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Energy Efficiency Initiative



The Egyptian Environmental Policy Program

EEPP - Tranche II

Fourth Quarterly Progress Report:

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 **Nexant**

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EXECUTIVE SUMMARY

This fourth Quarterly Progress Report documents activities undertaken by Nexant Inc. in support of the Egyptian Natural Gas Holding Company (EGAS) to achieve the expected results of Objective 10 of the Egyptian Environmental Policy Program (EEPP) - Tranche II. The report covers the period October 1st through December 31st, 2002. Activities cover three main areas: 1) accelerating the use of natural gas to replace liquid fuels in commercial and industrial applications, 2) customization of the Certified Energy Manager Program (CEM), and 3) promoting private investments in energy efficiency.

Natural Gas Strategic Plan

Nexant and EGAS were able to focus the vision of the strategic plan so that it better reflects the top priorities of the GOE. After conducting a further review of the three white papers that were completed in Quarter 3, EGAS requested to focus upcoming policy analyses on the assessment of potential new pricing schemes. EGAS expressed an interest in evaluating the economic and environmental impact that modifications to the existing pricing schemes may have on key end-user segments in the industrial and commercial sectors. The analysis of other policy areas relating to cogeneration and market initiatives will be incorporated into this assessment. EGAS prepared a draft Terms of Reference (TOR) to help guide the upcoming policy analyses - this TOR was forwarded to the Ministry of Petroleum for feedback. Additional strategic plan activities included: the revision of a market assessment that was conducted by a local consulting firm (GENCO) and the analysis of new applications for using natural gas at large commercial facilities.

CNG Master Plan - Preparatory Work

As an expansion to the current efforts in expanding natural gas use, EGAS and the Ministry of Petroleum (MoP) requested a master plan for compressed natural gas use in vehicles. This supplemental task was introduced as a result of combining Tranche II & III of EEPP. Nexant participated in a series of preparatory meetings that were conducted between USAID, EGAS and other key stakeholders that are currently members of a CNG Policy Committee that was assembled by the MoP. Nexant also held discussions with other key stakeholders in the CNG field to assess past activities conducted in this market. In November, Nexant responded to a request for proposal to USAID for the CNG master plan task, and work is expected to commence in January.

Energy Management Certification (CEM) Program

During this quarter, Nexant successfully completed the 7th and last iteration of the CEM[®] course, and finalized all customization efforts of the implementation and technical materials. Three local instructors have been trained and certified by AEE to deliver the course in Egypt. Nexant also completed three main documents necessary

to the course delivery: 1) "CEM[®] Procedures & Guidelines", 2) "CEM[®] Workbook" and Compact Disk, 3) and the "CEM[®] Instructor's Guide". Final production of the workbook and the associated CD is pending receipt of AEE's written approval. A reunion for all 2001-2002 CEM program recipients was held in November at the Ramses Hilton. AEE announced their intention to initiate a local chapter

Private Investments in Energy Efficiency

Nexant provided support to USAID/Egypt in the structuring of a potential DCA loan guarantee program for energy efficiency and clean production projects. Nexant participated in meetings between USAID, Nationale Societe Generale Bank (NSGB), and members of the EESBA organization. Nexant also provided information to NSGB illustrating the different types of energy efficiency projects that could be financed under a DCA loan guarantee program.

As part of its continued support to the ESCO industry, Nexant coordinated the development of a strategic plan for a public awareness campaign for EESBA in cooperation with the EEPP communication and outreach contractor, the Academy for Educational Development (AED). A one-day workshop was held in November for EESBA members to discuss a draft strategic plan for the campaign and to present the marketing tools proposed to implement it. As a result, AED and EESBA agreed to organize six events for target audiences in the first half of the year 2003.

Updating the NEES Framework

Reacting to a request from the Ministry of Electricity and Energy to the Organization for Energy Planning (OEP), Nexant will coordinate updating the NEES framework to reflect changes in the energy sector since 2001, when the framework was prepared. The update was prepared in December 2002 to include any relevant activities, policy development, and market conditions that were not available at the time the framework was released. It also included progress achieved under the EEPP Tranche II activities as well as the UNDP/GEF-sponsored program and the World Bank review of the energy and environmental sectors.

Training & Capacity Building Activities

This quarter, Nexant completed the last training event of its planned training activities for 2002. Twenty-nine participants from EEAA, OEP, EGAS, and the Governorates of Cairo, Alexandria, and Qaliubeya participated in the 5-day "Economic Evaluation & Policy Analysis" program, which was held December 15-19. With that course, a total of 10 programs through 16 events were implemented attracting 259 participants. Training programs were offered in Cairo, Alexandria, and Taba, and total of 10 partner institutions participated in various training activities. The implemented plan included 5 energy efficiency-specific programs, and five crosscutting programs.

Section 1: GENERAL INFORMATION

1.1. Background

Nexant Inc. is the technical assistance contractor supporting the energy efficiency and greenhouse gas reduction initiative of the Egyptian Environmental Policy Program. Under Contract Number LAG-I-00-98-00006-00, Task Order Number 817 with the United States Agency for International Development (USAID)/Egypt, Nexant Inc. supports the Government of Egypt (GOE) to achieve the requirements of Objective 10 of EEPP Tranche 2 during the period January 1st through December 31st, 2002.

Objective 10 on the T2 policy matrix is: "Reduced emissions of greenhouse gases by promoting the use of cleaner energy sources and increasing investments in energy efficiency". This Fourth Quarterly Progress Report documents activities undertaken, and results achieved during the period October 1st, 2002 through December 31st, 2002.

Objective	Policy Measure	Means of Verification	Results
<p>10. Reduced emissions of greenhouse gases by promoting the use of cleaner energy sources and increasing investments in energy efficiency</p> <p><u>Lead Agency:</u> Egyptian Natural Gas Holding Company (EGAS)</p>	<p>MOP/EGAS adopts a strategic plan which includes policies that encourage the expanded domestic use of natural gas</p> <p><u>Implementing Agency:</u> EGAS</p>	<p>Copy of EGAS approved strategic plan for accelerating natural gas use in the industrial and commercial sectors that outlines policies and market based initiatives (e.g., investment credits, facilitating natural gas payments, equipment rebates, and preferred pricing schemes)</p>	<p>Policies and market-based initiatives adopted to expand domestic natural gas use.</p>

Table (1) EEPP – Tranche 2 Policy Matrix (objective 10)

In Tranche 1 of the EEPP, Nexant supported the development of a framework for a National Energy Efficiency Strategy (NEES) that included recommendations for policies and market initiatives needed to establish a strong foundation for an energy efficiency market. Three key areas supporting the NEES recommendations were selected for further development in Tranche 2: 1) accelerating cost-effective use of natural gas to replace liquid fuels; 2) developing an internationally-recognized and locally-customized certification program for local energy engineers in support of future implementation and adoption of energy efficiency codes and standards; and 3) promoting private investments in energy efficiency activities and the development of compatible financing vehicles.

Nexant is providing technical assistance during this task order to the Ministry of Petroleum and its affiliate, the Egyptian Natural Gas Holding Company (EGAS). Other activities are being coordinated with the Organization for Energy Planning (OEP) in the broad categories of strategic planning, capacity building, and public awareness/outreach.

1.2. Expected Results

Nexant's scope of work was divided into one policy measure and two technical assistance tasks, each with an expected output.

Task 1 (Policy Measure)

Support the Ministry of Petroleum and EGAS in developing a strategic plan to accelerate local cost-effective use of natural gas.

Output: Adopted strategic plan by the MoP that outlines necessary policies and market initiatives leading to cost-effective conversion of liquid fuels to natural gas in commercial and industrial markets.

Task 2 (Technical Assistance)

Develop a local energy management certification program that is recognized internationally.

Output - A sustainable local certification program designed around the U.S. "Certified Energy Manager" program (developed and trade-marked by the Association of Energy Engineers).

Task 3 (Technical Assistance)

Promote private investments in energy efficiency.

Output - Published summary reports on the energy services industry, new options for energy efficiency financing and investment, and the technical support to developing a "Credit Guarantee" mechanism by USAID.

Section 2: REPORT ACTIVITIES

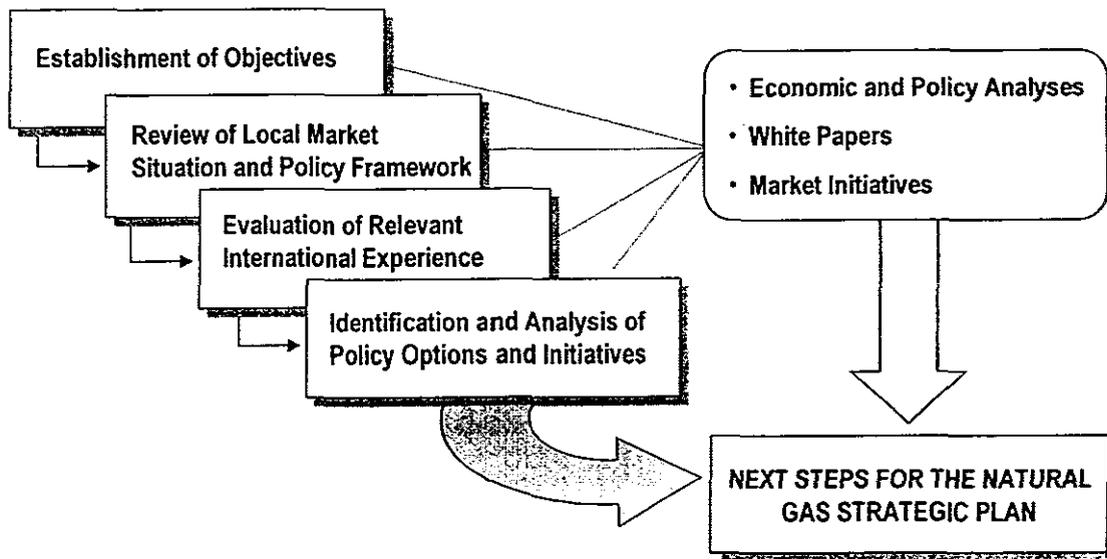
TASK 1. NATURAL GAS STRATEGIC PLAN

During Quarter 4, Nexant completed a range of technical assistance activities to support EGAS' ongoing development of the natural gas strategic plan for the industrial and commercial sectors. This included the start-up of bi-weekly meetings with EGAS to help define further analyses of downstream natural gas policy issues as well as the continued assessment of new local markets for gas.

1.1 Policy Meetings and Discussions with EGAS

A series of meetings was held with EGAS, USAID, and Nexant representatives to discuss next steps for both the development of the natural gas strategic plan. This included a meeting on November 14th during which Nexant delivered a presentation summarizing work completed to date on the strategic plan. As illustrated in the figure below, work activities completed during Quarters 1 to 3 have helped put the foundation in place to start the selection of priority gas policies.

Work Completed to Date – Natural Gas Strategic Plan



A meeting was also held with EGAS on November 27th to discuss the areas of focus for the strategic planning policy analyses. EGAS representatives stated that they would provide further feedback on the white papers by the middle of December 2002. It was also agreed that a meeting would be set up with Chairman Mohamed Tawila to agree on the direction of the strategic plan in light of the findings of the white papers. EGAS representatives also expressed an interest in conducting further analyses on areas that highlight the positive role that natural gas can play in stimulating economic growth and in protecting the environment. Cogeneration and gas-fired air conditioning were mentioned as two such potential areas.

An additional meeting was held on December 10th that was attended by Chairman Tawila. There was general agreement that pricing should be a key element of the strategic plan. EGAS representatives expressed an interest in assessing the impact of potential new pricing schemes on key end-user segments in the industrial and commercial sectors. Some options for completing this assessment were discussed, including conducting sensitivity analysis of different pricing options. It was agreed that by early January, EGAS would finalize terms of reference listing key evaluation areas for pricing.

1.2 Analysis of Gas Use in the Commercial Sector

To support ongoing policy analysis and strategy formulation, a preliminary assessment was conducted of options for utilizing natural gas in the commercial sector (primarily large end-users such as hotels, hospitals, and shopping malls). This assessment included a review of energy consumption patterns and analysis of potential new applications for natural gas use (e.g., use of gas-fired absorption chillers in HVAC systems).

1.3 Natural Gas Market Demand Assessment

In Quarter 4, revisions to a previous natural gas market assessment were completed by GENCO. The revisions focused on segmenting projections for downstream natural gas consumption by fuel switching (i.e., new consumption of gas that replaces the current use of petroleum products) and new investment (i.e., gas use that will result from the construction of new factories). The data and information compiled in this report will provide valuable support to EGAS' evaluation of new policy options.

TASK 2. ENERGY MANAGEMENT CERTIFICATION PROGRAM

The objective of this task is to establish a sustainable capacity building program for local energy engineers designed around the U.S. Association of Energy Engineers (AEE)'s Certified Energy Managers (CEM[®]) program. Seven iterations of the program were planned for 2001-2002 through the DT2 program of which six had been completed in various locations in Egypt through last quarter. Nexant has also been working with AEE on the customization of implementation and technical materials to fit the local market, as well as on preparing a team of local instructors for assuming future responsibility of delivering the course locally.

During this quarter, Nexant successfully completed the 7th and last iteration and finalized all customization efforts of the implementation and technical materials. Additionally, three local instructors have completed their final training and received their AEE certification to deliver the course in Egypt. Nexant also completed three main documents necessary to the course delivery: 1) "CEM[®] Procedures & Guidelines", 2) "CEM[®] Workbook" and Compact Disk, 3) and the "CEM[®] Instructor's Guide". Final production of the workbook and the associated CD is pending receipt of AEE's written approval.

Activities conducted in this fourth quarter included:

2.1 CEM[®] Course Delivery

As planned for this quarter, and through the DT2 program, Nexant successfully completed the 7th and last EEPP-funded CEM[®] iteration. With the objective of expanding the base of certified Egyptian engineers, the course was held in Alexandria during the period October 27th – November 2nd. Twenty-five (25) engineers from Alexandria and the surrounding area took the course and twenty-one (21) successfully received their CEM[®] certification, as four participants have decided to postpone the test to a later date. Through the seven iterations conducted 2001-2002, a total of 126 engineers have taken the course, but only and 108 met the CEM[®] certification requirements.

2.2 Customization of the Implementation and Technical Materials

Customization activities for this quarter included the final review and production of all expected outputs ensuring a successful in-country implementation of the course, namely: the "CEM[®] Procedures & Guidelines", the "CEM[®] Workbook" and Compact Disk, and the "CEM[®] Instructor's Guide".

Nexant produced the final version of the report on "CEM[®] Procedures & Guidelines" in December 2002. The report was developed to provide any implementing agency with clear and systematic guidelines for successful implementation of the course in Egypt.

The customized "**CEM[®] Workbook**" has also been finalized taking into account the comments of both the AEE and the CEM[®] course participants. The Workbook includes technical material, pre-course readings, and case studies from Egypt.

A Compact Disk containing all course materials has been finalized and will be distributed to all CEM[®] certified engineers who attended the courses in Egypt. The CD includes an electronic version of the Workbook, pre-course technical readings, case studies, and video clips about energy efficiency in Egypt. Final production of the workbook and the associated CD is pending receipt of AEE's written approval

The "**CEM[®] Instructor's Guide**" was also upgraded from draft to final version in December 2002. It provides the instructors with comprehensive tools and background needed to successfully deliver the course. The Instructor's Guide starts with providing an overview of the CEM[®] course and moves on to provide the instructor with the tools needed to: introduce the course, manage the warm-up stage and training activities, deliver effective presentations, and facilitate the "Help" session.

2.3 Training of Trainers (TOT)

During the October CEM[®] iteration in Alexandria, Engineers Ayman Al-Sakka, Khaled El-Farra and Ihab El-Massry received their final training module ("Skills Update") of their TOT program to be certified instructors for Egypt. All three were certified by AEE as CEM[®] Instructors for Egypt.

The TOT Program was designed and implemented to create a core cadre of qualified and certified trainers to ensure sustainability of the local customization process of the CEM[®] certification course. With the completion of this component, the three instructors now master all the tools they would need to deliver the course in Egypt – including an off-the-shelf course on public speaking and presentation skills offered by the American University in Cairo.

2.4 CEM Reunion & AEE/Egypt

In November, AEE and EESBA hosted a CEM reunion for all participants who have received their CEM certification in Egypt during the past 2 years. The event was held at the Ramses Hilton and was attended by approximately 70 people. AEE announced the intention to form a local chapter in Cairo to coordinate their activities in Egypt by Spring 2003.

2.5 OEP's Role in the CEM Course

Nexant will work with OEP to facilitate the certification of GOE energy engineering professionals. The course can be customized for various branches of the GOE or the Governorates.

TASK 3. PRIVATE INVESTEMENTS IN ENERGY EFFICIENCY

3.1 New Financing Options for Energy Efficiency

In Quarter 4, Nexant worked with representatives from USAID/Egypt to further assess the potential use of DCA financing tools. In particular, Nexant participated in discussions between representatives of Nationale Societe Generale Bank (NSGB) and USAID to help assess the bank's potential interest in participating in a loan guarantee program. Nexant provided NSGB with background information on the local energy efficiency market in order to help illustrate the potential types of projects that could be financed under a loan guarantee program. Going forward, Nexant will continue to work with USAID/Egypt, NSGB, and other local financial institutions to help mobilize private capital in Egypt that can be used to develop environmentally sound energy sector projects.

3.2 Development of the Energy Service Companies (ESCO's)

Several activities were completed in Quarter 4 to foster the development of local ESCOs, whereby Nexant and the Academy for Educational Development (AED) continued to provide support to EESBA in its public awareness and outreach efforts.

The draft "Strategic Plan for EESBA Public Awareness Campaign" - prepared by AED and Nexant in consultation with some EESBA members - was presented to the members in a one-day event at the Marriott Mirage Village Hotel in Katameya. The workshop was entitled "A United Team for Energy Efficiency Advocacy" and was held with the objective of building consensus among the members on the Strategic Plan and actions needed to implement it.

The workshop was characterized with a high degree of interaction among the members who shared in presenting the various elements of the Strategic Plan and concurred on the need to mobilize resources to implement the Campaign. EESBA members especially expressed their appreciation of the AED-supported "Speaker's Program" and the re-designed EESBA Website.

Dr. Ibrahim Abdel Galil, Chairman of OEP, participated as a guest speaker in the event. His presence helped facilitate a discussion with the EESBA members on the GOE's policies towards encouraging investments in energy efficiency and on the role EESBA can play in the emerging energy-efficiency market.

Based on the resulting recommendations of the workshop, Mr. Salah Hafez of EESBA, and Ms. Lynn Mortensen of AED agreed to cooperate in organizing six events for target audiences in 2003.

Section 3: MANAGEMENT, ADMINISTRATION & COORDINATION

3.1 Management and Coordination

Technical Assistance to OEP

Two meetings were held with Dr. Gelil at OEP to discuss the technical assistance needs of OEP during the remainder of Tranche 2. It was agreed that Nexant's assistance to OEP would be limited to supporting further adoption of the NES recommendations, and in strategic planning

Update Of The NEES Framework

In October 2002, the Ministry of Electricity and Energy requested from the Organization for Energy Planning (OEP) that the NEES framework be updated to reflect developments in the energy sector since 2001, when the framework was prepared.

The Chairman of OEP requested Nexant's assistance in preparing the update to include any relevant activities, policy developments, and market conditions that were not available at the time the framework was released in 2001. Additionally, the update was to include progress under the EEPP Tranche II and the UNDP/GEF-sponsored "Energy Efficiency Improvements and Greenhouse Gas Reduction" programs, as well as the output of the World Bank-sponsored "Energy and Environmental Review" efforts that were completed in October 2002.

Nexant retained the services of Mr. Ezzat Abdel Hameed a policy coordinator to help update the framework. Mr. Abdel Hameed was part of the Nexant team in 2000, and was responsible for coordination of the working groups' activities during the initial framework development. A meeting was held with Dr. Gelil and with Engineer Ahmed Abd Rabbu of OEP in late November to provide input to Mr. Abdel Hameed. There was agreement to complete an outline of the updated areas of the framework by mid January 2003.

3.2 Outreach and Awareness Activities

Sadat City Investors Association

Nexant responded to a request by the Environment committee of the Sadat City Investors Association to discuss possible support to the association. As an outcome, Nexant coordinated with EESBA and AEE to discuss the possibility of holding a CEM course for the members of the association in 2003. Furthermore, Nexant coordinated with AED on the possibility of initiating an Energy & Environmental course for the students of the elementary school that the investors association is sponsoring.

EESBA Workshop to Initiate a Public Awareness Campaign

Nexant facilitated the workshop and coordinated with members of the media on appropriate coverage of the event. The Egyptian Radio's General Program aired an interview with Dr. Galil on investments in energy efficiency, and Al-Ahram and Al-Akhbar newspapers each published an article on the event.

"Eye on The Environment"

The October issue of "EYE ON ENVIRONMENT", EEPP's newsletter, included two articles prepared by Nexant:

1. "Strategic Plan for EGAS", on EEPP/Nexant's support to EGAS in preparing a strategic plan to identify new policies and market initiatives to help increase the efficient local use of natural gas.
2. "Building Capacity for Energy Efficiency", on the seven CEM[®] training course delivered in 2001 - 2002 in cooperation with EESBA and DTII.

3.3 Training Activities

Economic Evaluation and Policy Analysis Course

Nexant planned for the implementation of two training programs on "Economic Evaluation And Policy Analysis" for local energy professionals, economists, and policy analysts. The programs were designed to enable participants to analyze and critique established or proposed economic policies, and weigh relevant economic factors in order to recommend necessary policy reform to improve environmental conditions in Egypt. The relevance to the energy efficiency activities is linked to the evaluation of policy recommendations under the NEES in general or the natural gas strategic plan in particular. However, the course could be applied to all EEPP participants.

Only one of the two planned iterations of this program was offered on December 15-19, 2002, by SPAAC as the training provider through the U.S.-based training provider CHP International. The second iteration has been cancelled due to repeated postponements by CHP. The first postponement case was announced to participants at the first day of the training. A total of 29 participants benefited from this program, mainly from the EEAA, OEP, EGAS, and the Governorates of Cairo, Alexandria, and Qaliubeya.

2002 Training Report

Nexant completed an end-of-year report on all training activities that were conducted under the DT2 project. The report is titled: "2002 Training Report, Energy efficiency", and it provided a summary on all training activities implemented by Nexant as part of its 2002 training plan. A total of 10 programs through 16 events were implemented attracting 259 participants. Training programs were offered in Cairo, Alexandria, and Taba, and total of 10 partner institutions participated in various training activities. The

implemented plan included 5 energy efficiency-specific programs, and five crosscutting programs.

3.4 Staffing Activities

In December 2002, Mr. Ezzat Abdel Hameed Hassaan, an Energy Efficiency Policy Specialist, was contracted by Nexant to update the 2001 National Energy Efficiency Strategy as requested by OEP. Mr. Abdel Hameed has a substantial background in the energy and environmental development field of relevance to this assignment and was part of the Nexant team that supported the Energy Efficiency Council (EEC) and its working groups in developing the National Energy Efficiency Strategy (NEES), which was adopted in May 2001.

With the conclusion of work activities in the CEM component, and the completion of all training activities, Nexant ended its contract with 4 members of its CCN team. Engineer Maamoun Al-Sakka, Eng. Ihab Elmassry, Engineer Nancy Serag Eldin, and Ms. Elizabeth Boustagui.

Section 3: **ACTIVITIES FOR NEXT QUARTER**

In Q1 of 2003, Nexant technical assistance activities will include the following items:

Natural Gas Strategic Plan

- Nexant will assess the strategic role that pricing can play in key end-user sectors. This will include sensitivity analysis of different pricing options in order to assess potential impacts on industrial competitiveness, economic development, and emissions of greenhouse gases and atmospheric pollutants. Key industrial and commercial sectors will be selected based on feedback received by EGAS.
- Nexant will also complete the ongoing analysis of emission factors relating to fuel and electricity use in the industrial and commercial sectors. The results of this analysis will help illustrate the potential environmental benefits associated with the efficient local use of natural gas.

CNG Master Plan

- Nexant will initiate its activities in the CNG master plan with a kick-off workshop as part of the International Conference on Energy & Environment in January at the Nile Hilton hotel in Cairo. The workshop will include key CNG stakeholders to discuss and identify principal issues facing the industry.
- Nexant will also launch a market survey to capture the experience and perspective of current users of CNG vehicles in the greater Cairo area. The survey will also provide an assessment of the overall awareness level and perceptions of users of vehicles running on other fuel types (diesel and gasoline). It will include samples from taxis, minibuses and light trucks. A market survey report will be prepared providing a quantitative and qualitative analyses of data and the development of recommendations.
- Nexant will initiate a comprehensive study to assess the technical and economical aspects of the existing CNG fueling stations network and propose solutions for the expansion of such network. The study will evaluate current obstacles / barriers facing existing stations and will address technical, economical, institutional, and policy-related areas.

Energy Efficiency Investments

- Nexant will continue to provide support to USAID/Cairo with the potential establishment of a DCA loan guarantee agreement with NSGB (or other local financial institutions).

NEES Update

- Work expects to complete the NEES update during the next quarter.