

National Energy Efficiency Strategy: *Action Plan*



Prepared for:



U. S. Agency for International Development
Project Number 263-C-00-90-0032-00
Energy Conservation and Environment Project

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1.1 BACKGROUND

This report summarizes the development of an action plan for a national energy efficiency strategy in Egypt. The action plan was prepared under the Energy Conservation and Environment Project (ECEP, contract number 263-C-00-90-0032-00) for the United States Agency for International Development (USAID) in Cairo.

Over the last several years, Egypt has emerged as a regional leader in environmental protection through the development of a climate change action plan, implementation of an environment law, and promotion of sustainable development. The recent memorandum of understanding signed under the Gore-Mubarak initiative reflects Egypt's commitment to sharpening and intensifying the focus of its environment and climate change activities.

Energy efficiency is an essential element of Egypt's climate change action plan because it directly reduces emissions of greenhouse gases and atmospheric pollutants. Further, reinvesting monetary savings from energy efficiency in equipment, infrastructure, and human capital, generates economic growth and spurs job creation. The ECEP Partnership Initiative is solidifying local alliances to ensure that the economic and environmental benefits generated by ECEP technology commercialization and private sector market conditioning are realized on a national level.

As an activity of the ECEP Partnership Initiative, Bechtel Consulting assisted the Organization for Energy and Planning (OEP) with the development of an action plan for a national energy efficiency strategy. OEP is responsible for developing a national energy efficiency strategy by directive of Presidential Decree No. 112 (1983) which mandates its role in energy planning within the economic framework.

1.2 ACTION PLAN OBJECTIVES

OEP's objective in preparing an action plan is to fulfill its role as the country's lead energy planning organization by developing a national strategy that emphasizes the importance of energy efficiency and its integration with environmental and economic policy. To achieve this objective, a high degree of coordination between key energy efficiency and environmental stakeholder organizations is required. The importance of institutional coordination is heightened by the numerous ongoing and future donor-funded and Government of Egypt (GOE) energy efficiency initiatives. Accordingly, a central feature of OEP's action plan is the creation of an enabling body framework to foster coordination by strengthening strategic partnerships between energy efficiency stakeholder organizations.

Meeting OEP's action plan objectives will result in the development of a national energy efficiency strategy with well-defined, time-bound, goals that offers the following benefits:

- reduced emissions of greenhouse gases
- sustainable economic development
- public and private sector partnerships
- self-sustaining energy efficiency markets.

1.3 APPROACH

Figure 1-3 illustrates OEP's approach for developing a sustainable national energy efficiency strategy. The action plan relies on a dual implementation approach that builds capacity in key organizations (preparation) while also conducting economic and technical assessments (analysis) of policy reforms and market transformation initiatives.

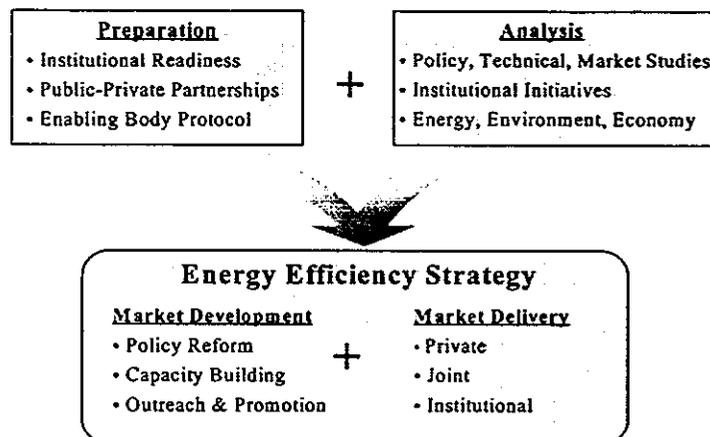


Figure 1-3 National Energy Efficiency Strategy Development

OEP's approach recognizes that the formulation of a national strategy calls for a wide range of technical assistance in both preparation and analysis areas. Preparatory programs to expedite institutional readiness will be achieved through technical assistance and partnership initiatives that develop and strengthen local capabilities. An enabling protocol for the stakeholder network will define national energy efficiency objectives and establish inter-agency operating procedures that facilitate the development of a coordinated strategy.

In conjunction with initial preparatory programs, analysis will be needed to assist with the assessment of individual national strategy elements. Technical assistance will be required to conduct market and institutional studies that assess the impact of different policy reforms, market transformation initiatives, and private sector enabling activities.

OEP's use of the dual implementation approach will enable Egypt to rapidly obtain the inherent benefits of a coordinated national energy efficiency strategy.

1.4 CONTENTS OF THIS REPORT

The remainder of this report summarizes the action plan for a national energy efficiency strategy developed by OEP under ECEP's Partnership Initiative.

Section 2 of this report presents a timetable detailing first year activities of OEP's action plan including the establishment of a protocol for an enabling body of energy efficiency organizations, development of coordinated workplans, and analysis of policy reform and market transformation initiatives. Section 2 also outlines immediate capacity building and technical assistance activities needed to create a national energy efficiency strategy.

Section 3 illustrates areas of strategy implementation that are needed to ensure continued transformation of the market for energy efficiency services in future years. Ongoing implementation activities, including monitoring of performance and continued planning, will provide for cost-effective delivery of energy efficiency services. Section 3 concludes with a discussion of potential environmental and economic benefits from implementing a national energy efficiency strategy.

2.1 FIRST YEAR ACTION PLAN ACTIVITIES

The foundation of a national energy efficiency strategy is a strong institutional framework within which policy reform and market transformation can be both coordinated and implemented. ECEP Partnership Initiative programs have been leading first year action plan activities by stimulating awareness and obtaining commitment from key players in the energy efficiency sector. To maximize the benefits of ongoing and future energy efficiency activities, internal workplans will be developed that outline individual agency contributions to the creation of a national strategy. An enabling body protocol will formalize inter-agency cooperation as well as define responsibilities delineated in a coordinated workplan. Technical assistance will be provided to prepare technical, market, and institutional initiatives which analyze the economic and environmental impact of individual elements of a national strategy. Figure 2-1 depicts first year activities which culminate in the adoption of a national energy efficiency strategy.

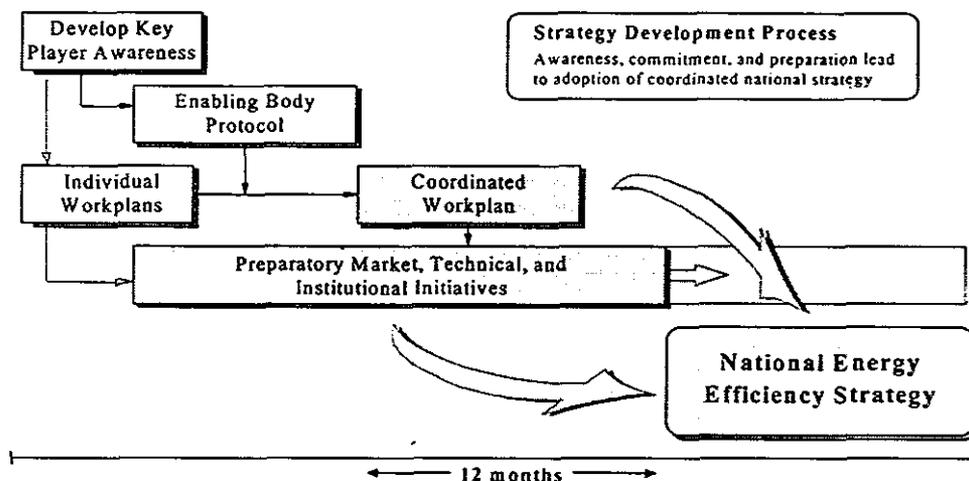


Figure 2-1 Action Plan Timeline: First Year Activities

The following immediate action plan activities are required to bring about a sustainable national energy efficiency strategy:

Develop key player awareness. Long-term economic and environmental benefits will be attained by developing widespread awareness of the national energy efficiency strategy among identified stakeholders. The ECEP Partnership Initiative simultaneously cultivates awareness and ensures the participation of GOE, private sector, and non-governmental organizations (NGOs) in the design of a national strategy.¹

Individual workplans. Several energy efficiency stakeholders are currently conducting initiatives that are consistent with the objectives of a national strategy. First year activities will include providing any technical assistance needed to rectify identified gaps in strategy

¹ Awareness building in ECEP's Partnership Initiative includes presentations and roundtable activities involving the Energy Efficiency Services Business Association and the Ministry of Petroleum.

coverage and to incorporate ongoing initiatives into a coordinated national workplan. Internal workplans will outline the contribution of individual agencies, including the allocation of resources and assignment of staff to oversee activities required to develop a national strategy.

Enabling body protocol. An enabling body protocol will facilitate coordination among energy efficiency stakeholders charged with implementing a comprehensive national strategy. Figure 2-2 illustrates the range of public and private sector partnerships required to coordinate and implement a national energy efficiency strategy. The protocol will define strategy objectives as well as formalize decision-making procedures. While this enabling body is not envisioned as a new official agency or organization, it will have regular meetings and well-defined operations.

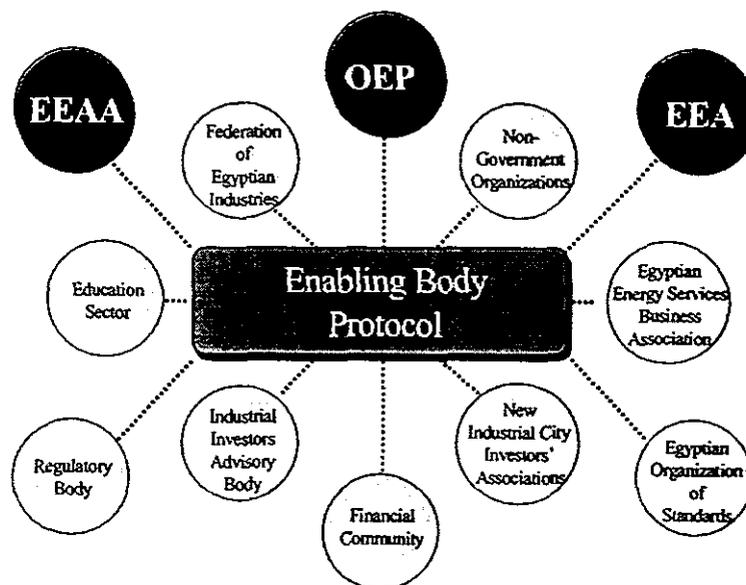


Figure 2-2 Coordination and Partnerships among Key Organizations

Coordinated workplan. The development of a coordinated workplan is needed to fully realize the benefits of ongoing and future activities of Egyptian energy efficiency and environmental organizations. By setting goals, defining responsibilities, and developing schedules, the effectiveness of each agency's activities will be enhanced by capitalizing on synergies and eliminating duplication of effort.

Preparatory technical, market, and institutional assessments. The economic and environmental impact of different policy reforms and market transformation initiatives will be carried out in a series of technical, market, and institutional assessments. Technical assistance will help provide the analysis used to either adopt and/or alter proposed elements of a national energy efficiency strategy. Assessments will be conducted in areas already targeted as a high priority initiatives, including: codes and standards; natural gas conversion; cogeneration; World Trade Organization (WTO) implications; and energy pricing.

Adopt national strategy. The end result of first year activities will be the adoption of a national energy efficiency strategy that incorporates the results of assessments conducted as

part of the action plan. The enabling body will approve a final strategy and develop a schedule for joint implementation during the next phase. Each of the elements of the national strategy will foster market transformation by effecting permanent changes in investment patterns, end-user behavior, and equipment stock. Figure 2-3 displays likely strategy elements that are consistent with and support recommendations of the 1997 Demand Side Management Conference as well as other GOE economic, environmental, and energy sector initiatives.¹ First year action plan activities will expedite the implementation of national strategy elements by strengthening the capacity of energy efficiency delivery channels.

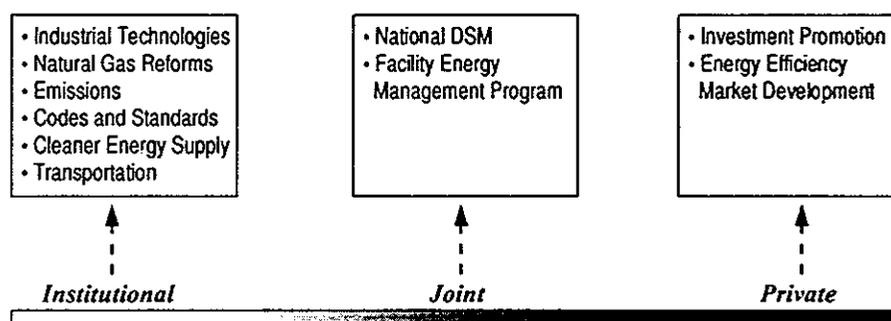


Figure 2-3 Spectrum of Energy Efficiency Delivery Channels

Also illustrated in Figure 2-3 is a spectrum of delivery channels, ranging from institutional (public) to private sector. In the context of OEP's national action plan, energy efficiency delivery channels are defined in the following manner:

- *Institutional delivery.* Regulatory and policy mechanisms required to implement national strategy elements and to unleash market forces.
- *Joint delivery.* Programs containing an initial development role for both private and public sector organizations.
- *Private sector delivery.* Policy reform and market transformation initiatives that enhance the capabilities of private sector organizations.

The eventual adoption of specific national strategy elements will require that the network of energy efficiency stakeholders balance national and organizational objectives as well as effectively allocate monetary and human resources. Annex A summarizes a more comprehensive set of initiatives that are likely to be considered for inclusion in a national strategy based upon ECEP Partnership Initiative discussions among energy sector organizations.

2.2 INITIAL TECHNICAL ASSISTANCE REQUIREMENTS

To accelerate market delivery of services, technical assistance is required to support first year activities that identify and address gaps in local capability in key areas including: institutional development, economic/financial analysis, and technical/market assessments. Initial

¹ 1997 DSM and the Reforming Energy Market Conference recommendations include: integrate DSM with environment/power sector reforms in a national energy efficiency strategy; develop private energy services.

technical assistance efforts will focus on providing support to national strategy development activities and ongoing policy reform and market initiatives.

Technical assistance in the area of institutional development will establish measures and procedures to help monitor and evaluate progress towards the achievement of national energy efficiency strategic objectives. Areas where immediate technical assistance will be provided include:

- establishment of enabling body protocol (memorandum of understanding)
- development of coordinated workplans
- institutional training
- monitoring and evaluation procedures.

Institutional capacity building will also focus on outreach and promotion activities to guarantee that network organizations, private sector associations, and NGOs are well-informed and are able to participate in national strategy decision-making.

In parallel with institutional development and strengthening, technical assistance and capacity building efforts will support specific elements of the national energy efficiency strategy. Primary areas of technical assistance include:

- economic and policy assessments (codes and standards, cogeneration, customs duties)
- technical and market initiatives
- planning functions (integrated resource planning, demand side management)
- monitoring systems (equipment, information systems, reporting procedures)
- private sector capacity (investment seminars, performance-based contracts)
- Figure 2-4 illustrates how first-year technical assistance also reinforces existing ECEP and GOE initiatives to condition markets for the gradual emergence of private sector energy efficiency services.

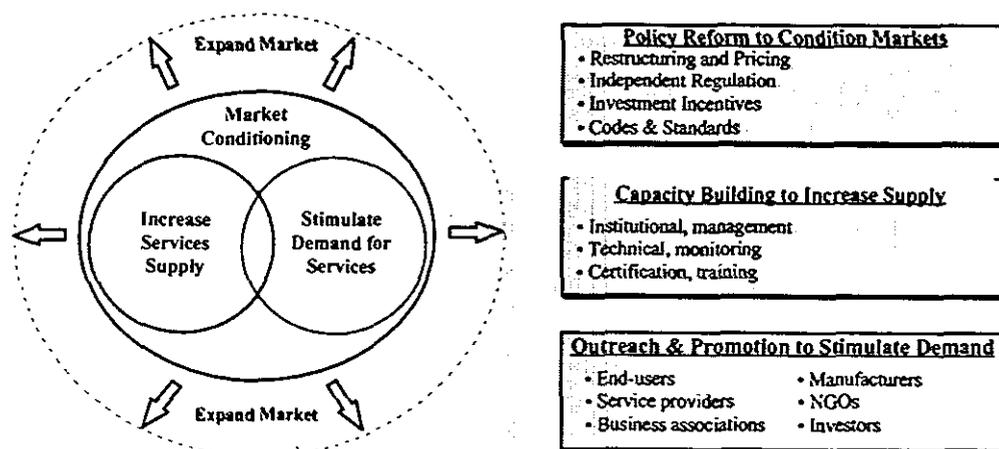


Figure 2-4 Market Transformation Initiatives and Growth

Capacity building activities will accelerate the market delivery of services by increasing the supply of energy efficiency services. Technical assistance will also spur outreach and promotion activities that will stimulate the demand for services by lowering market barriers such as those identified under ECEP.

Technical assistance and capacity building initiatives discussed in this section will expand the market for energy efficiency and will generate results that support the following USAID strategic objectives:

- expansion of the private sector through cost effective energy use
 - creation of a more environmentally sound power sector
- decreased rate of growth for greenhouse gas emissions.

3.1 ON-GOING IMPLEMENTATION

The action plan presented in Section 2 outlines immediate activities required to develop a national strategy that transforms the market for energy efficiency services. Figure 3-1 illustrates a permanent feedback loop that is also needed to ensure continued market transformation. In future years, the feedback loop will check progress towards meeting national strategy objectives and enhance the effectiveness of policy reforms and market transformation initiatives. Ongoing implementation activities will facilitate the efficient and cost-effective delivery of energy efficiency services.

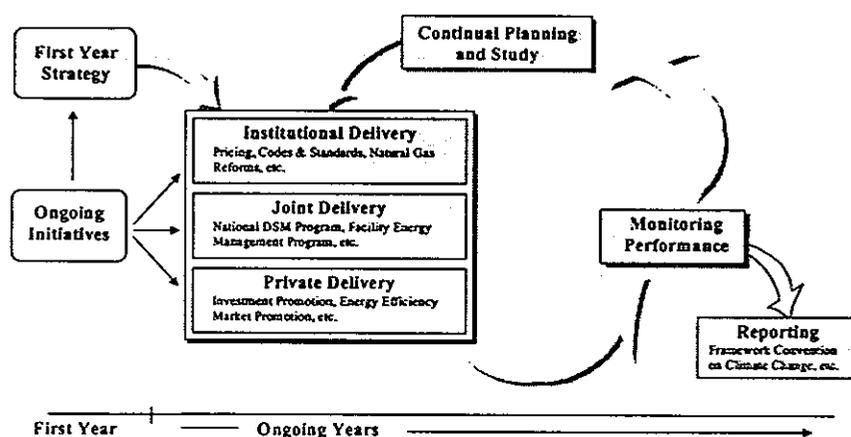


Figure 3-1 Action Plan Timeline: Ongoing Implementation

Individual elements of the national strategy will be delivered through a combination of public and private sector energy efficiency services channels. Initially, the market will be stimulated by policy reforms and public sector interventions designed to hasten the emergence of private sector services.

Monitoring and performance activities will gauge the effectiveness of initial policy reform initiatives by quantifying benefits and savings as well as providing insight on energy efficiency market behavior. Monitoring performance functions will serve as a vehicle for collecting data and reporting associated progress towards meeting Egypt's Framework Convention on Climate Change requirements.

Monitoring performance results will also be used in planning and study functions to make decisions about the future direction and pace of individual policy reforms and market transformation initiatives. Decision-makers will have the opportunity to evaluate ongoing reforms and initiatives and make any adjustments and/or additions needed to create sustainable energy efficiency markets and partnerships.

3.2 ECONOMIC AND ENVIRONMENTAL BENEFITS

Mitigating the environmental impact of economic growth is increasingly becoming a worldwide priority. Accordingly, the action plan presented in this report provides Egypt with an opportunity to meet its economic and environmental objectives through the development of a national energy efficiency strategy. Figure 3-2 summarizes potential benefits from the implementation of a comprehensive strategy that leverages synergies between energy efficiency, environmental protection, and economic growth.¹

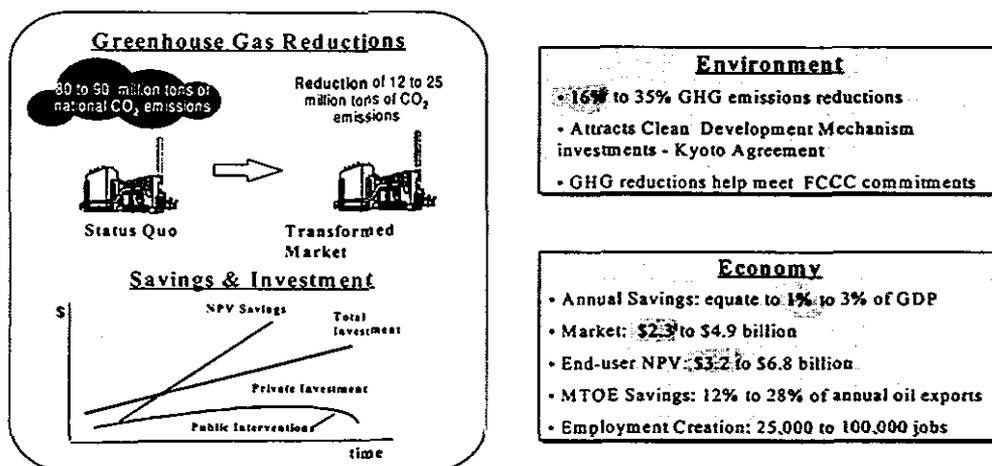


Figure 3-2 Potential National Environmental and Economic Benefits

The extent to which these environmental and economic benefits can be captured depends in part on the speed of market transformation and on the development of local energy efficiency delivery channels. OEP's action plan, which calls for immediate technical assistance, will remedy local skill gaps and maximize potential national economic and environmental gains from energy efficiency.

¹ Estimates of environmental and economic benefits are based on ECEP market assessments, including: *The Replication Potential of ECEP Applications* (March 1998), *Assessment of DSM Potential in Egypt* (December 1994), and *Profile of Energy Efficiency Business in Egypt*.

NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
INSTITUTIONAL FRAMEWORK: NATIONAL ENERGY EFFICIENCY STRATEGY DEVELOPMENT			
NATIONAL ENERGY EFFICIENCY STAKEHOLDER NETWORK AND ENABLING BODY	<ol style="list-style-type: none"> 1. Secure participation of key Egyptian organizations (Stakeholder Network) required to effectively implement, promote, and monitor a National Energy Efficiency Strategy (NEES) 2. Draft an Enabling Protocol defining objectives of NEES development: 3. Convene an Enabling Body of Stakeholder Network representatives to plan joint activities toward NEES development and execute a Memorandum of Understanding embodying a final Enabling Protocol. MOU to define: <ul style="list-style-type: none"> • Objectives • Each organization's proposed contribution • Joint operating and decision-making procedures 1. Enabling Body to conduct regular meetings to direct NEES development 	<ul style="list-style-type: none"> • Organization for Energy Planning (OEP) • Egyptian Electricity Authority (EEA) • Egyptian Environmental Affairs Authority (EEAA) • Financial Community • Egyptian Energy Services Business Association (EESBA) • National Regulatory Body • Federation of Egyptian Industries (FEI) • Education Sector • Industrial Investors Advisory Body • Egyptian Organization for Standardization (EOS) • Non-Governmental Organizations (NGOs) • New Industrial City Investor Associations • Private Business and Investor Representation • Others 	
ENERGY EFFICIENCY CELLS AND INDIVIDUAL AGENCY WORKPLANS	<ol style="list-style-type: none"> 1. Each Stakeholder Network member will establish within itself an Energy Efficiency Cell (EECell) which will: <ul style="list-style-type: none"> • Produce and implement a workplan for the organization's contribution to NEES development • Assist in institutional development activities (IDT - see description below) 	<ul style="list-style-type: none"> • Stakeholder Network Members 	

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STAKEHOLDER COMMUNICATIONS NETWORK	<ol style="list-style-type: none"> 1. Institutionalize methods (e.g., physical or electronic bulletin boards, contacts directory, distribution lists) and regularly communicate: <ul style="list-style-type: none"> • NEES mission and goals • Roles of Stakeholder Network members • Progress toward NEES development goals • Issues in NEES development requiring resolution • Employee involvement activities, rewards , etc. 	<ul style="list-style-type: none"> • Stakeholder Network Members 	
NEES INSTITUTIONAL DEVELOPMENT TEAM (IDT) 	<ol style="list-style-type: none"> 1. One member to be appointed (as priority assignment) from each of the 3-5 most active Stakeholder Network organizations 2. M/TA (project consulting organization) to assign one or two consultants (for Energy Efficiency and Organization Development) 3. Regular meeting schedule (at least weekly) and working protocol to be established 	<ul style="list-style-type: none"> • Stakeholder Network Members • M/TA 	
INTERAGENCY NEES WORKPLAN	<ol style="list-style-type: none"> 1. Draft a Stakeholder Network workplan which: <ul style="list-style-type: none"> • Integrates the individual agency workplans • Is in accordance with the allocation of agency responsibilities in the Enabling Protocol • Provides a valid work breakdown schedule leading to final approval of NEES within one year of Enabling Body formation 1. Technical Assistance to be provided as needed for workplan development and to remedy any gaps in coverage of work breakdown elements 2. Enabling Body to approve the final workplan 	<ul style="list-style-type: none"> • Enabling Body (may be assisted by IDT) 	
NEES MONITORING AND EVALUATION PROCEDURE	<ol style="list-style-type: none"> 1. Develop infrastructure required to monitor progress made towards: <ul style="list-style-type: none"> • Developing NEES • Implementing NEES following its development <p>Achievement by NEES of its strategic goals</p>	<ul style="list-style-type: none"> • Enabling Body (may be assisted by IDT)Enabling Body (may be assisted by IDT) 	<ul style="list-style-type: none"> • Outreach and Promotion

NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
<p>NEES MONITORING AND EVALUATION PROCEDURE (Continued)</p>	<ol style="list-style-type: none"> 1. For each strategic objective, where possible, determine interim goals and schedule 2. Establish methods of measuring progress toward goals 3. Establish agreed measures of success 4. Develop system to report progress periodically to Enabling Body and the communications network 		<ul style="list-style-type: none"> • Outreach and Promotion
<p>STAKEHOLDER NETWORK WORK PROCESS DEVELOPMENT AND MONITORING</p>	<p>Develop, monitor, and improve Stakeholder Network work processes implementing NEES, with special attention to the interfaces between the agencies, in order to:</p> <ul style="list-style-type: none"> • Ensure constant progress toward NEES goals • Create a long-term institutional network responsible for promotion and monitoring of energy efficiency • Provide early warning of institutional problems in NEES development <ol style="list-style-type: none"> 1. With the Enabling Body, finalize NEES mission and goals and the Interagency Workplan 2. Draft-design desired agency operations and interactions (hereinafter the NEES process) 3. Conduct workshop with Enabling Body to secure agreement on proposed NEES process 4. Assist the agencies in establishing any needed new work processes 5. Establish NEES process output monitoring systems and baseline (current) data 6. Monitor actual agency operations and interaction processes (inputs, outputs and measures) 7. Identify gaps between actual and desired activities/conditions and analyze for causes 8. Revise proposed NEES process, taking gap research and analysis into account <p>(see also NEES WORK PROCESS IMPROVEMENT, in NEES Capacity Building section below)</p>	<ul style="list-style-type: none"> • IDT • Enabling Body • Stakeholder Network Members 	
<p>NEES Capacity Building</p>			

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Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
TEAM BUILDING FOR ENABLING BODY AND EECCELLS	<ol style="list-style-type: none"> 1. Conduct training shortly after group formation (consider joint training for EECells from different Stakeholder Network organizations) 2. Use sessions to develop mission, goals, and general operating procedures 3. Give further training if members change or problems develop 	<ul style="list-style-type: none"> • Enabling Body • Stakeholder Network Members 	
WORK PROCESS IMPROVEMENT TEAM TRAINING FOR IDT	<ol style="list-style-type: none"> 1. Conduct training upon IDT formation 	<ul style="list-style-type: none"> • IDT 	
NEES WORK PROCESS IMPROVEMENT	<p>Builds on work process gap analysis. Capacity-building may include assistance with elements such as:</p> <ul style="list-style-type: none"> • Information systems • Organization, job, and work process re/design • Employee selection and staffing • Team building (within and across organizations) • Training • Rewards & recognition <ol style="list-style-type: none"> 1. Take immediate measures to fix obvious problems discovered in IDT gap analysis and agreed on at Enabling Body workshop, e.g., procurement of needed equipment or hiring of needed staff 2. Design program of institutional interventions to address remaining gaps 3. Conduct workshop with Enabling Body to present and secure agreement on intervention program 4. Develop and conduct institutional intervention program 5. Evaluate results of interventions and monitor performance and progress toward NEES goals 6. Take corrective actions as indicated by evaluation 	<ul style="list-style-type: none"> • IDT • EECells • Stakeholder Network Members 	
NEES Promotion			

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Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
SEMINARS FOR BUSINESS LEADERS/ORGANIZATIONS	<p>Establish open forum whereby business leaders are alerted to NEES activities and may voice comments and/or submit proposals for potential projects</p> <ol style="list-style-type: none"> 1. Identify target audiences (by activity and geography) 2. Develop plan and schedule seminars 3. Invite participants and conduct seminars 4. Repeat process with updates for groups which show interest and willingness to participate 	<ul style="list-style-type: none"> • National Center for Energy Efficiency Technology and Promotion (NCEEITP) • New Industrial City Investor Associations • Alexandria Businessman's Council 	
NEES QUARTERLY NEWSLETTER	<p>Establish a newsletter to announce and publicize NEES goals, efforts, and progress.</p> <ol style="list-style-type: none"> 1. Identify target audience 2. Assign responsibility, provide resources, establish information channels 3. Publish and distribute newsletter 	NCEEITP	



Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
POLICY REFORM AND MARKET TRANSFORMATION INITIATIVES			
ENERGY EFFICIENCY MARKET DEVELOPMENT AND INVESTMENT PROMOTION	<p><u>Private Sector Energy Services</u></p> <ol style="list-style-type: none"> 1. Develop incentive packages to spur private sector participation in the energy efficiency market, including: <ul style="list-style-type: none"> • tax holidays for designated energy efficiency service providers/vendors and end-users • reduced customs duty on energy efficiency equipment imports 1. Facilitate the development of private energy services (ESCOs, vendors, and consulting.) 2. Support performance-based delivery methods. <p><u>Energy Efficiency Financing Options</u></p> <ol style="list-style-type: none"> 1. Continued review of energy efficiency financing options (local banks/financial institutions.) 2. Determine optimal loan practices in terms of: <ul style="list-style-type: none"> • Interest rates for energy efficiency projects • Acceptable length of loan period 1. Develop new energy efficiency-focused financing vehicles, including: <ul style="list-style-type: none"> • Investment funds and companies • equity, bond, and/or leasing funds • special purpose funds (revolving funds) 1. Evaluate options to finance energy efficiency projects through leasing: <ul style="list-style-type: none"> • capital and operating leases • lease-purchase arrangements 	<ul style="list-style-type: none"> • ESCOs • Engineering and Consulting Firms • Commercial Banks • Leasing Companies • Insurance Companies • Venture Capital Firms • Tax Authority • Capital Markets Authority • General Authority for Investment and Free Zones (GOFI) 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion

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Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
<p>NATIONAL DSM PROGRAM</p>	<ol style="list-style-type: none"> 1. EEA, EDCs, and OEP will design and establish DSM programs 2. Establish DSM strategic objectives and process for ongoing program monitoring and evaluation. 3. DSM activities will include: <p><u>Technology-Based DSM Program</u></p> <ul style="list-style-type: none"> • Residential and commercial lighting • Power factor improvement • Electric motors and drives • Steam systems improvement • Boiler and furnace efficiency • Compressed air system <p><u>Service-Based DSM Program</u></p> <ul style="list-style-type: none"> • Energy audits • Combustion efficiency improvement • Compressed air system improvement • Quality motor repair <p><u>Industry-Based DSM Program</u></p> <ul style="list-style-type: none"> • Technology and service-based DSM to address the specific needs of different industry sectors. • Specialized programs for public utilities 	<ul style="list-style-type: none"> • EEA • EDCs • National Regulatory Body • OEP • Equipment vendors • Energy Efficiency Services Providers 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion
<p>PUBLIC SECTOR FACILITY ENERGY MANAGEMENT INITIATIVE</p>	<ol style="list-style-type: none"> 1. Establish energy efficiency initiative which states that identified public sector facilities must achieve a 10% reduction in annual energy consumption in their buildings within a five year period. 2. Develop schedule for further energy reductions in public sector facilities. 3. Establish procedure to pre-qualify energy service providers that will awarded contracts to implement efficiency projects in public sector facilities. <p>Facilitate public-private partnerships aimed at technology transfer and providing training/support needed to achieve desired energy savings.</p>	<ul style="list-style-type: none"> • OEP • GOE organizations • ESCOs • Engineering consulting companies • Equipment Vendors 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion

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NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
INDUSTRIAL TECHNOLOGIES	<p><u>Cogeneration</u></p> <ol style="list-style-type: none"> 1. Establish a set of operating, efficiency, and fuel-use standards that potential cogeneration facilities must meet in order to operate in parallel with the state electric power grid. 2. Define technical requirements for interconnection with the Unified Power System (UPS.) 3. Develop regulations that provide qualified cogeneration facilities with guaranteed access to the utility grid for back-up power. 4. Establish a standard offer power purchase agreement for potential cogeneration facility sales back to the state utility. 5. Establish requirement that the state utility must to sell electricity to cogeneration developers at a "fair and reasonable" rate. <p><u>Process Technologies (other)</u></p> <ol style="list-style-type: none"> 1. Establish "challenge programs" – similar to the U.S. Department of Energy <i>Motor Challenge</i> and <i>Compressed Air Challenge</i>. 2. Develop certification programs that detail minimum technical qualifications required to operate key energy consuming equipment. 3. Create reporting requirements for monitoring and targeting initiatives. 	<ul style="list-style-type: none"> • EEA • EDCs • Ministry of Electricity and Energy (MEE) • OEP • EOS 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion
NATURAL GAS REFORMS AND RESTRUCTURING	<ol style="list-style-type: none"> 1. Establish reforms that introduce competition and increase the influence of market forces in downstream natural gas operations. 2. Evaluate the use of tax incentives to spur private investment in the distribution of natural gas. 3. Assess the feasibility of the following reforms: <ul style="list-style-type: none"> • commercialization of gas distribution • privatization • allow third-party access 	<ul style="list-style-type: none"> • Ministry of Petroleum • EGPC • Egypt Gas, Gasco • MEE 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion
CODES AND STANDARDS	Equipment and Appliances		

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Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
	<ol style="list-style-type: none"> 1. Identify target equipment/appliances and evaluate local and international best practice standards. 2. Institute codes and standards for selected energy-consuming equipment and appliances. 3. Establish compliance testing protocols. 4. Create rating scales and labeling standards to assist vendor marketing efforts and end-user identification of energy-efficient products. 5. Develop timetable for phase-in of codes and standards (voluntary to mandatory path.) 6. Develop list of equipment/appliances eligible for reduced customs duties. <p><u>New Buildings Construction</u></p> <ol style="list-style-type: none"> 1. Review local and international codes and standards for the construction of new buildings. 2. Establish performance based codes/standards 3. Create timetable and identify resource requirements for phase-in of codes and standards (voluntary to mandatory path.) 	<ul style="list-style-type: none"> • EOS • Customs Authority • GOHBPR • NERA • New industrial cities • Engineering/Architects 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion
EMISSIONS STANDARDS	<ol style="list-style-type: none"> 1. Evaluate and establish emission standards (GHG and atmospheric pollutants) for power stations and combustion processes at facilities above a set energy consumption threshold. 2. Develop procedure for monitoring emissions and establish standard reporting methodology. 3. Review options for creating an emission trading scheme (or other market driven programs.) 	<ul style="list-style-type: none"> • EEAA • EEA • IPPs • End-users • TIMS • OEP 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion
CUSTOMS RE-CLASSIFICATION FOR ENERGY EFFICIENT EQUIPMENT	<ol style="list-style-type: none"> 1. In conjunction with the establishment of codes and standards, create a list of energy-efficient equipment that will be granted a preferential customs duty. <p>Amend investment and/or customs laws to allow for a flat duty rate to be assessed on all designated energy-efficient equipment.</p>	<ul style="list-style-type: none"> • Customs Authority • General Organization for Investment (GOFI) 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion
TRANSPORTATION INITIATIVE	<ol style="list-style-type: none"> 1. Develop an energy efficiency program for road vehicles, railways, and aircraft. Program areas will 	<ul style="list-style-type: none"> • Cairo Air Project • NG vehicles projects 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion

NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
	<p>include:</p> <ul style="list-style-type: none"> • equipment efficiency • modal shifts • fuel mix • improving transportation infrastructure <p>1. Assess policy measures needed to achieve efficient energy use in transportation, including:</p> <ul style="list-style-type: none"> • fuel pricing • vehicle emission standards • rebates for efficient vehicle purchases • incentives for developing efficient vehicles. 		
CLEANER ENERGY SUPPLY	<ol style="list-style-type: none"> 1. Expand upon DSM activities by developing least-cost planning policies for assessing current and future electric capacity needs. 2. Incorporate IRP activities into ongoing power sector reforms (private power and renewable energy development plans) 3. Assess opportunities for supply efficiency 	<ul style="list-style-type: none"> • EEA • EDCs • National Regulatory Body • NERA • OEP 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion
ENERGY PRICING REFORMS	<ol style="list-style-type: none"> 1. Develop time-of-use (TOU) tariff. 2. Establish electricity tariffs based on the principles of long-run marginal cost of power. 3. Establish a cost-based rate for natural gas 4. Remove price subsidies for petroleum products. 	<ul style="list-style-type: none"> • EEA • EDCs • MEE • OEP • EGPC 	<ul style="list-style-type: none"> • Capacity Building • Outreach and Promotion

NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
<p>* CAPACITY BUILDING</p>			
<p>SUPPORT FOR PRIVATE SECTOR DELIVERY OF ENERGY EFFICIENCY SERVICES</p>	<p><u>Equipment Vendors, ESCOs, and Engineering/Energy Efficiency Consulting Firms</u></p> <ol style="list-style-type: none"> 1. Training and education on the development of market assessments, business plans, and marketing materials. 2. Provide assistance in improving customer service and energy efficiency product offerings. 3. Conduct financing seminars on accessing credit and the use of performance contracting methods. 4. Develop training and education courses to expand technical capacity in key service areas: <ul style="list-style-type: none"> • boiler/furnace maintenance and tune-up • design, installation, and commissioning • controls and instrumentation • monitoring and verification <ol style="list-style-type: none"> 1. Facilitate technology transfer by partnering local and international energy efficiency companies. <p><u>Financial/Credit Institutions</u></p> <ol style="list-style-type: none"> 1. Develop training courses and education materials on risk and return assessment for energy efficiency projects. 2. Provide investment seminars covering performance contracting and leasing strategies. 	<ul style="list-style-type: none"> • ESCOs • Engineering and Consulting Firms • DRPTC • TIMS • Commercial Banks • Leasing Companies • Insurance Companies • Venture Capital Firms 	<ul style="list-style-type: none"> • Energy Efficiency Market Development and Investment Promotion • Industrial Technologies (Cogeneration and Process Technologies) • Codes and Standards • National DSM • Public Sector Facility Energy Management Initiative • Transportation
<p>ESTABLISHMENT OF MONITORING AND VERIFICATION (M&V) PROTOCOLS</p> <p>22</p>	<ol style="list-style-type: none"> 1. Establish monitoring and verification protocols to verify ongoing energy savings from energy efficiency projects. 2. Develop local protocols to match existing international M&V protocols. 		<ul style="list-style-type: none"> • Energy Efficiency Market Development and Investment Promotion

NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
PROFESSIONAL CERTIFICATION PROGRAMS	<p>Develop training courses, educational materials, and testing procedures with suitable EE content for the certification programs:</p> <p><u>Equipment Operation and Maintenance</u></p> <ol style="list-style-type: none"> 1. Planned and preventative maintenance 2. Controls and instrumentation 3. Combustion control 4. Process and system design (sizing of equipment) 5. Facility management <p><u>Energy Management Programs</u></p> <ol style="list-style-type: none"> 1. Project management 2. Procurement of equipment/spare parts 3. Preparation of feasibility studies. <p><u>Electric Power Systems</u></p> <ol style="list-style-type: none"> 1. Transmission and distribution efficiency 2. Power plant operation and maintenance (O&M) 3. Cogeneration and small power systems <p><u>Energy Efficiency Analysis for Financial Management</u></p> <ol style="list-style-type: none"> 1. Evaluation of cash flows from energy efficiency 2. Risk analysis in investment decisions 3. Financial instruments and markets 	<ul style="list-style-type: none"> • Commercial and Industrial End-Users • EEA/EDCs • Private Consulting and Engineering Firms • Financial Institutions • Public and Private Educational Institutions 	<ul style="list-style-type: none"> • Industrial Technologies • Cleaner Energy Supply • National DSM
DEMAND SIDE MANAGEMENT AND INTEGRATED RESOURCE DEVELOPMENT SUPPORT DEMAND SIDE MANAGEMENT AND	<p>Capacity building efforts will facilitate the development and implementation of DSM and IRP. IRP will be coordinated with ongoing DSM initiatives.</p> <p><u>DSM Technical Support/Training</u></p> <ol style="list-style-type: none"> 1. Analysis of the system load impacts from DSM 2. Training and education on DSM software 3. Development of DSM data base 4. Training on advanced metering techniques <p><u>DSM Implementation and Management</u></p>	<ul style="list-style-type: none"> • EEA • EDCs • National Regulatory Body • OEP 	<ul style="list-style-type: none"> • Industrial Technologies • Cleaner Energy Supply • National DSM

NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
INTEGRATED RESOURCE DEVELOPMENT SUPPORT (Continued)	<ol style="list-style-type: none"> 1. Program design and costing 2. Monitoring and evaluation procedures 3. Customer service and marketing strategies <p><u>IRP Analysis Support</u></p> <ol style="list-style-type: none"> 1. Comparative system planning analysis of supply- and demand-side investments (life-cycle costing) 		
UNITED STATES-EGYPTIAN UTILITY PARTNERSHIP PROGRAM <i>Modeled on USEA program, aimed at transfer of U.S. utility experience in technical and business operations.</i>	<ol style="list-style-type: none"> 1. Develop partnership program between a U.S. utility and a regional Egyptian utility (EEA/EDC), to include regular seminars and exchange programs for U.S. and Egyptian utility management and personnel 	<ul style="list-style-type: none"> • EEA/EDCs • National Regulatory Body • U.S. utilities 	<ul style="list-style-type: none"> • National DSM • Cleaner Energy Supply
INTERNATIONAL STUDY TOURS	<p>Conduct a series of study tours designed to provide key Egyptian decision-makers and business leaders with insight into ongoing international energy efficiency and market reforms programs, including:</p> <ol style="list-style-type: none"> 1. Cogeneration policy development 2. DSM and IRP program implementation 3. Energy pricing reform and tariff design 4. International bench-marking practices for energy efficiency codes and standards 5. Regulation of greenhouse gases and atmospheric pollutant emissions 6. Restructuring of electricity and natural gas markets 7. Energy-efficient transportation 	<ul style="list-style-type: none"> • EEA • EDCs • EOS • OEP • National Regulatory Body • EEAA • EGPC 	<ul style="list-style-type: none"> • Energy Efficiency Market Development and Investment Promotion • Industrial Technologies (Cogeneration and Process Technologies) • Codes and Standards • National DSM • Public Sector Facility Energy Management Initiative • Transportation
PUBLIC EDUCATION PROGRAMS	<ol style="list-style-type: none"> 1. Benchmark comparable programs in U.S. 2. Research content of existing programs in Egypt 	Ministry of Education	<ul style="list-style-type: none"> • Range of policy reforms and market transformation

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NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
	<p>3. Identify gaps/needs 4. Secure cooperation of at least one institution at each education level in developing programs 5. Establish programs at:</p> <p><u>University level</u></p> <ul style="list-style-type: none"> • Set of 7 to 8 engineering, economics and management courses leading to a university level degree/certificate in energy efficiency • Energy efficiency courses could be taken in conjunction with a degree program or separately. <p><u>Vocational level</u></p> <ul style="list-style-type: none"> • Courses that cover the O&M of key energy consuming equipment • Courses providing an overview of energy efficiency theory and energy measurement and accounting practices. <p><u>Primary and secondary school level</u></p> <ul style="list-style-type: none"> • Teaching modules for science and/or social studies classes. • Consider implementation of testing system to verify results and increase absorption of material <p>6. Establish means of monitoring program output and standards of success 7. Work with institutions at different education levels to develop and/or modify courses. 8. Administer programs, monitor results and make corrections as needed</p>		<p>initiatives</p>
<p>45 DEVELOPMENT OF UNIFORM ENERGY CONSUMPTION REPORTING PROCEDURES</p>	<p>1. Develop uniform industrial and commercial classification scheme. 2. Establish reporting cycle: annual fossil fuel and electricity consumption data. 3. Appoint a data collection agency that will interface</p>	<ul style="list-style-type: none"> • CAPMAS • OEP • Federation of Egyptian Industries (FEI) 	<ul style="list-style-type: none"> • Outreach and Promotion

NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
	with the national center (NCEEITP) 4. Develop procedure for mandatory end-user submittal of energy consumption data.	<ul style="list-style-type: none"> • GOE Energy Supply Organizations 	
TRAINING AND EDUCATION FOR NATIONAL ENERGY EFFICIENCY INFORMATION CENTER STAFF	In an effort to promote the sustainability of the national energy efficiency center; provide training and education to staff in the following areas: 1. Customer service 2. Computer use and software 3. Library science 4. Print publication 5. Audiovisual /multimedia production 6. Training & HRD		<ul style="list-style-type: none"> • Outreach and Promotion

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NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
<p>OUTREACH AND PROMOTION</p> <p>NATIONAL CENTER FOR ENERGY EFFICIENCY INFORMATION, TECHNOLOGY AND PROMOTION (NCEEITP)</p>	<p>Establish a national center to provide end-users, energy efficiency service providers, and energy suppliers with information on energy efficiency programs and technologies.</p> <ol style="list-style-type: none"> 1. Identify central information/documentation requirements for NEES 2. Identify existing organizations to coordinate and support the development of a national center 3. Identify organizational "home" for the center 4. Appoint a senior, expert, well-respected executive director 5. Provide facilities and staff, including a small training organization to support development of courses and programs (could be outsourced) and a publications specialist 6. Organize and develop data collection on energy consumption and efficiency in a manner to support NEES policy reform initiatives 7. Consider development of complementary regional centers in Egypt 8. Set up database for contact information, correspondence and schedules of joint activities with government agencies, universities, industries, and similar centers in Egypt and other countries: activities could include visit exchanges, library loans, internship programs, etc. <p><i>Facilities to include:</i></p> <ul style="list-style-type: none"> • <i>Specialized modern library, with electronic information databases and publications catalogue, Website and distance learning resources, video, multimedia and CBT collections, etc.</i> • <i>Meeting- and classrooms</i> • <i>Capabilities for presentations, print and AV production</i> 	<ul style="list-style-type: none"> • OEP • EEA • EEAA 	<ul style="list-style-type: none"> • Outreach and Promotion



NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
INVESTMENT PROMOTION	<p><u>End-Users (Energy Managers)</u></p> <ol style="list-style-type: none"> 1. Develop awareness campaigns (including promotion materials) to illustrate benefits of financing projects through bank loans and leasing. 2. Promote the use of performance contracting (ESCO approach) through case studies. 3. Develop programs addressing the differing procurement practices and investment needs of private and public sector firms. <p><u>Financial/Credit Institutions</u></p> <ol style="list-style-type: none"> 1. Prepare promotional materials and presentation that illustrate the high rate of returns on investments in energy efficiency. 2. Develop local and international case studies to disseminate to commercial banks, leasing companies, and venture capital outfits. <p><u>Expand Communications/ Investment Forums</u></p> <ol style="list-style-type: none"> 1. Establish vehicle for communication/intelligence gathering between key investment parties. 2. Quarterly round tables attended by customer groups, financial institutions, equipment vendors, energy efficiency services companies, and GOE. 		
ENERGY EFFICIENCY INFORMATION, AWARENESS AND PROMOTIONAL CAMPAIGN: GENERAL	<ol style="list-style-type: none"> 1. Develop programs and materials to increase end-user awareness, acceptance, and use of energy efficiency technologies and practices. 2. Benchmark international awareness campaigns for energy efficiency, recycling programs, etc. 3. Couple promotional activities with incentives (free energy audits, rebates, and training) to help stimulate increased participation. 4. Perform market research to identify target audiences and optimal mode of communication (print, broadcasting, and/or billboard advertising) 		
ENERGY EFFICIENCY	<ol style="list-style-type: none"> 5. Develop publicity materials such as fact sheets, 		

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Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
INFORMATION, AWARENESS AND PROMOTIONAL CAMPAIGN: GENERAL (Continued)	videos, technical manuals, and case studies. 6. Tailor promotional activities to support the awareness/acceptance of on-going policy reform. 7. Evaluate the success of awareness programs to identify any changes needed to more effectively reach the target audience.		
ENERGY EFFICIENCY INFORMATION, AWARENESS AND PROMOTIONAL CAMPAIGNS: SPECIFIC	1. Develop information, awareness and promotional campaigns to support specific policy-reform initiatives, such as: <ul style="list-style-type: none"> • Regional seminars and information packages for end-users to promote pricing reforms • <i>Case studies and information packages for private sector organizations, illustrating potential benefits from leveraging new tax/ investment laws</i> 		
ANNUAL INTERNATIONAL DSM AND ENERGY EFFICIENCY CONFERENCE	1. Energy efficiency papers, presentations, and round tables. 2. Exhibition of latest energy-efficient equipment/products/services. 3. Publishing of conference proceedings (internet and CD-ROM)		
EXHIBITIONS	1. Assess the need for exhibitions, including the development of the following: <ul style="list-style-type: none"> • Special exhibits for public spaces • Mobile exhibits/demonstrations for rural areas 	NCEEITP	
PROGRAMS FOR PRIMARY AND SECONDARY SCHOOLS	1. Assess the need for primary and secondary school activities, including the development of programs such as: <ul style="list-style-type: none"> • Field trips • EE presentations for schools 	NCEEITP	
PROMOTIONAL MATERIAL TO ASSIST EGYPTIAN	1. Identify target organization groups 2. Benchmark successful US institutions for best	NCEEITP	

NATIONAL ENERGY EFFICIENCY ACTIVITY MATRIX: ILLUSTRATIVE ELEMENTS

Strategy Area / Activity	Implementation Activities	Organizations Involved	Strategy Area Links
ORGANIZATIONS IN ORGANIZING FOR ENERGY EFFICIENCY	<p>practices with regard to organization design, job descriptions, work processes, reward systems</p> <ol style="list-style-type: none"> 3. Develop guidelines, case studies, etc. and disseminate them to target institutions 4. Monitor for success or failure in adoption and adjust as appropriate <p><i>Use this process to support other NEES initiatives, e.g., develop generic job descriptions calling for incumbents to have EE certification</i></p>		
GENERAL ENERGY EFFICIENCY AWARENESS TRAINING	<ol style="list-style-type: none"> 1. Develop a short awareness class to be available: <ul style="list-style-type: none"> • as a supplement to a specific promotion campaign • to be given on request from end-users, etc. <p><i>Class perhaps 2-3 hours in length, stressing handouts and memory aids. Consider CBT kit version also.</i></p>	NCEEITP	