nationalgrid

Jennifer Brooks Hutchinson
Senior Counsel

March 5, 2013

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Review of Energy Efficiency and Advanced Gas Technology Incentives For 12.5 MW Combined Heat and Power System
Docket No. 4397

Dear Ms. Massaro:

Enclosed for filing with the Commission is a Petition, which if approved, would provide a $15,890,000 incentive package to Toray Plastics (America), Inc. to install a 12.5 MW CHP system at Toray's manufacturing facilities in North Kingstown, Rhode Island. National Grid[1] and Toray executed an offer letter on January 28, 2013 that sets forth the major terms and conditions of the incentive proposal to Toray. A copy of the offer letter is attached to the Petition. This project marks the first project to be considered for an incentive proposal under the recent amendment to the Least Cost Procurement statute, R.I.G.L. § 39-1-27.7(c)(6)(i) through (iv), and the terms of the Company's 2013 EEPP, as approved by the Commission in Docket No. 4366. As further described in the Petition and the offer letter, the incentive package consists of the following incentive payments to Toray:

(i) $13,500,000 installation incentive from energy efficiency funds;
(ii) $1,800,000 rebate payment from AGT funds; and
(iii) $590,000 as a performance-based incentive to be paid out after the project is operational.

The Company supports approval of the incentive package in its entirety to Toray for the reasons discussed below.[2]

---

[1] The Narragansett Electric Company d/b/a National Grid (hereinafter referred to as "National Grid" or the "Company").

[2] As noted in the Petition, Commission approval is required for the $1,800,000 AGT incentive as it is greater than $500,000. See Report and Order, Docket No. 4196, at 23 (December 21, 2010). In addition, the 2013 EEPP requires that the Company notify the Commission of any energy efficiency award to a single customer that exceeds $3,000,000 in incentive payments. See 2013 EEPP, at 20. Under the 2013 EEPP, the Commission may approve the $13,500,000 installation incentive and $590,000 performance-based incentive by one of two ways: (i) by taking no action within thirty (30) days of this filing, in which event the energy efficiency incentives will be authorized to proceed, or (ii) by suspending this filing with respect to the energy efficiency incentives for further review simultaneously with its review of the AGT incentive, and issuing an affirmative order approving the incentive package. See 2013 EEPP, at 20.

First, the incentive package advances the new law's legislative intent to support the installation and investment in clean and efficient CHP by assisting Toray in moving forward with its project. This project will enable Toray to use power more efficiently and potentially reduce its overall energy costs. Second, the new law established specific criteria by which CHP projects should be measured, specifically that the value of economic and environmental benefits should be considered. The Company addressed these criteria by modifying its existing CHP incentive program as part of its 2013 EEPP, which was approved by the Commission in Docket No. 4366. The energy efficiency incentive proposal and rebate levels are consistent with the terms of that program. Third, the AGT incentive is consistent with the approved rebate levels established in Docket No. 2025 and is in line with the Company's current budgetary allowance for the AGT program. Lastly, the total amount of the incentive package is within the maximum allowable award under the 2013 EEPP.

The Petition contains a detailed description of the project history, a breakdown of the incentive offer and payment schedule, and the impact to the 2013 EEPP budget. If the incentive package is approved by the Commission, the parties will execute a formal agreement to memorialize the terms contained in the offer letter, as well as any other terms or conditions that the Commission may order.

The Company also notes that it is required to review any AGT award in excess of $50,000 with the Division and TEC-RI pursuant to an Integrated Resource Planning Compliance Settlement approved by the Commission in Docket No. 2025. On February 27, 2013, Company representatives met with the Division and TEC-RI to review this filing and, specifically, the calculation of the AGT incentive. The Division's and TEC-RI's recommendations on the AGT incentive are pending.

For the reasons set forth above, National Grid recommends that the Commission approve the incentive package to Toray in its entirety. National Grid looks forward to assisting the Commission in its review of this filing.

Thank you for your attention to this filing. If you have any questions concerning this transmittal, please feel free to contact me at (401) 784-7288.

Very truly yours,

Jennifer Brooks Hutchinson

Enclosures

cc: Leo Wold, Esq.
Steve Scialabba, Division

280 Melrose Street, Providence, RI 02907
T: 401-784-7288 jennifer.hutchinson@nationalgrid.com www.nationalgrid.com

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

RHODE ISLAND PUBLIC UTILITIES COMMISSION

National Grid **Review of Energy Efficiency and** **Advanced Gas Technology Incentives For** **12.5 MW Combined Heat and Power System**	)	Docket No. _____

PETITION FOR APPROVAL OF ENERGY EFFICIENCY AND ADVANCED GAS TECHNOLOGY INCENTIVES FOR A 12.5 MW COMBINED HEAT AND POWER SYSTEM

National Grid[1] hereby submits this Petition for Approval of Energy Efficiency and Advanced Gas Technology ("AGT") Incentives for a 12.5 MW Combined Heat and Power System ("Petition"). This Petition is being filed pursuant to R.I.G.L. §39-1-27.7(c)(6)(i) through (iv), National Grid's 2013 Rhode Island Energy Efficiency Program Plan ("EEPP"), approved by the Commission in Docket No. 4366, and the Company's Advanced Gas Technology ("AGT") Program, as established in Docket No. 2025.[2]

This Petition seeks the Rhode Island Public Utilities Commission's ("Commission") approval of a $15,890,000 incentive package (the "Incentive Package") to Toray Plastics America, Inc. ("Toray") to install a Combined Heat and Power System ("CHP System" or "Project") at Toray's manufacturing facilities located at 50 Belver Avenue, North Kingstown, Rhode Island (the "Site").

[1] The Narragansett Electric Company d/b/a National Grid (referred to herein as "National Grid" or the "Company").
[2] See Report and Order, Docket No. 2025 (February 20, 1996). The name of the program was changed from the DSM Program to the AGT Program in Docket No. 3859 to avoid confusion with the Company's recently implemented Energy Efficiency Programs, which are sometimes referred to as DSM programs. The Commission approved additional funding for the AGT Program as part of the Company's 2010 Distribution Adjustment Clause filing in Docket No. 4196.

The Incentive Package consists of the following incentive payments:

- $13,500,000 installation incentive (the "Installation Incentive") from energy efficiency funds;
- $1,800,000 rebate payment from AGT funds (the "AGT Incentive"); and
- $590,000 as a performance-based incentive as provided in National Grid's 2013 EEPP (the performance-based incentive and the Installation Incentive are collectively referred to herein as the "EE Incentives") to be paid out after the Project is in operation.

With respect to the AGT Incentive, Commission approval is required for any rebate from AGT funds in excess of $500,000.[3] In addition, there are two ways in which Commission approval may be granted for the EE Incentives.[4] The first way is for the Commission to take no action within thirty (30) days of the filing of this Petition, in which event the EE Incentives will be authorized to proceed. The second way is for the Commission to suspend this filing with respect to the EE Incentives for further review simultaneously with its review of the AGT Incentive, and to issue an affirmative order approving the Incentive Package in its entirety. In either event, the Company is asking the Commission to approve the Incentive Package by whichever means the Commission deems appropriate.

[3] See Report and Order, Docket No. 4196, at 23 (December 21, 2010).
[4] The Company's 2013 EEPP requires notification to the Commission of any energy efficiency award to a single customer that exceeds $3 million in incentive payments. The incentives are then authorized to proceed after thirty (30) days from the notice filing, unless the Commission suspends the filing and/or issues an order within such 30 day period to extend the time for further review. See Energy Efficiency Program Plan for 2013 Settlement of the Parties, at 20, filed November 2, 2012, Docket No. 4366.

In support of this Petition, the Company states the following:

LEGAL STANDARD

1. In June 2012, the Rhode Island legislature enacted an amendment to the Least Cost Procurement Statute,[5] which directed the Company to support the installation and investment in clean and efficient CHP, and to document this support annually in the Company's energy efficiency program plans.[6] The new law sets forth specific criteria with which to evaluate CHP projects, including, among other things, economic and environmental benefits derived from the investment in CHP.[7]

2. In response to the directives in the new law, the Company proposed modifications to its existing CHP incentive program as part of its 2013 EEPP. First, the Company modified the screening process for CHP projects within the total resource cost test to include the value of economic and environmental benefits to facilitate the development of these projects. In addition, the Company proposed to alter the valuation of deferred distribution system costs for systems of less than 1 MW in net capacity, discounting the usual value by 25%. The EEPP also adjusted the deferred distribution cost benefit to consider site-specific deferral benefits for projects of more than 1 MW in order to better reflect the actual conditions of CHP installations in the context of reliable load relief. Applying this test, the Project passed the benefit cost ratio test under the 2013 EEPP as a result of adding the value of economic development benefits in the ratio.

[5] See R.I.G.L. § 39-1-27.7.
[6] See R.I.G.L. §39-1-27.7(c)(6)(i) through (iv). The new law required that the Company factor the following criteria into its CHP program: "(A) Economic development benefits in Rhode Island, including . . . investments in combined heat and power systems; (B) Energy and cost savings for customers; (C) Energy supply costs; (D) Greenhouse gas emissions standards and air quality benefits; and (E) System reliability benefits."
[7] See R.I.G.L. 39-1-27.7(c)(6)(iii).

3. Second, the CHP program under the 2013 EEPP established the following rebate levels: (i) $900/kW for projects between 55-59% total net efficiency; (ii) $1125/kW for projects at 55-59% efficiency that also achieve at least 5% efficiency savings (either in the last five years or as part of the project plan); (iii) $1,000/kW for projects with 60% or greater efficiency; and (iv) $1250/kW for projects at 60% or greater efficiency that also achieve a similar energy efficiency participation.

4. The CHP program also includes a new performance incentive program of up to $20/kW-year and a maximum incentive package cap of 70%, inclusive of all incentives.[8]

5. The Company's CHP program was approved by the Commission on December 18, 2012 in conjunction with the 2013 EEPP.[9]

6. The AGT Program and methodology for determining the appropriate rebate levels were established in Docket No. 2025. AGT rebate levels are determined as the lesser of a projected amount of (i) 75% the lifetime net present value or marginal revenue to the Company; (ii) 75% of total job cost; or (iii) an amount resulting in a payback period of 1.5 years, subject to current budgetary allowances.[10]

7. As discussed below, the Incentive Package offered to Toray meets the requirements set forth in the statute, the 2013 EEPP, and the AGT Program and should be approved.

[8] See Energy Efficiency Program Plan for 2013 Settlement of the Parties, Attachment 2, at 32-40.
[9] See Order No. 20911, Docket Nos. 4366 & 4367, at 4 (December 18, 2012).
[10] See Compliance Settlement, Docket No. 2025, at 3 (June 18, 1996).

PROJECT DESCRIPTION

8. In March 2012, Toray, Waldron Engineering and National Grid jointly participated in a Technical Assistance ("TA") Study[11] to investigate the optimal CHP system for Toray based on their 2011 energy uses and anticipated energy and preventive maintenance costs, as an eligible custom energy efficiency measure in the Company's Commercial and Industrial ("C&I") Retrofit program.

9. The TA Study concluded that the optimal CHP was a pair of Kawasaki reciprocating engines totaling 12MWe (net), while also generating a total of 11,500 Pounds per Hour (pph) of 135 psig steam and 1,000 Tons of chilled water.

10. The TA Study further estimated that Toray would need to spend a total of $22.7 million to install the CHP System, in addition to operations and maintenance cost, and increased fuel costs on site.

11. As discussed above, the Project is for a 12.5 MW CHP System to be located at the Site.

12. The Project is expected to reduce electricity consumption of centrally generated grid-supplied energy by 87,473 MWh/year with a total system efficiency of 58%. Compared to Toray's existing systems and grid-supplied energy fuel equivalents, the proposed Project will conserve approximately 65,000 decatherms (Dth) of natural gas per year, or nearly 1 MMDth over the Project's life, as Toray's usage of natural gas will increase by 634,941 Dth compared to an estimated reduction of central power generation fuel consumption by approximately 700,000

[11] See "Combined Heat and Power Technical Assistance Study prepared for Toray Plastics (America), North Kingstown, Rhode Island & National Grid, Providence, Rhode Island," dated July 29, 2012.

Dth-equivalent, which is largely made up of natural gas.[12] At an average of 117 lbs. CO2 per Dth combusted, this should result in just more than 4,000 short tons of CO2 being reduced per year, or about 57,000 tons over the life of the system.[13]

13. Toray has indicated that it anticipates the Project to be operational on or around March 2014.

INCENTIVE OFFER

14. Consistent with the amended law, the Company engaged in discussions with Toray regarding an incentive proposal to install the CHP System at the Site. These discussions culminated in a signed offer letter between National Grid and Toray, which sets forth the basic terms of agreement for the Incentive Package. A copy of the signed offer letter is attached to this Petition as Attachment A.

15. The offer letter provides for payment of the EE Incentives and AGT Incentive, subject to the terms and conditions contained in the offer letter, and additional terms contained in the TA Study, the Minimum Requirements Document ("MRD") (See Attachment 1 to the offer letter), and the AGT application (See Attachment 2 to the offer letter).

16. The Company relied upon the TA Study and the modified benefit cost ratio test to determine Toray's eligibility for the EE Incentives. The Company reviewed Toray's other energy efficiency measures over the prior five years and established that Toray had already achieved a 5% reduction. The Company also determined that the CHP System had an efficiency

[12] The marginal heat rate in ISO-NE is approximately 8,000 BTU/kWh, or 8 Dth/MWH. 87,473 MWH reduction x 8 Dth/MWH results in 699,784 Dth reduction per year.
[13] There are approximately 117 lbs CO2/Dth. Thus, 65,000 Dth saving should reduce CO2 emissions by 3,800 short tons per year.

rating between 55%-59%, thereby qualifying Toray for an energy efficiency incentive award of $1125/kW under the 2013 EEPP.

17. The Project also qualifies for the AGT Incentive because Toray is adding base load gas demand, where at least 31% of usage is during off-peak hours. The Company calculated the AGT Incentive based on the methodology for the program as described above, and capped the incentive at $1.8 million in line with the Company's annual budgetary allowances, currently approximately $2.3 million.

18. The total Incentive Package equates to 70% of the Project's total cost of $22.7 million, and is consistent with the program rules established in the Company's 2013 EEPP.

19. The Installation Incentive, AGT Incentive, and performance incentive will be paid according to the following schedule as set forth in the offer letter: (i) 80% of the Installation Incentive will be paid upon demonstration of operability of the CHP System, with the remaining 20% to be paid upon final commissioning of the Project (both interval payments are also contingent upon completion of certain milestones as set forth in the MRD); (ii) the AGT Incentive will be paid over four (4) years, consisting of three (3) annual payments of $500,000 and one (1) final incentive payment of $300,000; and (iii) the performance incentive payments will be paid semi-annually until either the maximum amount of $590,000 has been paid, or the date which is four years following final commissioning is reached, whichever is first to occur.

20. The offer letter is conditioned upon Commission approval, following which the parties will enter into a definitive agreement to memorialize the terms of the offer letter and any other terms and conditions as may be required by the Commission.

IMPACT ON 2013 EEPP BUDGET

21. In the Company's 2013 EEPP, the Company set aside $7 million in the electric program budget for commitments for 2013.[14] The Company did not set aside the full amount of the $13.5 million Installation Incentive in its 2013 budget, because at that time, although the Company anticipated a commitment to Toray, it was not certain whether the Project would move forward.[15]

22. The Company does not intend to commit funds for the performance incentive from its 2013 budget because payment of that incentive is conditioned upon the CHP System's performance in the future and is not guaranteed. Since the Project is not expected to be commissioned until mid-2014 and the first performance payment would not be made until six months thereafter, the Company proposes to pay the performance incentive, if applicable, out of the then current budget in the year(s) in which the performance payments are due.

23. If the Commission approves the Incentive Package, the Company will set aside funds for the full amount of the Installation Incentive, as referenced in the EEPP.[16] As noted above, the Company budgeted $7 million for commitments in 2013 for future year installations; therefore, the Company will need to set aside an additional $6.5 million from the 2013 spending budget for the C&I Retrofit program to fully fund the commitment to Toray for the Installation Incentive. Currently, approximately $15.34 million has been budgeted for C&I Retrofit rebates

[14] See 2013 Energy Efficiency Program Plan for 2013 Settlement of the Parties, Table E-4, Attachment 5, at 4.
[15] This commitment amount also maintained the 2013 budget at a level that was consistent with the illustrative budget set forth in the Company's 2012-2014 Energy Efficiency Procurement Plan, approved by the Commission in Docket No. 4284.
[16] See Energy Efficiency Program Plan for 2013 Settlement of the Parties, at 18.

and other customer incentives, which include the $7 million set aside for commitments. This money would be paid out as described above in Paragraph 18.

24. The impact of taking an additional $6.5 million from the current year's C&I Retrofit budget to fund the Installation Incentive is that only $1.84 million in budgeted C&I Retrofit funds will be available this year to help customers reach the savings goal in the EEPP. The Company will first endeavor to meet its saving goals within its existing C&I Retrofit budget by adjusting the mix of measures to which it offers incentives and by giving priority to projects that provided energy efficiency savings at a lower cost. If necessary, the Company would also avail itself of the ability to transfer funds as allowed for in the EEPP[17] from programs--first within the C&I Sector and, alternatively, from other sectors--that may be forecasted to not spend their entire budget to other programs or to the C&I Retrofit Program.

25. If the Company is unable to operate its programs in 2013 and achieve its savings goals within the approved 2013 budget using the mechanisms described above, the Company would, as an alternative, seek to trigger some of the overspending provisions provided for in the EEPP.[18] In such event, the Company may seek to reconcile this overspend in 2014 and adjust the energy efficiency program charge, accordingly, for that year.

26. The Company also notes that any potential overspending may be mitigated by the fact that the cost of saved energy ($/ Lifetime kWh) resulting from the Project[19] is anticipated to be lower than the typical retrofit project. Since the CHP System is expected to create energy

[17] See Id., at 18-19.
[18] See Energy Efficiency Program Plan for 2013 Settlement of the Parties, at 20.
[19] For CHP projects, a reduction in delivered energy as a result of onsite generation is counted as energy efficiency savings under the EEPP.

efficiency savings in 2014, thereby enabling the Company to meet a significant amount of its 2014 savings goals, it is possible that the Company would then be able to achieve its remaining 2014 savings within the illustrative 2014 budget without having to increase the energy efficiency program charge in order to reconcile a potential overspend in 2013. The Company is sensitive to the concerns of customers and regulators regarding program spending and any resulting increases in the energy efficiency program charge; therefore, the Company will monitor its actual and forecast spending, and will inform the Commission and the settlement parties to the 2013 EEPP as to what steps, if any, may be necessary in the event of the need to overspend the 2013 program budget and recover any overspending in 2014.

CONCLUSION

The Company respectfully requests that the Commission make an affirmative finding to approve the Incentive Package to Toray in its entirety for the following reasons:

1) The Project meets all eligibility criteria for an award pursuant to the Company's 2013 EEPP and the AGT Program;

2) The EE Incentives are consistent with the statutory criteria supporting CHP, complies with the CHP Program requirements as approved by the Commission in Docket No. 4366, and is not greater than the maximum allowable award;

3) The AGT Incentive is consistent with the approved rebate levels as established in Docket No. 2025; and

4) The Incentive Package is supported by the 2013 C&I Retrofit program budget, as well as the AGT budget levels.

Respectfully submitted,

THE NARRAGANSETT ELECTRIC COMPANY

By its attorney,

_____

Jennifer Brooks Hutchinson (RI #6176)
280 Melrose Street
Providence, RI 02907
(401) 784-7288

Dated: March 5, 2013

nationalgrid

January 28, 2013

Mr. Shigeru Osada
Toray Plastics America, Inc.
50 Belver Avenue
North Kingstown, RI 02852

RE: Energy Efficiency Incentive Offer Letter
For 12.5MW Combined Heat and Power ("CHP") System
Account: 37784-37016, App: 1999989

Dear Mr. Osada:

National Grid[1] is pleased to inform you that it has conditionally pre-approved your Energy Efficiency Retrofit Incentive for Toray Plastics America, Inc. ("Toray") to install a Combined Heat and Power System ("CHP System" or "Project") at Toray's manufacturing facilities located at 50 Belver Avenue, North Kingstown, Rhode Island. After a review of the application for your facility, we have determined that your Project will qualify for a total incentive package of $15,890,000 (the "Incentive Package").

The Incentive Package consists of the following incentive payments:

- $13,500,000 installation incentive (the "Installation Incentive") from National Grid's 2013 Energy Efficiency Program Plan ("EEPP");
- $1,800,000 rebate payment from National Grid's Natural Gas Advanced Gas Technologies ("AGT") Program (the "AGT Incentive"); and
- $590,000 as a performance-based incentive as provided in National Grid's 2013 EEPP (the performance-based incentive and the Installation Incentive are collectively referred to herein as the "EE Incentives").

The Incentive Package equates to 70% of the Project's total cost and represents the maximum incentive allowed under the Company's 2013 EEPP.

The major terms of this incentive offer are set forth below. Please note that this letter does not contain all of the terms and conditions of National Grid's Incentive Package for this

[1]The Narragansett Electric Company d/b/a National Grid (referred to herein as "National Grid" or the "Company").

Project. Additional terms and conditions are set forth in the customer report, entitled "Combined Heat and Power Technical Assistance Study prepared for Toray Plastics (America), North Kingston, Rhode Island & National Grid, Providence, Rhode Island," the AGT application documents, and the Minimum Requirements Document ("MRD").

The MRD is attached to this letter as Attachment 1.

1. **Incentive Payment Intervals:**

   a. Installation Incentive:

   - Demonstration of Operability of CHP System - 80% incentive payment
     Completion of Milestone Nos.2A, 2B, and 2C of MRD is required for the payment of 80% of the incentive.
   - Final Commissioning of CHP – 20% incentive payment
     Completion of Milestone Nos. 3 and 4 of the MRD is required for the payment of the remaining 20% of the incentive

   b. AGT Incentive: Four (4) annual incentive payments consisting of three (3) incentive payments of $500,000.00 and one (1) final incentive payment of $300,000 to be made in accordance with the AGT application.

   c. Performance-based Incentive: 20/kW per year up to a maximum of $590,000 (present value in 2013 dollars). The performance incentive payments will be paid semi-annually until either the maximum amount of $590,000 (2013 dollars) has been paid, or four years following final commissioning, whichever is first to occur.

2. **Other Terms and Conditions:**

In order to ensure proper operation of the CHP System and persistence of energy savings, the following terms and conditions will be required:

- The MRD, attached as Attachment 1, contains engineering hardware and operational specifications that directly affect the savings estimates developed in the Technical Assistance ("TA") study. Compliance with the MRD is required to receive the incentive payments.

- All systems will require electric, thermal and gas metering for commissioning and monitoring of system efficiencies.

- The Project must be commissioned. Commissioning is a process following installation whereby a third party verifies that the Project is installed and operating as detailed in the TA study and MRD.

- Toray must sign and produce a contract for O&M services for a period of years through the first planned major overhaul of the CHP unit.

- Toray must apply for interconnection service as soon as practical and not operate the CHP System until it has executed an Interconnection Service Agreement with the Company. While there may be site-specific interconnection considerations for particular projects, please see the attached link for information on interconnection:
http://www.nationalgridus.com/narragansett/business/energyeff/4_interconnect.asp

- As noted in the 2013 EEPP, kW-demand savings achieved via the electric energy efficiency programs, including CHP, will continue to be reported by the Company to ISONE as Other Demand Resources ("ODR") and the revenue generated will be used to fund future energy efficiency projects through the Company's programs.

- The CHP System must be installed prior to June 30, 2014 (the "Installation Deadline"). Toray will have a one-time right to extend the Installation Deadline for a period of up to ninety (90) days by providing at least thirty (30) days written notice to National Grid of Toray's exercise of its right to extend. Additional extensions may be granted by National Grid in its sole discretion.

3. Completed AGT Application:

The AGT application form must be complete, and paid invoices (with itemized material and labor costs and equipment discounts) as well as other documentation for all installed measures should be attached to the application. A copy of the AGT application is attached hereto as Attachment 2, and is subject to approval by the Rhode Island Public Utilities Commission (the "Commission"), as provided in paragraph 7, below.

4. Post-installation Verification:

The Company's representatives may conduct periodic inspections and a post-installation verification of the newly installed equipment to ensure that the installation is consistent with the application as pre-approved, represents sound engineering practices, and complies with the MRD.

5. Project Changes After Pre-approval:

Any changes in the Project after pre-approval require notification to the Company prior to beginning construction. The Company will determine whether the proposed change(s) will require any revision to the application or incentive as pre-approved.

6. Long Term Underperformance - 10 Year Required Period of Operation:

The EE Incentives contained in this offer letter are based upon the understanding that the cogeneration equipment will remain in operation as the primary source of energy for a minimum period of 10 years. Toray will be required to repay a portion of the EE Incentives to the Company if the Project is abandoned, removed from the premises, or sold, within 10 years from the date of final incentive payment authorization. The repayment will be the EE Installation Incentives times the number of years remaining until the required ten years of service divided by ten. Any refund shall be due and payable within 30 days of notification by National Grid.

7. Conditional Offer:

This offer letter shall not be construed as a binding commitment on behalf of National Grid to make any incentive payment to Toray, and is expressly conditioned upon National Grid's receipt of regulatory approval of the Incentive Package set forth herein. Following receipt of regulatory approval of the Incentive Package, National Grid and Toray will negotiate and enter into a definitive agreement, which agreement will include the terms of this offer letter as well as other material terms and conditions satisfactory to National Grid in its sole discretion. The term "regulatory approval" as used herein shall mean the following: (i) with respect to the EE Incentives, the Project will be authorized to proceed after 30 days from National Grid's filing with the Commission, unless the Commission suspends the filing and/or issues an order within such 30-day period for further review, in which event the Project will be authorized to proceed only upon the Commission's approval without material modification or conditions, which approval shall be final and not subject to appeal or rehearing, and shall be acceptable to National Grid in its sole discretion; and (ii) with respect to the AGT Incentive, the Project will be authorized to proceed only upon the Commission's approval without material modification or conditions, which approval shall be final and not subject to appeal or rehearing, and shall be acceptable to National Grid in its sole discretion.

Thank you for your support of National Grid's programs. If the above terms are acceptable, kindly acknowledge your acceptance by executing this letter where indicated below, and return one duplicate original to me. Please contact me at 718-403-3420 if you have any questions.

Sincerely,

NATIONAL GRID

By:_____
James S. Madej
SVP, Chief Customer Officer

AGREED TO AND ACCEPTED THIS ___ DAY OF JANUARY, 2013

TORAY PLASTICS AMERICA, INC.

By: _____
Shigeru Osada
Title: SVP

cc: Jeffrey L. Heureux, Toray
Eric Carlson, Toray
Steve Kerr, Toray
John Isberg, National Grid

Minimum Requirements Document

nationalgrid

Customer Name	Toray Plastics (America), Inc.	EI or D2	EI
Location	50 Belver Avenue North Kingstown, RI 02852	Application No.	1999989
EEM:	1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).		

This document specifies the agreed upon minimum equipment specifications and operational requirements of the proposed system. These requirements shall address the criteria necessary to be met to achieve the demand and energy savings estimated in the engineering analysis for this project. (Use additional sheets if necessary).

Circle Yes or No	**SEQUENCE OF OPERATION:** Provide a description of equipment operating sequences, setpoints, operating schedules, balancing requirements (flow, velocity, head, etc) or any other required operating parameters **Submittals:** Provide major equipment data sheets
	Milestone No.1. Equipment submittal and approval of Sequence of Operation (SOO). Required Completion Date: Before the start of the CHP installation at the site and prior to releasing the production of the major equipment.
Yes No	1. **2 x Reciprocating Engines (Normal Operation):** Both engines' electric output will be dedicated to TorayFan's total electric loads and always attempt to have Net Production equal Load, minus Import/Export Controller's set-point. Both engines will operate independently in parallel with each other and NGrid's distribution system. Both engines will operate under the electrically load following Mode of Operation (MOO). CHP system's Import/Export Controller set-point may be optimized by Toray so as to remain as close to zero (0) as practical to maximize CHP generated/displaced electricity and minimize import, but during times when CHP generation capacity exceeds the required TorayFan load, the generated output shall be reduced and the resulting importation should be, on an average, less than 350 kW (annual basis for the applicable, corresponding hours). Electricity may not be exported for the purpose of sales off-site. Both engines' planned maintenance will not simultaneously occur and each engine will follow the respective, attached maintenance schedule and durations (Attachment No.1 for NG-Fired, Kawasaki, M/N: KG-18-V Reciprocating Engine. M/N: KG-12-V's planned maintenance will be equal to or less than KG-18-V engine.); inclusive of engines' cool-down and start-up durations.
Yes No	2. **2 x Heat Recovery Steam Boilers (Normal Operation):** Each engine's Heat Recovery Steam Generator (HRSG) will be connected and operated so as to always receive each engine's full exhaust flow to maximize 125 psig steam production. Any decreased 652 psig steam load as a result of the engines' HRSGs production will first reduce the Combustion Gas Turbine's (CGT) HRSG's Duct-Burner (DB) firing-rate. If, after full DB reduction, more reduction is needed, then the CGT's HRSG will vent excess 652 psig steam. Each engine's HRSG will generate saturated, steam at 125 psig. Both HRSGs will be tied-into a common steam header and production will be connected down-stream of Toray Fan's 652 psig-to-102 psig Pressure Reduction Valve (PRV), while a second connection will be down-stream of Lumirror's 652 psig-to-73 psig PRV. Both connections' pressure will be set high enough to allow all of the 2 x HRSGs' steam production to always take higher priority over all other 102 psig and 73 psig steam production sources. Both HRSGs' planned maintenance will only occur simultaneously with its respective engine's planned maintenance schedule and not exceed the respective engine's down-time duration.

Minimum Requirements Document

Customer Name	Toray Plastics (America), Inc.	EI or D2	EI
Location	50 Belver Avenue North Kingstown, RI 02852	Application No.	1999989
EEM:	1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).		

Yes No	3. 2 x Engine's Hot Water Rejection Systems (Normal Operation): Both engines will direct all sources of engine generated hot water to individual Waste Heat Radiators (WHR) to control engine return water temperatures.
Yes No	4. 2 x Engine NO_x & CO Emission Control Systems (Normal Operation): Both Emission Control System's will operate on a continuous basis to meet applicable Local, State and Federal emission permit limits with it's respective engine and planned maintenance will only occur simultaneously with its respective engine's planned maintenance schedule and not exceed the respective engine's down-time duration.
Yes No	5. 1 x ST CH & Lumirror CHW Plant (Normal Operation): Free-Cooling will be higher priority than electric-driven and steam-driven chilling. The Steam Turbine Chiller (ST CH) will be higher priority than the electric CHs, whenever both proposed CHP HRSGs' combined production is greater than the total process steam load (i.e., 102 psig TorayFan process load and 73 psig Lumirror process load) by an amount equal to the ST CH's minimum steam flowrate when mechanical CHW production is required. Lumirror's CHW Plant's electric CHs will always operate at equal Load Factors regardless of the quantity needed to meet CHW load; unless a more energy efficient electric CH sequence is demonstrated. ST CH's planned maintenance will occur during Free-Cooling periods and/or periods when ST CH is not commanded On (i.e., see second sentence SOO). The ST CH's down-time will not exceed the duration of either of these periods.
Yes No	6. CGT's & Reciprocating Engines' Electric Parasitic Loads: The respective electric parasitic loads will only operate when the individual, associated engine (i.e., CGT or Reciprocating) is running and will not exceed 4.0% of each engine's gross electrical production at the corresponding loads and weather conditions.
Yes No	7. Sequence of Operations (SOO): Provide detailed written description of the above proposed SOO of the existing and proposed CHP systems and all connected systems. The SOO must include detailed descriptions of how the proposed CHP sub-systems will be "first in-line" to serve electric, steam and CHW loads as well as track the same loads.
Yes No	8. Equipment Submittals: Prior to releasing the proposed CHP equipment for production, customer shall provide a copy of the major and parasitic load equipment submittals including performance ratings for review of general compliance with this Minimum Requirements Document (MRD) and the final assumptions, savings calculations and Technical Assistance Study approved by NGrid.
Yes No	9. Electric and P&IDs: Electric and Process & Instrumentation Diagrams showing all proposed CHP system equipment, inclusive of electrical systems (i.e., engine-generators and parasitic loads) and meter(s), fuel and meter(s), lube oil, steam and meter(s), hot water, chilled water and meter(s), emissions' systems consumables and instruments.
Yes No	10. Performance Criteria: The proposed CHP system is designed to meet the following minimum performance criteria. Average, annual production equal to or greater than a) 90,579,920 kWh (Net), b) 4,450,918 Ton-Hrs of (ST CH) chilled water (Net), c) 88,805,215

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

	Pounds of 125 psig saturate steam (Net), d) Electrical Efficiency = 44.1% (HHV), e) Thermal Efficiency = 12.6% (HHV), and f) Total Efficiency = 56.6% (HHV). Average, annual NG usage by the two (2) engines will be less than or equal to 7,018,053 Therms (HHV). CHP system's minimum, average annual availability will be equal to or greater than 93.0% (each engine and related equipment).
Post Inspection	**Installation Completion: Provide a list of equipment or materials installed as part of this project. Include mfr, model, HP, kW, efficiency ratings, etc .and confirm completion**
Yes No	**Milestone No.2A. - Installation Completion** 1. **2 x Reciprocating Engines:** 1 x NG-Fired, Kawasaki, M/N: KG-18-V Reciprocating Engine running at 720 rpm and nominally rated at 7.5 MWe (Gross) continuous output. 1 x NG-Fired, Kawasaki, M/N: KG-12-V Reciprocating Engine running at 720 rpm and nominally rated at 5.0 MWe (Gross) continuous output. Different engines may be selected based on customer's competitive bid process, however, the proposed CHP system will have a minimum, power output equal to 12.0 MWe (Net) and an electrical efficiency of 49.0% (LHV) at 100% load with 38 psig NG delivered to the engines' skids. Moreover, part-load curves will be equal or greater energy efficiency than provided below. The proposed CHP system will meet applicable Local, State and Federal codes, including pollutant emissions, environmental and noise regulations and will comply with National Grid's interconnection requirements. See Attachment No.2 for details.

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

Ambient Temperature (deg F)	100% Output (kW)	75% Output (kW)	50% Output (kW)	100% Heatrate (Btu/kWh, LHV)	75% Heatrate (Btu/kWh, LHV)	50% Heatrate (Btu/kWh, LHV)
10	5,000	3,750	2,500	6,784	6,964	7,418
30	5,000	3,750	2,500	6,840	7,023	7,485
50	5,000	3,750	2,500	6,895	7,081	7,551
60	5,000	3,750	2,500	6,918	7,106	7,579
80	5,000	3,750	2,500	6,965	7,155	7,635
100	5,000	3,750	2,500	7,037	7,231	7,722

Ambient Temperature (deg F)	100% Exhaust Flow (lb/hr)	75% Exhaust Flow (lb/hr)	50% Exhaust Flow (lb/hr)	100% Exhaust Temp (deg F)	75% Exhaust Temp (deg F)	50% Exhaust Temp (deg F)
0	66,960	50,760	35,280	583	655	691
20	66,960	50,760	35,280	590	662	698
40	66,960	50,760	35,280	597	669	705
60	66,960	50,760	35,280	601	673	709
80	66,960	50,760	35,280	608	680	716
100	66,960	50,760	35,280	622	695	730

Figure 24 - Kawasaki KG-12 Engine Performance Data Table

Minimum Requirements Document

Customer Name	Toray Plastics (America), Inc.	EI or D2	EI
Location	50 Belver Avenue North Kingstown, RI 02852	Application No.	1999989
EEM:	1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).		

Ambient Temperature (deg F)	100% Output (kW)	75% Output (kW)	50% Output (kW)	100% Heatrate (Btu/kWh, LHV)	75% Heatrate (Btu/kWh, LHV)	50% Heatrate (Btu/kWh, LHV)
10	7,500	5,625	3,750	6,784	6,964	7,418
30	7,500	5,625	3,750	6,840	7,023	7,485
50	7,500	5,625	3,750	6,895	7,081	7,551
60	7,500	5,625	3,750	6,918	7,106	7,579
80	7,500	5,625	3,750	6,965	7,155	7,635
100	7,500	5,625	3,750	7,037	7,231	7,722

Ambient Temperature (deg F)	100% Exhaust Flow (lb/hr)	75% Exhaust Flow (lb/hr)	50% Exhaust Flow (lb/hr)	100% Exhaust Temp (deg F)	75% Exhaust Temp (deg F)	50% Exhaust Temp (deg F)
0	100,440	76,140	52,920	583	655	691
20	100,440	76,140	52,920	590	662	698
40	100,440	76,140	52,920	597	669	705
60	100,440	76,140	52,920	601	673	709
80	100,440	76,140	52,920	608	680	716
100	100,440	76,140	52,920	622	695	730

Figure 25 - Kawasaki KG-18 Engine Performance Data Table

Yes No

2. **2 x Heat Recovery Steam Boilers:** Both Cleaver-Brooks', Slant Series HRSGs, M/N: S-2.5-1414. Different HRSGs may be selected based on customer's competitive bid process, however, the proposed CHP system will have a minimum, total, steam production flowrate of 11,500 pph of 125 psig (Net of heat-loses.), saturated steam at 100% engine load and engine OEM's specified, maximum back-pressure. Moreover, part-load curves will be equal or greater energy efficiency than a linear relationship between Heat Input and Heat Output. The proposed HRSGs will meet applicable Local, State and Federal codes.

Yes No

3. **2 x Engine NO_x & CO Emission Control Systems:** Both Emission Control Systems will meet all applicable Local, State and Federal codes and Air Quality permitting requirements approved for the specific site by the appropriate authorities.

Yes No

4. **1 x Steam Turbine-Driven Chiller:** 1 x York International, Series MaxE YST, steam turbine-driven, 1,000 Ton Chiller using a condensing steam turbine-drive. A different ST CH may be selected based on customer's competitive bid process, however, the proposed ST CH will have a minimum, cooling output equal to 1,000 Tons at 100% load. Moreover, part-load curves will be equal or greater energy efficiency than provided below. The proposed ST Ch will meet applicable Local, State and Federal codes.

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

PART LOAD PERFORMANCE:

Pct Load	Capacity (TR)	Pct Steam Flow	Shaft HP (HP)	RPM	COP	Steam Flow (lb/hr)	No. Nozzle	EEFT (°F)	ELFT (°F)	CEFT (°F)	CLFT (°F)	Steam CLFT (°F)
100.0	1000.0	100.0	737.0	4424.5	1.08	9934	8	54.00	42.00	85.00	94.30	100.50
90.0	900.0	58.2	414.0	3741.2	1.62	5778	6	52.80	42.00	65.00	72.90	76.60
80.0	800.0	50.4	345.2	3558.6	1.66	5010	6	51.60	42.00	65.00	72.00	75.20
70.0	700.0	42.9	280.6	3380.5	1.71	4261	6	50.40	42.00	65.00	71.10	73.90
60.0 *	600.0	36.0	227.7	3228.6	1.74	3573	6	49.20	42.00	65.00	70.20	72.60
50.0 *	500.0	29.6	187.4	3200.0	1.76	2936	6	48.00	42.00	65.00	69.30	71.30
40.0 *	400.0	24.0	153.2	3200.0	1.73	2388	6	46.80	42.00	65.00	68.50	70.00
30.0 *	300.0	19.4	123.9	3200.0	1.61	1927	6	45.60	42.00	65.00	67.60	68.90
20.0 *	200.0	14.1	90.1	3200.0	1.47	1401	6	44.40	42.00	65.00	66.80	67.70
15.0 *	150.0	11.5	73.5	3200.0	1.35	1143	6	43.80	42.00	65.00	66.30	67.10

PART LOAD PERFORMANCE:

Pct Load	Capacity (TR)	Pct Steam Flow	Shaft HP (HP)	RPM	COP	Steam Flow (lb/hr)	No. Nozzle	EEFT (°F)	ELFT (°F)	CEFT (°F)	CLFT (°F)	Steam CLFT(°F)
100.0	1000.0	100.0	611.9	4164.1	1.27	8305	8	54.00	42.00	75.00	84.10	89.30
90.0	900.0	85.0	517.4	4001.4	1.34	7056	6	52.80	42.00	75.00	83.10	87.60
80.0	800.0	74.0	436.1	3835.0	1.37	6150	6	51.60	42.00	75.00	82.20	86.10
70.0	700.0	64.4	366.5	3692.6	1.37	5349	6	50.40	42.00	75.00	81.20	84.70
60.0	600.0	55.8	308.3	3567.5	1.36	4636	6	49.20	42.00	75.00	80.30	83.30
50.0	500.0	48.1	258.6	3516.7	1.31	3994	6	48.00	42.00	75.00	79.40	82.10
40.0 *	400.0	39.8	211.7	3461.5	1.26	3306	6	46.80	42.00	75.00	78.60	80.70
30.0 *	300.0	30.9	164.8	3421.9	1.22	2565	6	45.60	42.00	75.00	77.70	79.40
20.0 *	200.0	22.1	118.6	3411.1	1.13	1833	6	44.40	42.00	75.00	76.80	78.00
15.0 *	150.4	18.0	98.2	3491.9	1.04	1497	6	43.80	42.00	75.00	76.40	77.40

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

PART LOAD PERFORMANCE:

Pct Load	Capacity (TR)	Pct Steam Flow	Shaft HP (HP)	RPM	COP	Steam Flow (lb/hr)	No. Nozzle	EEFT (°F)	ELFT (°F)	CEFT (°F)	CLFT (°F)	Steam CLFT (°F)
100.0	1000.0	100.0	737.0	4424.5	1.08	9934	8	54.00	42.00	85.00	94.30	100.50
90.0	900.0	88.4	634.5	4239.2	1.09	8784	8	52.80	42.00	85.00	93.30	98.80
80.0	800.0	78.2	547.4	4108.2	1.10	7762	8	51.60	42.00	85.00	92.40	97.30
70.0	700.0	67.4	469.9	3983.5	1.11	6692	6	50.40	42.00	85.00	91.40	95.70
60.0	600.0	58.8	402.4	3939.0	1.09	5840	6	49.20	42.00	85.00	90.50	94.20
50.0	500.0	51.0	340.7	3903.0	1.04	5063	6	48.00	42.00	85.00	89.60	92.80
40.0	400.0	43.3	280.6	3872.3	0.98	4298	6	46.80	42.00	85.00	88.70	91.50
30.0 *	300.0	34.4	218.2	3839.0	0.92	3418	6	45.60	42.00	85.00	87.80	90.00
20.0 *	200.0	24.9	160.8	3914.0	0.85	2472	6	44.40	42.00	85.00	86.90	88.50
15.0 *	150.4	20.9	137.4	4073.1	0.76	2073	6	43.80	42.00	85.00	86.40	87.80

Yes No

5. <u>Meters:</u> Customer will purchase and install (in accordance with each meter's OEMs' recommendations) utility revenue grade energy meters as required and as outlined in Milestone No.1 and related documents to monitor and record (for each engine and the total, proposed CHP system) gross electric production, corresponding total electric parasitic loads, 125 psig steam production (Net), ST CH steam usage and CHW production (Net) and NG usage (for each engine). At a minimum, the each meter will be able to capture total hourly interval data for each of the abovementioned and the hourly interval data will be provided in the form of Time-stamped, Trend Logs in MS-Excel format or other NGrid acceptable electronic format. The proposed CHP system's control system will be capable of trending and archiving the total hourly interval data for a period of one year before overwriting. During Post-Installation Inspection, customer will confirm the data collection system is installed, connected to recently calibrated metering (within six (6) months of commencing data acquisition) and properly reporting and archiving data.

<u>Milestone No.2B. - Demonstration of Operability</u>
<u>(Completion of Milestone Nos.2A 2B and 2C is required for the payment of 80% of the incentive.)</u>
Confirm that the above noted equipment is installed and operational for completing Milestone 2b. Installed and operational is defined as :

Yes No
- All components of the CHP system are installed and operational.

Yes No
- All equipment, piping (including flushing), electrical and control wiring is completed, so

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

Yes No Yes No Yes No Yes No	the equipment can operate in an automatic mode. o All instrumentation and energy meters required by MRD (as specified in Milestone No.3) are installed, calibrated within the past six (6) months and are properly working. o The CHP system is capable of continuously operating in automatic mode. o Hourly interval data will be made available to NGrid (MS-Excel or NGrid acceptable electronic format) to prove the operation of the CHP System and sub-systems matches the energy savings calculations and Technical Assistance Study. o Customer has completed its own substantial Check-Out, Start-Up and Commissioning of the full CHP system.
Yes No Yes No Yes No Yes No	**Milestone No.2C. – Interconnection Agreement** **(Completion of Milestone Nos.2A 2B and 2C is required for the payment of 80% of the incentive.)** • Interconnection to customer's NG, electrical and thermal loads are operational. • Interconnection facilities are completed and accepted by Retail Connections Engineering • Insurance certificates are in place. This does not absolve the customer from meeting any other jurisdictional permits or other regulatory requirements. • Copy of Approved Interconnection Certificate from Distributed Generation group.
Post Operational Assessment	**DOCUMENTATION: List written documentation required to train, verify, operate, or maintain the equipment being installed or controlled. This may include specification sheets, test reports, construction drawings, etc. : Provide a list of Trending Requirements required to verify proper system operation. Trends should document operational sequences, setpoints and scheduling of equipment as described in TA Study**
Yes No Yes No Yes No Yes No Yes No Yes No	**Milestone No.3. (Remaining 20% of the incentive will be paid only after Milestone 3 & 4 are satisfactorily completed.)** Validate the following items: (a) O&M manuals and documentation on-site. 1. All equipment catalogs and performance specifications. O&M manuals for the following equipment: a. Each Reciprocating Engine-Generator Set; b. Each Heat Recovery Steam Generator; c. Each NOx & CO Emissions Control Systems; d. Each engine-generator sets' electric parasitic loads (i.e., pumps, motors, air compressors, fans, etc.); e. CHP System master and individual control systems; and f. Each Energy Meter (i.e., NG usage, electricity (i.e., gross & parasitic loads), 125 psig steam production and usage, HRSG feed water flowrate and temperature, ST CH steam usage and CHW production, etc.).

Minimum Requirements Document

Customer Name	Toray Plastics (America), Inc.	EI or D2	EI
Location	50 Belver Avenue North Kingstown, RI 02852	Application No.	1999989
EEM:	1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).		

Yes No	2. As-Built design drawings & specifications (i.e., P&IDs, Mechanical Piping Drawings, Instrumentation List and equipment Data Sheets, etc.) are available on-site.
	(b) Availability of Trend Logs and confirmation of NGrid acceptable electronic format.
Yes No	3. Provide 1 hour interval data for the following points as a minimum (15 minute interval data is desirable). Provide the capacity for and enable trend data archiving for a period of at least one year.
Yes No	a. Gross and Net kW and kWh electrical output;
Yes No	b. Fuel Input to CHP system (Therms or MMBtu at stated Heating Value);
Yes No	c. Steam generated and utilized (Therms or MMBtu); and
Yes No	d. ST CH steam usage and CHW generated and utilized (Tons).
	Other meters may be required based on the final design P&ID to measure parasitic Loads.
Yes No	4. Provide ability to electronically export weekly data-files to third-party via email or FTP at all times.
Yes No	5. Post operational assessment process will require functional testing of the CHP and the thermal and electrical interface to the buildings, a minimum 2 weeks and up to 6 months of concurrent 1 hour interval data for all points noted above. If equipment fails to meet expected sequences of operations and corrections are needed, an additional trend data shall be provided to confirm any seasonal changes in operations.
Yes No	6. Provide meter calibration data/certification.
Yes No	(c) Sequence of Operation is working as outlined in MRD, TA Study and supporting energy saving calculations.
	The customer's full Commissioning Report is received and the remotely available performance data is reviewed by NGrid and the CHP system is operating in compliance with the proposed plant performance criteria specified in the MRD.
Post Inspection	**OTHER REQUIRMENTS:** Describe any requirements for demolition, removal, etc of existing equipment.
	Milestone No.4
Yes No	1. Customer must sign and produce a contract for the O&M services for a period of years. These years will go through the first planned major overhaul of the CHP unit. A Preventive Maintenance Contract (with one or more options extending to at least 3-Years) for each reciprocating engine, steam turbine for the chiller, HRSGs and each engine's air quality emissions control equipment to help achieve long-term, proposed operational strategies and energy savings. The Preventive Maintenance Contract may be a single Contract inclusive of all aforementioned equipment or it may be more than

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

	one Contract as long as all of the aforementioned equipment is covered by the sum of the Contracts. Normal planned /routine maintenance will be conducted where possible during NGrid's Off-Peak billing and Energy Efficiency Program periods.
Yes No	2. Provide detailed project cost breakdown by major system components. Provide copies of all paid invoices reflecting the total Capital Cost to insure, design, permit, manage, build, check-out, start-up, test, commission and put into Commercial Operation in accordance with all satisfied, applicable permits and electrical interconnection requirements and customer's full CHP system acceptance.
Yes No	3. Provide RI State Tax Exempt Certificate.
Yes No	4. Provide any and all Local, State and Federal tax credits, grants and similar financial benefits effectively reducing the Capital Cost of the proposed CHP System.
Yes No	5. After NGrid's review of Toray's complete Commissioning Report and the subsequent NGrid requested Trend Logs, if NGrid determines the CHP is underperforming (i.e., generation/production, displacement, fuel usage, equipment efficiencies, sequences of operations, etc.), Toray will correct the underperformances so as to meet the appropriate criteria in this MRD, the TA Study and the corresponding Energy Analysis. Corrections must be made within 1 Month of written notification from NGrid, unless NGrid issues a formal, written acknowledgment agreeing with Toray's need for a substantiated, longer correction period. In the event one or more underperformances can not be remedied by Toray after a period of six (6) months from initial, written notification, NGrid reserves the right and authority to reduce the remaining incentive amount. NGrid will calculate the incentive reduction as a linear relationship between the outstanding amount of incentive (i.e., dollars of retainage) versus the sum of all quantified underperformances as a percentage of the appropriate, estimated, modeled values in this MRD, the TA Study and the Energy Analysis (i.e., 1 – Energy Analysis's Estimated Displaced Electric Energy ÷ Actual Displaced Electric Energy or 1 – Actual NG Usage ÷ Energy Analysis's Estimated NG Usage; similar relationships for On-Peak/Off-Peak Savings, Super-Peak Demand Reductions, ST CH CHW Production, etc.). NGrid will formally communicate the incentive's adjustment in writing to Toray prior to issuing the final check, if any. The Committed incentive amount will not be upwardly adjusted for better than modeled performance.

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

The pre-approved incentive is subject to NGrid's Post-Installation Inspection of final specifications, drawings and operation of the proposed equipment. In the event the proposed system is altered from the above description, notify NGrid of the change prior to the equipment purchase and installation as the change in design and operation may impact the incentive amount.

Toray Plastic (America) Authorized Signature Date

National Grid Authorized Signature (Division Technical Support Consultant) Date

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

Attachment No.1
Planned Maintenance Schedules & Durations

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

Maintenance cost (Engine+Control) for KG-18

Year	Operating Hour	Maintenance Level	Expected Downtime (Days)	Main Works	Labour Man-Hour (hour)	Working hour for repair in work shop [hr]	Labour Charge by ***
1	2,000	A	1	Replacement of Spark Plug	12		
	4,000	A	1	Replacement of Spark Plug	12		
	6,000	B	2	Replacement of non-return valves	80		
	8,000	A	1	Replacement of Spark Plug , battery	12		
2	10,000	A	1	Replacement of Spark Plug	12		
	12,000	C	12	Replacement of piston rings	600	45	
	14,000	A	1	Replacement of Spark Plug	12		
	16,000	A	1	Replacement of Spark Plug , battery	12		
3	18,000	B	2	Replacement of non-return valves	80		
	20,000	A	1	Replacement of Spark Plug	12		
	22,000	A	1	Replacement of Spark Plug	12		
	24,000	D	14	Replacement of Crankpin and main bearings and valves,battery	1,120	18	
4	26,000	A	1	Replacement of Spark Plug	12		
	28,000	A	1	Replacement of Spark Plug	12		
	30,000	B	2	Replacement of non-return valves	80		
	32,000	A	1	Replacement of Spark Plug , battery	12		
5	34,000	A	1	Replacement of Spark Plug	12		
	36,000	C	12	Replacement of piston rings	600	45	
	38,000	A	1	Replacement of Spark Plug	12		
	40,000	A	1	Replacement of Spark Plug , battery	12		
6	42,000	B	2	Replacement of non-return valves	80		
	44,000	A	1	Replacement of Spark Plug	12		
	46,000	A	1	Replacement of Spark Plug	12		
	48,000	E	17	Replacement of piston crowns and thrust bearing , battery	1,360	18	
7	50,000	A	1	Replacement of Spark Plug	12		
	52,000	A	1	Replacement of Spark Plug	12		
	54,000	B	2	Replacement of non-return valves	80		
	56,000	A	1	Replacement of Spark Plug , battery	12		
8	58,000	A	1	Replacement of Spark Plug	12		
	60,000	C	12	Replacement of piston rings ,Cylinder controller and ignition device	600	45	
	62,000	A	1	Replacement of Spark Plug	12		
	64,000	A	1	Replacement of Spark Plug	12		
9	66,000	B	2	Replacement of non-return valves	80		
	68,000	A	1	Replacement of Spark Plug	12		
	70,000	A	1	Replacement of Spark Plug	12		
	72,000	D	14	Replacement of Crankpin and main bearings and valves , battery	1,120	18	
10	74,000	A	1	Replacement of Spark Plug	12		
	76,000	A	1	Replacement of Spark Plug	12		
	78,000	B	2	Replacement of non-return valves	80		
	80,000	A	1	Replacement of Spark Plug , battery	12		
11	82,000	A	1	Replacement of Spark Plug	12		
	84,000	C	12	Replacement of piston rings	600	45	
	86,000	A	1	Replacement of Spark Plug	12		
	88,000	A	1	Replacement of Spark Plug , battery	12		
12	90,000	B	2	Replacement of non-return valves	80		
	92,000	A	1	Replacement of Spark Plug	12		
	94,000	A	1	Replacement of Spark Plug	12		
	96,000	F	17	Replacement of cylinder liners , battery	1,360		
Sub Total					8,384	234	

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

FORM 160.67-O2 (1108)

TABLE 6 – OPERATION / INSPECTION / MAINTENANCE REQUIREMENTS FOR YST CHILLERS

TURBINE MAINTENANCE SCHEDULE					
PROCEDURE	DAILY	WEEKLY	MONTHLY	ANNUALLY	3 YEAR
Visual Inspection (external damage, leaks)	X				
Check Oil Level in Reservoir and Governor	X				
Check for Unusual Vibration / Noise	X				
Check Oil Temperature and Pressure	X				
Observe seal steam venting	X				
Check Aux. Oil Pump Operation		X			
Check Refrigerant Levels		X			
Check Operation of all Shutdowns		X			
Check Shafts (free of Oil and Grease)		X			
Exercise Trip Valve		X			
Check Overspeed Governor			X		
Check Oil Return System Operation			X		
Check Operation of Motor Contactors in Power Panel			X		
Check Oil Heater Operation			X		
Check 3-Phase Voltage and Current Balance			X		
Verify Operation / Setting / Calibration of Safety Controls[1]			X		
Verify Condenser and Evaporator Water Flows			X		
Leak Check and Repair Leaks as Needed[1]			X		
Check Oil and Filter			X		
Remove / Clean Steam Strainer				X	
Check and Tighten All Electrical Connections				X	
Check Shaft Seals				X	
Check Thrust Bearing End Play				X	
Remove / Check Operation Sentinel Warning Valve				X	
Drain / Clean Oil Reservoir				X	
Drain / Clean Governor				X	
Perform Oil Analysis, Change as Required[1]				X	
Perform Refrigerant Analysis[1]				X	
Perform Vibration Analysis				X	
Perform Eddy Current Testing and Inspect Tubes[2]				X	
Clean Tubes				X	
Change Filter with Oil Change				X	
Check / Recalibrate Gauges				X	
Open / Inspect Turbine / Replace as Required					X
Rotor					X
Labyrinth Seals					X
Bearings					X
End Seals					X

NOTES:

For operating and maintenance requirements listed above, refer to appropriate service literature, contact your local YORK Service Office.

1. This procedure must be performed at the specified time interval by an Industry Certified Technician who has been trained and qualified to work on this type of YORK equipment. A record of this procedure being successfully carried out must be maintained on file by the equipment owner should proof of adequate maintenance be required at a later date for warranty validation purposes.
2. More frequent service may be required depending upon local operating conditions.
3. More frequent service may be required depending on water quality.

7

Pa

No. 07

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

FORM 160.67-O2 (1108)

TABLE 6 (CON'T) – OPERATION / INSPECTION / MAINTENANCE REQUIREMENTS FOR YST CHILLERS

STEAM CONDENSER MAINTENANCE SCHEDULE						
PROCEDURE	DAILY	WEEKLY	MONTHLY	SEMI-ANNUALLY	ANNUALLY	3 YEAR
Visually Inspect for Leaks / Abnormal Noise	X					
Check Liquid Ring Seal on Relief Valve & Liquid Ring vacuum Pumps		X				
Check Conedsate Pump Operation / Seals			X			
Check Hotwell Liquid Level / Pump NPSH			X			
Lubricate the Hotwell Pump Bearing				X		
Inspect / Clean Tubes with Chiller Heat Exchangers					X	
Clean and Grease vacuum Pump Bearings						X

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

FORM 160.75-O1 (211)

YORK® MAINTENANCE REQUIREMENTS FOR YORK YK CHILLERS

PROCEDURE	DAILY	WEEKLY	MONTHLY	YEARLY	OTHER
Record operating conditions (on applicable Log Form)	X				
Check oil levels	X				
Check refrigerant levels		X			
Check oil return system operation			X		
Check operation of motor starter			X		
Check, surge heater and thermostat operation			X		
Check three-phase voltage and current balance			X		
Verify power operation/setting/calibration of safety controls[1]			X		
Verify condenser and evaporator water flows			X		
Leak check and repair leaks as needed[1]			X		
Check and tighten all electrical connections				X	
Megohm motor windings				X	
Replace oil filter and oil return filter/filters				X	
Clean or backflush heat exchanger (VSD, SSS Applications)				X	
Replace starter contact (VSD, SSS Applications)				X	
Replace or clean starter filters if applicable				X*	
Perform oil analysis on compressor lube oil[1]				X	
Perform refrigerant analysis[1]				X	
Perform vibration analysis				X	
Clean tubes				X*	
Perform Eddy current testing and inspect tubes					2 - 5 Years
Lubricate motor	Refer to motor manufacturer's recommendations				

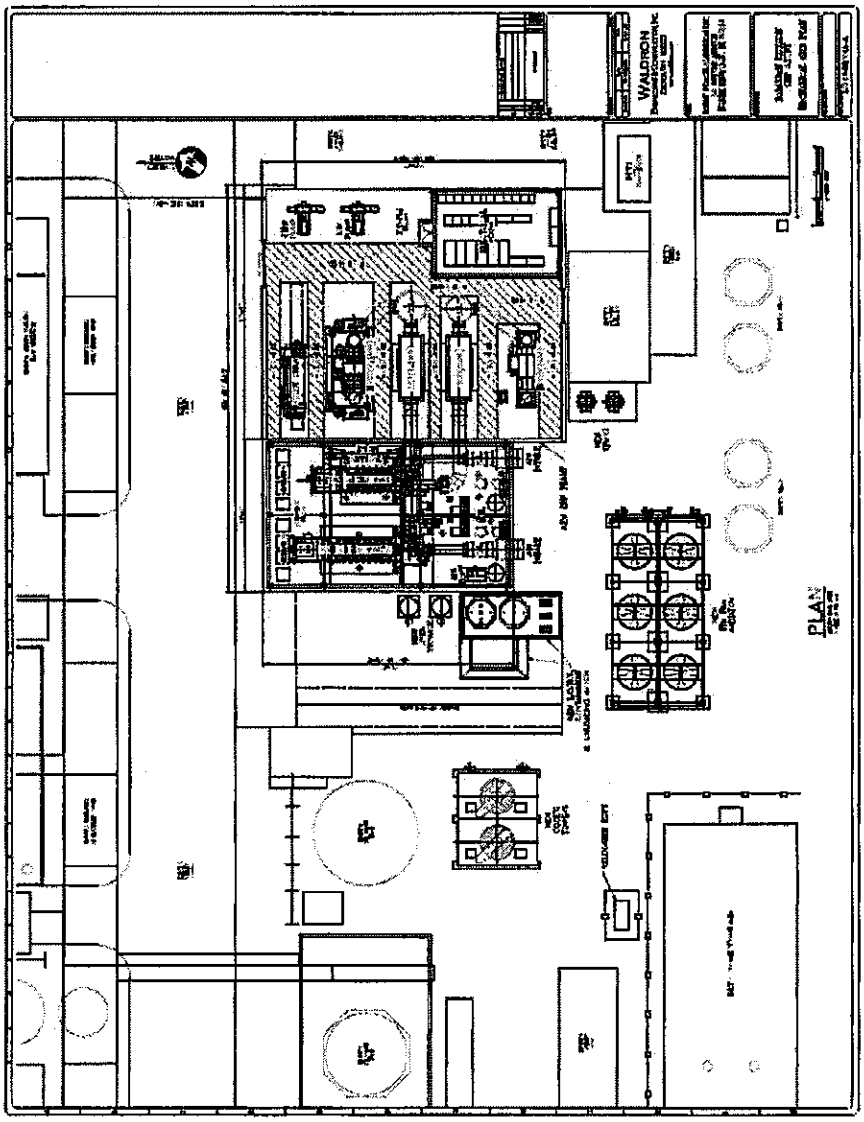
For operating and maintenance requirements listed above, refer to appropriate service literature, or contact your local YORK Service Office.

[1] This procedure must be performed at the specified time interval by an Industry Certified Technician who has been trained and qualified to work on this type of YORK equipment. A record of this procedure being successfully carried out must be maintained on file by the equipment owner should proof of adequate maintenance be required at a later date for warranty validation purposes.
* More frequent service may be required depending on local operating conditions.

Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

Attachment No.2
Preliminary CHP System Drawings



Minimum Requirements Document

Customer Name	**Toray Plastics (America), Inc.**	**EI or D2**	**EI**
Location	**50 Belver Avenue North Kingstown, RI 02852**	**Application No.**	**1999989**
EEM:	**1 x 7.5 MWe & 1 x 5.0 MWe nominally rated NG reciprocating engines with corresponding, individual 125 psig Steam HRSGs and Emission Control Systems, plus 1 x 1,000 Ton nominally rated Condensing Steam Turbine Centrifugal Chiller (120 psig Saturated Steam Supply).**		

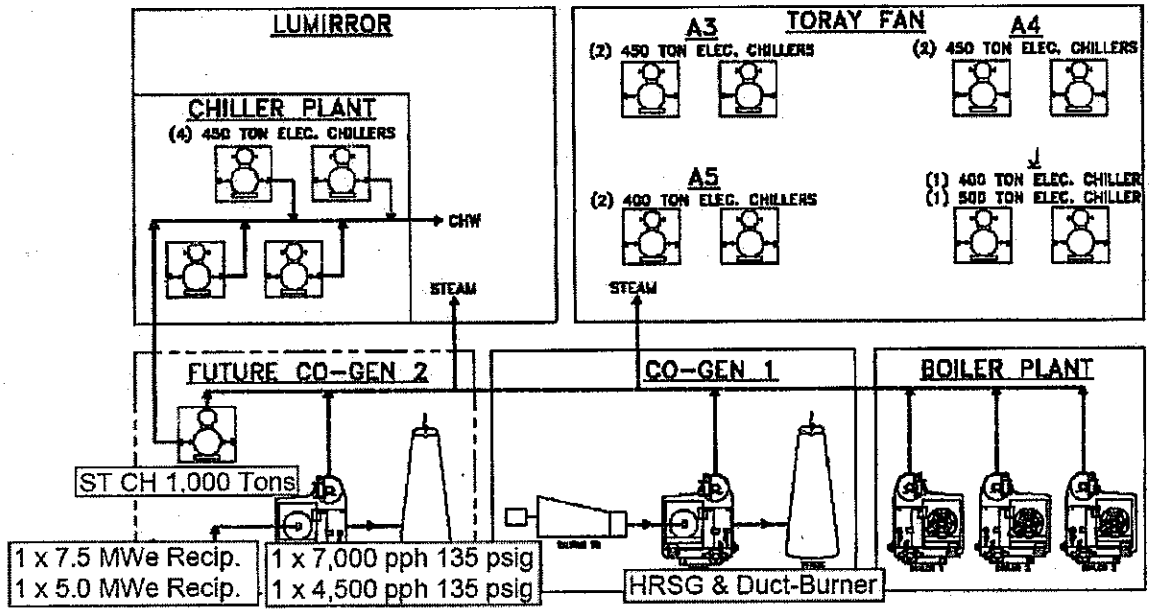


Figure 6 - Utility Infrastructure Schematic

NATIONAL GRID

COMMERCIAL & INDUSTRIAL

DEMAND SIDE MANAGEMENT PROGRAM'S

ADVANCED GAS TECHNOLOGIES INITIATIVE

Toray Plastics (America), Inc.
50 Belver Avenue
North Kingstown, RI 02852

APPLYING FOR
NATURAL GAS-FIRED,
COMBINED HEAT & POWER SYSTEM

TEAM MEMBERS: **Toray Plastics (America), Inc.**
Waldron Engineering & Constructors

JULY 31, 2012

TABLE OF CONTENTS

1.0 ENERGY PROJECT SUMMARY 3

2.0 CURRENT GAS USAGE 3

3.0 APPLICATION 4

4.0 SYSTEM DESCRIPTION 4

5.0 BASE & ALTERNATE PROJECTS 5

6.0 NATIONALGRID DOCUMENTATION 7-11

1.0 ENERGY PROJECT SUMMARY

Toray Plastics (America), Inc. and its Team Members are pleased to submit this report to National Grid for the installation of a Combined Heat & Power System (CHP) at Toray's manufacturing facilities located at 50 Belver Avenue in North Kingstown, Rhode Island. As a manufacturing facility, Toray utilizes significant amounts of electric, steam and chilled water energy and will provide a significant benefit to all National Grid's Natural Gas (NG) customers due to it's consistent, year-round consumption. Toray is interested in installing the abovementioned CHP, however, it is critical DSM funding be awarded to reduce the CHP's capital costs enough to make it financially viable with respect to Toray's global, corporate investment hurdle for similar projects.

The optimal CHP concluded is a pair of Kawasaki reciprocating engines totaling 12 MWe (Net), while also generating a total of 11,500 Pounds per Hour (pph) of 125 psig steam and 1,000 Tons of chilled water. Medium pressure steam is generated from the engines' exhaust gases heat and the chilled water is generated by a steam turbine-driven, centrifugal chiller. All of the generated electricity will be directed toward the FAN building's loads and all of the chilled water will be directed to the Lumirror building's loads. The generated steam will be used by both the Lumirror and FAN buildings.

Boiler No.3 will continue to remain in Hot Standby (5,000 pph, 650 psig steam) and Lumirror's existing Combustion Gas Turbine (CGT) will continue to serve Lumirror's electric loads. Although the CGT's Duct-Burner will continue to operate, it will be at a much reduced load due to the engines' steam production. Lumirror's chilled water plant will continue utilizing Free-Cooling as the first choice and be followed by the steam turbine-driven chiller when excess steam is available, then the existing electric chillers.

Toray has requested and received contractor costs for the major components of the project (i.e., building, piping, electrical, controls, electric and NG utility interconnections, etc.) in addition to vendor prices on the major equipment (i.e., engine-generator sets, radiators, heat recovery boilers, emission control systems, etc.); including a special offer from Kawasaki for the engines-generators sets.

The following two (2) tables summarize the anticipated financial and energy performance of the proposed CHP, respectively.

Financial Summary

Case Description	Capital Cost ($)	Electricity & Natural Gas Incentives[1] ($)	Net Capital Cost ($)	Electric Costs[2] ($)	Natural Gas Costs[3] ($)	Preventive Maintenance Costs ($)	Total Costs ($)	Net Simple Payback (Years)
Existing	N/A	N/A	N/A	$7,987,360	$4,704,237	$776,309	$13,467,906	N/A
Proposed	$22,700,000	$15,890,000	$6,810,000	$1,382,711	$8,451,663	$2,021,480	$11,855,854	N/A
Savings/(Costs)	($22,700,000)	$15,890,000	($6,810,000)	$6,604,649	($3,747,326)	($1,245,171)	$1,612,052	4.2

Notes:

1. *Electric Energy Efficiency Program Incentive of $13,500,000, Performance Payments and a Natural Gas Advanced Gas Technologies Program Incentive of $1,800,000.*
2. *Based on NGrid's projected electric B-62 Distribution Tariff and Toray's projected electric commodity price.*
3. *Based on Toray's projected Natural Gas commodity price.*

Energy Summary

Case Description	Electric Energy (kWh/Y)	Electric Demand (kW)	Natural Gas (Therms/Y)	Steam 650 psig (Lbs./Y)	Steam (135 psig) (Lbs./Y)	Electric Chilled Water[1] (Ton-H)	Steam Chilled Water (Ton-H)
Existing	101,657,000[1]	21,000[1]	7,970,581[2]	339,753,934[3]	0	6,670,597[3]	0
Proposed	14,184,000	14,000	14,319,999	321,191,954	88,805,215	2,167,292	4,503,305
Decreases/(Increases)	87,473,000	7,000	(6,349,418)	18,561,980	(88,805,215)	4,503,305	(4,503,305)

Notes:

1. *Based on NGrid's total, metered data for both Lumirror and FAN in 2011.*
2. *Based on NGrid's total, metered data for the CTG CHP and Boiler No.3 in 2011; all other NG usages excluded.*
3. *Based on metered data provided by Toray.*

2.0 CURRENT GAS USAGE

Currently, Toray utilizes Natural Gas (NG) for the following equipment and energy loads…

1. 7.5 MWe Combustion Gas Turbine
   a. Generates majority of electricity for Limirror building's process loads.
   b. Generates ~90% of the 650 psig steam for Lumirror and FAN buildings' process and space heating loads.
2. 7.5 MWe Combustion Gas Turbine's Heat Recovery Steam Generator's Duct-Burner
   a. Generates ~7% of the 650 psig steam for Lumirror and FAN buildings' process and space heating loads.
3. 80,000 pph Boiler (No.3)
   a. Generates ~3% 650 psig steam for Lumirror and FAN buildings' process and space heating loads.

It's important to note the above information only relates to the NG meters affected by the proposed CHP. Toray's direct-fired NG, process loads are not included in the abovementioned equipment and loads listing.

Please see Table No.1 illustrating a 2011 base load of approximately 594,000 Therms/Month and a peak of 814,239 Therms/Month in January 2011.

3.0 APPLICATION

The steam and chilled water process load profiles at Toray will be such that the CHP system will utilize the steam produced by the 2 x engines' exhaust gases effectively year-round. Overall, anticipated cycle performance and efficiency is ~56.7% and breaks-down as follows:

1. Electrical
   a. 12,500 kW at 44.1% HHV.
2. Steam
   a. 11,500 pph at 135 psig at 12.6% HHV.
3. Hot Water
   a. 0 Btu/H at 0.0%.
4. Chilled Water
   a. 1,000 Tons at 9.30 Lbs./Ton-H.

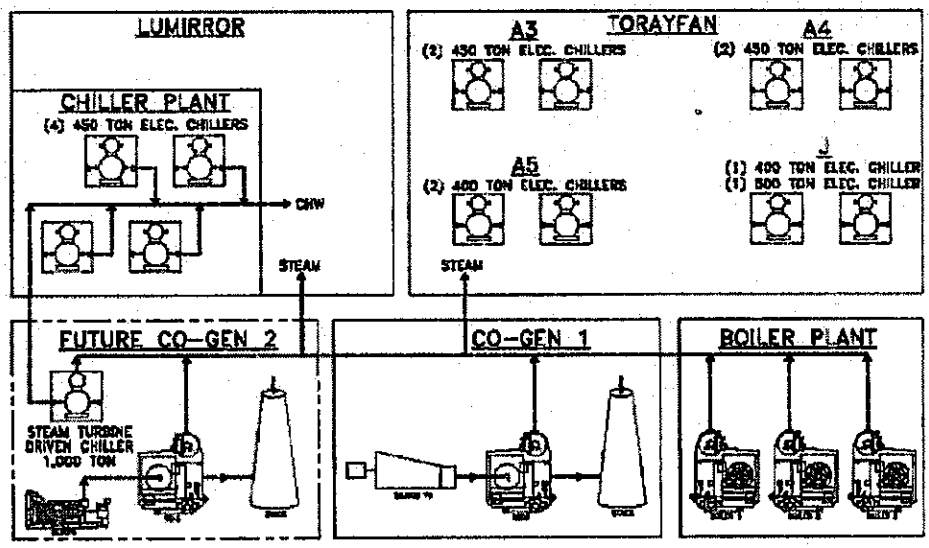
4.0 SYSTEM DESCRIPTION

The proposed CHP consists of 2 x reciprocating engines totaling 12.5 MWe (Gross) of electrical production. The engines are a "Best in Class" electrical efficiency of ~49.0%. The electric parasitic loads associated with the engines equates to about 500 kWe, thus their total, net electrical production is 12 MWe. They will electrically load follow and displace ~95.5% of Toray's electric energy needs.

They also will generate a total of 11,500 pph of 135 psig steam to satisfy various process, space heating and chilled water loads in Toray's Lumirror and Fan buildings. Each engine will have a dedicated NOx and CO emissions control system permitted by the State of RI's DEM's Division of Air Quality.

When the space heating and process loads drop in the Summer months, excess 135 psig steam will be diverted to a 1,000 Ton steam turbine-driven chiller to maintain a high energy efficiency percentage and waste heat utilization.

A simplified, graphical representation of the CHP is below.



5.0 BASE & ALTERNATIVE PROJECTS

The Team members reviewed four (4) CHPs for use at Toray Plastics (America), Inc. Of the four (4) investigated, the one with the best energy efficiency also had the best economics. The proposed CHP consists of 1 x 7.5 MWe and 1 x 5.0 MWe reciprocating engines manufactured by Kawasaki. The following represents the required Scope of Work for each Project.

Base Project Scope of Work

The Base Project in this instance is comprised of the existing utility systems serving Toray's Lumirror, FAN and Central Boiler Plant buildings' loads. Therefore, there is not any Scope of Work or Capital Cost related to the Base Project.

Alternate Project Scope of Work

Provide necessary technical services, major equipment, installation labor and materials as follows:

1. 1 x Lot of Design Engineering.
2. 1 x Lot of Air Quality Environmental Engineering.
3. 1 x Lot of Local, State & Federal Permits.
4. 1 x Lot of Electric Interconnection Engineering & Infrastructure Improvements.
5. 1 x Lot of NG Metering & Infrastructure Improvements.
6. 1 x Lot Building to house the proposed major and parasitic equipment and controls.
7. 1 x 7.5 MWe Kawasaki reciprocating engine and corresponding Emission Control System.
8. 1 x 5.0 MWe Kawasaki reciprocating engine and corresponding Emission Control System.
9. 1 x 7,000 pph HRSG at 135 psig saturated steam.
10. 1 x 4,500 pph HRSG at 135 psig saturated steam.
11. 2 x Hot Water Radiators.
12. 1 x 1,000 Ton Steam Turbine-Driven Chiller.
13. 1 x Lot CHP and parasitic loads' control system integrated into existing CHP's control system.
14. 1 x Lot of Site Work, Building Construction, Mechanical/Piping/Plumbing and Electrical/Controls work for a complete and operating CHP system.
15. 1 x Lot Start-Up, Testing & Commissoning.

The total project cost to install the proposed ALTERNATE system at Toray Plastics (America), Inc. is $22,700,000.

NATIONAL GRID

COMMERCIAL & INDUSTRIAL DEMAND SIDE MANAGEMENT PROGRAM

DSM APPLICATION

APPLICANT'S MAILING INFORMATION		APPLICANT'S CONTACT INFORMATION	
Company Name:	Toray Plastics (America), Inc.	Contact Name:	Mr. Shigeru Osada
P.O. Box:	N/A	Department:	Engineering
Street Address:	50 Belver Avenue	Title:	Vice President of Engineering
City/Town	North Kingstown	Telephone #:	(401) 294-4511
State & Zip Code:	RI 02852	Fax #:	(401) 294-1099

ENERGY PROJECT INFORMATION	NATIONALGRID USE ONLY
Base Energy Project Name: Existing Systems	Application Receipt Date: 07/31/12
Company Name: Toray Plastics (America), Inc.	Technical Report Receipt Date: 07/31/12
Building Name: Boiler Plant, Lumirror & FAN	Quality Control Returned: To Be Determined
Street Address: 50 Belver Avenue	Incremental NG: 6,349,418 Therms/Year
City/Town: North Kingstown RI 02852	Service Rate: Extra-Large, High Load, Rate 24, Transportation
Application Date: 07/31/12	Load Factor: 52.1%
Technical Report Date: 07/29/12	Rebate: To Be Determined

NATIONAL GRID

COMMERCIAL & INDUSTRIAL DEMAND SIDE MANAGEMENT PROGRAM

LETTER OF AWARD & ACCEPTANCE

FIRM SERVICE RATES

This *Letter of Award & Acceptance* confirms National Grid's commitment to provide Toray Plastic (America), Inc. with a $1,800,000.00 rebate corresponding to Toray Plastics (America), Inc. installing a Combined Heat and Power System.

The rebate is a result of this CHP System *DSM Application*, dated July 31, 2012, submitted to National Grid's Commercial & Industrial Demand Side Management Program. The rebate is solely intended for the installation of the cited CHP System and may not be used towards any other endeavor other than the CHP System cited in this aforementioned *DSM Application.*

This commitment is based upon the CHP System consuming an incremental amount of natural gas as indicated in the attached table, *NATURAL GAS USAGE - Table No.1* under National Grid's current Extra-Large, High Load, Rate 24, Transportation Service Rate as indicated in this *DSM Application* and the attached *Technical Report* and National Grid has executed a copy of the *Letter of Energy Project Compliance & Completion* prior mm/dd/yy; Energy Projects not meeting these criteria will result in a termination of the DSM rebate.

CUSTOMER agrees to allow National Grid periodic access to Toray Plastics (America), Inc. Energy Project's invoices, records, utility bills, etc. to confirm the actual versus estimated performance as documented in the *DSM Application* and *Technical Report.* This periodic access will not exceed the first two (2) years of the Energy Project's commercial operation. Upon National Grid identifying the Energy Project under-performing, Toray Plastics (America), Inc. is obligated to return the full rebate to National Grid within four (4) weeks from the date of a *Letter of Termination* from National Grid.

By signing this *Letter of Award & Acceptance*, National Grid acknowledges the award and acknowledges Toray Plastics (America), Inc.'s intent to proceed with the Energy Project. Moreover, Toray Plastics (America), Inc. further commits to National Grid that Toray Plastics (America), Inc. will install and operate the CHP System in accordance with the *DSM Application* dated July 31, 2012.

This *Letter of Award & Acceptance* and corresponding rebate may not be assigned to another party without the prior written approval of National Grid. CUSTOMER warrants to National Grid that the undersigned is a representative of CUSTOMER and is authorized to execute this *Letter of Award & Acceptance.*

NATIONAL GRID	Toray Plastics (America), Inc.
Name (Authorized Signature)	Name (Authorized Signature)
Name (Print)	Name (Print)
Title (Print)	Title (Print)
Date	Date

NATURAL GAS USAGE

Table No.1

MONTH & YEAR 2011	HISTORIC USAGE (Therms) 2011	ANTICIPATED USAGE (Therms)	INCREMENTAL USAGE (Therms)
January	814,239	1,263,044	448,805
February	713,326	1,128,997	415,671
March	771,750	1,258,293	486,543
April	635,224	1,112,689	477,465
May	631,286	1,211,862	580,576
June	637,478	1,226,560	589,082
July	625,631	1,268,664	643,034
August	625,898	1,243,527	617,630
September	594,280	1,179,193	584,913
October	596,348	1,109,531	513,183
November	620,901	1,110,803	489,902
December	704,221	1,206,836	502,615
Totals	7,970,581	14,319,999	6,349,418

NATURAL GAS SERVICE RATE

Check the natural gas service rate the Energy Project's incremental consumption of natural gas will occur under.

- ☐ Small, High Load Factor
- ☐ Small, Low Load Factor
- ☐ Medium, High Load Factor
- ☐ Medium, Low Load Factor
- ☐ Large, High Load Factor
- ☐ Large, Low Load Factor
- X Extra-Large, High Load Factor
- ☐ Extra-Large, Low Load Factor
- ☐ CNG Vehicle – Firm
- ☐ CNG Vehicle – Interruptible
- ☐ Gas Lamps
- ☐ Non-Firm Sales - No.2 Oil
- ☐ Non-Firm Sales - No.4 Oil
- ☐ Non-Firm Sales - No.6 Oil
- ☐ Non-Firm Sales – Propane
- ☐ Non-Firm Transportation
- ☐ Flexible Firm
- ☐ Firm Transportation
- ☐ Standby
- ☐ Balancing

NATIONAL GRID

COMMERCIAL & INDUSTRIAL DEMAND SIDE MANAGEMENT PROGRAM

LETTER OF ENERGY PROJECT COMPLIANCE & COMPETITION

Customer warrants to National Grid that the "CHP" Energy Project is operating and is being maintained as outlined in the *DSM Application*, dated July 31, 2012.

Customer further warrants to National Grid there are not any punch-list items, executed or pending liens, life safety or other applicable Federal, State or local code violations, or any other potential or pending encumbrances that might jeopardize the Energy Project's commercial operation in Customer's aforementioned *DSM Application* and *Technical Report.*

Customer agrees it has disclosed and provided sufficient information to National Grid and its authorized representative, prior to and during the site inspection, for the representative to determine any reason the Energy Project is not in full compliance to receive the rebate.

Based upon Customer agreeing to the aforementioned terms and conditions and National Grid's authorized representative's review and inspection of the Energy Project, National Grid hereby acknowledges the completion, commercial operation and compliance of the Energy Project.

Customer warrants to National Grid that the undersigned is a representative of Customer and is authorized to execute this *Letter of Energy Project Compliance & Completion.*

NATIONAL GRID	Toray Plastics (America), Inc.
Name (Authorized Signature)	**Name (Authorized Signature)**
Name (Print)	**Name (Print)**
Title (Print)	**Title (Print)**
Date	**Date**