

Ministry of Environment and Natural Resources (SEMARNAT), Mexico
Ministry of Energy (SENER), Mexico
Ministry of Foreign Affairs, (Danida), Denmark
Ministry of Climate, Energy and Building (MCEB), Denmark

Final

Program Document

Climate Change Mitigation and Energy Program

Mexico

April 2, 2014

Cover sheet

Country	Mexico
Title of program	Energy and climate change mitigation
Partners	Ministry of Environment and Natural Resources Ministry of Energy
Starting date and duration	1 January 2014, 3½ years

Budget (Dkk million)	Total	2014	2015	2016	2017
Climate Change	12.3	3.8	4.2	3.2	1.1
Renewable Energy*)	16.7	4.4	6.2	5.1	1.0
Energy Efficiency	13,0	2.9	5.2	4.0	0.9
Program Support	3.0	0.7	1.0	0.8	0.6
Total	45.0	11.7	16.6	13.1	3.6

*)Incl. Long term international adviser

Executive summary

Context

It is a strategic priority for Mexico and Denmark to strengthen cooperation in the area of energy and climate change mitigation. The governments of Denmark and Mexico initiated technical cooperation within climate change and energy topics, starting with a Memorandum of Understanding in 2005 and a further Memorandum of Understanding in 2007, which focused on cooperation within energy. Mexico and Denmark cooperated closely in the context of the UNFCCC COP15 in Denmark and COP16 in Mexico. Since 2011, the Ministry of Environment and Natural Resources (SEMARNAT) and the Danish Energy Agency (DEA) have been actively cooperating on modelling related to national emissions baselines and potentials for emission reductions.

A new 3½ year cooperation program between Mexico and Denmark will be launched in 2014 as part of the Global Framework under the Danish 2013 Climate Envelope, which is a continuation of Denmark's contribution of 1.2 billion DKK to fast-start financing for the period 2010-12 following the commitment made in the Copenhagen Accord.

Objectives and component structure

The development objective of the Mexican-Danish Cooperation is: *Mexico, substantially assisted by exchange of knowhow and experience with Denmark, has consolidated its pathway to a low-emission future and is on track to realizing its goals of reducing its greenhouse gas emissions by 30% below its business as usual scenario by 2020 and generating 35% of its electricity from clean energy sources by 2024.*

The immediate objectives are:

1) *SEMARNAT and INECC are enabled to drive ambitious mitigation action in support of Mexico's low-carbon transition benefitting from Danish support for analysis and policy development.*

This objective will be achieved through support to development and refinement of policy and analytical tools, especially tools that enable tracking and modelling of emission targets and strategic evaluation of progress on mitigation planning, including establishing a framework for evaluation and means to assess co-benefits of mitigation actions. The program will assist SEMARNAT and the National Institute for Ecology and Climate Change (INECC) in implementing Mexico's Special Climate Change Program 2014-2018 (April 2014) in support of the General Climate Change Law (June 2012) and the National Climate Change Strategy (June 2013).

2) *Low-carbon transition of the power sector will be facilitated through sharing of experience and policy, planning, regulatory and technical cooperation in order to promote and enable the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.*

This objective will be achieved by mobilizing a combination of Danish, international and national expertise and experience to work with a range of stakeholders to build capacity, provide analytical inputs and policy guidance. The Program will provide modelling capacity and Danish experience on energy transition planning; increasing the confidence

of the Federal Electricity Commission (CFE) and others on the practicability of integration of a high proportion of renewables in the national grid; and build capacity of the wind energy sector and the Mexican Centre of Excellence in Wind Energy (CEMIE-Wind) to innovate and stimulate the development of wind energy in Mexico.

3) *Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry through cooperation on policy, regulation and supporting measures.*

This objective will be achieved through support to SENER and the National Commission for Energy Efficiency (CONUEE). The Program will provide information and capacity building as well as concrete application of best practice techniques to plan and implement energy efficiency in non-residential buildings and in selected large industries, based on Danish experience.

Figure 1 Link between program objectives and the national sector framework

Components	Policy / legal framework	Core Programs	Lead institutions	Supportive institutions
Climate	Climate change law 2012	<ul style="list-style-type: none"> Climate change Strategy PECC2 2014/18 	SEMARNAT	INECC
Renewable Energy	Law on: <ul style="list-style-type: none"> RE & transition (2008) Sustainable Energy Use 2008 Electricity (2012) 	<ul style="list-style-type: none"> Energy sector strategy (2013/27) PRONASE Special program on Renewables 	SENER	<ul style="list-style-type: none"> CFE CRE CEMIE (WInd) CONUEE
Energy Efficiency				

Associated with each component and sub-component are a number of expected outcomes which are summarized in figure 2.

The program will take place from January 2014 to June 2017 with an inception phase of 6 months which will run concurrently with the start of program activities. A pre- inception preparation phase with a number of fast track activities will start in the first half of 2014. The last half year of the program will be a consolidation phase.

Program strategy

Mexico has developed impressive legal and institutional frameworks and strategies and has advanced capabilities in many areas pertaining to climate change and energy. The Danish assistance will thus be catalytic and aim to support in carefully selected areas where Denmark has long standing skills and experience. Accordingly, the outcomes and outputs have been designed to reflect priorities and objectives in Mexico's legislation and strategy and planning documents. The bulk of Danish support will be arranged as a "draw down facility" that is flexible in mobilizing Danish expertise and informed by annual work plans based on Mexican priorities. Implications of this support approach are that:

- The support will focus mainly on technical expertise and peer-to-peer exchanges rather than direct funding
- Focus of support will be on policy and regulation enhancing readiness for implementation
- The support will be flexible to best match supply to demand
- The cooperation will be closely aligned to Mexican institutions and to Government strategies and programs
- Priority will be given to interventions with significant mitigation effects
- Value will be added by the Danish support by accelerating and/or extending national efforts that are locally owned and likely to be sustained as well as providing limited support to activities that are not yet planned or foreseen

Figure 2 Overview of program objectives and outcomes

Objectives	Outcomes
SEMARNAT and INECC are enabled to drive ambitious mitigation action in support of Mexico's low-carbon transition benefitting from Danish support for analysis and policy development.	Strengthened framework for evaluation of climate change actions
	Enhanced tracking of PECC 2014-2018 energy related measures
	Effective preparation for 2015 agreement on post-2020 target setting
	Framework for assessing co-benefits of energy related mitigation
	Enhanced regional cooperation and international outreach
	Strengthened enabling environment for low-carbon technology innovation
	Platform for public-private collaboration and dialogue
Low-carbon transition of the power sector is facilitated through sharing of experience and policy, planning, regulatory and technical cooperation enabling the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.	Power system better able to integrate renewables/co-generation
	Renewable energy planning enhanced by new methodologies
	Innovative wind energy technology adoption promoted
Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry.	Building regulations and supportive measures improved
	EMS for buildings and supportive measures improved
	EMS in large industries improved

Budget

The budget is shown below:

Table 1 Budget

Budget (Dkk million)	Total	2014	2015	2016	2017
Climate Change	12.3	3.8	4.2	3.2	1.1
Renewable Energy*)	16.7	4.4	6.2	5.1	1.0
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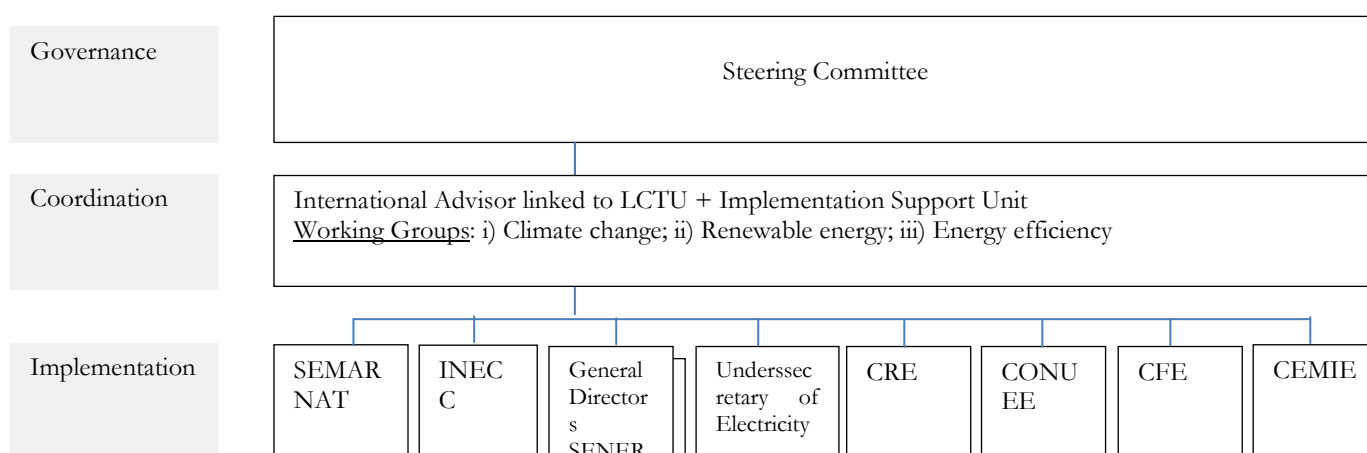
*) Incl. Long term international adviser

The technical assistance will be delivered through a combination of mechanisms including: deployment of short term national and international experts; deployment of long term expert(s); targeted studies; study tours, exchange visits and secondments at relevant Danish institutions; in-country training, seminars, workshops and other forms of capacity building and peer-to-peer exchange. Staff from the Low-Carbon Transition Unit of the Danish Ministry of Climate, Energy and Building will undertake regular planning missions as well as some technical missions – with technical inputs also being provided by experts from other government and related institutions. This will ultimately lead to a government-to-government partnership that will bring some of the long term benefits of twinning. The program support includes local program coordination staff, office in Mexico City, reviews, and in general, assisting the program with administrative and follow up support in the development and implementation of annual work plans.

Management and funding arrangements

The Mexican-Danish cooperation program on climate and energy will be governed by a Steering Committee composed of key implementing entities in Mexico and representatives of the MCEB/LCTU in Denmark. An International Advisor reporting to the Steering Committee will coordinate the detailed planning and reporting necessary to ensure an effective and vibrant cooperation. Implementation of the activities will be anchored within different Mexican Ministries, Organizations and Agencies in line with mandates and coordination arrangements. Working groups within climate, renewable energy and energy efficiency will be formed to coordinate activities between the different entities involved. An Implementation Support Unit will be established to carry out local program coordination, including carrying through reviews, and supporting the Long Term International Advisor and assist in the delivery of technical assistance and arrangements for other inputs.

Figure 3 Management and organization



Every year a workplan and budget for the cooperation will be drawn up based on the activities foreseen by the implementing entities. The workplan and budget for the next

year and a report on the previous year will be submitted by the Program Coordinator in close liaison with the relevant working group to the Steering Committee for approval.

In support of the annual Steering Committee meetings, MCEB/LCTU together with the International Affairs departments of SEMARNAT and SENER will undertake annual planning visits immediately prior to the meetings. These planning visits will allow MCEB and the Mexican implementing agencies to thoroughly review the content and progress of the cooperation so far and advise on the work plans being developed.

Indicators

Overall program indicators based on already established Mexican monitoring systems are given in table 2. A number of indicators at outcome level have been provisionally identified. Both the overall and the lower level indicators will be reviewed during the inception phase and as the key outstanding Government programs are finalized, in order to maximize the correlation between the national policy documents and the indicators.

Table 2 Indicators

Component/ sub-Component	Identified Mexican result areas	Identified Mexican indicators
Climate	<ul style="list-style-type: none"> Lowered emissions 	Reduction of greenhouse gases compared to business as usual (30% by 2020) – on track in accordance with identified pathways by mid-2017
Renewable energy	<ul style="list-style-type: none"> Transition to renewable and clean energy 	Percentage of non-fossil electricity produced (Target 35% of electricity by 2024 generated by non-fossil fuels based sources) - on track in accordance with identified pathways by Mid 2017
Energy efficiency	<ul style="list-style-type: none"> Reduce energy intensity 	Quantity of energy required for each unit of Gross Domestic Product (GDP) (no target set yet) - on track in accordance with identified pathways by mid-2017

Assumptions and risks

The main assumptions of the program are:

1. The Mexican Government maintains its commitment to a low-carbon transition and related targets for mitigation and energy, and this commitment is reflected in key planning documents as well as in resource allocation to responsible ministries and institutions.
2. Sector coordination mechanisms within the public sector and between the public sector, civil society and the private sector are effective.
3. CFE will engage with the Mexican-Danish cooperation and make use of the know-how and information available.
4. CEMIE-Wind is established as expected.
5. Social acceptance issues are addressed in a coordinated way so as to reduce the risks to investments in renewable energy projects.
6. Energy prices will not fall so as to discourage investment in the grid and renewables or adoption of energy efficiency measures.

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Acronyms

3GF	Global Green Growth Forum
AMDEE	Mexican Association for Wind Energy
CEMIE	Mexican Centre of Excellence in Energy Innovation
CICC	Inter-ministerial Committee on Climate change
CFE	Federal Electricity Commission
CONUEE	National Commission for Energy Efficiency
COP	Conference of Parties
CRE	Commission for Regulation of Electricity
Danida	Danish International Development Agency, Ministry of Foreign Affairs
DEA	Danish Energy Agency
EDK	Embassy of Denmark, Mexico
EE	Energy Efficiency
EEBC	Energy Efficiency Building Codes
EMS	Energy Management System
GDP	Gross Domestic Product
GHG	Green House Gas
GIZ	German Agency for International Cooperation
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IMERE	Mexican Initiative on Renewable Energy
INAES	National Institute of Economics and Social Associations
INECC	National Institute of Ecology and Climate Change
JICA	Japan International Cooperation Agency
KFW	Kreditanstalt Für Wiederaufbau (German Development Bank)
LCTU	Low Carbon Transition Unit (MCEB, Denmark)
M&E	Monitoring and Evaluation
MCEB	Ministry of Climate, Energy and Building
MRV	Monitoring, Review and Verification
NAMA	Nationally Appropriate Mitigation Actions
NGO	Non-Government Organisation
OECD	Organisation for Economic Cooperation and Development
PECC 2	Special Program for Climate Change (2014-18)
PEMEX	Petróleos Mexicanos/Mexican Petroleum Company
PND	National Development Plan
PRONASE	National Program on Sustainable Use of Energy
PROSENER	Sector Program on Energy
SHCP	Secretariat of Finance and Public Credit
SEMARNAT	Secretariat of Environment and Natural Resources (Mexico)
SENER	Secretariat of Energy (Mexico)
SIAT	Information system for transversal agenda
TA	Technical Assistance
TOR	Terms of Reference
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WB	World Bank

Exchange rate: 1 USD = 12.2 Mexican Peso = 5.8 DKK

1 Introduction

It is a strategic priority for Mexico and Denmark to strengthen cooperation in the area of energy and climate change mitigation. The governments of Denmark and Mexico initiated technical cooperation within climate change and energy topics, starting with a Memorandum of Understanding in 2005 and a further Memorandum of Understanding in 2007, which focused on cooperation within energy. Mexico and Denmark cooperated closely in the context of the UNFCCC COP15 in Denmark and COP16 in Mexico. Since 2011, the Ministry of Environment and Natural Resources (SEMARNAT) and the Danish Energy Agency (DEA) have been actively cooperating on modelling related to national emissions baselines and potentials for emission reductions. The funding for the cooperation between Mexico and Denmark will be sourced from the Global Framework under the Danish 2013 Climate Envelope, which is a continuation of Denmark's contribution of 1.2 billion DKK to fast-start financing for the period 2010-12 following the commitment made in the Copenhagen Accord.

The Global Framework under the Climate Envelope 2013 focuses primarily on mitigation related activities in middle income and growth economies where development is leading to a significant rise in Greenhouse Gas (GHG) emissions. These countries have typically reached an institutional level which enables them to benefit from Danish competencies and experiences in developing the necessary policy structure for a low carbon transition. In 2012, a Low Carbon Transition Unit (LCTU) was established at the Danish Ministry of Climate, Energy and Buildings (MCEB). The LCTU is to take the lead on the substantive elements of some of the initiatives under the Climate Envelope 2013, including mitigation of energy related emissions in fast-growing developing countries (with the Danish Ministry of Foreign Affairs holding the administrative responsibility). The specific initiatives in Mexico shall take into account the following considerations for activities under the Global Framework and the LCTU goals in Mexico, namely that:

- The activities potentially lead to significant mitigation in global GHG emissions.
- Supported activities in Mexico should focus on i) climate change, taking into consideration existing cooperation, and ii) energy, including policy and regulatory measures related to adoption of renewable energy and energy efficiency, especially where there is a link between Mexican needs and priorities and Danish competencies and experience.
- Activities should support key Mexican strategies and programs, including the National Climate Change Strategy published in June 2013 and the National Energy Strategy (2013-2027) to be approved in March 2013.
- The activities can be used to reach out to other countries that are important to the total mitigation effort in the region.

Process

A program design process was carried out taking advantage of the experience from ongoing cooperation between SEMARNAT and DEA and benefitting from a number of pre-

preparation activities initiated in 2012, where priorities for cooperation were identified. A short desk report was prepared and mission was fielded in Mexico from April 29 to May 3 2013 led by MCEB and supported by an international and local consultant team. A debriefing note with the main findings was presented and a program description finalized based on discussions and comments of SEMARNAT and SENER and sector-relevant institutions such as the Energy Regulatory Commission (CRE), the National Commission for the Efficient Use of Energy (CONUEE), and the National Institute of Ecology and Climate Change (INECC). An appraisal took place in June 2013 leading to 8 specific recommendations. In response to the recommendations, a post-appraisal finalization mission took place in August 2013 to discuss the recommendations and incorporate relevant adjustments, and a final document was prepared in early September 2013.

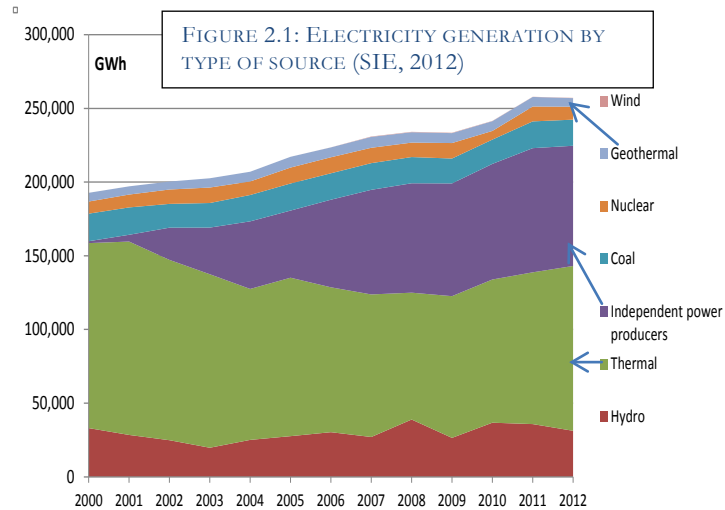
2 National Sector Context

The following overview of the national sector context is based on a number of documents¹.

2.1 Sector overview

National Greenhouse Gas (GHG) emissions - Mexico contributes **with** approximately 1.4% of global CO₂ emissions and is the world's 12th largest emitter. The energy sector is the main source of GHG emissions in Mexico contributing two thirds of the total.

Energy generation- Primary energy production is highly carbonised as 90% is based on fossil fuels (oil derivatives and natural gas). Electricity generation capacity is 63GW, of which 64% is operated by CFE. Renewable sources account for approximately 20% of the electricity production with the majority coming from large hydropower and to a lesser extent from geothermal sources. (Figure 2.1)

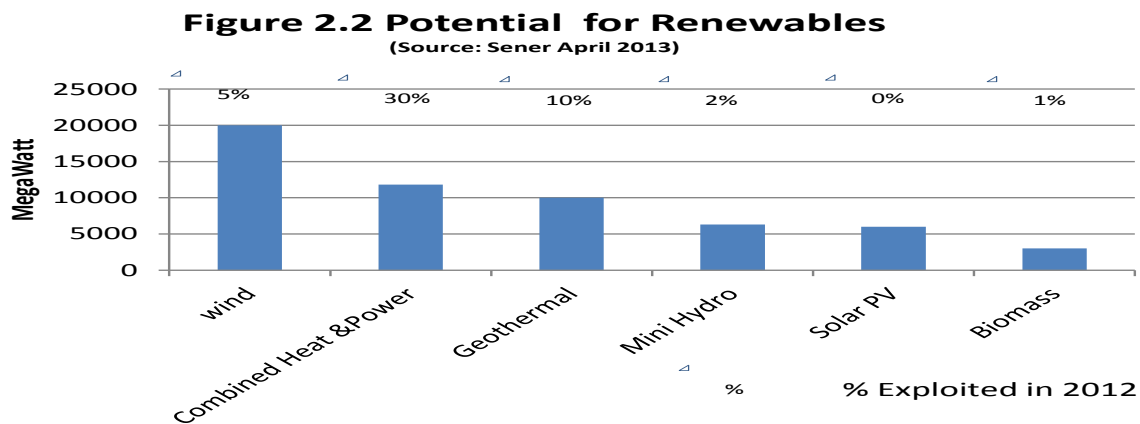


Independent power producers generate nearly 20% of the total electricity (the majority of which is based on combined cycle gas technology). The potential for renewables is considerable with a particularly strong potential for wind energy due to ideal conditions in

¹ Ecofys (May 2012) Assessment of Mexico's policies impacting its greenhouse gases emission profile; GIZ, IMCO (2012) Evaluación del Programa Especial de Cambio Climático; IEA (February 2013) Prospects for Energy Reform in Mexico; OECD (2013) OECD Environmental Performance Review: Mexico 2013; USAID (2010) Clean energy and climate opportunities, assessment for USAID; World Bank (2009) ESMAP Low carbon development for Mexico*

the southern and eastern parts of the country that allow load capacity factors of up to 40% (figure 2.2).

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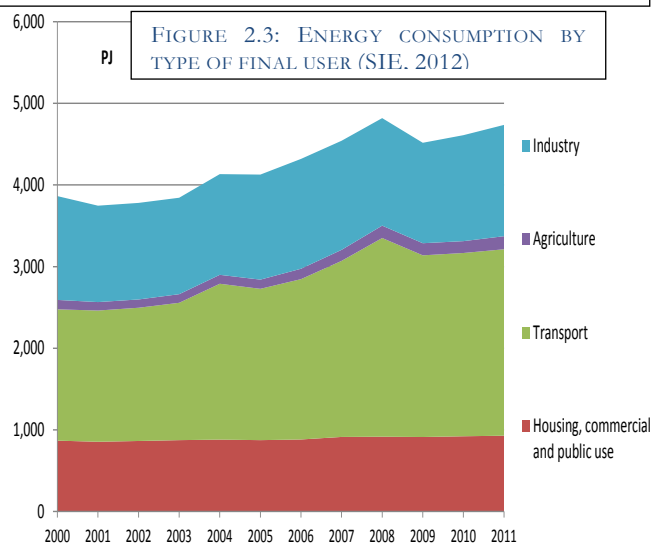


Box 1 outlines some of the key the barriers to increasing the penetration of renewables in the energy system.

Box 1 Barriers facing renewables in Mexico

- Independent renewable energy power production is only for self-supply. CFE has a monopoly on supply to the grid.
- Areas with high potential for renewable energy sources are far from the grid.
- Slow adoption of a costs-estimation methodology that includes externalities. High discount rate (12%)
- Conservative back up practice for renewables (close to one-to-one ratio).
- Inter-regional reserve margin varies by region, making it difficult to balance generation and demand.
- Many transmission lines have reached a physical transmission limit
- Limitations in modelling of electricity demand and intermittent generation.
- Limited tools available to enhance flexibility of supply and demand enabling more renewable energy in the power supply.
- Social acceptance and land tenure issues for some new development sites.

Energy consumption - Energy consumption is highly correlated with GDP growth in Mexico. Energy demand has increased at an average annual growth rate of 2.1% in the last decade (SIE, 2012), in line with the average growth of GDP. Electricity has slowly gained a larger share in energy consumption, moving from a 14.5% in 2000 to 17.2% in 2011, with an average growth of 3.5% per year. Transport



is the largest energy user and presents 48% of total energy consumed. Energy consumption in industry and housing sectors has been growing at less than half the rate of the transport sector (Figure 2.3).

Assessment and implications for Mexican-Danish cooperation

- The energy sector presents a major mitigation potential
- Wind energy has a high potential as a source of renewable energy
- Energy intensity per unit of GDP has not fallen in the last decade – indicating opportunities for energy efficiency measures.

2.2 Legal, policy, strategy and planning framework

The main elements of regulation and policy governing climate change and energy are listed in table 2.1.

As established in the Mexican Constitution, the energy sector is considered a strategic area and therefore falls under direct jurisdiction of the federal government. In August 2013, the Presidency forwarded to the Congress a proposal of a constitutional amendment for a reform of the energy sector, which in addition to major changes in the oil and gas sector foresees important changes concerning the electricity sector including:

- Restructuring the sector by establishing a competitive market with an independent system operator.
- Opening electricity generation to the participation of the private sector with CFE becoming one among several competitors for expanded capacity and generation.
- Eliminating existing barriers to additional renewable energy capacity in the electricity system.
- Providing certainty and transparency in access to the transmission grid.
- Introducing the use of “clean energy certificates” and the development of a carbon market for the energy sector.
- Maintaining state ownership over electricity transmission and distribution.

The Energy Reform was approved by Congress on December 11, 2013. The decision reforms articles 25, 27 and 28 of the Mexican Constitution in relation to participation of private entities in economic activities of the oil and gas value chains, and in electricity generation and commercialization. The State keeps its dominion over the planning and control of the electricity system, and over the transmission and distribution of electricity as a public service. No concessions will be granted on these activities; however, such consideration does not exclude the State from signing contracts with private entities under the terms described in the (new or modified) legal framework of the energy sector.

The State maintains ownership and dominion over oil, gas and hydrocarbons stored underground and no concessions will be granted on ownership of these resources. The exploration and exploitation activities will be conducted by the “State-owned productive

companies” under a contract, by means of contracts between these companies and private entities, or directly by contracts with private companies.

The National Hydrocarbons Commission and the Energy Regulatory Commission will be responsible for the regulation of the energy sector for all of the abovementioned activities.

Given these modifications, the electricity sector will change in its structure as private organizations may engage into generation and sale of electricity; the figures which now allow private participation in electricity generation activities will disappear or no longer be relevant. Such modification will have to consider: (a) possible requirements on renewable energies, (b) the quantification, allocation, and use of clean energy or GHG emissions certificates, and (c) compliance with carbon tax provisions applicable to consumption of fossil fuels.

Derived from the Energy Reform, the federal government must draft modifications to the whole legal framework of the energy sector, which covers over 20 pieces of legislation. The drafts of the new or modified legislation have being prepared by the federal government and by March 2014 are under discussion in Congress. Final decisions on changes to the legal framework of the energy sector are expected no later than April 30th, 2014, by the end of the congressional term. Once the new legal framework is approved, further changes to specific regulations must be drafted and discussed over the next months in which a number of details on the architecture and operation of the sector are specified.

National planning and programming

The planning process of the Mexican Government is regulated by the National Planning Law. According to the Law, every new administration must produce an overarching National Development Plan (PND) that establishes the goals and actions of the Federal Government for a presidential term, which in Mexico is 6 years. Within a period of 6 to 8 months after taking office, a new administration produces the PND.

Once the PND has been reviewed by the Congress, the federal government prepares sector programs for each of its ministries, including SENER and SEMARNAT. As a result the country produces a Sector Program on Energy under responsibility of SENER, and a Sector Program on the Environment and Natural Resources under SEMARNAT. Furthermore, a National Program on Sustainable use of Energy is produced under the responsibility of SENER and CONUEE.

A "special program" must be produced if two or more ministries of the federal government share responsibilities over a certain topic with cross-cutting aspects, as in the case of climate change. Because of their cross-cutting nature, the topics of climate change and renewable energy are considered by two special programs: the Special Climate Change Program and the Special Renewable Energy Program.

In line with what is mandated by the Law on Planning, the government produces the following planning and policy instruments in the energy and environmental sectors:

- National Energy Strategy
- National Renewable Energy Strategy

In the case of the Special Renewable Energy Program, SENER is responsible for the drafting of the document, in close consultation with the Consultative Council for Renewable Energy; the Council acts as the body for communication and discussion with civil society, academia and private sector representatives. The Council is comprised of 11 thematic working groups who provide input to the program. SENER acts as technical secretariat and compiler of the Council work. SENER has defined a schedule for the preparation of the Special Program including milestones for the 11 working groups, with defined dates for the draft development, its submission to SHCP, and its publication by April 2014 (see figure below).

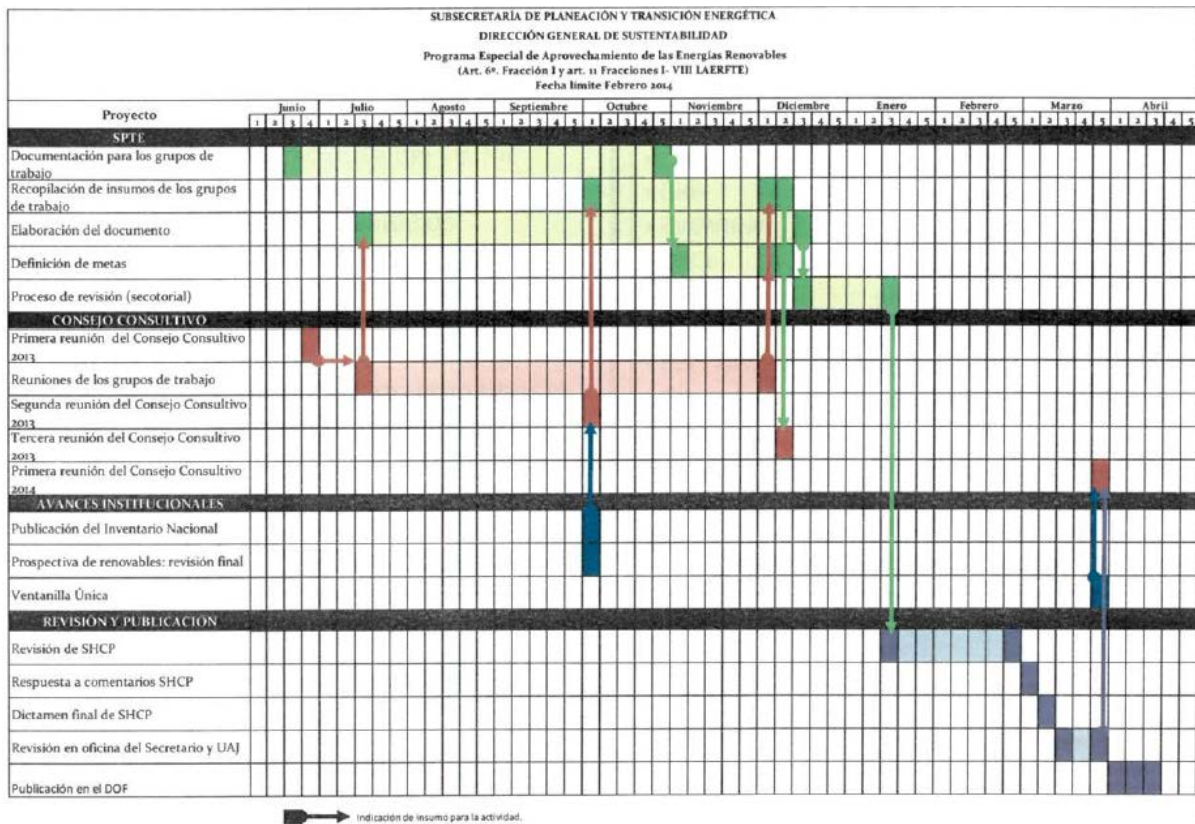


FIGURE 2.4: GANTT DIAGRAM FOR THE PREPARATION OF THE SPECIAL PROGRAM FOR RENEWABLE ENERGY

In the case of the Special Climate Change Program, SEMARNAT is responsible for the drafting of the document in coordination with the Inter-ministerial Commission on Climate Change (CICC). The CICC acts as the consultation body for interaction and discussion amongst the 14 government ministries who are represented on the CICC. A specific working group under the CICC was created to coordinate meetings, propose and discuss content and track progress. The PECC must be in draft version by mid-December for SHCP, and for final discussion, approval and publishing in the first quarter of 2014. The PECC must go through a public consultation process that took place in October 2013.

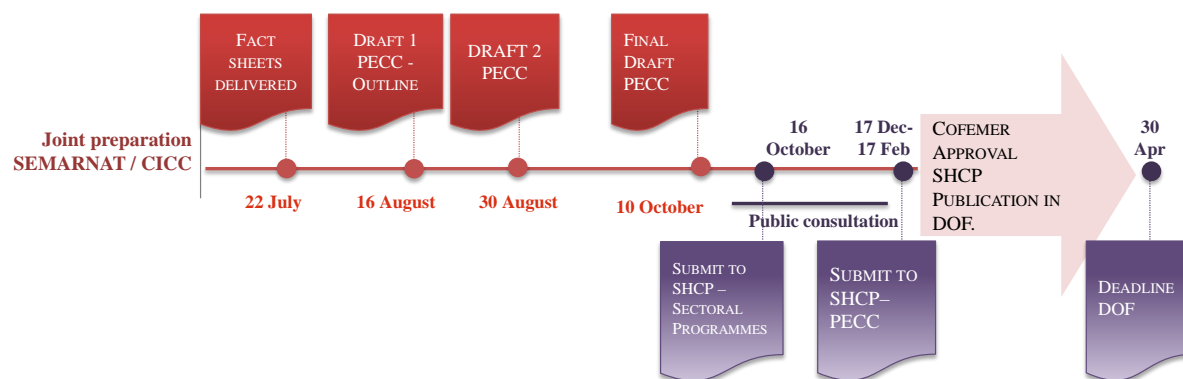


FIGURE 2.5: PECC PREPARATION TIMELINE

Table 2.1 Main elements of legislation, regulation and planning	
Legislation/ Regulation/ Plan	Main provisions relevant to mitigation in the climate and energy sector
General Climate Change Law (2012)	Sets mitigation target of reducing 30% below a business as usual scenario by 2020.
National Climate Change Strategy (2013)	Envisions sustainable growth and transition to a low-carbon economy; defines criteria for immediate and long term actions; sets out the overall measures for attaining mitigation targets; and provides a national emissions baseline.
Special Climate Change Program on 2013-18 (2014)	Under preparation – will set out the multi institutional action plan for attaining mitigation targets through action by the federal government. Draft goals include energy efficiency in buildings, transport and industry (including oil and gas); electricity generation with renewable energy sources; investment in smart-grids; and a low-carbon government.
Law on Public Service of Electricity (1975/2012)	Public provision of electricity is in the hands of the State except electricity generation for self-supply. CFE must generate electricity with the lowest-cost source at any time. Environmental externalities per technology must be considered in the cost estimates. Electricity tariffs are set by the Ministry of Treasury and Public Finance (SHCP).
Law on Use of Renewable Energy and Financing of Energy Transition (2008/ 2012)	The government is obliged to promote energy efficiency and sustainability of the energy sector, and to reduce hydrocarbons dependence. The CRE must publish the rules applicable to interconnection of renewable energy generation to the national grid.
Law on Sustainable Use of Energy (2008)	Mandates the implementation of a permanent program for efficient use of energy in public buildings owned and leased by the federal government. Mandates CONUEE to develop a methodology to estimate GHG emissions and reductions in energy exploitation, production, generation, distribution and use.
National Energy Strategy (2013)	Defines the national strategic objectives and policy measures for the energy sector and how the sector contributes to the two overarching priorities of promoting economic growth and poverty reduction.
Special Renewable Energy Program 2014-18 (2014)	Under preparation - SENER to prepare and coordinate a Special Program on Renewable Energy, a National Strategy for Energy Transition and Sustainable Use of Energy, and a National Inventory of Renewable Energy. The Program must contain goals and targets for gradual expansion of non-fossil sources in the national electricity mix (goals 35% by 2024)
Sector Program on Energy - PROSENER (2014)	Under preparation – SENER to prepare a sector program on energy defining policies, measures and actions in the energy sector that contribute to the goals established in the National Development Plan.
National Program on Sustainable Use of Energy (2014)	Under preparation – CONUEE to prepare a special program that addresses energy efficiency in Mexico.

Assessment and implications for Mexican-Danish cooperation

- The policy and legal framework provides a well-established legislative and institutional framework that comprises the setting of concrete targets. It thus provides a good basis for support for: i) reducing emissions; ii) increasing the share of renewables and iii) increasing energy efficiency.
- National planning is well underway for both climate and energy but is not yet complete which means that the Mexican-Danish program will need an inception phase to ensure alignment to the final outcome of the programming and planning currently being undertaken.
- Fast track activities to engage with the programming activities in 2014 will be highly beneficial.

2.3 Institutional and coordination framework

Climate change – SEMARNAT is the lead agency for climate change mitigation together with the INECC. The main inter-institutional framework is the Inter-ministerial Commission on Climate Change (CICC). The CICC is comprised by 14 Secretariats from the federal government. SEMARNAT functions as the technical secretariat of the CICC. Within the CICC, a total of 7 working groups operate to discuss and decide on issues covering: international negotiations on climate change; adaptation; mitigation; national policy; emissions reductions from deforestation and forest degradation; the Clean Development Mechanism; and acting as liaison with other sectors of society. In addition, the CICC has one advisory council, integrated by national experts on climate change.

Figure 2.4 Framework of the Inter-ministerial Commission on Climate Change (CICC)

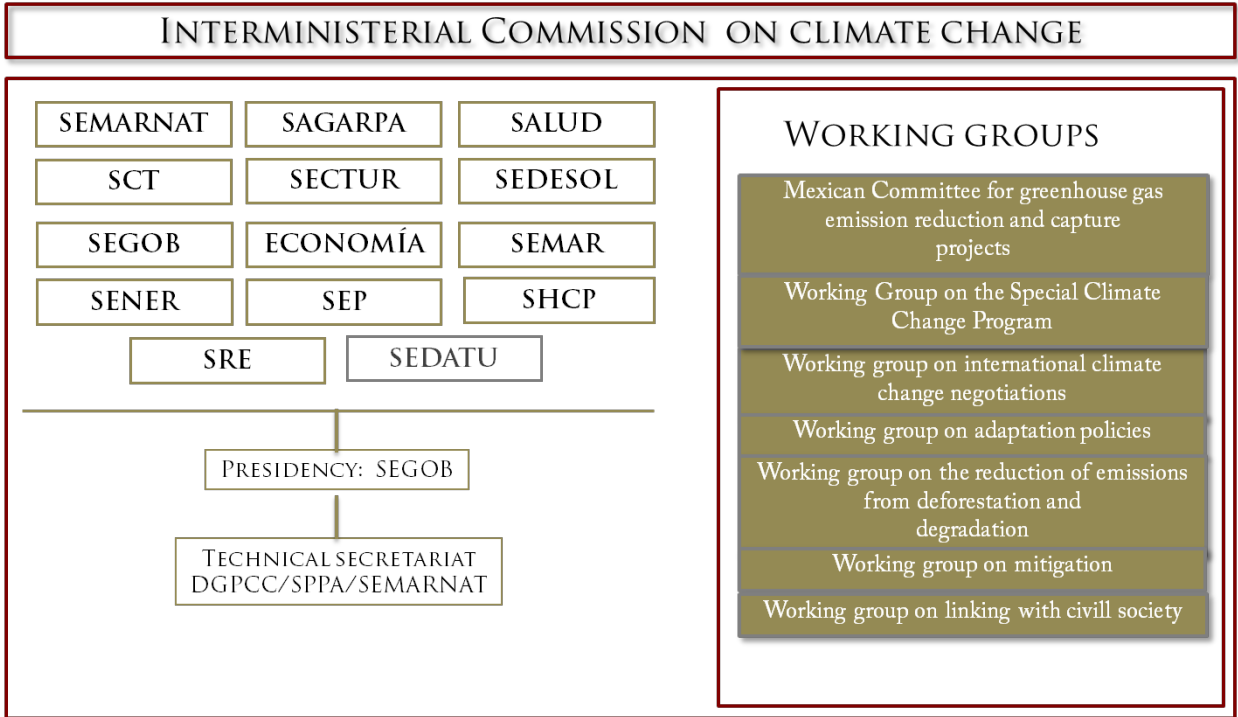
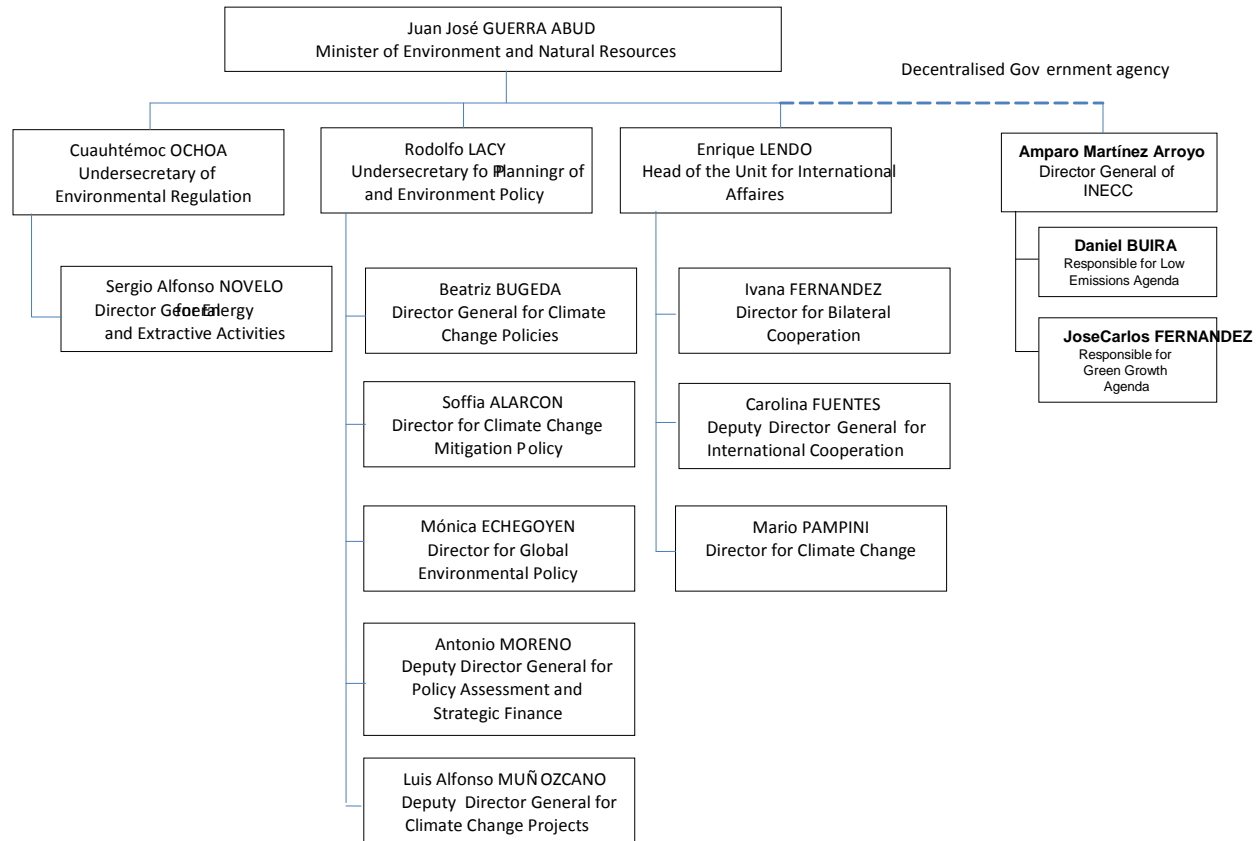


Figure 2.5 SEMARNAT/INECC structure



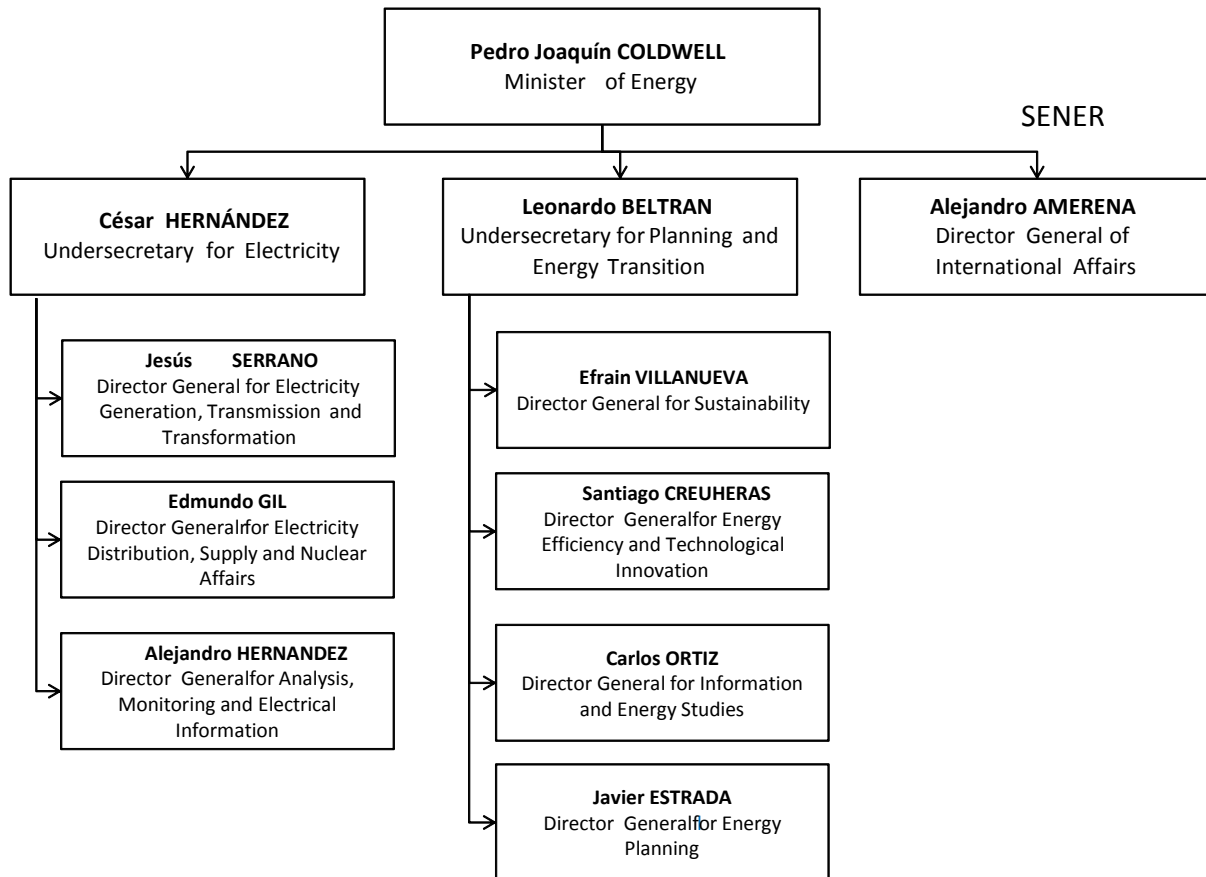
Energy - The government-level institutional framework for the energy sector consists of SENER, four thematic commissions with regulatory-related mandates, two public companies in the areas of energy production (CFE for electricity and PEMEX for hydrocarbons), and three research centres. SENER is responsible for energy sector policy, planning and regulation as well as: (1) the design and implementation of energy policy in Mexico; (2) supervision of activities undertaken by the state-owned energy companies (CFE and PEMEX), including the programming of activities in the oil and gas supply chain; (3) promotion of participation by private entities in accordance with existing regulation; and (4) energy planning for the medium and long term. It is part of its mission to coordinate the tasks of all the institutions and to represent the sector in its interaction with other sectors.

Energy supply is an economic activity controlled by the Mexican state through two public companies. Electricity generation, transmission, distribution, and retail have been the

responsibility of the Federal Electricity Commission (CFE), the state-owned utility. Operations and activities in the oil and gas supply chain, from oil and gas exploration, exploitation, processing, distribution, oil refining, to fuels distribution and retail have been the responsibility of Petróleos Mexicanos (PEMEX).

According to the Energy Reform both companies will be transformed into “State-owned productive companies”, a title that has implications in terms of budgetary and managerial aspects of their operation and organization.

Figure 2.6 SENER structure



As a result of the Energy Reform, the energy sector structure and operation will change in the forthcoming months according to the new responsibilities and mandates under discussion at the Congress. The new legal framework is expected to be approved by April 2014 and new regulations for detailing the legal framework are expected to be drafted and discussed in the following months, after April.





The opening up of electricity generation to private agents has brought new actors into the sector. Companies with investments and economic interests in wind energy are organised under the Mexican Association of Wind Energy (AMDEE), whereas those working in solar energy have created the National Association of Solar Energy. Companies acting as suppliers

of parts, components and equipment to the renewable energy sector are organised under the Mexican Association of Suppliers of Renewable Energies. A fourth actor is the Mexican Association on Geothermal energy, which has a scientific focus. AMDEE has some of the world’s largest companies in the wind energy sector amongst its members, covering both project developers and manufacturers.

Figure 2.7 Institutional framework of the energy sector in Mexico (public institutions)



Table 2.2 Institutional actors from the private sector.

Association	Purpose
	Non-profit association focused on promoting the development and growth of the wind power industry in Mexico, through advocacy, training, seminars and direct exchange with federal government and legislatures at the national and state level. (founded 2005) – 47 members.
	Non-profit association focused on information collation and exchange. Evidence-based advocacy for the development of energy policies that incorporate solar energy as a viable option. (founded 1980) – 18 members.
	Non-profit association comprised of specialists from the field of geothermal energy. Focus on scientific and academic research and exchange. (founded 1991) 24 members.
	Non-profit association focused on promotion of renewable energy including through active participation in the preparation of norms and standards that regulate characteristics and operation of equipment used in renewable energies;

Assessment and implications for Mexican-Danish cooperation

- The key partners at federal government level for the Mexican-Danish cooperation are SEMARNAT on climate change mitigation and SENER for energy.
- Within climate change mitigation, the INECC is also highly important as it has several key functions according to the General Law on Climate Change in relation to providing an analytical foundation for public policies and programs, and coordinating the evaluation of mitigation policy.
- Within energy, the CRE, CONUEE and CFE are crucial as they have the operational mandates regarding renewable energy and energy efficiency. CRE and CONUEE are decentralised regulatory agencies of SENER, while CFE is a state-owned operating company. Institutions holding technological and analytical capacity are also key, including technology innovation centres (CEMIE) that are in the process of being established by SENER.
- The institutional set up is clear and benefits from incorporation of the private sector and civil society.
- There are coordination mechanisms in place especially for climate change. The inter-agency coordination mechanisms for the energy sector are less explicit, which could potentially be an operational challenge for the proposed cooperation program, but also an area where the program may facilitate improvements.

2.4 National expenditure within climate and energy

The federal budget 2013 allocated a total of \$34.5 billion pesos (approx. USD\$2.8 billion or \$2.1 billion Euros) to address climate change. Nearly 2% of that amount is earmarked for the energy sector for application by SENER and CFE as follows:

- A total of USD \$25.0 million for the Trust Fund on Energy Transition and Sustainable Use of Energy managed by SENER.
- A total of USD \$17.0 million for implementation of energy policy in general.
- A total of USD \$7.0 million for the implementation, management, follow up and evaluation of policies on sustainable use of energy.
- A total of USD \$3.7 million to CFE for promotion of energy efficiency and energy savings in electricity.

The federal budget 2013 allocated a total of \$15.0 billion pesos (USD \$ 1.2 billion) for the National Strategy on Energy Transition and Sustainable Use of Energy. Most of this amount goes to the energy sector, although it is not explicit about the final use of the resources. From the \$15.0 billion MXP nearly \$12.2 billion are allocated to the CFE and would cover some of the investment to be made in long term energy infrastructure.

There are also a number of funds in the energy sector, such as the Fund for Energy Sustainability which receives royalties from petroleum sales. This fund is endowed with nearly USD 200M and is actively financing research into renewable energy, energy efficiency and clean technologies. The Fund for Energy Transition and Sustainable Use of Energy, focused on technology transfer for energy efficiency (appliance substitution, incandescent bulbs substitution, energy efficiency in public lighting, etc.), will have nearly USD 40M available for allocation in 2013.

Assessment and implications for Mexican-Danish cooperation

- Overall shortage of funds is not a main barrier to be addressed by the Mexican-Danish cooperation as Mexico has considerable domestic resources and revenues in existing trust funds in the energy sector. In economic terms, the challenge is more to use policy and regulation to establish incentives and instruments that enable resources to be channelled to the most cost-effective options for renewable energy and energy efficiency.

2.5 Donors

Nearly 10 different countries cooperate with Mexico on climate and energy related issues by providing technical staff, expertise and funding for mitigation and energy related projects. Each bilateral or multilateral donor follows a different modality in its interventions. Some of the project modalities used by different donors include:

- Full control of cooperation through onsite presence, direct management of programs and projects, and direct reporting procedures from consultants via the Mexico office to the ministry in the donor country (Germany-GIZ).
- Financing of program operations and derived projects through an established company that has offices in the donor country and in Mexico (USA-USAID-Tetrattech).
- Financing of specific projects through a fund managed by the donor Embassy in Mexico with set procedures for launching calls for proposals, reviewing bids, and approving grants by a team in the donor country (UK). The Embassy in Mexico follows up on progress and reports back to the Foreign Office.
- Direct granting to non-governmental organizations on an annual basis; the organization presents a proposal and is responsible for achieving objectives and reporting progress to the funding source.
- Funding projects via the Carbon Trust Fund (e.g. Inter-American Development Bank).

Annex B provides a list of donors. There is no formally organised donor coordination, but significant informal exchange among donors.

Assessment and implications for Mexican-Danish cooperation

- Coordination with the activities of other donors will need careful attention to ensure complementarity of interventions and avoid overlaps in particular with USAID and GIZ activities. In order to facilitate donor coordination and alignment with international

support programs, the main international donors will be invited to join Steering Committee meetings as observers.

3 Objectives

The development objective of the Mexican-Danish Cooperation is: *Mexico, substantially assisted by exchange of knowhow and experience with Denmark, has consolidated its pathway to a low-emission future and is on track to realizing its goals of reducing its greenhouse gas emissions by 30% below its business as usual scenario by 2020 and generating 35% of its electricity by 2024 through use of non-fossil fuel based generation.*

The immediate objectives are:

1) *SEMARNAT and INECC are further enabled to drive ambitious mitigation action in support of Mexico's low-carbon transition benefitting from Danish support for analysis and policy development.*

This objective will be achieved through support to development and refinement of policy and analytical tools, especially tools that enable tracking and modelling of emission targets and strategic evaluation of progress on mitigation planning, including establishing a framework for evaluation and means to assess co-benefits of mitigation actions. The program will assist SEMARNAT and the National Institute for Ecology and Climate Change (INECC) in implementing Mexico's Special Climate Change Program 2014-2018 (PECC 2, under final preparation) in support of the General Climate Change Law (2012) and the National Climate Change Strategy (June 2013).

The vision under the Climate Change Strategy states that Mexico will exhibit a sustainable economic growth and low-carbon development based on greater use of clean technologies and renewable energy sources. It is expected that within 10 years, the country will generate 35% of its electricity from clean energy sources; a share that would increase to 40% and 50% in 20 and 40 years' time. The Strategy has as one of its main goals to accelerate energy transition towards clean energy sources, with a larger share of renewable energy in the national electricity generation mix.

2) *Low-carbon transition of the power sector will be facilitated through sharing of experience and policy, planning, regulatory and technical cooperation in order to promote and enable the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.*

Despite a large wind potential, Mexico's use of renewable energy and wind power in particular is constrained by technical, planning and regulatory barriers in relation to i.a.:

- a physical disconnection between the existing transmission grid and the geographic areas with potential for wind power;
- congestion and obsolescence of the transmission grid;
- a limited modelling capability to simulate and manage the electricity network behaviour under generation and transmission scenarios with higher shares of renewable energy;

- lack of certainty on interconnection of new generation capacity, applicable interconnection rates or fees, and land tenure and benefits distribution at generation sites;
- absence of a roadmap for renewable energy integration into the national electricity system;
- a limited modelling capability to simulate and predict changes in electricity demand;
- non-technical losses caused by non-invoiced consumption (electricity theft); and
- a limited use of technologies in preparation for a smart grid.

The objective is fully compatible with the national goals and lines of action provided by the government in the National Development Plan and the National Strategies for Energy and for Climate Change. It is SENER's view that the objectives, outcomes and outputs considered in this document will support SENER's sectorial and special programs. The intervention will be firmly rooted in national policy objectives and priorities of the new administration as expressed in key national plan, strategies and programs related to energy and climate change.

This objective will be achieved by mobilizing a combination of Danish, international and national expertise and experience to work with a range of stakeholders to build capacity, provide analytical inputs and policy guidance. The Program will i.a. provide modelling capacity and Danish experience on energy transition planning; increasing the confidence of the Federal Electricity Commission (CFE) and others on the practicability of integration of a high proportion of renewables in the national grid; and build capacity of the wind energy sector and the Mexican Centre of Excellence in Wind Energy (CEMIE-Wind) to innovate and stimulate the development of wind energy in Mexico.

3) Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry through cooperation on policy, regulation and supporting measures.

This objective will be achieved through support to SENER and the National Commission for Energy Efficiency (CONUEE). The Program will provide information and capacity building as well as concrete application of best practice techniques to plan and implement energy efficiency in non-residential buildings and in selected large industries, based i.a. on Danish experience.

Figure 3.1 shows the link between program objectives and the national sector framework.

Figure 3.1 Link between program objectives and the national sector framework

Components	Policy / legal framework	Core Programs	Lead institutions	Supportive institutions
Climate	Climate change law 2012	<ul style="list-style-type: none"> • Climate change Strategy • PECC2 2014/18 	SEMARNAT	INECC
Renewable Energy	Law on: <ul style="list-style-type: none"> • RE & transition (2008) • Sustainable Energy Use 2008 • Electricity (2012) 	<ul style="list-style-type: none"> • Energy sector strategy (2013/27) • PRONASE • Special program on Renewables 	SENER	<ul style="list-style-type: none"> • CFE • CRE • CEMIE (Wind) • CONUEE
Energy Efficiency				

4 Description of the program and its components

4.1 Program strategy

The Mexican-Danish cooperation, which started with memorandums of understanding dating back to 2005 has been reinforced over the last few years as Mexico and Denmark have developed a common platform in addressing climate change and transition to a low carbon development. Both countries:

- Are frontrunners in the global dialogue on climate change and energy
- Aspire to develop vibrant green economies that are competitive, transitioning to a low carbon pathway and resource efficient
- Have made ambitious pledges and targets for 2020/2050 on mitigating climate change
- Are in ongoing processes of defining targets and operationalizing a low-carbon transition of the energy system.
- Have developed climate and energy laws and/or programs to support these pledges, commitments and national targets.
- Are part of constructive alliances with like-minded countries in the United Nations Framework Convention on Climate Change (UNFCCC)

Mexico as an emerging economy, a member of OECD and a key player in G20 and the region is a key partner for Denmark in its international outreach. Denmark, with its advanced expertise and experience in enhancing energy efficiency and the transition to a high share of renewables is a key partner for Mexico as it now faces many of the challenges that Denmark has confronted over the last 20 to 30 years.

Key principles that have guided the choice of cooperation areas and the modalities of cooperation are:

- Focus on policy and regulation – The technical assistance provided will mainly be at the policy and regulation level to create enabling environments, with a focus on the importance of preparing for implementation. Mexico's strategies and high-level targets are highly relevant and the aim is not to change them. Rather the aim is to help Mexico to translate them into specific action-oriented policies, regulation and measures to support implementation. Methodologies will include peer learning among government experts and decision makers, exchange visits and secondments, policy toolkits, analytical tools and models to assess mitigation options, assisting in renewable energy and energy efficiency planning, and drafting of concrete planning and regulation. Studies that are aimed at understanding the barriers and drivers of change can contribute to targeting the support to fruitful areas of cooperation with the largest transformational potential. Some of the barriers and opportunities will be of a nature where experience from Denmark and other developed countries is transferable, while in other situations this may not be the case e.g. where the root of the issues is in an institutional and social context that is very different.
- Multi-stakeholder approach - While the main focus is on government and related institutions, the critical importance of the private sector and civil society to drive and implement transformational change is recognized on both the Mexican and Danish side and is reflected in the design of the interventions. Civil society organizations, think tanks, academia and the private sector play a key role in Mexico as "change agents" in partnerships with the Government, in addition to being depositories of analytical, technical and policy expertise, and will be marshalled both as contributors and where relevant as co-beneficiaries of the Program. For instance, the role of different stakeholders in shaping the national policies is evident in the Consultative Council for Renewable Energy. The Council plays a central role in the preparation and development of the Special Program for Renewable Energy, including establishing goals and defining strategies. The 11 working groups under the Council include representatives from public and private institutions, academia, business associations, public companies, and international organisations working with the energy sector in Mexico.
- Adopting a catalytic support model - Mexico has developed impressive legal and institutional frameworks and strategies and has advanced capabilities in many areas pertaining to climate change and energy. Danish assistance will thus be catalytic and aims to support in carefully selected areas where Denmark has long standing skills and experience. Accordingly, the outcomes and outputs have been designed to reflect priorities and objectives in Mexico's legislation and strategy and planning documents. The bulk of Danish support will be arranged as a "draw down facility" that is flexible in mobilizing Danish expertise and informed by annual work plans. The alternative of concentrating support on a single or a limited number of project aims, although simpler, was found to be less efficient in using Danish technology and expertise only if needed.

- Provision of policy, regulatory and technical expertise rather than funding – Mexican institutions in the climate and energy sector do not suffer from the crippling budgetary constraints common in many developing countries. Most public institutions of a technical nature are fully staffed with experienced and well qualified personnel. Some activities such as the adoption of innovative wind technology are financed through national instruments such as the Fund for Sustainable Development; however no specific assessment has been made on whether existing budget is sufficient to achieve national goals on mitigation and on renewable energy. The gaps that do exist relate to the experience and expertise in transition from an economy that is dependent on cheap fossil fuels to one that is resource efficient and low in emissions. It is access to technical assistance, peer learning and exchange of experience rather than budgetary support that is required.
- Priority given to interventions with significant mitigation effects – The underlying rationale behind Danish funding being made available to Mexico is the opportunity to reap the significant mitigation potentials that exist in Mexico as a growing economy with a high degree of fossil fuel dependency. The interventions identified thus reflect areas where significant emission mitigation potentials can be reaped. The ambitious climate policy of Mexico means that this focus is well aligned with Mexican priorities. At the same time, the design of the individual interventions aims to align the mitigation objective with domestic priorities on e.g. resource efficiency and green growth, based on the realization that maximizing the multiple benefits of mitigation actions is the best way to ensure their sustainability and replicability.
- Ensuring demand-led cooperation - The cooperation sets out ambitious objectives which will take years to fully implement and will require considerable commitment and investment on the part of Mexican institutions. It is therefore crucial that the cooperation is led by Mexican demands and well-informed perceptions of where Danish expertise and experience can play a constructive role.
- Matching supply to demand – Mexican institutions need to be familiar with what can be obtained from Denmark and Danish expertise needs to become familiar with the Mexican context if the support is to be targeted and effective. An additional challenge is that much of the Danish expertise is located in the public sector which may not always be able to release key people for longer periods and where staff although skilled in their area may not be used to or necessarily highly effective in a consultancy role, as lessons from twinning type arrangements have shown. This is why the LCTU will play a key role as the link to Danish expertise, which is also present within the LCTU itself. The LCTU in cooperation with a program coordination function in Mexico will take a pro-active role in ensuring close coordination and delivery of timely and effective technical assistance. To facilitate the matching of supply and demand, an initial series of exchange visits will be made to deepen understanding on both sides.

- Alignment of objectives and programming – All objectives, outcomes, outputs and where possible the indicators have been designed to be firmly anchored in Mexican strategies, programs and plans. This will help ensure that the aims of the cooperation are part of the targets and obligatory work programs of key institutions. It will also help ensure that the cooperation is demand led and that there is in-built commitment and accountability within Mexican institutions for achieving and reporting on progress.
- Alignment with the Mexican institutional framework - The cooperation will need to support and build on the mandates of the Mexican agencies and organisations. To the extent possible, double planning and decision making structures will be avoided. The program decision making structure will need to focus on directing support, not the content that is being supported. Coordination between agencies that need to work together should be Mexican led although in some instances the cooperation can catalyse improved coordination.
- Flexibility – Mexico’s new federal government is in the process of developing a series of 6 year sector and special programs that run from 2013 to 2018, and as such the year 2013 is a transition year. The sector programs will serve areas where particular ministries have a mandate. The special programs will serve areas where coordinated action is required across many ministries. Examples of the special programs are the Special Climate Change Program (led by SEMARNAT and known as PECC2) and the Special Program for Renewable Energy (led by SENER). While these programs are not yet fully finalized, the sector strategies, legal documents and targets that underpin them are mostly in place. Based on discussions with the involved institutions, this program document presents the identified areas of cooperation. The detailed multi-year programs and the first annual work plans will be defined by late 2013 and/or early 2014. An inception period will be used to fine tune and adjust the outcomes, outputs and activities accordingly.
- Adding value – although the cooperation is rooted in Mexican plans and policies, it is not perceived as simply contributing to "business as usual". Rather it is intended to have a transformational impact by helping Mexico to sustain and reach its already ambitious climate change and energy related goals and create the foundation for the setting of further ambitious targets.

Capacity building strategy

The greatest impact of cooperation will be in capacity building to implement the ambitious policies and programs that Mexico is launching. Success in Mexico will also open a path to more regional adoption of ambitious climate and energy objectives.

As was the case in Denmark, building this capacity will in some cases mean straightforward transfer of knowledge and knowhow. In other cases it will involve development of technical skills. It is likely also to involve a change in attitudes and mind-sets especially as Mexico’s policy aims imply a radical departure from past approaches, e.g. regarding the approach to

managing the power system and electrical grid. To succeed, technical assistance will need to be delivered through a combination of mechanisms:

- Staff from the LCTU who will undertake regular planning missions as well as some technical missions – with technical inputs also being provided by experts from other government and related institutions as well as consultants with deep insight into government policy and planning. This will ultimately lead to a government-to-government partnership that will bring some of the longer term benefits of twinning.
- Deployment of short term national consultants
- Deployment of short term international consultants
- Deployment of longer term consultant(s)/expert(s), e.g. in the field of energy efficiency (an option to be considered during the inception phase)
- Specific studies in support of policy and feasibility options
- Study tours, exchange visits and secondments
- In-country training and capacity building, e.g. on modelling tools
- In-country seminars, workshops and other forms of capacity building and peer-to-peer exchange.

Technical assistance should be partner led, demand responsive and result oriented.

Partner led means that SEMARNAT/INECC, SENER and the other relevant institutions should take the lead in defining the need for technical assistance. They should be active in coordinating technical assistance from this program with that being provided by other support efforts. They should draw up TOR and have a say in the selection of technical assistance and in supervising the delivery.

Demand responsive means that the technical assistance should be based on systematic capacity development strategy that addresses the core performance issues related to achieving program objectives. It also implies that there should be readiness to make use of the technical assistance and any new skills that are developed.

Result oriented means that the technical assistance should have clear terms of reference with measurable outputs that are assessed in practice. This will also help technical assistance to deliver cumulative and visible results. This means that each exchange visit should have clear goals, should result in a report on what was achieved and should be evaluated by the participants. It also means that each technical assistance intervention should be systematic in responding to the TOR and document capacity building achievements. Mission preparation notes, debriefing notes and final reports adjusted with comments from the client should be the norm.

An internal six monthly review of the success of technical assistance and capacity building will be made to help re-direct and re-shape the approach if needed.

4.2 Objectives and outcomes

An overview of the immediate objectives and outcomes of the cooperation program are given below.

Figure 4.2 Overview of objective and outcomes

Objectives	Outcomes
SEMARNAT and INECC are enabled to drive ambitious mitigation action in support of Mexico’s low-carbon transition benefitting from Danish support for analysis and policy development.	Strengthened framework for evaluation of climate change actions
	Enhanced tracking of PECC 2014-2018 energy related measures
	Effective preparation for 2015 agreement on post-2020 target setting
	Framework for assessing co-benefits of energy related mitigation
	Enhanced regional cooperation and international outreach
	Strengthened enabling environment for low-carbon technology innovation
	Platform for public-private collaboration and dialogue
Low-carbon transition of the power sector is facilitated through sharing of experience and policy, planning, regulatory and technical cooperation enabling the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.	Power system better able to integrate renewables/co-generation
	Renewable energy planning enhanced by new methodologies
	Innovative wind energy technology adoption promoted
Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry.	Building regulations and supportive measures improved
	EMS for buildings and supportive measures improved
	EMS in large industries improved

4.3 Component 1- Climate change mitigation

Immediate objective:

SEMARNAT and INECC are further enabled to drive ambitious mitigation action in support of Mexico’s low-carbon transition benefitting from Danish support for analysis and policy development.

Rationale and added value

The **overall rationale** for this component is that with Mexico's ambitious climate policy and the recently approved General Climate Change Law, a firm foundation exists for a continuation and deepening of the Mexican-Danish cooperation between the Ministry of Climate, Energy and Building and SEMARNAT/INECC. SEMARNAT and INECC are the key government institutions responsible for climate change mitigation in Mexico, both when it comes to target setting, managing the institutional framework, and planning and tracking of mitigation actions. The recently approved Law on Climate Change assigns a broad spectrum of specific roles and responsibilities to SEMARNAT and INECC.

The ongoing cooperation between SEMARNAT/INECC and the Low Carbon Transition Unit of MCEB supports the preparation of the key climate policy documents by providing analytical input on emission baselines and identifying mitigation potentials and possible actions using the modelling and analytical capacity originally developed in the preparation for COP15 in Denmark. The climate change mitigation component will build upon this collaboration and make Danish and international modelling and analytical capacity available to SEMARNAT and INECC. The Program will at the same time add new elements to the cooperation that reflect SEMARNAT and INECC priorities and challenges, including the setting up of frameworks for evaluation of climate mitigation progress, ongoing tracking of the PECC2, promotion of domestic capacities in low-carbon technologies, and the setting up of a platform for public-private partnerships.

A large share of the mitigation potential and related actions is to be found within the energy sector. There is thus a significant potential for synergies with the Danish support under the energy component of the program, e.g. modelling of pathways toward emission and renewable energy targets and identification of best practice energy policy options internationally.

The added value of the Mexican-Danish cooperation has already been demonstrated through the ongoing work with modelling emission baselines. The cooperation will bring tools, models and methodologies that are proven in Denmark and elsewhere. It will bring practical experience on scenario building, design of effective mitigation actions and processes for arriving at best professional judgments taking into account co-benefits and development priorities. Cooperation will also bring international credibility to Mexican efforts to track and review climate change actions and maintain Mexico's leading international role in climate change mitigation.

Higher level outcomes/Mexican plans and strategies to which the subcomponent will contribute

The core planning document that will be supported will be PECC2 (2014-2018) which is under preparation. The PECC2 will describe the actions that need to be taken in the short term to live up to the Climate Change Law (2012) and the National Climate Change Strategy (2013).

The outcomes and outputs of the Cooperation Program have been designed to support priorities and objectives in the Law on Climate Change, the key planning documents recently approved as well as those under development, including the National Strategy on Climate Change and the Special Climate Change Program.

Mexico has set aspirational targets and made international pledges regarding mitigation, including a reduction of emissions by 30% below a set baseline by 2020 with international support. In accordance with Mexican legislation, the Government has to design, adopt and

start implementation arrangements for several key policy and planning instruments for subsequent implementation during the course of 2013, including:

- The National Climate Change Strategy, laying out the main challenges and approaches to climate change mitigation and adaptation, including a medium and long-term perspectives to 2020, 2030 and 2050.
- The Special Climate Change Program on (2014-2018), laying out the concrete objectives and actions to be achieved by the federal government during the present administration (2013-18), which on the mitigation side will be guided by the 2020 mitigation target.

Implementing entity and other stakeholders

Implementation agency and anchorage – The implementing agencies for all the outcomes are SEMARNAT and INECC.

Role of other key stakeholders – SENER and CONUEE will be key stakeholders because of the relevance of the energy sector to climate change, including the importance attached to energy efficiency as a mitigation option in the National Strategy on Climate Change. SENER will be closely involved in activities related to energy related emissions and mitigation, including modelling of the energy sector. Other stakeholders in the Inter-ministerial Commission for Climate Change include members of civil society, the academia and the private sector as well as representatives from 14 different ministries.

Outcome 1: Strengthened framework for the assessment of Mexico's climate change strategy and programs related to mitigation in accordance with the Law on Climate Change.

Rationale:

The rationale for this outcome is that one of INECC's responsibilities under the General Law on Climate Change is to establish a general framework for evaluation (Evaluation Coordination) of mitigation and adaptation policies and actions under the National Climate Change Strategy and the Special Climate Change Program. In order to support that this framework is established using the best available methodologies and approaches with a view to impacting the full cycle of climate policy in a consistent way, Danish and international experience with mitigation policy design, implementation, tracking and evaluation of all of these steps will be made available, reflecting findings of the international Green Growth Best Practices initiative (www.ggbp.org).

The departure point for supporting the two evaluation related outcomes (outcome 1 - strengthened framework and outcome 2 - enhanced tracking) is the current SIAT-PECC system (*Sistema de Información de la Agenda de Transversalidad- PECC*). The SIAT system is an overall monitoring system used by SEMARANT with a special module for PECC. In the SIAT-PECC each goal has a "technical sheet" that describes the expected outcome, the

institution holding the responsibility, the rationale, the estimated emission reduction, and the timeframe for this to be accomplished. SEMARNAT reviews and checks information reported by each institution and updates the progress charts. The SIAT-PECC constitutes Mexico's Measurement, Reporting and Verification (MRV) system at the federal level which Measures the attainment of PECC's objectives and the impact of mitigation actions; Reports on the results and; Verifies the accuracy of reported information. SEMARNAT has highlighted the importance of third party verification as a possible additional step in the MRV cycle associated with the SIAT-PECC.

Approaches used to reach the outcome:

Output 1.1 and related activities:

"Danish and international approaches and experience of mitigation planning, policy design, implementation, tracking, and assessment frameworks made available to Mexico."

Evaluation frameworks have been developed in a number of countries including Denmark, and experience has been gained over the years that have helped make the frameworks less cumbersome and more accurate and useful. To benefit from this experience, the work will start with a review of best Danish and international practice in evaluation of mitigation planning and implementation as well as related institutional frameworks and processes. The review will allow a comparison and exchange (of Danish and international) experiences on the setup and operation of similar frameworks for evaluation with a view to identifying possible improvements. INECC will be supported in designing the process and defining the principles for the Evaluation Coordination in collaboration with SEMARNAT/Inter-ministerial Commission on Climate Change, and making use of the SIAT-PECC System as appropriate.

Output 1.2 and related activities:

"Support provided for conceptual design, roll-out and implementation of guidelines, criteria and indicators of efficiency and impact, in particular for energy related mitigation actions benefits, based on international experience."

The work will address a number of challenges that commonly occur e.g.: i) Poor homogeneity between sectors - the indicators that reflect PECC2 goals will be sector and institution specific and as such it is vital that common measurement systems are used so that emissions can be accurately aggregated; ii) ensuring homogeneity over time – the reporting will indicate trends over a ten year or greater time span, for this reason the measurement will need to reflect common standards of measurement which for some sectors will require an adjustment/translation in values. iii) ensuring consistency with international practice - it is also vital that the indicators are consistent with international practice so that the reporting is credible and transparent.

One of the first steps will be to review the monitoring and evaluation framework as a whole against key criteria and drawing on lessons learned from SIAT-PECC. This review will assist in development of the conceptual design of the evaluation scheme including the criteria,

steps, and indicators of effectiveness and impact provided by the General Climate Change Law (Art. 15, p. II). To prioritise limited resources for tracking and ensuring clarity of overview it will be important to establish the scope of the evaluation by sector and General Law on Climate Change objectives, including the definition of roles and functions of social advisors in the Evaluation Coordination and of the independent organizations provided by General Law on Climate Change in Chapter II, Section 25. It will also be relevant to review the existing monitoring and evaluation framework with regard to data collection systems, quality control, resource availability, data management and reporting/communication. Finally, advice will be given on the design of the evaluation mechanism by sector, in particular energy, and contribute to planning for commissioning and implementation.

Output 1.3 and related activities:

"Capacity building provided for the Evaluation Coordination."

The task will start with a joint definition of the knowledge, skills and attitude requirements for performing each function within the evaluation scheme of the Evaluation Coordination. Once the required skills and knowledge are defined the support will contribute to assessing evaluation capacity and designing and implementing a program that develops evaluation capacity, targeting e.g. "social advisors", independent organizations and, the academic and private sectors.

Provisional outcome indicator:

A review after each year shows that the evaluation framework is i) appropriate; ii) functioning in practice and iii) has benefitted from continued Danish assistance through incorporation of methodologies/adjustments proposed through the Danish assistance. (baseline = 0; target = yes on all three sub criteria, measured each year).

Outcome 2: Enhanced tracking of progress in the implementation of energy related measures of PECC 2013-18 regarding mitigation policy design and implementation.

Rationale:

The rationale for this outcome is that a key element of the General Climate Change Law is periodic (biannual) evaluation of national climate policy, which will relate to progress toward mitigation objectives in PECC2 and the 2020 emission targets.

An important challenge for INECC (as responsible for the Evaluation Coordination) and SEMARNAT (as responsible for climate change policy) for the coming years in relation to mitigation will be to support, sustain and monitor the implementation of the specific mitigation actions identified in PECC2, many of which will be implemented by sector ministries including SENER. The evaluation framework being established under Outcome 1 as well as Danish and international expertise will be used to track and analyse in-depth energy related mitigation actions in PECC2, enhancing SEMARNAT's ability to engage with the energy sector in the follow-up of the PECC2. This may include updating assessments of mitigation potentials; analysing the mitigation performance of key individual mitigation

actions (mainly energy related) and making available information on international best practice mitigation actions in different sectors.

The existing collaboration between Mexico and Denmark on projections/baselines, mitigation potentials and actions will be taken forward and expanded into the implementation phase of PECC2 and will support SEMARNAT in its tracking of progress in PECC2 implementation.

Similar to the successful experience from existing Mexican-Danish cooperation on international best practice for emission baselines, the outputs under this outcome will include international outreach to share learning and good practice on tracking of the implementation of (energy related) mitigation actions.

Approach to reaching the outcome:

Output 2.1 and related activities:

“Forecasts, trends and scenarios of updated emissions and analysis of remaining mitigation potentials by sector and gases.”

A study/review will be made of international good practice in assessing mitigation potentials from main mitigation actions (including NAMAs) in key, mainly energy-related sectors. Once there is a consensus of best practice, support will be provided to design an analytical tool and the associated processes for systematic and ongoing review, evaluation, and update of emission projections and mitigation potentials.

Output 2.2 and related activities:

"In-depth tracking of individual (energy-related) mitigation actions in the PECC 2014-18 including assessment of their mitigation effects, and benchmarking against international best practice mitigation actions and policy measures."

The review process for the PECC 2014-2018 is crucial and will be supported at an early stage with a view to ensuring a systematic and ongoing assessment. The support work will include the drafting of an analytical framework for the tracking of mitigation actions, including indicators and the design/identification of tools to track and review the progress against indicators.

Provisional outcome indicator:

Annual peer review of the progress tracking (PECC2 and 2020 emission targets) concludes that the tracking is satisfactory against the MRV criteria of transparency, relevance, accuracy, completeness and consistency. (baseline = no progress tracking yet; target all MRV criteria are satisfactory).

Outcome 3: Analytical input provided to support CICC via SEMARNAT/INECC in its preparations for a UNFCCC 2015 agreement on post-2020 target setting.

Rationale:

The rationale for this outcome is that SEMARNAT with analytical support from INECC will be responsible for evaluating national and international target setting for the post-2020 period. The international negotiations under UNFCCC are expected to lead to decisions by 2015 on the post-2020 framework for mitigation actions.

The cooperation under this outcome will be defined in close cooperation with SEMARNAT and INECC to on a demand basis and may provide analytical input to SEMARNAT's preparations for the international negotiations on a post-2020 agreement. The outputs may include modelling of not only Mexican emission trajectories and mitigation options but also globally and among major economies, as well as analyses of how different parameters such as mitigation costs, capabilities and responsibilities may influence reasonable levels of efforts of different key countries. These outputs will help Mexico to define its own ambitions and to play a proactive role in the negotiations.

Approach to realizing the outcome:Output 3.1 and related activities:

"Modelling results regarding post-2020 emission trajectories and mitigation potentials covering Mexico, other major economies, and the global level."

A dialogue will be started with the CICC and arising from these discussions technical analysis requests by the CICC in the preparations for a post-2020 agreement will be identified. Possible Danish and international modelling contributions will be identified, and where relevant targeted modelling may be carried out.

Output 3.2 and related activities:

"Technical analysis of mitigation costs and other indicators relevant to global effort sharing according to various parameters."

Negotiations on post-2020 commitments by different countries can usefully be informed by objective indicators and criteria reflecting e.g. capabilities, emission trends and mitigation potentials. Denmark has since the preparations for COP15 been actively involved in international analytical processes, and the Program will make results of pre-2015 analyses available to Mexico.

Provisional outcome indicator:

An interview of the chairperson of the Inter-ministerial Commission on Climate Change confirms that the commission is satisfied that the analytical input to Mexico's preparations for the 2015 agreement is effective and appropriate. (baseline = 0, target = satisfied).

Outcome 4: Consistent framework established for assessing co-benefits of energy related mitigation actions.

Rationale:

The rationale for this outcome is that co-benefits relating to e.g. health, environment, and energy security - as well as macroeconomic benefits such as employment and competitiveness effects - are in many cases decisive in justifying energy related mitigation actions. In order for INECC and SEMARNAT to meet their responsibilities in assessing and prioritizing mitigation options based on their economic, social and environmental performance, co-benefits and avoided negative external consequences of mitigation initiatives need to be taken into account. Experience and methodologies applied in Denmark and other developed economies will be made available to SEMARNAT and INECC, including results from work on co-benefits of energy efficiency convened by the International Energy Agency.

Approach to realizing the outcome:Output 4.1 and related activities:

"Danish and European experience with identifying and quantifying co-benefits of energy related mitigation actions made available to INECC/SEMARNAT/SENER."

In many cases the co-benefits of energy related mitigation actions are undervalued in part because they are not quantified. A joint study or review of international practice and experience in the identification and quantification of co-benefits will be made. On the basis of this joint review, further actions to build Mexican capacity to identify and quantify energy-related co-benefit will be undertaken.

Output 4.2 and related activities:

"Methodology/guideline for incorporating multiple benefits in assessment of mitigation actions developed."

A concise and robust methodology and guideline is necessary to allow officials to identify and assess on a consistent and comparable basis the multiple benefits of mitigation actions. Danish and international approaches will be adapted to suit Mexican conditions.

Provisional outcome indicator:

An annual review of the SEMARNAT/INECC papers shows that a consistent framework has been adopted and is being used for assessment of co-benefits which are quantified in the SEMARNAT /INECC papers (baseline = 0, target > 30% of co-benefits quantified in year 1; > 60% in year 2, > 80% in year 3 and 4).

Outcome 5: Enhanced regional cooperation and international outreach on climate change mitigation planning, design and implementation.**Rationale:**

The rationale for this outcome is that Mexico is globally recognized as a frontrunner in climate policy: Mexico is the second country in the world to establish a law on climate change; it has established national targets and made international pledges; and participates actively in the international development of methodologies and practices, e.g. on emission baselines. The component will include regional outreach activities to sustain this role and share experience with other high-growth economies, in particular other countries in the region that also aim to take ambitious mitigation action, such as Colombia, Chile and Peru. This will take place through relevant international platforms such as the Pacific Alliance and in cooperation with regional players such as e.g. Inter-American Development Bank. Particular focus will be on areas where Mexico has greatest strengths or a particular interest in learning from key countries in the region.

Approach to realizing the outcome:

Output 5.1 and related activities:

"Sharing at the regional level of experience on key elements of climate policy design, planning and implementation."

The Program will support a series of regional seminars and the setting up of "peer-to-peer networks" targeting policymakers, experts and stakeholders from Mexico, Denmark and mainly high-growth Latin American countries. The sharing of experience and identification of successful practices will target: Legal and institutional frameworks for mitigation planning; modelling of emission baselines and analysis of mitigation potentials; design of energy-related mitigation actions; tracking of mitigation performance and co-benefits; and mechanisms to overcome financing barriers and mobilize investors.

Provisional outcome indicator:

Triangular meetings are held at least once per year (Mexico, Denmark, other regional players) held leading to concrete follow up initiatives. (baseline = 0, target 1 per year with minutes that record at least 1 concrete initiative per year).

Outcome 6: Strengthened enabling environment for mitigation-relevant low-carbon technology innovation and adoption.

Rationale:

The rationale for this outcome is that the General Climate Change Law places on INECC the responsibility for developing and promoting technology initiatives involving public and private academic and research institutions related to climate change mitigation, including interchange with international institutions. At the same time, the Mexican Government aims to combine the low-carbon transition with opportunities for enhancing green growth through Mexican participation in development, manufacturing and deployment of low-carbon technologies.

The outcome will be an enhanced understanding of supportive frameworks and enabling environments for mitigation-relevant technology innovation, including by conveying experience and best practices from Denmark and other countries on e.g. science and technology agencies and public-private technology cooperation. The contribution will include facilitating cooperation between Mexican stakeholders – facilitated by INECC - with the UNEP-led Clean Technology Centre and Network which is under establishment in Denmark. The outputs will also include a screening for possible Mexican and Danish instruments that may co-finance concrete follow-up technology cooperation initiatives.

Approach to realizing the outcome:

Output 6.1 and related activities:

"Best practice Danish/international frameworks for mitigation-relevant technology innovation demonstrated to Mexican stakeholders."

The task will start with a review of Danish and international frameworks supporting mitigation-relevant technology innovation and identifying a suite of measures and instruments of particular relevance to Mexico given national circumstances. This will be followed by matchmaking and initiation of partnerships with identified technology institutions. Barriers to financing/co-financing of mitigation technologies in Mexico will be examined.

Output 6.2 and related activities:

"Contacts and cooperation facilitated between Mexican and Danish/international technology institutions."

Based on the already established think tanks and other groups, the Program will identify stakeholders and partners relevant to innovation and technology transfer for mitigation for priority energy-related sectors. At an early stage of the discussions, the mechanism of cooperation between partners will be worked out and following this workshops, conferences and exchange visits on innovation and technology transfer for mitigation will take place.

Output 6.3 and related activities:

"Mexican and Danish instruments to co-finance concrete cooperation initiatives in follow-up technology".

There are a number of Danish and Mexican co-financing instruments that could be relevant for enhancing technology innovation – these will be screened against criteria such as relevance and ease of access to funding. It will be important to bring forward examples of catalytic programs and projects that promote innovation and technology transfer in mitigation. If feasible, efforts will be made to facilitate Mexican-Danish cooperation on instrument(s) of co-financing. Coordination will be ensured with the related work on potential joint wind technology initiatives under CEMIE-Wind (cf. the sub-component on renewable energy).

Provisional outcome indicator:

At least one significant initiative on low carbon technology innovation and adaptation in Mexico can be traced back to Danish assistance by year 3. (baseline = 0, target =1).

Outcome 7: Functioning platform for public-private dialogue on climate policy**Rationale:**

The rationale for this outcome is that past experience with national climate change planning has made clear the importance of a continuous dialogue with the private sector. The dialogue needs to be on policy and planning issues and on barriers to the essential private sector involvement in implementing mitigation actions in order to establish a robust foundation for setting climate targets and implementing related action. INECC is establishing a platform for such a dialogue in accordance with its mandate and the Government's wish to see INECC carry out functions originally expected to be handled by the Centre for Sustainable Economy. The program will contribute by demonstrating successful examples of mitigation-relevant Danish and international public-private collaboration (including the 3GF) and by strengthening linkages to international public-private initiatives. The policy and political components of the platform and the dialogue will take place under the leadership of SEMARNAT and in close coordination between SEMARNAT and INECC.

Approach to realizing the outcome:**Output 7.1 and related activities:**

"Successful Danish/international approaches to public-private collaboration demonstrated to Mexican stakeholders."

A joint review or study of Mexican, Danish and international success stories will provide examples and inspiration to identify key issues and potential frameworks for public-private collaboration on mitigation. Following this and building on a consensus on of the most relevant examples, workshop(s) will be organised to share information and generate public-private learning between Denmark and Mexico as well as within Mexico (between institutions, agencies and the private sector), including linkages with 3GF as relevant.

Output 7.2 and related activities:

"Mexican public-private dialogue platform linked up with international fora for public-private cooperation."

It will be important to create awareness of the platform for public-private dialogue to 3GF and similar forums and to facilitate further participation and access. Where relevant a contribution can be made to implementation of joint activities and agreements developed by the platform for public-private dialogue.

Provisional outcome indicator:

Platform meetings held at least 1 per year and an online survey among members shows satisfaction, (baseline= 0, target = 1 meeting per year, satisfaction with outcome of the meeting s>80%).

Inception and fast track activities under the component of climate change mitigation:

The inception period will detail and confirm the work program and further ensure familiarity with the experience and expertise that Denmark can offer to support the challenges and opportunities facing Mexico. This will include:

- Establishing a Climate Change Mitigation Working Group (SEMARNAT, INECC, LCTU, Program Coordinator) as well as private sector/civil society/think tanks by invitation.
- Reviewing the activities and scope of work in light of recent policy and planning developments.
- Comprehensive identification of relevant stakeholders and experts from the public and private sectors and civil society in Mexico and Denmark.
- Detailing and confirming the first year work program (SEMARNAT, INECC, LCTU, Program Coordinator).
- Undertaking exchange visit by relevant stakeholders and climate change mitigation working group (SEMARNAT, INECC, LCTU, Program Coordinator)

Fast track activities are being initiated already in 2014, which will support the early launch of substantive cooperative activities:

- The Low-Carbon Transition Unit of MCEB contributes analytical input to SEMARNAT and INECCs preparation of the Special Program on Climate Change 2014-2018. This includes cooperation on emission baselines/trajectories as well as identification and analyses of mitigation potentials and mitigation actions.
- Programme expertise and resources contribute to the work of the Evaluation Coordination to be established at INECC during the second and third trimesters of 2014.

4.4 Component 2 – Energy

Immediate objectives:

Renewable energy:

Low-carbon transition of the power sector will be facilitated through sharing of experience and policy, planning, regulatory and technical cooperation in order to promote and enable the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.

Energy efficiency:

Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry through cooperation on policy, regulation and supporting measures.

4.4.1 Sub-component - renewable energy

Rationale and added value

The overarching rationale for this sub-component is to assist Mexico in reaching its ambitious goal of increasing the share of non-fossil energy from approximately 20% of the electricity supply today to 35% by 2024. By reducing the reliance on fossil fuels, Mexico will reduce greenhouse gas emissions, increase its energy security and develop a capacity for innovative technologies in areas where it has a comparative advantage. Examples include wind energy (where it has one of the largest potentials of any country particularly in the southern states (Oaxaca) among others, geo-thermal (where Mexico is already one of the world's most advanced operators and one with the largest potentials for use), as well as a significant unutilized potential for bioenergy.

Managing a growing share of variable power production from renewable energy - including wind power - is a challenge in Mexico which has limited experience in integrating and managing large-scale intermittent renewable energy in the power system. The challenges associated with renewable energy expansion in the power system over time apply both to policy and planning at the government level (SENER); regulation (CRE); and planning and operations management at the utility/systems operator level (CFE).

As the level of variable generation in electricity systems increases, it brings with it new challenges for system operators in ensuring a stable and secure supply of electricity to end users. In countries with limited experience in deployment of wind turbines in large numbers, this often raises fears that they might destabilise the power system resulting in increased grid failures and large investment needs in reserve capacity. These concerns constitute a significant barrier to the uptake of renewables and thus the achievement of policy objectives. In reality, Danish experience has shown that large-scale renewables integration can take place without causing disruptions or excessive costs.

Mexico recognizes Denmark as one of the most experienced countries in managing the transition from an unsustainable reliance on fossil fuels to a high use of renewables. Denmark is, with 24 % of its total energy coming from renewables and with approximately 41% of its electricity supply generated from renewables, one of the countries in the world with the most experience and expertise in integrating variable renewables – mainly wind - into its power systems. This is seen by Mexico as highly relevant experience as wind is one of Mexico's most promising renewable sources of energy in the future.

The Danish experience is considered timely and relevant in the context of plans for reform of the energy sector in Mexico. According to the proposal submitted in August 12th by the

Presidency to the Congress, electricity generation in Mexico should transition towards a restructured market. The state would prevail as the owner of the transmission and distribution grids, whereas electricity dispatch and supply-demand balancing would be in the hands of a government-owned independent system operator. The national utility (CFE) participates as one of the competitors; it is expected that competition will incentivise efficiency gains and cost reductions that should be reflected in the price of electricity for final consumers.

In a reformed electricity sector, the large scale incorporation of renewable energy will have to take place under market conditions, and incentives must be in place for this to happen. To this end, the reform proposal introduces the use of “clean energy certificates” that would impose a minimum requirement for renewable energy participation in the generation of the different competitors.

Also under a reform scenario, the transmission and distribution grids would need to be expanded and updated (47% of the transmission grid is at least 20 years old) at a pace that accompanies the growth in electricity demand and the expansion of generation capacity. Regulation would have to define how the independent operator ensures and finances the necessary investments in the grid and ensures equitable access at the lowest possible costs.

In this scenario, the Danish experience with its transition to a decentralised generation system with a larger share of renewable energy sources taking place in parallel with a restructuring of the electricity market is seen by Mexico as highly relevant in terms of planning, regulatory framework, financing experience and tools that can be useful to the Mexican transition.

The cooperation will add value to the Mexican strategies and work programs for renewable energy by providing access to the Danish experience in planning transition to renewables and managing a high share of intermittent energy in the power grid. In some cases this will mean adapting and using approaches and tools for planning and operation that have been developed and/or used in Denmark. The expected impact will be that SENER, CRE, CFE and others will be able to make better informed decisions about the challenges and the range of options available to enable the incorporation of growing shares of renewables – in most cases the cooperation will tend to lower the risk perception and show how renewables can be effectively managed. Danish experience and technical capability in promotion of wind technology will be mobilized so that public and private efforts to advance the wind energy sector learn from earlier approaches.

Higher level outcomes/Mexican plans and strategies to which the subcomponent will contribute

The renewable energy subcomponent and its outcomes have been defined to be firmly anchored in legislation, strategies, plans and programs either already approved or under development by the Mexican government. By working closely with the areas in charge of elaborating and coordinating those public policy documents, it is expected that the outcomes

and activities in the subcomponent will support the achievement of objectives and results adopted or foreseen by the Mexican Government and the current administration for the period 2013-2018. The full achievement of the results written in the policy documents will mainly depend on decisions by the Mexican Government and not be fully attributable to the Program, which also has to do with the fact that the time horizon of many targets are beyond the lifetime of the Program.

The renewable energy subcomponent is firmly rooted in the National Energy Strategy 2013-2027, the National Strategy on Climate Change, and the National Development Plan. In addition, the Program will contribute to the implementation of the Sector Program on Energy, the Special Program on Renewable Energy, and the Program on Sustainable Use of Energy.

For instance, the 35% non-fossil electricity generation target is anchored both in energy and climate change legislation. The core strategy being supported by this sub-component is the National Energy Strategy 2013-2027 that outlines a number of lines of action and identifies the relevant responsible entities. Of particular relevance to the subcomponent is the strategic theme #15 "Identification and use of the potential of renewable energy", but also #8 "Improve flexibility of transmission and distribution networks" and #10 "Diversify and optimize electricity generation mix". From an implementation point of view, the Strategy will be made operational through the Sector Program on Energy 2013-2018 under preparation, and the Special Program for Renewable Energy 2014-2018 expected by February 2014. The multi-agency Special Program will specify the multi-year actions to be taken by each agency and incorporated into their agency-specific annual work plans. Depending on the outcome of ongoing political discussions on the energy reform, primary and secondary legislation would be developed providing important objectives and targets of relevance to the Danish-Mexican Cooperation Program.

Examples of relevant objectives and lines of action as expressed in key plans and strategies published so far:

National Development Plan:

- "Ensure rational supply of electricity country-wide" (PND-O4.6-E4.6.2). Selected lines of action:
 - Diversify the electricity generation mix considering prospective prices of fuels in the mid and long term
 - Update the electricity transmission and distribution network.
 - Promote energy efficiency and use of renewable energy sources by adopting new technologies and implementation of best practices.
 - Promote training and capacity building of human resources in the electricity sector

The objective and its strategy aim to foster cost and tariff reductions in electricity generation. At the same time, the strategy will work on the diversification of the electricity generation considering mid- and long-term prices of fossil fuels, and will also focus on updating the

electricity transmission and distribution grids. These lines of action are consistent with the objective of the renewable energy subcomponent and its outcomes.

National Energy Strategy:

- "Diversify and optimize electricity generation mix" (ENE-TE_10). Selected lines of action:
 - Promote diversification of electricity generation to enhance energy security with consideration of clean energy technologies such as renewable energy and nuclear energy.
 - Define programs that foster electricity generation projects based on clean energy technologies.
 - Optimize electricity back-up at CFE for a larger introduction of renewable energy sources.
 - Include electricity generation externalities and cost of GHG in electricity planning.
 - Review and adjust the legal framework and the administrative procedures to speed up permits granting (issuance) to electricity generation projects from the private sector that use renewable energy sources.
 - Define the capacity and financial needs for self-generation projects that use renewable energy sources.
 - Define and set the financial and tariff-related mechanisms that promote a larger use of renewable energy sources.
- "Identify and seize the potential of renewable energy sources" (ENE-TE_15). Selected lines of action:
 - Use of primary energy sources to ensure long-term sustainability of energy
 - Survey the country for to improve estimates of un-used resources
 - Foster the development of a competitive biofuels market, without affecting food security, as long as biofuels are an environmentally, economically and socially sound alternative (based on a life-cycle analysis).
 - Promote linkages among academic bodies, research centres and industries for the optimum development of renewable energy
 - Foster development of specialised human resources for technological innovation and use of renewable energies in both electric and thermal applications.
 - Improve regulatory framework for infrastructure development and identify new instruments that allow for a larger use of renewable energy in regions with large potential
 - Improve the small producer generation scheme to enhance its transparency and seize the cost-effective opportunities that exist in the country.
 - Develop fair and competitive schemes for land leasing for renewable energy.

The strategic topics 10 and 15 of the National Energy Strategy, together with their lines of action provide a framework for the cooperation, and provide the foundation for work on the integration of a larger share of renewable energy sources in the electricity generation mix.

Implementing entity and other stakeholders

The lead implementing entity for the subcomponent on renewable energy will be SENER but with important roles for CRE and CFE with the participation of the Electricity Research Institute. SEMARNAT in their role as overall responsible for climate and environment will be a relevant stakeholder to involve.

Other stakeholders that will be taken into account during the implementation of the program include private sector representatives, think tanks, academia and research centres, and civil society as well as international cooperation partners. Among these are:

- IMERE which is a Mexican initiative for the promotion and advocacy of renewables;
- AMDEE, which is the Mexican association for wind energy power incorporating the most active elements of the private sector.
- Centro Mario Molina, a private think-tank, who acts as consultant and technical advisor to SENER in the preparation of its public policy documents, its interaction with SEMARNAT with regards to climate change mitigation, and in the preparation of a 2050 Calculator for educated discussion of mitigation options;
- International cooperation agencies such as GIZ and USAID, who participate in the Consultative Council for Renewable Energy and who have been actively supporting SENER in different areas.
- Private organisations such as Climateworks Foundation which is a philanthropic institution working on facilitating and promoting climate change mitigation and low-carbon development in Mexico, and which has provided targeted support to SENER.
- Non-governmental representatives, such as La Red por la Transición Energética, which acts as a discussion and consensus making hub for a number of NGOs who have an interest on renewable energy and climate change mitigation.

A number of specific cooperation initiatives are linking institutions from the energy sector with international entities in topics that support Mexico's energy, including:

- SENER, CRE, and CFE collaborate with the National Renewable Energy Laboratory (NREL) of the US DoE in the design of policies that support integration of renewable energy sources within the existing legal framework.
- SENER collaborates with the International Energy Agency (IEA) on the use and adoption of the IEA's Flexibility Assessment Tool in order to evaluate the operational, infrastructural and institutional factors limiting the flexibility of the power system.
- SENER together with CFE and CRE will initiate a 3-year USD\$6 million collaboration project on smart grids with the Children's Investment Fund Foundation (CIFF) and NREL. The project aims to accelerate the transformation of the Mexican power system via technical assistance, design of a smart-grids roadmap, support for evaluation of smart-grid technologies applicable to Mexico, and advise on policy and regulatory frameworks that promote scale-up of smart-grids. CFE currently operates a pilot program in Mexico City and Acapulco in the use of 450,000 smart-meters. This is among the first attempts of CFE to define the concept of smart grids in the Mexican context and to evaluate specific technologies. The collaboration with CIFF

is in the context of the 21st Century Power Partnership as part of the Clean Energy Ministerial in which both, Mexico and Denmark participate.

SENER will be responsible for incorporating these stakeholders and coordinate efforts on renewable energy, which will constitute a key success factor for the achievement of the proposed outcomes.

Outcome 1: The power system is able to efficiently integrate increasing shares of renewable energy and co-generation

Rationale:

The rationale for this outcome is that integration of renewables in the power system - especially intermittent wind and solar power – is one of the main barriers to large-scale renewable energy deployment. Challenges and barriers relate both to the policy, planning, regulation and operational management levels. Among the challenges is matching supply, which may be in remote areas of the country, with demand which is concentrated in the urban area of Mexico City, the central region and some cities in the northern part of the country. The power infrastructure in Denmark has faced similar challenges and is unique in the world in the extent to which it is able to integrate contributions from a variety of highly decentralized and highly intermittent sources. From a situation with highly centralized power production in the 1980s, 41% of electricity is now provided from renewables and nearly 700 decentralized combined heat and power plants have been phased in, with the larger ones owned by major energy companies and the smaller ones owned by municipalities and cooperative societies. Denmark has, amongst other related areas accumulated relevant experience in terms of regulatory of requirements for integration of renewable as well as methodologies for advanced system planning of the transmission grid and calculation of back-up capacity in high renewable power scenarios. Mexico is interested in benefiting from this experience through a comprehensive initiative targeting in an integrated way the issues that need to be addressed.

Approach to realizing the outcome

SENER will be the lead implementing entity for this outcome, which will entail active involvement of several directorates within SENER. At the overall planning level, the General Director for Sustainability under the Undersecretary for Planning and Energy Transition will be essential. The Under-secretariat of Electricity, the General Director for Electricity Distribution, and the General Director for Generation, Transmission and Transformation of Electricity will also play a main role and will work closely with CFE and CRE. At the operational level, the role of the CFE and in particular the General Director for Electricity Programming will be essential. CRE will have a key role reflecting its regulatory mandate.

A set of outputs and preliminary activities² have been identified to support achievement of this outcome. These have been designed as a comprehensive package that addresses the spectrum of challenges that must be addressed to enable integration of significantly increased amounts of renewable electricity. To enable this, enhanced capacity and procedures are required at several levels:

- Policy and overall planning, where SENER is leading.
- Regulatory and technical requirements, where CRE is the lead.
- Long term system and transmission planning as well as enhanced tools for short-term forecasting and system operation. Here CFE is key, while the issues have strong policy (SENER) and regulatory (CRE) aspects as well.

Output 1.1 and related activities:

"Enhanced analytical basis established for policy and regulatory decisions on grid development and network integration of renewable energy including efficient cogeneration."

Policymakers and regulators will be exposed to best practice in policy and regulation concerning system operation including through study tours to the Danish Transmission System Operator and energy authorities. To enable enhanced planning and policymaking, expertise will be made available to enhance modelling of (in particular intermittent) renewable energy in Mexico's power system. Among the specific interventions, the program will identify approaches to reflecting externalities in the prioritization of electricity generation options and addressing technical and non-technical losses in the electricity with a view to using best practice measures to reduce losses.

Pending the important political decisions on energy market reform, activities will encompass studies and capacity building on legal, regulatory and institutional aspects of renewable energy in a reformed market, including approaches to promoting renewables in different electricity market configurations.

At the international levels, concerted efforts are being made to share experience on transitioning to more sustainable power sectors and markets. This includes e.g. the Clean Energy Ministerial, which Mexico will host in 2015 and which has Danish participation. This provides an opportunity to share the Mexican-Danish cooperation results at the regional and international level.

Output 1.2 and related activities:

"Regulatory and technical requirements for renewable energy and efficient cogeneration"

This output and related activities will in particular support CRE in its regulatory functions. This comprises i.a. analysis of interconnection rules including grid codes and standards and assistance in formulating improvements to the regulatory framework for renewable energy.

² For the full set of indicative activities, refer to the annexed Logframe, presented in excel format.

The regulatory adjustments resulting from a possible reform of the electricity sector will also be identified.

Output 1.3 and related activities:

"Methodologies developed for advanced system planning of transmission grid and reserve capacity in high-renewable and efficient cogeneration scenarios"

This output and related activities will address the key issue of planning of transmission grid and reserve capacity requirements with growing shares of renewables. Advanced analytical and planning skills will be made available to in particular CFE and SENER, and peer-to-peer exchanges with the Danish system operator and experts carrying out similar tasks. This comprises i.a. enhanced power market and grid modelling and monitoring. Capacity building through studies, seminars and exchange visit will convey Danish and international experience with cost-effective and robust system planning. Specific issues to be considered will include design of methodologies for optimizing reserve margins on a regional and national level and for assessing transmission costs assessment.

Output 1.4 and related activities:

"Alternative and efficient options for financing and cost allocation of grid investments identified"

The financing of grid extension has been identified as a potential barrier to renewables expansion, and in addition to analysing the existing framework for financing grid extension (open seasons), the program will assess alternative methodologies for transmission cost allocation from Danish and international experience, including under a restructured electricity market, and present these to policymakers, investors and other stakeholders. Suitable approaches to grid financing will be identified, including possible schemes for attracting private sector investments in grid expansion.

Output 1.5 and related activities:

"Methodologies acknowledged for identifying strategic investment needs in transmission and distribution grids"

Enhanced investment planning for the expansion of the transmission grid is a prerequisite for efficient and cost-effective renewable energy expansion. To achieve this, the program will identify methodologies for strategic investment planning in transmission and distribution grids that are relevant to the Mexican context. The public sector, private investors and other stakeholders will be exposed to international lessons learned. To ensure that enhanced methodologies are applied, training and coaching of the responsible entity (currently CFE) will be carried out.

Output 1.6 and related activities:

"Advanced tools and procedures introduced for forecasting and system operation with variable generation"

In order to accommodate large shares of renewable energy, a range of technical and operational skills must be further enhanced and adjusted. To this effect, the hands-on experience from the Danish transmission system operator and similar expertise will be key. Therefore activities foreseen comprise training, coaching, study tours and secondments to the Danish transmission system operator.. The issues covered include i.a. methodologies and tools for forecasting and system operation and related regulation, as well as regional system operations,

Output 1.7 and related activities:

"Enhanced options for system flexibility identified through measures in production, demand response and storage, including the contribution by smart grids."

A key feature of efficient and cost-effective integration of renewables is a high level of flexibility in the power system both on the demand and supply side, and Denmark has developed valuable experience with enhancing flexibility, which will be brought to bear in the Mexican context. The activities will transmit Danish and international experience through study tours and exchanges, and based on analyses of the flexibility options in Mexico, an operational program will be designed that can harness flexibility options related to e.g. demand management, smart metering and distributed generation. Complementarity will be ensured with ongoing and upcoming SENER/CRE/CFE initiatives on smart grids including with CIFE/NREL. This may encompass regulation, information and incentives needed, and support will be carried through via capacity building in the implementation phase.

Output 1.8 and related activities:

"Enhanced methodologies developed for assessing the impact of energy efficiency measures on needs for power production and transmission capacity".

An integrated aspect of efficient power system planning is the consideration of how energy efficiency measures impact on the needs for generation and transmission capacity. Danish and international methodologies will be studied, and existing CFE methodologies benchmarked. Peer-to-peer dialogue will aim to identify the scope for enhancing methodologies applied in Mexico.

Provisional outcome indicator:

Percentage of electricity generation with clean energy sources on track to meet 35% by 2024 (ENCC indicator #6) (baseline 20%, Target increase of 1% per year)

Outcome 2: Methodologies for renewable energy planning are enhanced

Rationale:

The rationale for this outcome is that moving from the current 20% to planned 35% of non-fossil sources for its electricity supply by 2024 will not be easy for Mexico, and access to

Danish and international experience including modelling and analytical capacity can help identify sustainable and cost-effective pathways to achieving the targets. Facing similar challenges, Denmark, triggered early on by the oil crisis, has managed a transition from almost complete reliance on oil and coal in the early 1970s. This transition has been managed through applying a combination of political, economic and technical planning instruments, models and incentives. The Mexican government has expressed a strong interest in a partnership enabling Mexico to benefit from the lessons learned in this process, recognizing that some of these planning instruments may be adaptable to its own situation.

There are political, social, technical and economic obstacles specific to Mexico that need to be analysed and measures to overcome them identified. Cost-effective approaches are needed to address concerns about effects on economic growth, and green growth benefits must be substantiated. At the local level, there are problems with social acceptance and a "fair" distribution of benefits due to lack of harmonized approaches to assessing and addressing social needs in the planning process of renewable energy sources. Other barriers relate to lack of agreed approaches to financing investments in transmission, and inexperience in how to apply externalities or adopt realistic discount rates for renewable energy programs. The proposals for comprehensive reform of the electricity sector and market provide an additional set of challenges when it comes to ensuring effective and efficient incentives for promoting renewable energy, and Danish experience in combining market restructuring with continued expansion of renewable energy is in high demand also by Mexico.

Approach to realizing the outcome

SENER will take the lead for this outcome. Through internal coordination arrangements, the coordination role will be taken by the General Director for Sustainability together with the General Director for Energy Planning under the Undersecretary for Planning and Energy Transition as well as the General Director for Generation, Transmission and Transformation of Electricity under the Under-secretary for Electricity. CFE and CRE will also contribute.

Two relatively broad outputs and a set of targeted preliminary activities³ have been identified to support achievement of this outcome. The two outputs have been designed around two main sets of challenges:

- Firstly, those related to planning needs and target setting, including modelling of renewables for planning purposes and analysis of cost-effective pathways toward the renewable energy targets.
- Secondly, those related to barriers for achieving the targets and the putting in place of measures and incentives to remove barriers and ensure that the policy objectives are realized.

³ For the full set of indicative activities, refer to the annexed Logframe presented in excel format.

Output 2.1 and related activities:

"Experience shared with approaches to renewable energy planning, including establishing targets and identifying cost-effective pathways for renewable energy deployment".

A core activity here will consist in providing studies, training and exchange visits to SENER/CRE and key stakeholders on approaches to target setting, modelling and planning for renewable energy expansion, including modelling of intermittent renewable energy sources in planning processes. Among other issues, this will incorporate socio-economic analysis of renewable energy options, in particular incorporation of externalities and co-benefits, in renewable energy planning.

Pending political decisions on an electricity market reform, options for how to frame renewable energy targets in a restructured electricity market will be the subject of analysis and experience sharing. Energy reform will also logically be part of the regional and international seminars and other cooperation, such as the 21st Century Power Partnership under the Clean Energy Ministerial, where both Mexico and Denmark are active. Other emerging economies in the Latin American region have undergone reform, and the Program will contribute to the sharing of experiences.

Reflecting the fact that Mexico has a significant potential for bioenergy which is barely utilized while Denmark has significant experience with a range of applications of bioenergy, a work program on bioenergy planning will be designed, drawing on Danish and international experience (in collaboration with i.a. CONAFOR). This will cover i.a. analysis of potentials, regulatory and other barriers to the most efficient uses of bioenergy, target setting, and incentives.

Output 2.2 and related activities:

"Specific barriers for increased renewables investment analysed and appropriate measures identified".

A number of barriers have been identified by SENER and other actors as preventing or delaying the expansion of renewable energy in Mexico, relating to areas such regulation, planning, and grid and market access. The Program will perform an in-depth analysis of identified barriers, building on existing Mexican work and regional/international experience. This will form the basis for designing a program of policy measures to overcome specific barriers to investments in renewable energy and efficient cogeneration (which may include cogeneration opportunities in PEMEX).

As for other outputs, the activities will support the preparations for a possible restructuring of electricity market by conveying regional and international experience with the promotion of renewable energy in reformed energy markets. Efficient incentive schemes for renewable energy and efficient cogeneration will be identified that are compatible with a restructured electricity market, and support will be provided for designing/adapting appropriate incentive schemes and regulation that enhances the participation of the private sector.

In light of cases where social acceptance issues have become significant barriers to the development of concrete renewable energy resources (mainly wind projects), seminars and other activities will be used to convey experience from Denmark and other countries on how social acceptance issues with regard to renewable energy (wind, biomass) can be addressed with a view to identifying and promoting the use of “best practices” for consultation processes with local and indigenous populations in the planning of larger scale renewable energy projects. Along similar lines, experience will be shared on community and local authority ownership and participation in renewable energy projects (in collaboration with i.a. INAES).

Provisional outcome indicator:

SENER has developed scenarios for renewable energy expansion and defined targets applicable to a reformed electricity sector. SENER and CRE have designed regulation to overcome barriers and adjust incentives, including with regard to internalizing externalities and addressing social acceptance issues, which impact on renewable energy planning (year 2,3) Baseline =0, target scenarios in year 2,3, updated regulation and incentives available in year 2,3).

Outcome 3: Mexican capacity in wind energy technology is increased

Rationale:

The rationale for this outcome is that Mexico, traditionally a technology recipient rather than a technology developer, is seeking to enhance its capacity to innovate within wind and other renewable energy technologies. The Government of Mexico has a policy of encouraging innovation as a pathway to growth. Considering a variety of scenarios, studies have estimated that by reaching its goals on non-fossil electricity, Mexico can generate 246,000 jobs, contribute to GDP in an amount equivalent to 3.5% of 2011 GDP, and reduce emissions by 30 million tons of CO₂ (2018) (IMERE, 2012). Recognizing such linkages and in order to advance these aims, SENER is setting up a number of energy technology innovation centres of excellence (CEMIE) including one focusing on wind. The wind technology centre will promote innovation and undertake a number of programs financed through the Sustainable Energy Fund where some USD 41 million (MXP 500 million) have been allocated for the next 5-year period (funded by royalties on Mexican hydrocarbon production). SENER recognizes that the full range of expertise is not available in-country for all of the functions of the centre, and is interested in strategic advice and expert input from Denmark on how to promote innovation in wind energy. Expert advice, human capacity development and structured access to the well-established Danish scientific community can help improve the quality of the CEMIE-Wind platform and its programs, develop specialized Mexican human resources and possibly facilitate Mexican-Danish technology partnerships.

Approach to realizing the outcome

SENER and in particular the General Director for Information and Energy Studies will take the lead for this outcome at the overall planning level. The CEMIE for Wind will take the lead once the cooperation is established.

Output 3.1 and related activities:

"Danish strategic and technical expert review and feedback of the wind technology centre (CEMIE-Wind) project proposals and semi-annual reports."

The technical Danish expert contribution will consist in providing CEMIE's Steering Committee and expert panel with the international expert perspective in order to help ensure that the quality and focus of CEMIE live up to international standards. This will take place through a) providing recommendations on Danish and international good practice in strengthening national wind technology capacity and b) concrete assessment and recommendations for CEMIE strategy development and proposed projects.

Output 3.2 and related activities:

"Provision of Danish technical and scientific expertise and knowledge for dissemination."

The foreseen activities focusing on information dissemination as a means of building Mexican capacity include support for identification of international technical and scientific publications as well as contributions by Danish academic, government and private sector to technical and scientific newsletters in Mexico. Capacity building and facilitation of linkages to the Danish wind expertise community will be facilitated by i.a. exchange visits, preparation of conferences and technical meetings.

Output 3.3 and related activities:

"Capacity and human resources developed through exchange visits, secondments, and research linkages"

Human resource development through exchange visits and secondments will be achieved on the basis of an analysis of a) capacity constraints at CEMIE; b) expertise in the Danish research and academic community that can contribute to addressing the capacity needs. Based on this, specific exchange visits and/or secondments will be planned, including a clear description of scope, purpose and criteria for participation.

The promotion of institutional research linkages will identify research topics of common interest to Mexican and Danish technology/research institutions. The program will facilitate the establishing of contacts and dialogue between potential partners in the two countries.

Output 3.4 and related activities:

"Feasibility of a joint call for proposals for Mexican-Danish wind technology programs identified "

The initial activity of assessing the viability – including funding sources – of a joint call for proposals for Mexican-Danish innovative wind technology programs will be explored by CEMIE and the LCTU) under the program.

Should this assessment conclude that a joint call is found to be viable and funding mobilized, the design and launch of a joint call for proposals will be considered.

Provisional outcome indicator:

The semi-annual review of the CEMIE-Wind makes an increasingly positive assessment of the project portfolio and performance relative to international benchmarks and best practice (year 2, 3). Baseline = first semi-annual review, target = improving reviews against international best practice.

Inception and fast track activities under the subcomponent on renewable energy:

The inception period will detail and confirm the work program and further ensure familiarity with the experience and expertise that Denmark can offer to support the challenges and opportunities facing Mexico. This will include:

- Establishing a Renewable Energy Working Group (SENER, CFE, CRE, LCTU, Program Coordinator) as well as private sector/civil society/think tanks by invitation.
- Reviewing the activities and scope of work in light of recent policy and planning developments.
- Comprehensive identification of relevant stakeholders and experts from the public and private sectors and civil society in Mexico and Denmark.
- Detailing and confirming the first year work program (SENER, CFE, CRE, LCTU, Program Coordinator).
- Undertaking exchange visit by relevant stakeholders and renewable energy working group (SENER, CFE, CRE, LCTU, Program Coordinator).
- Developing a special 2½ year work program and contracting of a support package for outputs related to Outcome 1 - Integration of increasing shares of renewable energy and co-generation into the grid (SENER, CRE, CFE, LCTU).

Fast track activities are being initiated already in 2013, which will support the early launch of substantive cooperative activities:

- Sharing of experience with the integration of grid development in policy planning for the Special Program on Renewable Energy which Mexico aims to have developed by February 2014.
- Danish international expert technical review of initial tender proposals for CEMIE with regard to which strategic projects should be pursued and what strategy and operations to develop as part of the CEMIE.

- It will be considered to fast track the drafting of the first year work program during October/December 2013 in order to integrate the support into the national planning cycle and ensure a quick start to the cooperation program.
- Contribution to one or more seminars/workshops in Mexico on Danish experience with renewable energy expansion and integration.

4.4.2 Sub-component - energy efficiency

Rationale and added value

The overarching rationale for this sub-component is the recognition that there is a significant economically viable potential for improving energy efficiency in Mexico, which is associated with a potential to reduce GHG emissions. Thus energy efficiency is prioritized as one of the main pathways towards a low carbon economy both in the National Energy Strategy and the National Strategy on Climate Change. Even though the Mexican government's policies for the coming years in the field of energy efficiency is still in the process of further operationalization, there is no doubt that energy efficiency will be a key element in Mexico's low carbon transition. By improving energy efficiency, Mexico will reduce greenhouse gas emissions and increase its energy security. Furthermore, improved energy efficiency is an important means to green growth.

Energy efficiency in buildings and industry have for decades been playing a major role in Danish energy policy, and over the years have shown significant results. Mexico recognizes Denmark as one of the most experienced countries within this field, and Denmark's practical experience regarding improvement of energy efficiency in buildings and industry is seen by Mexico as highly relevant to the Mexican context.

The cooperation will add value to the implementation of Mexican strategies and work programs by providing key decision makers and other Mexican stakeholders with insights on how Denmark and others have been able to continuously increase energy efficiency in buildings and industry. Access will be given to knowledge on policies and regulation as well as supporting tools, methodologies and systems for enhancing energy efficiency, which will be adjusted and tailored to the Mexican context. The cooperation will substantiate evidence that ambitious energy efficiency goals are achievable and will help overcome barriers to achieving them. The tools, methodologies and approaches will be accompanied by studies, training, workshops and other capacity building as well as demonstration that will allow new approaches to be consolidated to the extent that the Mexican entities can independently use and adapt them for future operations.

Higher level outcomes/Mexican plans and strategies to which the subcomponent will contribute:

The energy efficiency subcomponent and its outcomes have been defined in order to be firmly anchored in and support the objectives and results as reflected in legislation, strategies and plans either already approved or under development by the Mexican Government.

Obviously, the full achievement of these results will mainly depend on decisions by the Mexican Government and not be directly or solely attributable to the Program. Many of action lines and targets will be achieved over a time horizon beyond the Mexican-Danish Program.

The objectives to which the subcomponent will contribute are reflected in key documents. The core strategy being supported by this sub-component is the National Energy Strategy 2013-2027 and in particular the strategic theme #2 “Promotion of efficient energy use in all sectors”. The strategy under this theme outlines a number of lines of action and identifies the relevant entities responsible. This strategy will be made operational especially through the upcoming National Program on Sustainable Use of Energy (PRONASE), which is the main national planning document relating to energy efficiency and designed by SENER and CONUEE. This program will specify the multi-year actions to be taken by SENER and associated institutions, and the Mexican-Danish program has been designed to be aligned with Mexican priorities that will in all likelihood go into PRONASE.

Examples of relevant lines of action as expressed in key plans and strategies published so far:

National Development Plan:

- "Ensure rational supply of electricity country-wide" (PND-O4.6-E4.6.2). Selected lines of action:
 - Promote energy efficiency and use of renewable energy sources by adopting new technologies and implementation best practices.
 - Promote training and capacity building of human resources in the electricity sector.

National Energy Strategy:

- "Promote efficient use of energy in every sector" (ENE-TE_2). Selected lines of action:
 - Promote energy efficiency and saving in the national energy system and in every activity that contributes to GDP.
 - Strengthened technical capabilities for the development of energy saving projects in state and municipal governments.
 - Disseminate information to final consumers on the benefits of efficient use of energy.
 - Collate information on energy consumption by sector and subsector.
 - Promote technology substitution toward more energy efficient technologies.
 - Continue the development of energy efficiency norms to improve efficiency of equipment, machinery and appliances that come into the market.
 - Reduce energy intensity in production and manufacturing facilities.
 - Support companies in the development of energy saving projects.
 - Foster cogeneration, including micro-, small-, and tri-cogeneration.
 - Energy efficiency programs in the public sector
 - Promote efficiency projects in PEMEX and CFE at a similar scale as that of generation.

- Commit to actions between federal and state governments to eliminate barriers to energy efficiency
 - Efficient electricity tariffs and prices that internalize opportunity costs of primary energy sources and environmental externalities.
 - Design tax incentives for people and companies that implement energy efficiency measures in households and business facilities
 - Implement invoicing and payment schemes for households based on income level and energy consumption.
- "Adjust access to energy according to the new structure of population" (ENE-TE_3).
Selected lines of action:
 - Strengthen activities that promote use of more efficient materials and appliances, such as bioclimatic architecture in buildings construction or renovation, including financing programs.

National Strategy on Climate Change

- "Reduce energy intensity via higher efficient and responsible use of energy" (ENCC-M2).
Selected lines of action:
 - Promote energy efficiency and savings in the energy system
 - Seize mitigation potential of efficient cogeneration, energy efficiency in lighting, air conditioning, efficient refrigeration systems and water heating.
 - Promote and develop mechanisms for information dissemination on energy efficiency
 - Promote energy efficient technologies in industries with high energy intensity.
 - Reduce energy consumption and GHG emissions through energy efficiency projects originated from energy assessments in the oil and gas, industry and electricity sectors.

Implementing entity and other stakeholders

For the subcomponent on energy efficiency, SENER and especially the Director General for Energy Efficiency and Technological Innovation together with CONUEE will take the lead at the planning and information stages. CONUEE will take the lead for the operational implementation stage. CRE will also have a role through its regulatory mandate. SEMARNAT in their role as being overall responsible for climate and environment will be a relevant stakeholder. The Institute of Management and Valuation of National Assets which is in charge of operation and maintenance of public buildings at federal level will be involved depending on how these buildings are targeted by the cooperation.

Other stakeholders that should be taken into account during the implementation of the program include private sector, think tanks, academia and civil society, as well as international cooperation partners. Examples include:

- GIZ and SENER collaboration through the Sustainable Energy Program, in which energy efficiency in the private sector, with focus on small and medium size companies is one of the main fields of action, also covering e.g. hotels and buildings. The program operates along three axes: improving the regulatory framework,

information dissemination on energy efficiency, and training and institutional development. Partners under this program include FIDE, CFE, CRE and CONUEE.

- The Mexican Green Building Council, a private sector association, which conducts research and knowledge dissemination activities. Specific industry associations will also be involved once one or more specific industrial sectors are selected.
- Carbon Trust and IDB collaboration with SENER under development providing financing for energy efficiency in small and medium sized companies in Mexico. The program will operate through NAFIN as financial intermediary for soft-loans and technical assistance to companies interested in improving its energy efficiency.

The incorporation of these stakeholders and the coordination among them will be the responsibility of SENER in cooperation with CONUEE, which will constitute a key success factor for the achievement of the proposed outcomes.

Outcome 1: Regulative and supportive measures improved for ensuring construction of energy efficient non-residential buildings

Outcome 2: Energy Management System (EMS) and supportive measures improved for commercial and public buildings

Rationale:

The rationale for outcomes 1 and 2 under the energy efficiency sub-component is based on the high potential for energy efficiency in buildings in Mexico and the long term practical experience in Denmark in harvesting such potentials. Up to 12% of Mexico's emissions come from the building sector (UNEP, 2009). The National Energy Strategy emphasizes that a significant potential for energy efficiency has not been reaped as a result of barriers relating to regulatory, information, market, financing and technical barriers. Based on current knowledge about the drafting of upcoming program documents, there is strong evidence that both PECC 2 and PRONASE, which are under preparation, will give high priority to energy efficiency in buildings.

Denmark has a long history of successfully promoting energy efficiency in buildings. A combination of early support schemes in the 1970-80s and the introduction of regulation, taxation and promotion of technology has led to the energy demand of new buildings in 2010 falling to 25% of the level of the mid-1970s (DEA, 2012). Although not all measures are directly transferable, the experience gained is likely to be very valuable. The "whole building performance" approach adopted in Denmark has proven successful and may be combined with - or preceded by - minimum requirements for selected components, with which Denmark also has fruitful experience. Other donors are already supporting the housing sector, but there are relatively few initiatives targeting larger commercial and public buildings. Experience from around the world shows that demonstrating new and more energy efficient building design and construction practices can be an effective step towards turning them into mainstream practice.

SENER and CONUEE consider it important to focus on regulatory instruments such as building codes, envelopes of residential buildings, and especially how to implement building standards in practice, including enforcement. Energy management practices and the introduction of energy management systems are also seen as important measures.

Approach to realizing outcomes 1 and 2

A set of outputs and preliminary activities⁴ have been identified to support achievement of outcomes 1 and 2. The activities will be carefully reviewed and adjusted once the key planning documents, in particular the PRONASE is finalized.

Output 1.1:

“Energy requirements of the building code reviewed against international and Danish practice and adjustments proposed.”

Output 1.2:

“Supportive measures identified and developed, e.g. implementation guidelines, capacity development programs, and awareness raising.”

Activities related to Output 1.1 and 1.2: The basis for creating a push toward enhanced building codes and regulations will be a thorough assessment of energy related standards internationally and in Mexico. This will be combined with sharing of knowledge and learning among stakeholders in Mexico and Denmark. A key element of the approach is capacity development and awareness raising of officials and professionals, incl. through training, workshops, conferences, and study tours.

Based on analysis of energy efficiency potentials and the economics of improved standard, as well as analyses of barriers, the Program will identify potential improvements to existing regulation. This will be translated into action planning for design and roll-out of energy efficient building codes and supportive measures.

The Program will also assist SENER/CONUEE in preparing input to national climate change and energy policies and planning on energy efficiency.

Output 1.3 and related activities:

“Implementation initiated as pilots/demonstration of building code requirements in one or more buildings, including selected supportive measures.”

While pilots and demonstration have significant potential to shift attitudes and practices, they have to be carefully planned and targeted. The Program will support CONUEE in designing a pilot initiative including objectives, technologies to be tested; construction practices, human resources needed and costs to be tried out; and perceptions or practices to be altered/improved. Equally important, the Program will identify appropriate private

⁴ For the full set of indicative activities, refer to the annexed Logframe.

partners (developer, entrepreneur), and jointly with partners develop a detailed plan for pilot implementation.

Output 2.1 and related activities:

“EMS reviewed against international and Danish practice and possible enhancements identified”

Energy management systems constitute the other "leg" of the interventions targeting energy efficiency in public and commercial buildings in this program. Also here, a thorough assessment of energy management systems in Mexico and benchmarking against international practices will create a common foundation and bring together experts and stakeholders from both Mexico and Denmark. The analyses performed by the Program will also identify potential energy savings and related costs/benefits.

The Program will propose enhancements to existing standards for EMS based on best practices and prepare an action plan for preparation and implementation of enhanced EMS. Strong stakeholder involvement will be crucial to gathering information on potentials and barriers and to being able to design effective and relevant improvements to existing EMSs. A key element of the approach is therefore capacity development and enhanced information levels of officials and professionals, incl. through training, workshops, and study tours.

Output 2.2 and related activities:

“Barriers identified for implementation of EMS in commercial and public buildings”

Output 2.3 and related activities:

“Supportive measures identified and developed, e.g. implementation guidelines, capacity development, financial schemes for energy efficiency investments, and awareness raising”

Activities related to Output 2.2 and 2.3: A range of barriers are common that may delay or hinder adoption of EMS, and an in-depth study will be carried out to identify, prioritize, and suggest ways to overcome barriers relating to e.g. financing, technology, and awareness.

Supportive measures will be identified to support implementation of improved EMS. The development and implementation of selected supportive measures will be planned for, and the Program will engage in development of selected supporting tools such as guidelines, training, information material, websites, computer-based tools.

A separate challenge relates to the need to be able to track performance of EMS, and to this end the Program will analyse and propose improvements in the reporting systems used by the federal government, as well as pursue options for remote tracking of energy use in federal government buildings.

Output 2.4 and related activities:

“Demonstration of enhanced EMS implementation in Federal Government buildings”

The Program will support planning of implementation of enhanced energy management systems in federal buildings, which is likely to involve e.g. *Administración Pública Federal*, which is the entity responsible for managing federal public buildings. Demonstration will be supported through i.a. selection of a sample of representative buildings with significant energy efficiency potential from the federal government, and support provided for dissemination of the results of the demonstration of EMS in selected buildings.

Provisional outcome indicators:

- Regulations are adjusted (year 2) Baseline =0, Target = year 2 adjustment made and found to be satisfactory with some degree of attribution to Danish support
- Demonstration of EMS in at least one public building indicates significant energy saving in first year, (base line =0, target <15% energy saving in the building by year 3)

Outcome 3: Improved Energy Management Systems (EMS) and supportive measures for selected larger industries

Rationale:

Also for this outcome, a key rationale is the recognition that industries offer a high potential for energy efficiency in Mexico, and as such represent an important sector in the process towards a low carbon society. Furthermore, Danish experience in this field is strong and has been exported to many countries in Eastern Europe, South East Asia, South Africa and elsewhere. Within Denmark itself, a combination of measures have led to energy intensity in industry declining by approximately 20% over the last 20 years. One important measure has been implementation of EMS in energy intensive industries, where Denmark has gained valuable experience from best practice.

Small and medium sized companies from some industries are already receiving support from various programs (GIZ and others). And while some large industries in sectors such as cement have world class operations, there are others which lag behind. The National Energy Strategy identifies co-generation as being particularly important for intermediary sized companies. Initial studies will be needed to identify the particular larger industry subsector(s) where cooperation on energy efficiency in industries should be focused.

Approach to realizing the outcome

Output 3.1 and related activities:

“EMS reviewed against international and Danish best practice, revisions proposed and selected adjustments developed”

A thorough assessment of existing energy management systems for industry in Mexico and benchmarking against international practices will create a common foundation and bring together experts and stakeholders from both Mexico and Denmark. The selection of target

industry/ies for the Program will be based i.a. on an evaluation of energy efficiency and emissions abatement potentials and related economic benefits.

The Program will propose adjustments to existing EMS standards based on best international practices, and develop an action plan for implementation of improved EMS in selected industries, including through preparation of new standard and guidelines for EMS.

Capacity development and institutional strengthening of both private and public stakeholders will be key to sustainably enhance EMS and will be carried out through i.a. workshops, seminars, training and study tours.

Output 3.2 and related activities:

“Barriers identified for implementation of EMS in larger industries”

Output 3.3 and related activities:

“Supportive measures identified and developed, e.g. regulation, implementation guidelines, financial schemes for energy efficiency investments, capacity development, and awareness raising”

Activities related to Output 3.2 and 3.3: A range of barriers are common that may delay or hinder adoption of EMS also in industry, and an in-depth study will be carried out to identify, prioritize, and suggest ways to overcome barriers relating to e.g. financing, technology, training and awareness.

Supportive measures will be identified to support implementation of improved EMS, many of which will be of a capacity building nature. The Program will identify and develop key supportive measures such as guidelines, training, information material, and will also aim to.

Output 3.4 and related activities:

“Implementation initiated as pilots/demonstration, including selected supportive measures”.

Activities related to Output 3.4: Full scale demonstration of enhanced EMS can be a powerful tool to convince industry about the feasibility and benefits of enhancing energy efficiency. The Program will develop a detailed proposal for EMS demonstration, including: criteria for identification of pilot companies willing to implement EMS, preparation of selected supportive measures, financial and fiscal measures; and expert support for the demonstration activities with pilot companies. The Program will also contribute to disseminating results from pilot activities among larger industry.

Provisional outcome indicators:

At least one industry in a selected sector adopts an enhanced EMS (year 3), (baseline =0, target = 1 (year 3)

Inception and fast track activities under the subcomponent on energy efficiency:

The inception period will detail and confirm the work program and further ensure familiarity with the experience and expertise that Denmark can offer to support the challenges and opportunities facing Mexico. This will include:

- Establishing an Energy Efficiency Working Group (SENER, CONUEE, CRE, CFE, LCTU, Program Coordinator) as well as private sector/civil society/think tanks by invitation.
- Reviewing the activities and scope of work in light of recent policy and planning developments.
- Comprehensive identification of relevant stakeholders and experts from the public and private sectors and civil society in Mexico and Denmark.
- Detailing and confirming the first year work program (SENER, CONUEE, LCTU, Program Coordinator).
- Undertaking exchange visit by relevant stakeholders and energy efficiency working group (SENER, CONUEE, LCTU, Program Coordinator).

Fast track activities: It will be considered to fast track the drafting of the first year work program during October/November 2013 in order to integrate the support into the national planning cycle and ensure a quick start to the cooperation program.

4.5 Specific measures to address other issues

Poverty – Poverty issues are not specifically addressed by this cooperation as it falls under the global rather than poverty framework. However, through its contribution to mitigation and the lessening of climate change, the cooperation will mean future generations and especially the poor will be less prone to the negative effects of climate change. In the shorter term, the cooperation will assist the Mexican government in its drive to build a strong economy built on innovation which will tend to lead to economic growth and jobs (IMERE, 2013). The transition to renewables will provide Mexico with greater energy security which in the long term will bring down the cost of energy for poor. The focus on energy efficiency will increase the economic efficiency of the economy. The transition to renewables and the development of local grids will tend to bring energy services to remote communities. All these effects will contribute towards reducing poverty.

Environment and climate change – the cooperation aims centrally at addressing climate change. It does this through assisting Mexico in developing realistic emission baselines as well as tracking and reviewing the achievement of mitigation goals. The cooperation by focusing on renewable energy and energy efficiency will also contribute to reducing greenhouse gases in the future. The use of renewable energy and improving energy efficiency will also have environmental benefits especially as these interventions will tend to lead to less use of fossil fuels and reduce the air pollution associated with use of fossil fuels. Less

dependence on fossil fuels will also tend to reduce the pressure on extraction of hydrocarbons and the possibility of disasters in especially offshore drilling operations. Greater use of wind power will reduce the pressure to develop large scale hydropower which in some cases can have strong negative environmental impacts. The use of modelling tools that account for externalities in the energy sector will tend to improve environmental performance of the sector.

There will also be potential negative environmental impacts from the cooperation such as extending the grid to new areas which in combination with weak planning practice could encourage development areas with fragile ecosystems. Greater use of wind power will bring noise pollution to some communities and affect bird life. Proper siting of wind power turbines can help minimize these impacts.

Good governance, democratization and human rights – The cooperation does not specifically address these issues. There will be indirect benefits in that the effort to reduce emissions will result in a public good that will serve all. By working with Mexico to fulfil and even exceed minimum international obligations, the cooperation will help to strengthen a collective and long term approach that will underpin national commitment to good governance and democratization. The cooperation will tend to support the government to respond to the calls for improved energy management that have been made by civil society groups such as IMERE and AMDEE. Thus the cooperation will indirectly help to validate the role of civil society in the energy debate. Issues regarding social acceptance including land tenure and a "fair" distribution of benefits have caused conflicts at the local level in connection with renewable energy projects, and these are recognized as an important issue to address by SENER and the private sector.

Gender – The cooperation does not specifically target gender inequalities. There might in the longer term be some positive gender impacts in that an extended grid will reach out to poorer areas where there are many women headed households. Similarly, wind energy might also put wind resources in the hands of local people in remote areas where there is a predominance of women-headed households. It will be important that the exchange visits, technical assistance and training provided are gender balanced and offer equal access to men and women.

HIV/AIDS - There is no obvious or specific opportunity in the cooperation programs to include HIV/AIDS as most of the interventions are of a highly technical and policy nature e.g. modelling. During the inception phase the cooperation should interact with the relevant counterpart institutions to discuss whether there is any relevant contribution that the program can make towards combating HIV/AIDS.

5 Budget

The original intentions behind the Mexican-Danish cooperation are to provide policy, regulatory and implementation support through transfer of knowhow, exchange of information, tools and methodologies. In line with these intentions the cooperation program will provide support in the form of knowhow and funding for exchange visits, studies, secondments and technical support. Some limited assistance might be provided to support demonstration programs for energy efficiency in buildings or for use of innovative technology in wind power. In all such cases the support will be provided in-kind in the form of goods and services rather than involving transfer of funds. There is an option also to support civil society and private sector in Mexico and the modalities for this will need to be decided on a case by case basis. The overall budget is shown in table 5.1 below:

The budget estimates for the components are based on: the number of specific studies, the inputs of national experts; the number of exchange visits; the weeks of virtual support from Denmark; the number of short term mission visits to Mexico; the number of secondments for Mexican staff to spend time at Danish institutions and, contribution towards supporting demonstration programs. The cooperation includes technical assistance provided by a Long Term International Advisor. The budget for the advisor is included under component two “Renewable Energy”. The advisor will also provide assistance to the two other program components.

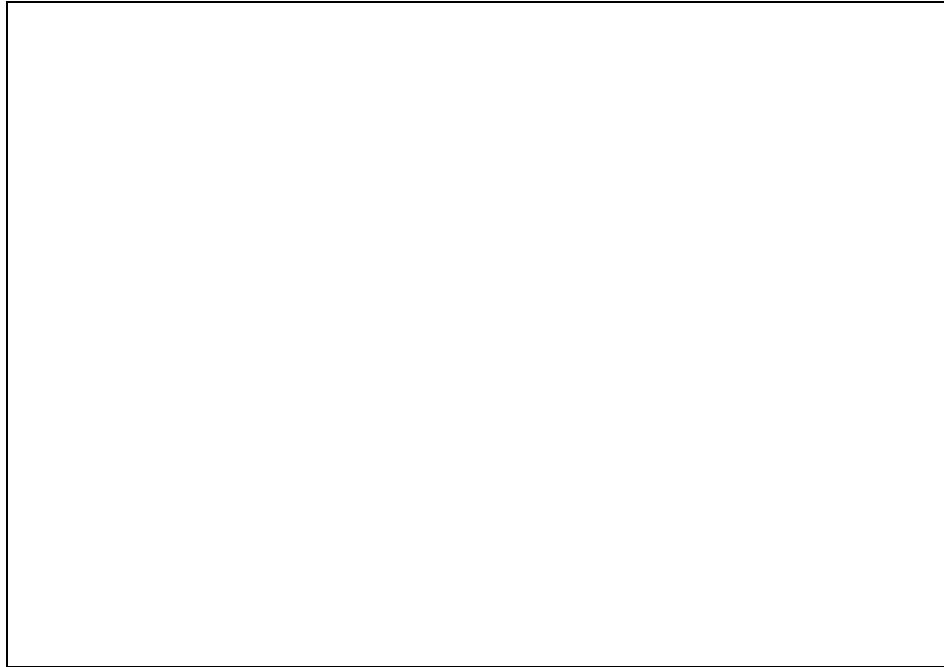
Indicative estimates that illustrate the possible make up of inputs are given in Annex B. These budget estimates will be updated and adjusted during the inception phase and will form part of the annual work plans and budgets to be discussed, adjusted and approved each year. Figure 5.1 indicates the overall distribution of the different types of input for the program.

The person months allocated to national expertise should allow for considerable mobilization of short term consultants and/or the hire of full time staff for 2 to 3 years. The decision on whether to recruit longer term national staff that could support the long term international advisor within specific sub-components will be made during the inception phase. The core implementing agencies have access to some of the best Mexican expertise in the areas being supported and are used to contracting additional expertise when needed from the private sector. The majority of the implementation will thus be done by national staff already employed in the implementing agencies supported by Danish and international expertise. The role of the national expertise to be funded under this program will mainly be to ensure that the Danish/international support is catalytic and context sensitive. The national expertise will assist in the process of transferring relevant Danish experience to the Mexican context and ensuring that it is both relevant and effective in bringing about change. This will require support in identifying entry points, identifying opportunities and advising on the timing and sequence of intervention and withdrawal. The national expertise is expected to ensure that the Danish support is provided in the context of a sound understanding of the institutional and underlying political-economy realities.

The budget includes programme support (local program coordination, office, reviews, etc.)

Table 5.1 Budget

Component	Outcome	Dkk (million)				
		2014	2015	2016	2017	Total
Climate change	C1-O1. Strengthened framework for evaluation of climate change strategy and programs in relation to mitigation in accordance with the Law on Climate Change	1.0	0.6	0.4	0.1	2.1
	C1-O2. Enhanced tracking of progress on implementation of PECC 2014-2018 energy related measures with regard to mitigation policy design and implementation	0.8	0.8	0.5	0.4	2.5
	C1-O3. Analytical input provided to support CICC via SEMARNAT/INECC in preparation for UNFCCC's 2015 agreement on post-2020 target setting	0.3	0.3	0.0	0.0	0.6
	C1-O4. Consistent framework established for assessing co-benefits of energy related mitigation actions	0.5	0.8	0.4	0.1	1.8
	C1-O5. Enhanced regional cooperation and international outreach on climate change mitigation planning, design and implementation	0.3	1.0	0.5	0.3	2.0
	C1-O6. Strengthened enabling environment for mitigation-relevant low-carbon technology innovation and adaptation	0.6	0.4	0.7	0.1	1.9
	C1-O7. Functioning platform for public-private dialogue on climate policy	0.3	0.3	0.7	0.1	1.4
	Totals	3.8	4.2	3.2	1.1	12.3
Renewable energy	C2a-O1. The power system is able to efficiently integrate increasing shares of renewable energy and cogeneration	1.7	2.8	2.3	0.4	7.2
	C2a-O2. Methodologies for renewable energy planning are enhanced	1.6	1.4	1.3	0.2	4.5
	C2a-O3. Mexican capacity in wind energy technology is increased	0.4	0.8	0.4	0.1	1.7
	Long term International adviser	0.6	1.2	1.2	0.3	3.3
	Totals	4.4	6.2	5.1	1.0	16.7
Energy efficiency	C2b-O1. Regulative and supportive measures improved for ensuring construction of energy efficient non-residential buildings	1.3	1.7	1.6	0.4	4.9
	C2b-O2. Energy Management System (EMS) and supportive measures improved for commercial and public buildings	0.6	1.8	1.3	0.2	3.9
	C2b-O3. Improved Energy management systems and supportive measures for selected mainly larger industries	1.0	1.7	1.1	0.4	4.1
	Totals	2.9	5.2	4.0	0.9	13.0
Programming Support	Reviews , supervision and special studies	0.7	1.0	0.8	0.6	3.0
Total		11.7	16.6	13.1	3.6	45.0



6 Management and organisation

The Mexican-Danish cooperation program on climate and energy will be governed by a Steering Committee composed of key implementing entities in Mexico and representatives of the MCEB/LCTU in Denmark. A Long Term International Advisor reporting to the Steering Committee will coordinate the detailed planning and reporting necessary to ensure an effective and vibrant cooperation. Implementation of the activities will be anchored within different Mexican Ministries, Departments and Agencies in line with mandates and coordination arrangements.

An office for program coordination will be established. It will aid the long term international advisor in his duties and will be in charge of the organization of reviews, etc.

Every year a workplan and budget for the cooperation will be drawn up based on the activities foreseen by the implementing entities. The workplan and budget for the next year and a report on the previous year will be submitted by the Long Term International Advisor to the Steering Committee for approval.

Steering Committee for the Mexican-Danish cooperation

The Steering Committee is expected to meet once a year. Its main tasks will be to approve the annual work plans, budgets and reports, and review annual progress. The Steering Committee will provide strategic guidance to the Mexican-Danish cooperation and take decisions on needs for adjustments to the cooperation. The Steering Committee will be composed of representatives of:

MEXICO:

- SEMARNAT (CO-CHAIR)
- INECC
- SENER (CO-CHAIR)
- CONUEE
- CRE
- CFE
- Representatives from civil society/private sector may also be invited to participate in the Steering Committee.
- Donors invited as observers

DENMARK:

- MCEB-LCTU (CO-CHAIR)
- Observer: Embassy of Denmark, Mexico

In support of the annual meetings, MCEB-LCTU in cooperation with the international affairs areas of SEMARNAT and SENER will undertake annual planning visits immediately prior to the meetings. These planning visits will allow MCEB-LCTU and the Mexican implementing entities to thoroughly review the content and progress of the cooperation so far and advise on the work plans being developed. The draft of the TOR for the Steering Committee appears in Annex C.

Long Term International Advisor and working groups

A Long Term International Advisor will be engaged and work through 3 working groups that bring together the main people responsible for climate, renewable energy and energy efficiency. The main tasks of the International Advisor with the assistance of the working groups and the program office staff will be to:

- Assemble input for the annual workplan, budget and annual report from the relevant implementing entities and ensure timely submission of consolidated versions of these documents to the Steering Committee;
- Ensure that working groups meetings are held and well prepared with input from implementing entities and that all important issues to ensure a smooth and efficient implementation of the program are addressed at the working group meetings as well as through direct interaction with the implementing entities.
- Draft TOR for procurement of technical assistance and other inputs based on input from implementing entities
- Coordinate activities closely with other international support
- Oversee that day to day logistical and administrative support is provided by an Implementation Support Unit (cf. below) to ensure efficient delivery of short term

technical inputs from Denmark, exchange visits and the other inputs required by the cooperation;

The Long Term International Advisor will be contracted as an individual adviser to direct the work and perform his duties as an integral part of the Implementation Support Unit, i.e. work closely with the local coordination staff, while maintaining very close ties with the LCTU.

The working groups will be composed of key technical staff in the cooperating entities; representatives from the international affairs areas of SEMARNAT and SENER; the Program Coordinator assisted by the Implementation Support Unit; and the LCTU. The working groups will meet 3-4 times a year with physical or virtual participation of the LCTU.

The draft of the TOR for the Long Term International Advisor appears in Annex D.

Implementation Support Unit

An Implementation Support Unit will be contracted by the Ministry of Foreign Affairs and, under the direction of the International Advisor, will be responsible for a number of tasks in relation to program management, including local coordination activities and implementation of reviews. The Unit (i.f. the International Advisor assisted by local program office staff) will i.a. be responsible for: ensuring liaison with the LCTU on the best combination of technical assistance to meet the needs expressed in the annual work plans and in the TOR regarding said assistance; contracting the technical assistance required; and the logistics and necessary arrangements involved in technical exchange visits, secondments and other inputs as approved in the work plans. The Unit will assist the Program Coordinator in the provision of annual work plans, budgets and reporting to the Steering Committee. Furthermore, the Unit will assist the Danish Ministry of Foreign Affairs in carrying out its program responsibilities, e.g. related to administrative and financial issues.

The ISU will consist of the Local Program Coordinator, the International Advisor and other support staff and constitute a Mexican-Danish consortium to be contracted by the Ministry of Foreign Affairs, Denmark. The Unit will have a program office in Mexico and procure technical assistance on demand, make the necessary arrangements for exchange visits, secondments and other inputs, as well as dealing with financial and administrative issues in relation to the Danish Ministry of Foreign Affairs. The intention is to efficiently manage procurement (where relevant in cooperation with the Danish Ministry of Foreign Affairs) and day to day management and matching of supply and demand, while the LCTU will focus on the more strategic and substantive aspects of the cooperation. Where highly specialized skills are needed e.g. providing advice on how to enable integration of large shares of renewables in the power system (Outcome 1 of the Renewable Energy Subcomponent), the LCTU and the Danish Ministry of Foreign Affairs will consider issuing a separate contract to a specialized supplier. The same will hold true for a review or tasks of a supervising nature where an independent view is needed.

TOR for the Implementation Support Unit will be drafted jointly by SEMARNAT, SENER, LCTU and the Danish Ministry of Foreign Affairs.

Implementing entities

Each implementing entity, with the support of the Long Term International Advisor – assisted by local coordination staff - and working groups, will develop an annual cooperation workplan for the Mexican-Danish program within the areas of agreed cooperation. The annual cooperation workplan will detail what type of cooperation is pertinent in order to support the internal work programs, priorities and institutional needs of the specific national entities. The internal work programs represent the contribution of each entity to the overall sector or special programs. The cooperation workplan will specify the outputs to be achieved by the cooperation and the inputs required.

Each input of technical assistance, exchange visit or similar will be defined through a TOR that describes the objectives, outputs and scope of work of the assignment or exchange event. The TOR should clearly describe how the input contributes to outputs defined in the annual cooperation workplan. Each input – whether technical assistance, exchange event or other - will require a report on the activities and outputs reached including a specific section on any capacity building. Where possible, draft TOR for major inputs should be attached to the workplan.

MCEB - LCTU

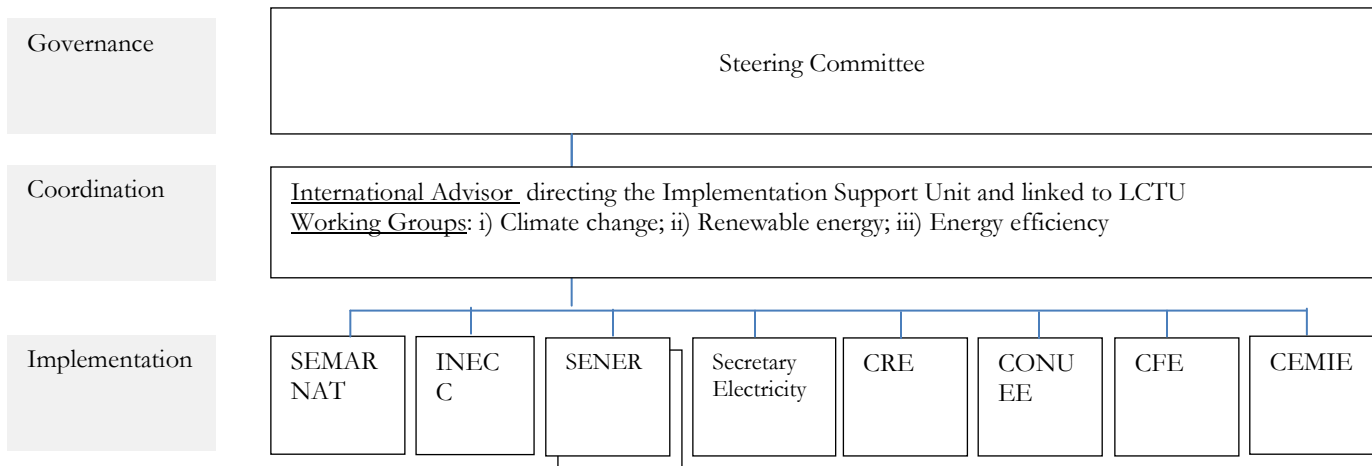
The MCEB-LCTU will co-chair the Steering Committee and participate in annual planning missions. LCTU will also be responsible for close liaison with the Long Term International Advisor and the Implementation Support Unit in order to ensure that technical and other assistance is efficiently and effectively delivered. This will require that LCTU: advise on the TOR for each input; advise and approve the selection of technical assistance provider and the design of exchange visits and other inputs..

Embassy of Denmark, Mexico

The Embassy of Denmark will be an observer in the annual Steering Committee meetings and comment on draft annual work plans programme based on its knowledge of the Mexican context. The Embassy will assist in government to government cooperation issues on an ad hoc basis acting as Denmark's official representative in Mexico.

The management setup is shown in figure 6.1 below:

Figure 6.1 Program management setup



Procedure for planning, budgeting and tendering

As described earlier, the implementation entities, with the support of the International Advisor /working groups and the Implementation Support Unit, will prepare cooperation work plans with indications of the nature and amount of inputs required. These entity specific cooperation work plans will be coordinated within an overall cooperation workplan and budget and adjusted by the Program Coordinator/working groups in close coordination with the implementation entities. The cooperation work plan and budget will be ready in time for the planning mission of MCEB-LCTU so that they can be reviewed jointly with implementing entities before the annual Steering Committee meeting. The Steering Committee will formally approve the cooperation work plans and budgets. The procurement of the required technical assistance and the arrangements for exchange visits and other inputs will be done by the Implementation Support Unit under the guidance of the International Advisor and working in close coordination with the LCTU to ensure the best use of the available Danish resources. Coordination with LCTU will involve adjustment and finalization of the TOR with the endorsement of the implementing entity. Prior to contracting, the LCTU will approve the selection of consultants and arrangements for other inputs. Implementation will be carried out by the technical assistance and other providers of inputs working closely with the implementing entities. Each assignment will be accompanied by a report (with a set of minimum specifications to be developed during the inception phase). Prior to contract finalization, the assignment report will need to be endorsed by the implementing entity and the International Advisor with copy to LCTU for comment.

A simplified version of the process is shown below:

Table 6.1 Outline of process for procurement of technical assistance and other outputs.

Actions	Responsible	Timing
Prepare cooperation work plans	Implementing agencies	September/October
Coordinate cooperation work plans into annual work plan and budget	International Advisor /Working groups	November
Approval of work plans and budgets	Steering committee	January/February
Procurement of technical assistance and other inputs	International Advisor /Implementation Support Unit	Continuous
Implementation /assignment reporting	Technical assistance	Continuous
Approval and contract close	Implementing agencies, LCTU, International Advisor /Implementation Support Unit	Continuous

The sequence of the main steps is shown below:

Figure 6.2 Sequence of main steps

Main steps		Qtr 2	Qtr 3	Qtr 4	Qtr 1	Responsible
Planning cycle	Prepare annual cooperation workplans at institutional level	■				Implementing entities
	Planning mission	■				LCTU/Co-chairs
	Coordinate work plans into annual project workplan and budget		■			International Advisor / working groups
	Steering Committee (approval of workplans and budgets)		▲			Steering Committee
	Annual and semi-annual reporting -	▲				Implementing entities /International Advisor / working groups
Implementation	Working Groups: Coordination and adjustment of plans	●	●	●	●	Program coordinator/ working groups
	Logistics/ procurement of technical assistance/exchange events	■	■	■		International Advisor Program Office staff
	Approval of inputs prior to contracting	■	■	■		LCTU
	Implementation (incl TOR)	■	■	■	■	Implementing entities

Review and adjustment to the component support

The program and related work plans can be adjusted or revised within the original objectives by the Steering Committee. If during the year, significant deviations are likely to occur which will impact the achievement of the objectives or imply over or under spending in relation to approved budgets, the implementing entities through the International Advisor will inform the Chair and Co-chair of the Steering Committee in writing in advance.

7 Financial management and procurement

As the focus of the Mexican-Danish cooperation is on the transfer of knowhow and exchange of experience, the inputs will be delivered in-kind either directly by the LCTU and public agencies in Denmark or through Danish/International/Mexican consultants.

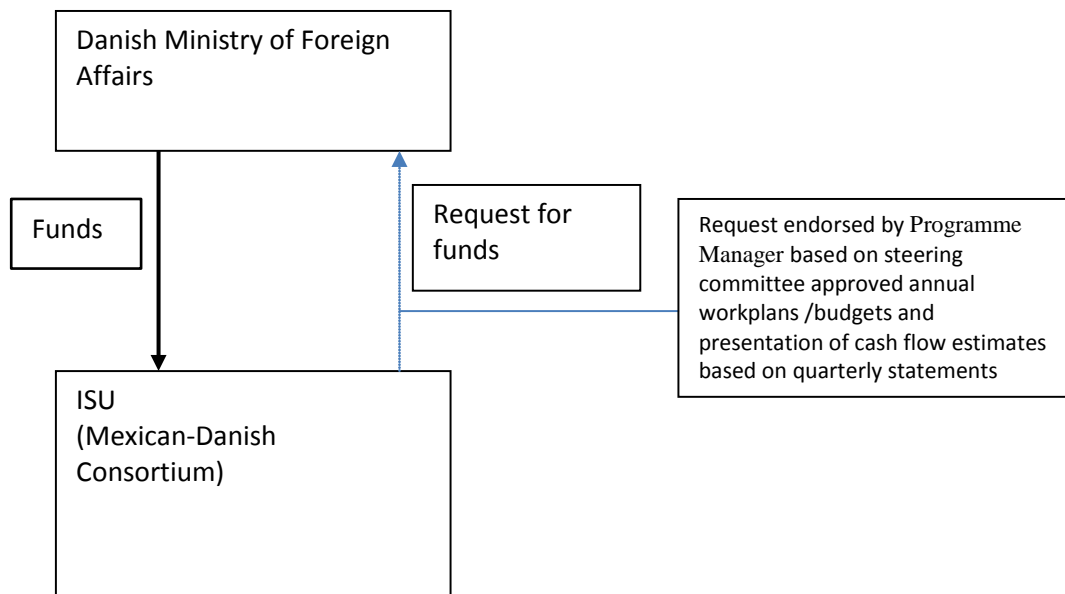
The financial procedures are summarized in table 7.1

Table 7.1 Summary of procedures for financial management

Area	Outline procedures
Planning and budgeting	Annual planning and budgeting will be done by the implementing entities, assembled by the working groups and International Advisor and submitted to the Steering Committee for approval.
Funds transfer	Funds will be transferred to the Mexican-Danish consortium in line with the cash flow schedule of their contract with the Danish Ministry of Foreign Affairs. The cash flow schedule will be updated as part of the approval of the annual work plans and budgets. Similarly, funds for other contracts will be transferred to the contract holders as per the contract specifications.
Accounting and reporting	The implementing entities assisted by the International Advisor and working groups will provide annual and semi-annual progress reporting showing what inputs have been provided and what outputs and outcomes have been achieved. Accounts will be kept by the Implementation Support Unit and will be the basis for quarterly payments as well as annual and final reconciliation. Financial management of TA assignments and other procured inputs will be carried out in a manner that ensures proper input to the financial management system and databases of the Danish Ministry of Foreign Affairs.
Procurement	An initial framework contract will be tendered and entered into between the Danish Ministry of Foreign Affairs and an entity – possibly a Mexican-Danish consortium - to function as Implementation Support Unit for the program. Additional contracts for specialist assistance or assistance of a review nature will be entered into with relevant providers. The Mexican-Danish consortium will provide inputs on an on-demand basis.
Auditing	The Mexican-Danish consortium will provide audit statements based on final accounts.

The tenders for the International Advisor and for the Local program office staff will be carried through as soon as possible.

The model for the transfer of funds from the Danish Ministry of Foreign Affairs and relevant contractual/legal unit in Mexico has not been decided yet. One model could be quarterly transfers made from the Ministry of Foreign Affairs, to the consortium/unit in accordance with the approved work plans/budgets, cash flow estimates and quarterly accounts for previous periods. The Mexican-Danish consortium/unit will hold the full accounting responsibility for the funds received and will be subject to an annual audit. The funds will be sent to the official bank account of the Mexican-Danish consortium/legal unit as specified in the contract between the legal unit in Mexico and the Danish Ministry of Foreign Affairs.



Alternatives to the proposed approach to contracting of the Implementation Support Unit and the provision of inputs can be considered according to the Government to Government agreement that frames the Cooperation Program.

8 Monitoring, reporting, reviews and evaluations

Monitoring

At a component and sub-component level, the cooperation indicators will be based on national indicators that are already part of the national planning system (table 8.1). Accountability for setting up the data collection, processing and reporting on the indicators will thus lie with the relevant Mexican authorities. As the Mexican-Danish cooperation is closely linked to national policy targets and covers a range of areas, it will be more efficient and truer to the spirit of the cooperation to rely on indicators directly reflecting national targets and objectives. A possible exception to this approach may be the assessment of potential and achieved emissions mitigation impact of the outcomes, as mitigation is a key driver and justification for the Danish contribution. To the extent that national indicators - including those applied by INECC/SEMARNAT in the monitoring of progress on PECC2 - do not provide sufficient information on this, separate indicator analysis may be undertaken.

The national indicators already identified will be further developed (and possibly adjusted) as the remaining major Government programs are finalized, in particular the Special Program on Climate Change, the Special Program on Renewable Energy and the National Program on Sustainable Use of Energy. These will also enable the identification of appropriate intermediary milestones.

Table 8.1 National Indicators

Component/	Results	Indicator	Target	Source
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sub-component				
Climate	Lowered emissions	Reduction of greenhouse gases compared to business as usual (30% by 2020)	On track by mid-2017 i.e. approx. linear increase per year	Climate Change Law (article 4,(e))
Renewable energy	Transition to renewable and clean energy	Percentage of non-fossil electricity produced (Target. 35% of electricity by 2024 generated by non-fossil sources)	On track by mid-2017 i.e. approx. 1% increase per year	Results/indicators in the National Energy Strategy (SENER, 2013 p63)
Energy efficiency	Reduce energy intensity	Quantity of energy required for each unit of GDP (no target set yet)	Awaiting government target setting	Results/indicators in the National Energy Strategy (SENER, 2013 p63)

The national indicators outlined in table 8.1 will demonstrate the extent to which Mexico is on track towards achieving its high-level climate and energy related goals. The attribution of any part of this achievement to the Mexican-Danish cooperation will always be difficult to establish. However, if the Mexican-Danish cooperation is tied to supporting national strategies and directed towards adding value, it would be reasonable to conclude in the event of achievement of the indicators (or intermediary milestones) that the cooperation has had a contributory role, in proportion to the resources devoted.

In order to address further the attribution of the cooperation and to give early information on how successful it is, additional monitoring will be considered (in addition to the national indicators above and the milestones or additional indicators that will arise from the special and sector programs). Specifically, the work plans will review lower level indicators to demonstrate whether key outcomes are on track. The progress reports will also list the outputs achieved and compare them to those of the annual work plan.

Thus the Steering Committee will be able to assess progress through a combination of: i) reporting on national indicators and milestones; ii) progress reporting on the achievement of outcomes and outputs.

A number of indicators at outcome level have been provisionally identified. These will be reviewed during the inception phase and as the key outstanding Programs are finalized in order to maximize the correlation between the national policy documents and the indicators also at this level.

Table 8.2 Provisionally identified lower level indicators at Outcome level.

Climate change component	
Outcome	Provisionally identified Outcome indicator
C1-O1. Strengthened framework for evaluation of climate change strategy and programs in relation to mitigation in accordance to Law on Climate Change	A review after each year shows that the evaluation framework is i) appropriate; ii) functioning in practice and iii) has benefitted from continued Danish assistance through incorporation of methodologies/adjustments proposed through the Danish assistance. (baseline = 0; target = yes on all

	three sub criteria, measured each year).
C1-O2. Enhanced tracking of progress on implementation of PECC 2014-2018 energy related measures with regard to mitigation policy design and implementation	Annual peer review of the progress tracking (PECC2 and 2020 emission targets) concludes that the tracking is satisfactory against the MRV criteria of transparency, relevance, accuracy, completeness and consistency. (baseline = no progress tracking yet; target all MRV criteria are satisfactory)
C1-O3. Analytical input provided to support CICC via SEMARNAT/INECC in preparation for UNFCCC's 2015 agreement on post-2020 target setting	An interview of the chairperson of the Inter-ministerial Commission on Climate Change confirms that the commission is satisfied that the analytical input to Mexico's preparations for the 2015 agreement is effective and appropriate. (baseline = 0, target = satisfied).
C1-O4. Consistent framework established for assessing co-benefits of energy related mitigation actions	An annual review of the SEMARNAT/INECC papers shows that a consistent framework has been adopted and is being used for assessment of co-benefits which are quantified in the SEMARNAT /INECC papers (baseline = 0, target > 30% of co-benefits quantified in year 1; > 60% in year 2, > 80% in year 3 and 4)
C1-O5. Enhanced regional cooperation and international outreach on climate change mitigation planning, design and implementation	Triangular meetings are held at least once per year (Mexico, Denmark, other regional players) held leading to concrete follow up initiatives. (baseline = 0, target 1 per year with minutes that record at least 1 concrete initiative per year)
C1-O6. Strengthened enabling environment for mitigation-relevant low-carbon technology innovation and adaptation	At least one significant initiative on low carbon technology innovation and adaptation in Mexico can be traced back to Danish assistance by year 3. (baseline = 1, target =1) Suggested indicators: <ul style="list-style-type: none"> • Capabilities acquired • Existence of a workable operating model • Technology prioritisation exercise based on country resources
C1-O7. Functioning platform for public-private dialogue on climate policy	Platform meetings held at least 1 per year and an online survey among members shows satisfaction, (baseline= 0, target = 1 meeting per year, satisfaction with outcome of the meetings >80%)

Renewable energy sub-component	
Outcome	Provisionally identified Outcome indicator

Renewable energy sub-component	
Outcome	Provisionally identified Outcome indicator
C2a-O1. The power system is able to efficiently integrate increasing shares of renewable energy and cogeneration	Percentage of electricity generation with clean energy sources on track to meet 35% by 2024 (ENCC indicator #6) (baseline 20%, Target increase of 1% per year)
C2a-O2. Methodologies for renewable energy planning are enhanced	SENER has developed scenarios for renewable energy expansion and defined targets applicable to a reformed electricity sector. SENER and CRE have designed regulation to overcome barriers and adjust incentives, including with regard to internalizing externalities and addressing social acceptance issues, which impact on renewable energy planning (year 2,3) Baseline =0, target scenarios in year 2,3, updated regulation and incentives available in year 2,3).
C2a-O3. Mexican capacity in wind energy technology is increased	The semi-annual review of the CEMIE-Wind makes an increasingly positive assessment of the project portfolio and performance relative to international benchmarks and best practice (year 2, 3). Baseline = first semi-annual review, target = improving reviews against international best practice.

Energy efficiency sub-component	
Outcome	Provisionally identified Outcome indicator
C2b-O1 Regulative and supportive measures improved for ensuring construction of energy efficient non-residential buildings	Regulations are adjusted (year 2) Baseline =0, Target = year 2 adjustment made and found to be satisfactory with some degree of attribution to Danish support
C2b-O2 Energy Management System (EMS) and supportive measures improved for commercial and public buildings	Demonstration of EMS in at least one public building indicates significant energy saving in first year, (base line =0, target <15% energy saving in the building by year 3)
C2b-O3 Improved Energy Management Systems and supportive measures for selected mainly larger industries	At least one industry in a selected sector adopts an enhanced EMS (year 3), (baseline =0, target = 1 (year 3)

Reporting

Following the overall alignment principle, reporting responsibility will be placed with the Mexican entity that has the lead agency mandate for the component/ sub-component. To the extent possible the reporting on the cooperation will follow and be guided by the normal reporting at the level of the Director General or its equivalent. It is recognized that the

reporting on the cooperation will be additional and potentially burdensome at a time of year when all are busy. Therefore the Long Term International Advisor supported by the working groups will assist in producing and assembling the program reporting. The entities with the lead responsibility for reporting against outcomes are shown in table 8.3

Table 8.3 Lead responsibility for reporting

Component /sub-component	Outcome	Entity with lead responsibility for reporting
Climate	Strengthened general framework for evaluation of Mexico's climate change strategy and programs in relation to mitigation in accordance with Law on Climate Change.	INECC
	Enhanced tracking of progress in implementation of PECC2 energy related measures with regard to mitigation policy design and implementation.	SEMARNAT
	Analytical input provided to support SEMARNAT/INECC in preparations for 2015 agreement on post-2020 target setting.	SEMARNATT
	Consistent framework established for assessing co-benefits of energy related mitigation actions	SEMARNAT
	Enhanced regional outreach on climate change mitigation to other growth economies (e.g. Colombia, Chile, Peru).	SEMARNAT/INECC
	Strengthened enabling environment for mitigation-relevant low-carbon technology innovation and adaptation	INECC
	Functioning platform for public-private dialogue on climate policy	SEMARNAT/INECC
Renewable energy	The power system is able to efficiently integrate large shares of renewable energy and co-generation	SENER (Dir. General Sustainability)
	Methodologies for renewable energy planning are in place influencing practice	SENER (Dir. General Energy Planning)
	Mexico capacity for adopting innovative wind energy technology is increased	SENER (Dir. General Information & studies)
Energy efficiency	Regulative and supportive measures improved for ensuring construction of energy efficient non-residential buildings	CONUEE
	Energy Management System (EMS) and supportive measures improved for commercial and public buildings	CONUEE
	Improved Energy Management Systems and supportive measures for selected mainly larger industries	CONUEE

Reviews

A mid-term review will be held. The main purpose will be to independently determine the progress made vis-à-vis plans and assess if the cooperation is likely to reach its overall goals and to recommend what if any adjustments in approach are needed.

Evaluation

No evaluation is planned.

9 Key assumptions and risks

The main assumptions of the program are that:

1. The Mexican Government maintains its commitment to a low-carbon transition and related targets for mitigation and energy, and this commitment is reflected in key planning documents as well as in resource allocation to responsible ministries and institutions.
2. Sector coordination mechanisms within the public sector and between the public sector, civil society and the private sector are effective.
3. CFE will engage with the Mexican-Danish cooperation and make use of the know-how and information available.
4. CEMIE-Wind is established as expected.
5. Social acceptance issues are addressed in a coordinated way so as to reduce the risks to investments in renewable energy projects.
6. Energy prices will not fall so as to discourage investment in the grid and renewables or adoption of energy efficiency measures.

1) The Mexican Government maintains its commitment to a low-carbon transition and related targets for mitigation and energy, and this commitment is reflected in key planning documents as well as in resource allocation to responsible ministries and institutions.

This overarching assumption is critical to the attainment of the objectives because key policy and planning documents are being developed during the first year of the current administration's six-year period, and these will set the stage for the level of ambition and type of prioritized actions of relevance to all the outcomes under the program. In addition to the policy guidance provided by these documents, it is equally important that resources and political backing is provided to the implementing institutions, which will enable them to engage in the planning of the activities and inputs under the program and take up the technical inputs made.

The risk factors that influence this assumption are that: short term priorities, political barriers and energy system inertia makes the Government retreat from or postpone established objectives and targets; the allocation of resources to, in particular, SENER and SEMARNAT is not scaled to reflect the magnitude of the tasks required from them.

Risk is judged as low.

The mitigation actions that can be taken will be: the importance of resource allocation to key institutions is highlighted during the planning and implementation of the program; the international and global significance of Mexico's leadership is highlighted in high-level political interaction with Mexico by all international cooperation partners.

Monitoring of the assumption and risk factors can best be done through the early planning phases of the program.

2) Sector coordination mechanisms within the public sector and between the public sector, civil society and the private sector are effective

This assumption is critical to the attainment of the objectives, because the outcomes require a high level of coordination particularly within the public sector. Most outcomes need close cooperation not only between director generals but also between ministries and commissions.

Risk factors that influence this assumption are: diverging institutional interests and a lack of time by key staff to coordinate.

Risk is judged as medium.

Mitigation actions that can be taken will be: simplifying the cooperation as far as possible; linking cooperation to the working plans of the entities; ensuring a good communication on the benefits of coordinating and sharing the benefits of the cooperation amongst all parties that are involved;

Monitoring of the assumption and risk factors can best be done through the working groups that will assess the degree to which different entities and director general offices are contributing as expected.

3) CFE will engage with the Mexican-Danish cooperation and make use of the know-how and information available

This assumption is critical to the attainment of the objective related to renewable energy, in particular to the outcome on integration of renewable energy in the power system, because CFE is the organization that is charged with implementing the higher share of renewables in the electricity grid.

Risk factors that influence this assumption are that: on closer examination it is demonstrated that CFE are already sufficiently equipped or likely to be equipped in the near future with state of the art approaches; based on the need to achieve shorter term operational goals CFE decide to only start planning for the introduction of renewables after the cooperation period (i.e. past 2016).

Risk is judged as medium to low, provided mitigating action is taken.

Mitigation actions that can be taken will be: SENER through the Electricity undersecretary engages with CFE; CFE are invited to exchange visits to Denmark to witness first-hand the expertise available; the support to CFE is flexible and responsive to the CFE's needs.

Monitoring of the assumption and risk factors can best be done through noting the participation on exchange visits and the call for assistance/support following the exchange visits.

4) CEMIE-Wind is established as expected

This assumption is critical to the attainment of the objectives, because the outcome on development of innovative wind technology depends on the early establishment of the CEMIE-Wind.

Risk factors that influence this assumption are: policy changes in how the CEMIE should operate; delays in tendering and contracting the consortiums

The risk is judged as medium to low. Low risk that CEMIE-Wind will not go ahead, medium risks that it will be delayed.

Mitigation actions that can be taken will be to postpone and adjust the support program until the CEMIE is established.

The monitoring of the assumption and risk factors is self-evident and can be done by keeping in close communication with the Director General of Information and Studies in SENER.

5) Social acceptance issues are addressed in a coordinated way so as to reduce the risks to investments in renewable energy projects.

The assumption is critical to the attainment of the objectives, because major social upheavals in the regions where renewable energy resources are located may compromise and delay the planned RE expansion.

The risk factors that influence this assumption are: Progress in ongoing efforts by SENER and by the private sector in addressing social acceptance issues. Social and political processes at the local level and possible spillovers to the national level.

The risk is judged as medium to low. Medium risk that issues will continue to arise in the short term, low risk that it will not be addressed, as it is already a focus area for SENER.

Mitigation actions that can be taken include a specific activity in this Program (under the RE subcomponent), which will convey experience from Denmark and other countries on how social acceptance issues with regard to renewable energy (wind, biomass) can be addressed

with a view to identifying and promoting the use of “best practices” for consultation processes.

Monitoring of the assumption and risk factors can be done as part of the monitoring of the Program's RE subcomponent where specific activities address the issue of social acceptance.

6) Energy prices will not fall, thereby discouraging investment in the grid and renewables or adoption of energy efficiency measures.

This assumption is critical to the attainment of the objectives, because low electricity prices will reduce the incentive for industry and the federal government to reduce energy use and make investments in energy efficiency measures.

If lowered energy prices are the result of increased subsidies to end users through distorted tariffs, this will tend to reduce the ability of CFE to make investments in extending the grid and in renewable energy expansion.

The risk factors that influence this assumption are: Electoral promises to reduce energy tariffs for selected groups, a fall in international energy prices and the entrance of new energy sources such as shale gas, and insufficient reflection of externalities in prices.

The risk is judged as medium.

The mitigation actions that can be taken will be to focus on measures that can be effective even if energy price signals to consumers are not optimal.

The monitoring of the assumption and risk factors can be done by noting rises or falls in the energy price.

10 Implementation

The program implementation plan will be developed in detail as part of the annual work plan and budget process of the SEMARNAT/INECC and SENER. The first year's workplan will be prepared in November 2013 with the assistance of the LCTU and the working groups.

There will be a six month inception period with the possibility of at least one exchange event in the first quarter.

Figure 10.1 shows the main steps throughout the 3½ year cooperation period.

Figure 10.1 Implementation plan

Main steps	2013	2014				2015	2016	2017
	oct-dec	jan-mar	Apr-June	July-sept	oct-dec			
Fast track activities	=====							
Support to first year work plans	=====							
Tendering and contracting Mexican-Danish consortium/Unit		=====						
Inception period		=====						
Support consultancy inception period			=====					
Implementation		=====	=====	=====	=====	=====	=====	
Mid-term review						=====		
Project closure								=====

Annex A Budget details

Separate file

Annex B List of donors

Institution	Program name	Topic	Sector	Specific area of support
Canada	Canada Fund for Local Initiatives	Stimulating sustainable economic growth		
France – AFD		Modelling	Electricity	
Germany –GIZ	NAMA Programme	Housing NAMA	Housing	Planning and development of housing NAMA for newly built houses
		SMEs	Energy efficiency	
		Freight transport	Transport	
	Sustainable Energy			
Climateworks Foundation – (ICAL)	Climate Policy		Climate change and energy policy	Assist the Mexican Government in designing low carbon, sustainable mid-term energy policy instruments.
			Climate change policy	Harmonization of Mexico’s regulatory framework with new climate change law
			Climate change policy	Involving the Private Sector in the Green Economy path in Mexico
			Climate change and energy	Second phase of the Mexican Renewable Energy Initiative (IMERE) on increasing awareness of renewable energy development in Mexico’s public opinion
	Power		Energy	Improving the performance of SENER’s energy funds to help achieve Mexico’s GHG abatement target and renewable energy goals
			Energy	Towards clean, renewable, and just energy in Mexico: design of a methodology for public participation and involvement in renewable energy projects.
	Transport		Transport	Supporting Mexico City Government in reducing transportation’s GHG emissions
Norway		REDD+	Forestry	
Spain –AECID		State level Climate Change Action Plans	Climate change policy	Financial support for the development of PEACCs in various Mexican states.
UK- FCO	Prosperity Fund	Assist the Mexican Government in the preparation of policies for the energy sector	Climate change and energy policy	Financial support to assist the Mexican government in the preparation of policy instruments in 2013
USA – USAID	MLED	Track 1 – Emissions modelling	Climate change policy	Support to emissions baseline development and climate change economics modelling

Institution	Program name	Topic	Sector	Specific area of support
		Track 2 – MRV	Climate change policy	
		Track 3 –Investment in renewable energy pilots	Clean energy	
World Bank	Partnership for Market Readiness (PMR)	Development of carbon markets and market instruments		Grant financing and technical assistance for capacity building and piloting of market-based tools for GHG emissions reduction
				NAMA Registry and Tracking Tool
				NAMA on Integrated urban mobility
				NAMA on Domestic refrigerators
				Urban NAMA
IDB		State-level Climate Change Action Plans		INECC
		Provide input to government policies		CESPEDES

Annex C Mandate for Program Steering Committee

1. Background

The Program Steering Committee is the formal mechanism for joint decision-making on the Mexican-Danish cooperation within climate and energy. The purpose of the program Steering Committee is to facilitate discussion, enable fast decision making and ensure a constructive dialogue between the partners.

2. Mandate and scope

The program Steering Committee will endorse annual work plans and budgets for the two components and recommend them for approval by the Mexican and Danish governments. The committee will discuss the strategic direction of the Mexican-Danish cooperation and recommend areas where it can be more effective.

3. Composition

The composition of the Steering Committee is:

- SEMARNAT, Under Secretary – chair
- SENER, Under Secretary – co chair
- MCEB – LCTU – co-chair
- Embassy of Denmark, Mexico
- INECC
- CONUEE
- CRE
- CFE
- Representative(s) from civil society/private sector
- Donors (observers)

Resource persons may be asked to participate in the meetings.

4. Working procedures

- Decisions are made by consensus.
- The program Steering Committee will meet once a year or when the chairs and co-chairs call for an extraordinary meeting.
- Standard annual agenda for the program Steering Committee include: approval of the annual work plan and budget, review of progress reports.
- The Long Term International Advisor will act as the secretariat for the program Steering Committee.
- The secretariat will announce the meetings with at least two weeks' notice. All documentation for the meetings (plan/budget, reports, proposals for adjustments, etc.) shall be distributed to the members at least two weeks in advance together with a draft agenda.
- The secretariat is responsible for drafting the minutes of the program Steering Committee meetings and distributing these to all participants within a week after the meeting. The program Steering Committee approves the minutes at the next meeting.

Annex D Draft Job Description of Long Term International Advisor

1 Background

Mexico and Denmark have a strategic priority to strengthen cooperation in the area of energy and climate change mitigation. The governments of Denmark and Mexico initiated technical cooperation within climate change and energy starting with a Memorandum of Understanding in 2005 and a further Memorandum of Understanding in 2007 which focussed on cooperation within energy. Since 2011, the Secretary for Environment and Natural Resources (SEMARNAT) and the Danish Energy Agency (DEA) have been actively cooperating on modelling for national baselines and emission reductions.

A new 3½ year cooperation between Mexico and Denmark will be launched in 2014 as part of the Global Framework under the Danish 2013 Climate Envelope.

The objective of Mexican-Danish cooperation is that *“Mexico, substantially assisted by exchange of knowhow and experience with Denmark, has consolidated its pathway to a low- emission future and is on track to realizing its goals of reducing its greenhouse gas emissions by 30% below its business as usual scenario by 2020 and generating 35% of its electricity through use of non-fossil fuel based generation by 2024”*. This objective will be reached by focusing support on climate change mitigation, renewable energy and energy efficiency.

The Mexican-Danish cooperation within climate and energy will be governed by a Steering Committee composed of key implementing agencies in Mexico and representatives of the MCEB in Denmark. A Long Term International Advisor reporting to the Steering Committee will coordinate the detailed planning and reporting necessary to ensure an effective and vibrant cooperation. Implementation of the activities will be anchored within different Mexican Ministries, Departments and Agencies in line with mandates and coordination arrangements.

Every year a workplan and budget for the cooperation will be drawn up based on the activities foreseen by the implementing entities. The workplan and budget for the next year and a report on the previous year will be submitted by the International Advisor to the Steering Committee for approval.

2 Main responsibilities

The main responsibilities of the Long Term International Advisor are:

- Liaise closely with the implementing entities and in particular the working groups that bring together the main people responsible for climate, renewable energy and energy efficiency.

- Assemble input for the annual workplan, budget and annual report from the relevant implementing entities and ensure timely submission of consolidated versions of these documents to the Steering Committee;
- Ensure that working groups meetings are held and well prepared with input from implementing entities and that all important issues to ensure a smooth and efficient implementation of the program are addressed at the working group meetings as well as through direct interaction with the implementing entities.
- Draft TOR for procurement of technical assistance and other inputs based on input from implementing entities
- Coordinate activities closely with other international support
- Ensure that day to day logistical and administrative support is provided with the support of the Implementation Support Unit, including the local coordinator to ensure efficient delivery of short term technical inputs from Denmark, exchange visits and the other inputs required by the cooperation.

3 Qualifications and experience

The Long Term International Advisor will have the following qualifications:

- A Master's degree or corresponding qualifications in environmental management, engineering, energy management economics, international development, political science and/or subjects relevant to climate change, renewable and energy efficiency.
- 10 years' experience in one or more related fields such as: promotion of energy efficiency in industry and/or buildings; renewable energy planning and power system management; climate change mitigation planning and analysis.
- Experience in the management of technical assistance, exchange visits and technical secondment.
- Familiarity with development assistance and, preferably Danish development assistance.
- Extensive experience from developing countries and, preferably, Latin America;
- Fluency in English written and spoken; Fluency in Spanish is an advantage but as a minimum ability to read documents and a willingness to attain fluency will be required.
- Good written and verbal communication skills
- Ability to work as part of an interdisciplinary team with relations to different ministries and stakeholders.

Annex E Documents

- Cámara de Diputados del H. Congreso de la unión. (2008). “Ley para el Aprovechamiento Sustentable de la Energía”. DOF 28-11-2008.
- Cámara de Diputados del H. Congreso de la Unión. (2008). “Ley de la Comisión Reguladora de Energía”. Última reforma DOF 28-11-2008.
- Cámara de Diputados del H. Congreso de la unión. (2012). “Ley para el Aprovechamiento de Energías Renovables y el Financiamiento de la Transición Energética”. DOF 12-01-2012.
- Cámara de Diputados del H. Congreso de la Unión. (2012). “Ley Federal de Derechos”. Última reforma DOF 09-04-2012.
- Cámara de Diputados del H. Congreso de la Unión. (2012). “Ley del Servicio Público de Energía Eléctrica”. Última reforma DOF 09-04-2012.
- Cámara de Diputados del H. Congreso de la Unión. (2012). “Ley General de Cambio Climático”. Nueva ley DOF 06-06-2012.
- Cámara de Diputados del H. Congreso de la Unión. (2012). “Reglamento de la Ley para el Aprovechamiento de Energías Renovables de la Comisión Reguladora de Energía”. Última reforma DOF 30-11-2012.
- Cámara de Diputados del H. Congreso de la Unión. (2012). “Reglamento de la Ley del Servicio Público de Energía Eléctrica”. Última reforma DOF 30-11-2012.
- Cámara de Diputados del H. Congreso de la Unión. (2012). “Ley de Ingresos de la Federación para el Ejercicio Fiscal del 2013”. Nueva ley DOF 17-12-2012.
- Cámara de Diputados del H. Congreso de la Unión. (2012). “Ley de Energía para el Campo”. Ultima Reforma DOF 28-12-2012.
- Cámara de Diputados del H. Congreso de la unión. (2013). “Ley Orgánica de la Administración Pública Federal”. Ultima Reforma DOF 02-04-2013
- CFE. (2012). “Programa de Obras e Inversión del Sector Eléctrico 2012-2026”. Subdirección de Programación. Available on line at: http://www.cfe.gob.mx/ConoceCFE/1_AcercadeCFE/Paginas/Publicaciones.aspx
- Climate change trust fund – Mexico quick facts (see <https://www.climateinvestmentfunds.org/cifnet/?q=country/mexico>)
- Comisión Intersecretarial de Cambio Climático (2013). Estrategia Nacional de Cambio Climático. Visión 10-20-40”
- Comisión Intersecretarial de Cambio Climático. (2009). “Programa Especial de Cambio Climático 2009-2012”. DOF 28/08/2009.
- Comisión Intersecretarial de Cambio Climático. (2012). “Informe de Avances del Programa Especial de Cambio Climático 2009-2012”. SEMARNAT, México.
- Comisión Intersecretarial de Cambio Climático. (2007). “National Strategy on Climate Change. Mexico. Executive summary”.
- CONAVI; SEMARNAT (2011). “Supported NAMA for Sustainable Housing in Mexico - Mitigation Actions and Financing Packages”. Mexico City. Available online at: <http://www.conavi.gob.mx/viviendasustentable>

- De Buen, O. (2012). “Eficiencia energética en edificios en México: un recuento histórico”. ENTE, S.C. Febrero de 2012.
- DEA (December 2012) Energy Policy in Denmark
- DEA (2012) Energy Policy Toolkit on system integration of Wind Power, Experiences from Denmark
- DEA. (2013). “National Greenhouse Gas Emissions Baseline Scenarios. Learning from Experiences in Developing Countries”. April 2013.
- Ecofys; Climate Analytics. (May 2012). “Assessment of Mexico’s policies impacting its greenhouse gases emission profile”. Climate Action Tracker Mexico. 03 May 2012.*
- GIZ, IMCO (2012) Evaluación del Programa Especial de Cambio Climático*
- IEA (February 2013) “Prospects for Energy Reform in Mexico”. *
- IMERE (May 2013) Mexican Renewable Energy Initiative
- IMCO. DNV. (2012). “Evaluación del Programa Especial de Cambio Climático”. GIZ-Programa Alianza Mexicana-Alemana de Cambio Climático.
- INECC. (2012). “Bases para una Estrategia de Desarrollo Bajo en Emisiones en México”. Noviembre 2012.
- Flores, A. INECC. (2013). “Measuring progress towards green growth in Mexico”. Green Growth Knowledge Platform, 2nd. Annual Conference. Paris, April 4-5. OECD
- Garrison, J. (2010). “Clean energy and climate change opportunities. Assessment for USAID/Mexico. *
- GIZ (2013). List of ICI Projects in Mexico 2008-2013.
- Johnson, T. Alatorre, C. Romo, Z., Liu, F. (2010). Low-Carbon Development for Mexico”. MEDEC study. World Bank, Washington, D.C
- Mexican –Danish MoU on energy + addendum (2005,2007)
- Núñez, I. (2011). “Informe Final de Evaluación en Materia de Diseño del Programa Presupuestario U022 Mitigación y Adaptación del Cambio Climático 2011. México.
- OECD (2013) OECD Environmental Performance Reviews: Mexico 2013. OECD Publishing. Available online at: <http://dx.doi.org/10.1787/9789264180109-en>
- Presidencia de la República. (2013) “Plan Nacional de Desarrollo 2013-2018” <http://pnd.gob.mx/>
- PwC (2012). “Plan integral para el desarrollo de energías renovables en México 2013-2018”.
- PwC. (2012). “Iniciativa para el desarrollo de las Energías Renovables en México. Acciones para el impulso de la energía Solar Fotovoltaica en México”. Junio 2012.
- PwC. (2012). “Iniciativa para el desarrollo de las Energías Renovables en México. Acciones para el impulso de la energía geotérmica en México”. Junio 2012.
- PwC. (2012). “Iniciativa para el desarrollo de las Energías Renovables en México. Acciones para el impulso de la cogeneración en México”. Junio 2012.
- PwC. (2012). “Iniciativa para el desarrollo de las Energías Renovables en México. Acciones para el aprovechamiento de la biomasa en México”. Junio 2012.

- Sheinbaum, C. (2011). “Evaluación del Programa Especial de Cambio Climático para escenario de emisión y mitigación de gases de efecto invernadero en la categoría de energía”. Informe final. Instituto de Ingeniería, UNAM.
- SEMARNAT. (2012). “Quinta Comunicación Nacional de México ante la Convención Marco de las Naciones Unidas sobre Cambio Climático.”
- SEMARNAT. (2013). “Market Readiness Proposal (MRP). Mexico”. Partnership for Market Readiness. February 18th, 2013.
- SENER. (2012). “Energy Information System – SIE”. Available online at: http://www.sener.gob.mx/portal/estadisticas_de_energia.html
- SENER (2012). “Iniciativa para el desarrollo de las energías renovables en México. Energía eólica”. Noviembre 2012.
- SENER (2013). “Estrategia Nacional de Energía 2013-2027”
- SENER. (2013). “Renewable energies in Mexico: Present and Future on a low carbon inclusive development path”. April 2013. Paris.
- SHCP. (2012). National federal budget 2013. DOF. 27/12/2012. Available online at: http://www.dof.gob.mx/nota_detalle.php?codigo=5283490&fecha=27/12/2012
- UNEP (2009) “Greenhouse Gas Emission Baselines and Reduction Potentials from buildings in Mexico
- USAID. (2012). Workshop on Climate Change Economics Modeling”. Mexico Low Emissions Development Program. April 17-19, 2012.
- World Bank. (2010). “Low carbon development for Mexico”. Low Carbon Growth Country Studies Program. ESMAP. World Bank, Washington, D.C.*
- WWF (April 2013) Climate change in Mexico, Our Work

Annex F Environment and climate change screening note

Attached as a separate file.

Annex G Summary of Log frames

Summary log frame of Climate change component			
Objective	SEMARNAT and INECC are enabled to drive ambitious mitigation action in support of Mexico's low-carbon transition benefitting from Danish support for analysis and policy development.		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
C1-O1. Strengthened framework for evaluation of climate change strategy and programs in relation to mitigation in accordance to Law on Climate Change	A review after each year shows that the evaluation framework is i) appropriate; ii) functioning in practice and iii) has benefitted from continued Danish assistance through incorporation of methodologies/adjustments proposed through the Danish assistance. (baseline = 0; target = yes on all three sub criteria, measured each year).	<p>1.1 Danish and international approaches and experience of mitigation planning, policy design, implementation, tracking, and evaluation frameworks made available to Mexico</p> <p>1.2 Support provided for conceptual design, roll-out and implementation of guidelines, criteria and indicators of efficiency and impact, in particular for energy related mitigation actions benefits, based on international experience</p> <p>1.3 Capacity building provided for the Evaluation Coordination</p>	<p>Output 1.1:</p> <p>A1. Review best Danish and international practice in evaluation of mitigation planning and implementation as well as related institutional frameworks and process.</p> <p>A2. Compare and exchange (Danish and international) experiences on the setup and operation of similar frameworks for evaluation with a view to identifying possible improvements to the design of the Evaluation Coordination.</p> <p>A3. Support INECC in designing the process and defining the principles for the Evaluation Coordination in collaboration with SEMARNAT/Interministerial Commission on CC, and making use of the CC System.</p> <p>Output 1.2:</p> <p>A1. Support conceptual design of the evaluation scheme including the criteria, steps, and indicators of effectiveness and impact provided by LGCC (Art. 15, p. II).</p> <p>A2. Assist in establishing the scope of the evaluation by sector and LGCC objectives, including the definition of roles and functions of social advisors in the Evaluation Coordination and of the independent organizations provided by LGCC in Chapter II, Section 25.</p> <p>A3. Review the existing monitoring and evaluation framework with regard to data collection systems, quality control, resource availability, data management and reporting/communication.</p> <p>A4. Advise on the design of the Evaluation Mechanism by sector, in particular energy, and contribute to planning for commissioning and implementation.</p> <p>Output 1.3:</p> <p>A1. Support definition of knowledge and skills requirements for performing each function within the evaluation scheme of the Evaluation Coordination.</p> <p>A2. Contribute to planning of a program for evaluation capacity development, e.g. for social counselors or independent organizations.</p>
C1-O2. Enhanced tracking of progress on implementation of PECC 2014-2018 energy related measures with regard to mitigation policy design and implementation	Annual peer review of the progress tracking (PECC2 and 2020 emission targets) concludes that the tracking is satisfactory against the MRV criteria of transparency, relevance, accuracy, completeness and consistency. (baseline = no progress tracking yet; target all MRV criteria are	<p>2.1 Updated emission projections, trends and scenarios, and analysis of remaining mitigation potentials by sector and gases</p> <p>2.2 In-depth tracking of individual (energy-related) mitigation actions in the PECC2 2014-18 including assessment of their mitigation effects, and benchmarking against international best practices mitigation actions and policy measures</p>	<p>Output 2.1:</p> <p>A1. Study of international good practice in assessing mitigation potentials from main mitigation actions (including NAMAs) in key, mainly energy-related sectors .</p> <p>A2. Design an analytical tool and associated processes for systematic and ongoing review, evaluation, and update of emission projections and mitigation potentials.</p> <p>Output 2.2:</p> <p>A1. Contribute to design of the review process for the PECC 2014-2018 , with a view to ensuring a systematic and ongoing assessment</p> <p>A2. Draft an analytical framework for the tracking of mitigation actions, including indicators</p> <p>A3. Design/identify tools to track and review the progress against indicators.</p>

Summary log frame of Climate change component			
Objective	SEMARNAT and INECC are enabled to drive ambitious mitigation action in support of Mexico's low-carbon transition benefitting from Danish support for analysis and policy development.		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
	satisfactory)		
C1-O3. Analytical input provided to support CICC via SEMARNAT/INECC in preparation for UNFCCC's 2015 agreement on post-2020 target setting	An interview of the chairperson of the Interministerial Commission on Climate Change confirms that the commission is satisfied that the analytical input to Mexico's preparations for the 2015 agreement is effective and appropriate. (baseline = 0, target = satisfied).	3.1 Modelling results regarding post-2020 emission trajectories and mitigation potentials covering Mexico, other major economies, and the global level. 3.2 Technical analysis of mitigation costs and other indicators relevant to global effort sharing according to various parameters.	Output 3.1: A1. Identify technical analysis requests by the CICC in the preparations for a post-2020 agreement. A2. Identify Danish and international modelling results and/or carry out targeted modelling, as relevant. A3. Communicate modelling results in accessible formats to the CICC. Output 3.2: A1. Identify possible indicators and criteria for establishing appropriate mitigation objectives of selected key countries. A2. Provide indicative mitigation objectives based on Danish and international modelling results.
C1-O4. Consistent framework established for assessing co-benefits of energy related mitigation actions	An annual review of the SEMARNAT/INECC papers shows that a consistent framework has been adopted and is being used for assessment of co-benefits which are quantified in the SEMARNAT /INECC papers (baseline = 0, target > 30% of co-benefits quantified in year 1; > 60% in year 2, > 80% in year 3 and 4)	4.1 Danish and European experience with identifying and quantifying co-benefits of energy related mitigation actions made available to INECC / SEMARNAT/SENER 4.2 Methodology / guideline for incorporating multiple benefits in assessment of mitigation actions developed	Output 4.1: A1. Study international practice and experience in the identification and quantification of co-benefits, in particular energy-related. A2. Build Mexican capacity to identify and quantify energy-related co-benefits. Output 4.2: A1. Develop methodology/guideline for identification and assessment of multiple benefits of mitigation actions.
C1-O5. Enhanced regional cooperation and international outreach on climate change mitigation planning, design and implementation	Triangular meetings are held at least once per year (Mexico, Denmark, other regional players) held leading to concrete follow up initiatives. (baseline = 0, target 1 per year with minutes that record at least 1 concrete initiative per year)	5.1 Sharing at the regional level experience on key elements of climate policy design, planning and implementation	Output 5.1: A1. Technical support to the planning and content development of a series of "triangular" regional seminars to facilitate sharing of experience and peer-to-peer learning targeting policymakers, experts and stakeholders from Mexico, Denmark and mainly high-growth Latin American countries.. A2. Facilitate "triangular" seminars and setting up of peer-to-peer networks on: • Legal and institutional frameworks for climate change mitigation planning, e.g. climate change laws, interministerial cooperation and public-private cooperation (CICC, SNCC etc.). • Modelling of emission baselines and analysis of mitigation potentials • Mitigation policy planning and design of (energy related) mitigation actions (PECC, PEACC, PACMUN).

Summary log frame of Climate change component			
Objective	SEMARNAT and INECC are enabled to drive ambitious mitigation action in support of Mexico's low-carbon transition benefitting from Danish support for analysis and policy development.		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
			<ul style="list-style-type: none"> • Tracking of mitigation performance and co-benefits (SIAT-PECC, Evaluation Coordination). • Mechanisms to overcome financing barriers and mobilize investors.
C1-O6. Strengthened enabling environment for mitigation-relevant low-carbon technology innovation and adaptation	At least one significant initiative on low carbon technology innovation and adaptation in Mexico can be traced back to Danish assistance by year 3. (baseline = 0, target =1)	<p>6.1 Best practice Danish / international frameworks for mitigation-relevant technology innovation demonstrated to Mexican stakeholders</p> <p>6.2 Contacts and cooperation facilitated between Mexican and Danish / international technology institutions</p> <p>6.3 Mexican and Danish instruments screened that may co-finance concrete follow-up technology cooperation initiatives</p>	<p>Output 6.1:</p> <p>A1. Prepare terms of reference for study on potential mitigation technologies that will support the achievement of national mitigation-related goals in the medium and long term. Advise on call for proposals and follow implementation of the study.</p> <p>A2. Provide advice for the establishment of the Directorate for Innovation and Technology Transfer related to mitigation within INECC.</p> <p>A3. Support the recruitment and capacity building of staff within the area of innovation and technology transfer, and within specific aspects of priority energy-related technologies.</p> <p>A4. Provide analytical input contributing to the Identification of priority sectors for innovation, development and transfer of mitigation-related technologies in the medium and long term.</p> <p>A5. Identify barriers to financing/co-financing of mitigation technologies in Mexico.</p> <p>Output 6.2:</p> <p>A1. Identify stakeholders and partners relevant to the topic of innovation and technology transfer for mitigation for priority energy-related sectors.</p> <p>A2. Define the mechanism of cooperation between partners.</p> <p>A3. Workshops, conferences and exchange visits on innovation and technology transfer for mitigation.</p> <p>Output 6.3:</p> <p>A1. Screen Danish and Mexican co-financing instruments that may enhance financing for innovation and transfer of mitigation technology.</p> <p>A2. Identify examples of catalytic programs and projects that promote innovation and technology transfer in mitigation.</p> <p>A3. If feasible, facilitate Mexican-Danish cooperation on instrument(s) of co-financing based on A1 and A2.</p>
C1-O7. Functioning platform for public-private dialogue on climate policy	Platform meetings held at least 1 per year and an online survey among members shows satisfaction, (baseline= 0, target = 1 meeting per year, satisfaction with outcome of the meeting >80%)	<p>7.1 Successful Danish / international approaches to public-private collaboration demonstrated to Mexican stakeholders</p> <p>7.2 Mexican public-private dialogue platform linked up with international fora for public-private cooperation</p>	<p>Output 7.1:</p> <p>A1. Study Mexican, Danish and international success stories to identify key issues and potential frameworks for public-private collaboration on mitigation.</p> <p>A2. Organize workshop(s) to share information and generate public-private learning between Denmark and Mexico as well as within Mexico (between institutions, agencies and the private sector), including through linkages with 3GF as relevant.</p> <p>Output 7.2:</p> <p>A1. Disseminate the platform for public-private dialogue to 3GF and similar forums (facilitate participation and access).</p> <p>A2. Contribute to implementation of joint activities and agreements developed by the</p>

Summary log frame of Climate change component			
Objective	SEMARNAT and INECC are enabled to drive ambitious mitigation action in support of Mexico's low-carbon transition benefitting from Danish support for analysis and policy development.		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
			platform for public-private dialogue.

Summary log frame of Renewable energy sub- component			
Objective	<i>Low-carbon transition of the power sector will be facilitated through sharing of experience and policy, planning, regulatory and technical cooperation in order to promote and enable the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.</i>		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
C2a-O1. The power system is able to efficiently integrate increasing shares of renewable energy and cogeneration	Percentage of electricity generation with clean energy sources on track to meet 35% by 2024 (ENCC indicator #6) (baseline 20%, Target increase of 1% per year)	<p>1.1 Enhanced analytical basis established for policy and regulatory decisions on grid development and network integration of renewable energy including efficient cogeneration.</p> <p>1.2. Regulatory and technical requirements for renewable energy and efficient cogeneration</p> <p>1.3 Methodologies developed for advanced system planning of transmission grid and reserve capacity in high-renewable and efficient cogeneration scenarios</p> <p>1.4 Alternative and efficient options for financing and cost allocation of grid investments identified</p> <p>1.5 Methodologies acknowledged for identifying strategic investment needs in transmission and distribution grids</p> <p>1.6 Advanced tools and procedures introduced for forecasting and system operation with variable generation</p> <p>1.7 Enhanced options for system flexibility identified through measures in production, demand response and storage, including the contribution by smart grids.</p> <p>1.8 Enhanced methodologies developed for assessing the impact of energy efficiency measures on needs for power production and transmission capacity</p>	<p>Output 1.1:</p> <p>A1. Study and capacity building on legal, regulatory and institutional aspects of importance to the promotion of renewable energy in a reformed market, including the transition phase.</p> <p>A2. Capacity building for policymakers and regulators (including study tours to Danish TSO and energy authorities) on best practice in policy and regulation concerning system operation with high penetration of renewable energy.</p> <p>A3. Support and capacity building for design of enhanced regulatory practices related to system operation.</p> <p>A4. Contribute to improvements in modelling of renewable energy in Mexico's power system on the basis of international experience.</p> <p>A5. Capacity building (training, seminars and studies) on promotion of renewable energy in different electricity market configurations.</p> <p>A6. Study tour(s) to Denmark to TSO control centre and energy authorities.</p> <p>A7. Address technical and non-technical losses with a view to reducing them to international levels by: a) Reviewing Mexican and international policy and legal frameworks. b) Identifying appropriate regulatory responsibilities and measures.</p> <p>A8. Identify and assess approaches to reflecting externalities in the prioritization of dispatch and market access (covering both CFE and other potential producers).</p> <p>A9. Share experience in the region and internationally with integration of RE and efficient cogeneration through international seminars and other cooperation such as the Clean Energy Ministerial.</p> <p>Output 1.2:</p> <p>A1. Analyze existing interconnection rules and their implementation, including grid codes and standards.</p> <p>A2. Assist CRE and SENER in formulating improvements to regulatory framework for RE, including adjustments to grid code and standards.</p> <p>A3. Build capacity to Identify necessary regulatory and technical adjustments relating to renewable energy and efficient cogeneration in the context of a possible transition toward a restructured electricity sector, including i.a. regulatory incentives for third-</p>

Summary log frame of Renewable energy sub- component			
Objective	<i>Low-carbon transition of the power sector will be facilitated through sharing of experience and policy, planning, regulatory and technical cooperation in order to promote and enable the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.</i>		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
			<p>party access.</p> <p>Output 1.3:</p> <p>A1. Support enhanced power market modelling and monitoring in a situation with increasing shares of RE, including i.a. data collection, analysis and scenario development.</p> <p>A2. Support grid modelling, including load flow and stability analysis.</p> <p>A3. Capacity building (studies, seminars and exchange visit to Danish System Operator) to convey Danish and international experience with cost-effective and robust system planning, including the use of economic incentives.</p> <p>A4. Assess the role and operation of "spinning reserves" in Mexico, including the related cost aspects.</p> <p>A5. Identify and help design methodologies for optimizing reserve margins, e.g. through capacity credit methodology.</p> <p>A6. Identify appropriate methodologies for transmission cost assessment based on international experience.</p> <p>A7. Study tour(s)/exchange visits to Danish system operator.</p> <p>Output 1.4:</p> <p>A1. Analyze the existing framework for financing grid extension in the context of renewable energy expansion. (open seasons).</p> <p>A2. Assess alternative methodologies for transmission cost allocation from Danish and international experience, including under a restructured electricity market. Organize workshop to present international experience to policymakers, investors and other stakeholders.</p> <p>A3. Identify potential approaches to grid financing suitable to the Mexican context. Contribute to drafting of revised regulation as needed.</p> <p>A4. Identify and assess possible schemes for attracting investment in transmission from private sector and PPPs in the context of an adjusted legal framework for the sector.</p> <p>Output 1.5:</p> <p>A1. Present Danish and international methodologies for strategic investment planning in transmission and distribution grids.</p> <p>A2. Assess the relevance of methodologies for the Mexican context and contribute to the design of a methodology for Mexico that reflects the adjusted legal framework for the sector.</p> <p>A3. Training and coaching of the system operator/CFE on application of investment planning tools.</p> <p>A4. Organize seminar for public sector, private investors and other stakeholders on international lessons learned in the integration of renewable energy into the transmission grid.</p> <p>A5. Analyze and propose enhancements to planning instruments (including POISE) to</p>

Summary log frame of Renewable energy sub- component			
Objective	<i>Low-carbon transition of the power sector will be facilitated through sharing of experience and policy, planning, regulatory and technical cooperation in order to promote and enable the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.</i>		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
			<p>enhance the planning of transmission/distribution investments in the light of A) Renewable energy generation and B) Energy efficiency measures, including DSM.</p> <p>Output 1.6:</p> <p>A1 Study and seminar to introduce Danish and international best practice in forecasting and system operation and related regulation, including in the context of a restructured electricity market.</p> <p>A2. Design of specifications for enhanced tools for forecasting and system operation, covering variability on the demand and supply side as well as handling of reserves.</p> <p>A3. Training, coaching and peer-to-peer dialogue on operational procedures and tools for RES forecasting and operational handling.</p> <p>A4. Training in regional system operations, including standards and guidelines for regional control centres.</p> <p>A5. Analysis of and proposals for improvements in dispatch rules, maintenance scheduling, information requirements and guidelines for customer handling procedures, dispatch and curtailment.</p> <p>A6. Study tours and secondments to Danish TSO.</p> <p>Output 1.7:</p> <p>A1. In-depth analysis of type and scale of flexibility options in Mexico and identify lessons learned in Mexico and other countries.</p> <p>A2. Study tour(s), training and peer-to-peer exchange between Danish and Mexican system operators on system flexibility.</p> <p>A3. Conduct study and design an operational program to harness flexibility options related to e.g. demand management, smart metering and distributed generation.</p> <p>A4. Carry out capacity building in the implementation phase of the operational program on flexibility options.</p> <p>A5. Identify regulation, information and incentives needed to realize the identified flexibility potential in the short, medium and long term.</p> <p>A6. Conduct studies on dispatch rules and congestion management and related regulation.</p> <p>A7. Conduct a study to determine the technical potential of distributed generation capacity.</p> <p>A8. Identify and convey Danish experience with smart grids to complement ongoing SENER/CRE/CFE initiatives on smart grids.</p> <p>Output 1.8:</p> <p>A1. Study Danish and international methodologies for assessing the impacts of energy efficiency measures (including DSM) on generation and transmission capacity planning.</p> <p>A2. Benchmark existing CFE methodologies and organize peer-to-peer workshop to identify the scope for enhancing methodologies, taking into consideration a possible electricity market reform.</p>
C2a-O2.	SENER has developed	2.1 Experience shared with approaches to	Output 2.1:

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Outcome	Outcome indicator	Outputs	Activities (preliminary)
Methodologies for renewable energy planning are enhanced	scenarios for renewable energy expansion and defined targets applicable to a reformed electricity sector. SENER and CRE have designed regulation to overcome barriers and adjust incentives, including with regard to internalizing externalities and addressing social acceptance issues, which impact on renewable energy planning (year 2,3) Baseline =0, target scenarios in year 2,3, updated regulation and incentives available in year 2,3).	renewable energy planning, including establishing targets and identifying cost-effective pathways for renewable energy deployment 2.2 Specific barriers for increased renewables investment analysed and appropriate measures identified.	<p>A1. Studies, training and exchange visits of SENER/CRE and key stakeholders on approaches to target setting, modelling and planning for RE expansion.</p> <p>A2. Analyze options for framing of RE targets in a restructured electricity market.</p> <p>A3. Workshop and training on socio-economic analyses of RE options, in particular incorporation of externalities and cobenefits in RE planning.</p> <p>A4. Develop a work program on bioenergy planning, drawing on Danish and international experience (in collaboration with i.a. CONAFOR). Will cover i.a. analysis of potentials, regulatory and other barriers to the most efficient uses of bioenergy, target setting, and incentives.</p> <p>A5. Review estimates of inventories of renewable energy resources in Mexico</p> <p>A6. Share experience in the region and internationally with RE planning, through international seminars and other cooperation such as the 21st Century Power Partnership/Clean Energy Ministerial.</p> <p>Output 2.2:</p> <p>A1. In preparation of a possible restructuring of electricity market, convey international experience with promotion of renewable energy in reformed energy markets and assess their relevance to the Mexican context.</p> <p>A2. Analyze potential barriers and efficient incentive schemes and regulation to attract investments in renewable energy and efficient cogeneration in a restructured electricity market (besides existing auctions and open seasons).</p> <p>A3. Develop a catalogue of policy measures to overcome specific barriers to renewable energy investment.</p> <p>A4. Capacity building and support for designing/adapting appropriate incentive schemes and regulation to encourage renewable energy, including through participation of the private sector.</p> <p>A5. Convey through seminar and possibly study tours available experience from Denmark and other countries on how social acceptance issues with regard to renewable energy (wind, biomass) have been addressed.</p> <p>A6. Seminar and exchange visit on community and local authority ownership and participation in renewable energy projects (in collaboration with i.a. INAES).</p>
C2a-O3. Mexican capacity in wind energy technology is increased	The semi-annual review of the CEMIE-Wind makes an increasingly positive assessment of the project portfolio and performance relative to international benchmarks and best practice (year 2, 3).	<p>3.1 Danish strategic and technical expert review and feedback of the wind technology centre (CEMIE) project proposals and semi-annual reports.</p> <p>3.2 Provision of Danish technical and scientific expertise and knowledge for dissemination.</p> <p>3.3 Capacity and human resources developed through exchange visits, secondments,</p>	<p>Output 3.1:</p> <p>A1. Recommendations from Danish experts with regard to benchmarks and best practices in the development of wind energy technology.</p> <p>A2. Expert reviews and opinions on project portfolio, including in terms of strategic vision.</p> <p>A3. Semi-annual participation in review and working sessions together with the CEMIE-Wind board, CONACYT and SENER representatives, in the function as an external/international advisor that contributes with a strategic vision to CEMIEs planning.</p> <p>Output 3.2:</p>

Summary log frame of Renewable energy sub- component			
Objective	<i>Low-carbon transition of the power sector will be facilitated through sharing of experience and policy, planning, regulatory and technical cooperation in order to promote and enable the efficient large-scale integration of renewable energy and cogeneration into the Mexican power system.</i>		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
	Baseline = first semi-annual review, target = improving reviews against international best practice.	and research linkages 3.4 Feasibility of a joint call for proposals for Mexican-Danish wind technology programs assessed.	<p>A1. Contribute to the technical and scientific newsletters of the "Fondo de Sustentabilidad Energética", channelling contributions from e.g. Danish universities, government agencies, companies, and other relevant sources or hubs of expertise.</p> <p>A2. Contribute to the identification of Danish and international publications that disseminate technical and scientific information of wind energy technology.</p> <p>A3. Exchange visits for training and dissemination of technical and scientific expertise on wind energy technology</p> <p>A4. Contribute to planning of substantive content of conference(s) and technical meetings</p> <p>A5. Provide technical and scientific advice for definition of new call for proposals and/or identification of individual projects or programs to be pursued.</p> <p>Output 3.3:</p> <p>A1. Identify the needs, scope, purpose and participants of exchange visits with a focus on technical, strategic, policy, and business issues/topics.</p> <p>A2. Identify the needs, scope, purpose and participants of secondments</p> <p>A3. Carry out secondments and exchange visits</p> <p>A4. Facilitate contacts to the Clean Technology Centre under UNFCCC hosted in Denmark.</p> <p>Research linkages:</p> <p>A4. Identify the potential participating institutions and the research topics that are of interest to Mexico and Denmark.</p> <p>A5. Identify participants and research topics, and facilitate establishment of research linkages.</p> <p>Output 3.4:</p> <p>A1. Identify key design features of a possible joint call for proposals in terms of types of cooperation, topics, timeframe, and types of support.</p> <p>A2. Assess the viability including screening of funding sources of a joint call for proposals for Mexican-Danish innovative wind technology programs (CEMIE, LCTU)</p>

Summary log frame of Energy efficiency sub- component			
Objective	Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry through cooperation on policy, regulation and supporting measures.		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
C2b-O1 Regulatory and supportive measures improved for ensuring construction of energy efficient non-residential buildings	Regulations are adjusted (year 2) Baseline =0, Target = year 2 adjustment made and found to be satisfactory with some degree of attribution to Danish support	<p>1.1. Energy requirements of the building code reviewed against International and Danish practice and adjustments proposed.</p> <p>1.2. Supportive measures identified and developed, e.g. implementation</p>	<p>Outputs 1.1 and 1.2:</p> <p>A1. Kick-off workshop/seminar on energy standard of building codes in Mexico , Denmark and EU (knowledge and experience sharing, networking; special focus on implementation and enforcement at local level) , leading to updating of scope of work.</p> <p>A2. Review existing Mexican norms and standards, including specifications for supporting legal documents</p>

Summary log frame of Energy efficiency sub- component			
Objective	Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry through cooperation on policy, regulation and supporting measures.		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
		<p>guidelines, capacity development programs, and awareness raising.</p> <p>1.3. Implementation initiated as pilots/demonstration of building code requirements in one or more buildings, including selected supportive measures.</p>	<p>A3. Study to identify EE potentials from improved EE construction standards; barriers to realizing the potentials; economic benefits of new buildings practices.</p> <p>A4. Propose adjustment to selected existing regulation, assist in design of adjusted regulation, e.g. norms and enforcement mechanisms, and in calculation of estimated energy savings due to new regulation</p> <p>A5. Identify measures supporting implementation of energy requirements of building codes, e.g. guidelines, information material, financial mechanisms addressing energy efficiency investments.</p> <p>A6. Select supportive measures to be developed under this program and assist in design of these measures, e.g. guidelines supporting practical implementation of building codes</p> <p>A7. Develop action plan for design and roll-out of energy efficiency building codes - incl. enforcement mechanisms - and supportive measures.</p> <p>A8. Capacity development of officials and professionals, incl. training and awareness raising, e.g. through workshops, seminars, conferences, study tours, and studies.</p> <p>A9. Provide input to policies on energy efficiency in buildings through the Permanent forum for Energy Efficiency in Buildings</p> <p>A10. Assist SENER/CONUEE in preparing input to national climate change and energy planning on energy efficiency.</p> <p>Output 1.3:</p> <p>A1. Design strategy for pilot project including key objectives of the project, e.g. technologies to be tested; construction practices and costs to be tried out; perceptions or practices to be altered/improved.</p> <p>A2. Identify private partners (developer, entrepreneur)</p> <p>A3. Propose detailed plan for pilot implementation, incl. option (s) for location</p>
C2b-O2 Energy Management System (EMS) and supportive measures improved for commercial and public buildings	Demonstration of EMS in at least one public building indicates significant energy saving in first year, (base line =0, target <15% energy saving in the building by year 3)	<p>2.1. EMS reviewed against international and Danish practice and possible enhancements identified</p> <p>2.2. Barriers identified for implementation of EMS in commercial and public buildings</p> <p>2.3. Supportive measures identified and developed, e.g. implementation guidelines, capacity development, financial schemes for energy efficiency investments, and awareness raising</p> <p>2.4. Demonstration of enhanced EMS implementation in Federal Government buildings</p>	<p>Output 2.1:</p> <p>A1. Workshop/seminar on EMS standards for commercial and public buildings in Mexico, Denmark and internationally (knowledge and experience sharing, networking, etc.), leading to updating of scope of work.</p> <p>A2. Review existing Mexican EMS for commercial and public buildings, incl. supportive measures</p> <p>A3. Assist in calculation of potential energy savings and cost implications of enhanced EMS.</p> <p>A4. Conduct a study on EMS used in commercial and public buildings classified per category and benchmark these against Danish and international best practices.</p> <p>A5. Propose enhancements to existing standards for EMS based on best practices and prepare action plan for preparation and implementation of enhanced EMS, consistent with Mexican EE policy and programs</p> <p>A6. Awareness raising and capacity building through e.g. workshops, seminars, study tours and training on enhanced EMS, their potential and costs implications.</p>

Summary log frame of Energy efficiency sub- component			
Objective	Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry through cooperation on policy, regulation and supporting measures.		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
			<p>Output 2.2: A1. Conduct a study to identify, prioritize, and overcome barriers (e.g. financial, technological, awareness, etc).</p> <p>Output 2.3: A1. Prioritize and select supportive measures for implementation of EMS, incl. recommendations for development and implementation, based on the proposed enhancements . A2. Prepare action plan for preparation and implementation of selected supportive measures , including workshops for capacity building for relevant stakeholders related to implementation of EMS. A3. Develop selected measures, including supporting materials for implementation of EMS, e.g. guidelines, training, and information material, websites, computer-based tools, etc) A4. Identify and propose improvements to EMS tracking and reporting systems used by the federal government. A5. Assist in the design specification for an online platform for remote-tracking of energy use in federal government buildings and the associated data repository (database).</p> <p>Output 2.4: A1. Assist in implementation planning of enhanced EMS, e.g. in government buildings (e.g. EE program addressing Administración Pública Federal (APF)) A2. Assist in preparation of demonstration, including selection of a sample of buildings from the federal government for the implementation of enhanced EMS. A3. Disseminate results from the demonstration of EMS in selected buildings.</p>
C2b-O3 Improved Energy Management Systems and supportive measures for selected mainly larger industries	At least one industry in a selected sector adopts an enhanced EMS (year 3), (baseline =0, target = 1 (year 3)	<p>3.1. EMS reviewed against Danish and international best practice, revisions proposed and selected adjustments developed</p> <p>3.2. Barriers identified for implementation of EMS in larger industries</p> <p>3.3. Supportive measures identified and developed, e.g. regulation, implementation guidelines, financial schemes for energy efficiency investments, capacity development, and awareness raising</p> <p>3.4. Implementation initiated as pilots/demonstration, including selected supportive measures.</p>	<p>Output 3.1: A1. Investigate and review existing Mexican EMS and their energy efficiency potential for industries A2. Make recommendations for the selection of target industry/ies for this program based i.a. on EE potential. A3. Study to benchmark existing EMS in target industries against Danish and international best practices. Evaluate EE potentials from improved EMS and related economic benefits. A4. Workshop/seminar on EMS standards for industry in Mexico, Denmark and internationally (knowledge and experience sharing, networking, etc.) A5. Propose adjustments to existing EMS standards based on best practices. Prepare action plan for preparation and implementation of improved EMS in selected industries A6. Assist in preparation of new standard and guidelines for enhanced EMS A7. Capacity development and Institutional strengthening through e.g. workshops, seminars, training and study tours.</p> <p>Output 3.2: A1. Conduct a study to identify, prioritize, and overcome barriers (e.g. financial,</p>

Summary log frame of Energy efficiency sub- component			
Objective	Low carbon transition is facilitated by contributions to better framework conditions for increased energy efficiency and energy savings in buildings and industry through cooperation on policy, regulation and supporting measures.		
Outcome	Outcome indicator	Outputs	Activities (preliminary)
			<p>technological, awareness, etc).</p> <p>Output 3.3: A1. Prioritize and select supportive measures for implementation of EMS, incl. recommendations for development and implementation, based on the proposed enhancements A2. Prepare action plan for preparation and implementation of selected supportive measures , including workshops for capacity building for relevant stakeholders related to implementation of EMS. A3. Develop selected measures, including supporting materials for implementation of EMS, (e.g. guidelines, training, and information material, websites, computer-based tools, etc).</p> <p>Output 3.4: A1. Identify options and measures for demonstration of EMS in practice in larger industry. A2. Develop detailed proposal for EMS demonstration, incl. option(s) for identification of pilot companies willing to implement EMS A3. Prepare action plan for preparation and implementation of selected supportive measures and support the planned demonstration activities with pilot companies. A4. Disseminate results from pilot activities with larger industry.</p>