KEMA shall at all times be deemed to be an independent contractor. Nothing contained in any resultant Agreement shall be construed as creating the relation of employer and employee, agent or joint venture between KEMA and Client. KEMA shall have the right in its sole discretion to determine which of its staff shall be assigned to perform services for Client under any resultant Agreement, and shall have the sole right to re-assign or replace any staff person.

3. PAYMENT: KEMA will perform the services delineated in its proposal for the price(s) delineated therein. Payments of undisputed portions of an invoice are due within thirty (30) days after Client’s receipt of invoice. Interest charges at the rate of 1 1/2% per month will be imposed upon all outstanding balances beyond the 30 day due date. If Client disputes any portion of an invoice, it shall notify KEMA within fifteen (15) days from receipt of such invoice of the reasons for such dispute, and Client and KEMA shall cooperate in resolving such dispute.

4. ASSIGNMENT: Neither party shall assign, transfer or otherwise delegate its obligations under any resultant Agreement or any interest, or right or claim thereunder, without the prior written consent of the other party.

5. STANDARDS OF PERFORMANCE: KEMA shall perform its services with care, skill and diligence in accordance with the applicable professional standards, and shall be responsible for the professional quality, technical accuracy and completeness of all deliverables or other items and services which may be required in accordance with this proposal and under any resultant Agreement. Within sixty (60) days from the date of providing any service or item hereunder, should such service or item provided by KEMA be found to be defective by Client, Client shall identify the nature of such deficiency in writing and KEMA shall have thirty (30) days from the date of receipt of such notice to correct, reperform or replace the defective services or item. Should KEMA be unable for any reason to correct such deficiencies, a pro-rata reduction in the contract price shall be made. THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES AND CONDITIONS EXPRESS OR IMPLIED INCLUDING, BUT NOT LIMITED TO, THOSE CONCERNING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

6. CHANGES: Client’s Authorized Representative may, at any time, by written order, make changes within the general scope of the Agreement in the services to be performed or items to be delivered. If such change causes an increase or decrease in KEMA’s cost of, or time required for, performance of any services or delivery of any item under this Agreement, whether or not changed by any order, an equitable adjustment in the Agreement price or schedule or both shall be made, and the Agreement shall be modified in writing accordingly.
7. **TERMINATION:** Client shall have the right, with or without cause, to terminate any resultant Agreement by providing KEMA thirty (30) days prior written notice. KEMA shall have the right to terminate this Agreement should Client default in its obligations under this Agreement, and fail to correct such default within ten (10) days after receipt of written notice specifying same. In full discharge of its obligations to KEMA with respect to any Agreement and any such termination, Client shall pay an amount to KEMA which includes: i). payment in accordance with the payment terms of the Agreement for services performed and items delivered up to the effective date of termination; and ii). costs and related overhead and profit for services and items in progress up to the date of termination; and iii). costs and related overhead incurred as a result of the termination.

8. **INDEMNIFICATION:** KEMA hereby agrees to defend, indemnify and hold harmless Client from any and all claims, liabilities, obligations, damages or causes of action of whatsoever kind or nature for injury to or death of any person (including indemnity's employees), and for damage to or destruction of property (including indemnity's property), resulting wholly or in part from any or all negligent acts or omissions of KEMA in connection with the performance of the work covered by this Agreement, provided, however, that KEMA shall not be obligated to indemnify Client for the portion of any such claims, liabilities, obligations, damages or causes of action which are the result of the negligence of Client.

9. **LIMITATION OF LIABILITY:** Except to the extent covered by insurance provided by KEMA hereunder, the liability of KEMA for any claim whatsoever related to any resultant Agreement, including any cause of action sounding in contract, tort or strict liability, and including any obligations to indemnify Client as set forth in paragraph 8 above, shall not exceed the total amount of payments previously made to KEMA under the Agreement. In no event shall either party be liable to the other for any consequential, exemplary, special, incidental or punitive damages including, without limitation, lost profits, even if such damages are foreseeable or the damaged party has been advised of the possibility of such damages and regardless of whether any such damages are deemed to result from the failure or inadequacy of any exclusive or other remedy.

In the event that any of the services to be performed by KEMA include projections of energy savings to be achieved by Client as a result of Client implementing recommendations made by KEMA, Client acknowledges and agrees that any energy savings projected are strictly estimates and, as such, Client agrees that KEMA shall not be liable in any manner if projected energy savings are not achieved.

10. **RIGHTS IN DATA:** The tangible work product (the “Data”) first developed, created, or produced by KEMA and required to be delivered to Client pursuant to any resultant Agreement shall become the property of Client upon the later of : i). delivery of such Data to Client or, ii). receipt of payment by KEMA for the Data. Notwithstanding the above, KEMA shall have unlimited rights in such Data, to the extent such Data does not contain the proprietary information of Client, which rights shall include the right to use, duplicate or disclose the Data in whole or in part, in any manner and for any purpose whatsoever, and to permit others to do so. All information and material which is owned by KEMA and used by KEMA in the performance of the Agreement shall remain the exclusive property of KEMA whether or not such information or material was incorporated in, adapted for use in, or used to produce any Data delivered under this Agreement, unless otherwise specified in an individual Task Order.

In addition, and not in limitation of the foregoing, Client acknowledges and agrees that KEMA retains and may use the product of its engineering effort expended on behalf of Client for its
general reference and enhancement of its engineering capabilities and that KEMA retains all rights to the know-how, including but not limited to ideas, concepts, theories and techniques with respect to how to perform the services hereunder.

11. CONFIDENTIALITY: During the term of this Agreement, either party (the “Disclosing Party”) may disclose confidential, proprietary or trade secret information (the “Information”), to the other party (the “Receiving Party”). All such Information shall be marked in a prominent location to indicate that it is the confidential, proprietary and trade secret information of the Disclosing Party at the time of disclosure to the Receiving Party.

The Receiving Party shall hold the Disclosing Party’s Information in confidence and shall take all reasonable steps to prevent any unauthorized possession, use, copying, transfer or disclosure of such Information. The Receiving Party shall give such Information at least such protection as the Receiving Party gives its own information and data of the same general type. The Receiving Party shall not use or make copies of the Disclosing Party’s Information for other than its intended purpose. The Receiving Party shall not disclose the Disclosing Party’s Information to any person other than those of the Receiving Party’s employees, agents, consultants, contractors and subcontractors who have a need to know in connection with the Agreement. The Receiving Party’s confidentiality obligations hereunder shall not apply to any portion of the Disclosing Party’s Information which:

(a) has become a matter of public knowledge other than through an act or omission of the Receiving Party;
(b) has been made known to the Receiving Party by a third party in accordance with such third party’s legal rights without any restriction on disclosure;
(c) was in the possession of the Receiving Party prior to the disclosure of such Information by the Disclosing Party and was not acquired directly or indirectly from the other party or any person or entity in a relationship of trust and confidence with the other party with respect to such Information; or
(d) the Receiving Party is required by law to disclose.

The Receiving Party shall return the Disclosing Party’s Information (including all copies thereof) to the Disclosing Party promptly upon the earliest of any termination of this Agreement or the Disclosing Party’s written request. Notwithstanding the foregoing, the Receiving Party may retain one copy of such Information solely for archival purposes, subject to the confidentiality provisions of this Agreement.

This Agreement shall not be deemed to grant any rights with respect to either party’s Information other than those expressly set forth herein and shall not be deemed to grant any license whatsoever with respect to any patents, inventions, copyrights, trademarks or trade secrets contained in such Information.

12. HAZARDOUS WASTE: Unless otherwise specifically provided for in KEMA’s proposed Statement of Work, it is acknowledged by both parties that KEMA’s scope of services does not include any services related to asbestos or hazardous or toxic materials. In the event that KEMA or any of its agents encounters asbestos or hazardous or toxic materials at the jobsite, or should it become known in any way that such materials may be present at the jobsite or any adjacent areas that may affect the performance of KEMA’s services, KEMA may, at its option, and without liability for any delays or damages, suspend performance of services under any resultant Agreement until Client retains appropriate specialist consultant(s) or contractor(s) to identify, abate and/or remove
the asbestos or hazardous or toxic materials, and warrant that the jobsite is in full compliance with applicable laws and regulations.

13. **TAXES**: KEMA’s prices do not include any local, state, federal, or international/country sales, use or ad valorem taxes. Should any such taxes be found to be applicable to this transaction, KEMA will identify the nature and amount of these taxes on its invoice and Client will remit these taxes to KEMA, in addition to the amounts invoiced for its services, unless Client provides KEMA written evidence that Client is exempt from such taxes or that Client has remitted these taxes directly to the appropriate taxing authority.

14. **EQUITABLE RELIEF**: The parties hereto agree that irreparable damage would occur in the event that any of these provisions were not performed in accordance with their specific terms or were otherwise breached. Accordingly, it is agreed that the parties shall be entitled to an injunction or injunctions to prevent breaches of the Agreement and to enforce specifically the terms and provisions hereof in any court of the United States or any state having jurisdiction, this being in addition to any other remedy to which they are entitled at law or in equity.

15. **ENTIRE AGREEMENT**: Unless specifically provided otherwise and mutually agreed upon by both parties in writing, the proposal and terms and conditions stated herein and made a part of an Agreement contain the entire Agreement between the parties with respect to the matters covered herein. These terms cannot be modified except in writing signed by both parties.

16. **SEVERABILITY**: If any term or provision contained herein shall be found by a court of competent jurisdiction to be illegal or otherwise unenforceable, that finding shall not invalidate the whole of these terms and conditions and resultant Agreement, but only 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 agreement of the parties herein set forth.

17. **WAIVER**: The failure of any party to insist upon strict adherence to any term and condition herein on any occasion shall not be considered a waiver or deprive that party of the right thereafter to insist upon strict adherence to that term or any other term and condition herein. To be in force and enforceable, any waiver must be in writing and must be signed by both parties.

18. **APPLICABLE LAW**: This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts, exclusive of its conflict of law rules. The rights and remedies provided herein are in addition to those available to KEMA at law or in equity. Failure by KEMA to enforce any right or remedy herein or otherwise available shall not be deemed a waiver of such right or remedy on any other occasion.