

Danish Ministry of Foreign Affairs of Denmark
Danish Ministry of Energy, Utilities and Climate

Danida

**Danish Climate and Energy Partnership Programme
in Mexico
Programme Document**

FINAL

Table of contents

Acronyms and Abbreviations.....	3
1. INTRODUCTION AND NATIONAL CONTEXT.....	4
2. PRESENTATION OF THE PARTNERSHIP PROGRAMME.....	8
2.1. Programme Rationale and Justification.....	8
2.2. Thematic Programme Objective	9
2.3. Theory of Change.....	10
2.4. Development Engagements	10
2.5. Assumptions and Risk Analysis.....	14
3. OVERVIEW OF PARTNERSHIP PROGRAMME	15
3.1. Results Monitoring Mechanisms	17
3.2. Outcome Level Budget.....	18
4. THE PARTNERSHIP PROGRAMME BUDGET	18
ANNEXES.....	19
Annex A: Partners - brief description	19
Annex B: Results Framework.....	26
Annex C: Budget at output level.....	31
Annex D: Development Engagement Documents	33

Acronyms and Abbreviations

CCMEP	Climate Change Mitigation and Energy Programme
CENACE	National Centre for Control of Energy (Centro Nacional de Control de la Energía)
CONUEE	National Commission for Energy Efficiency (Comisión Nacional para el Uso Eficiente de la Energía)
CRE	Commission for Regulation of Electricity (Comisión Reguladora de Energía)
DANIDA	Danish International Development Assistance
DE	Development Engagement
DEA	Danish Energy Agency
DEPP	Danish Energy Partnership Programme
DKK	Danish Kroner
EDK	Embassy of Denmark, Mexico
EE	Energy Efficiency
ENCC	National Strategy on Climate Change
GHG	Green House Gasses
IEA	International Energy Agency
(I)NDC	(Intended) Nationally Determined Contribution
INECC	National Institute of Ecology and Climate Change (Instituto Nacional de Ecología y Cambio Climático)
GIZ	Agency for International Cooperation (Germany)
LTA	Long-Term Adviser
MFA	Ministry of Foreign Affairs of Denmark
MLED	Mexico Low Emissions Development
MXN	Mexican Peso
RE	Renewable Energy
SEMARNAT	Ministry of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales)
SENER	Ministry of Energy (Secretaría de Energía)
SIMISE	Integral Modelling System of the Energy Sector (Sistema de Modelación Integral del Sector Energético)
TA	Technical Assistance
UNAM	National Autonomous University of Mexico (Universidad Autónoma Nacional de México)
USD	United States Dollar

1. INTRODUCTION AND NATIONAL CONTEXT

Mexico is known to be an active player in international climate and energy dialogues and has a wide range of climate and energy policies that include targets and are supported by plans and strategies. Since the year 2000, Mexico has published three National Strategies on Climate Change and in 2009 adopted its first Special Program on Climate Change. In addition, Mexico has presented five National Communications with their respective greenhouse gas inventories to the United Nations Framework Convention on Climate Change (UNFCCC).

In April 2012, the General Law on Climate Change (LGCC in Spanish) was approved, and made Mexico the first developing country to have a comprehensive law on this subject. This law sets ambitious targets for greenhouse gas (GHG) reductions.

Mexico ratified the Paris Agreement in September 2016, and was the first developing country to present its INDC in March 2015. In this, Mexico is committed to reduce unconditionally 22% (below business-as-usual) of its GHG and 51% Short Lived Climate Pollutants (SLCP) emissions in 2030. This commitment implies that net emissions peak starting from 2026, thus decoupling GHG emissions from economic growth, reducing emissions intensity per unit of GDP by around 40% from 2013 to 2030. The 22% reduction commitment on GHG could increase up to a 36% in a conditional manner, subject to a global agreement addressing important topics including international carbon price, carbon border adjustments, technical cooperation, access to low-cost financial resources and technology transfer, all at a scale commensurate to the challenge of global climate change. Within the same conditions, SLCP reductions could increase up to 70% in 2030. There is no specific targets for clean energy included in INDC, however, given the large role of the energy sector in emissions, the peaking of net emissions will require a significant contribution from mitigation in the energy sector. How the commitment translates into RE and EE is still to be analysed in detail.

The energy sector is the second largest source of greenhouse gas emissions, after transport, not least due to high dependency on fossil fuels. Fossil fuels are the main sources of primary energy supply (91%), and 80% of electricity is generated from fossil fuels. According to the first Biennial Update Report submitted to the United Nations Framework Convention on Climate Change in 2015, Mexico's emissions reached 665 MtCO₂e in 2013, in which the energy sector (fossil fuels combustion) contributed with 70.8% of the total.

Mexico has begun a comprehensive reform of the entire energy sector. This includes structural changes in the market and grid, as well as changes of roles of former state-owned companies, and authority among public entities. This is a very wide-ranging reform, with all actors on the energy market involved and where large investments are made that affect the Mexican energy sector decades ahead.

To handle this development, the transition of the energy sector is addressed in a number of plans, some of the latest including:

The Energy Transition Law (Ley de Transición Energética, December 2015) aims to regulate the sustainable use of energy and articulate the electric industry's obligations regarding the country's need to transition to using clean energies and cutting polluting emissions, while at the same time maintaining Mexico's productivity and competitiveness on

the world stage. The law is now a cornerstone of Mexico's legislation on clean energy and energy efficiency, as it provides a regulatory framework that allows all energy sector participants to coordinate long-term efforts. The law also states that an energy efficiency goal is set, which for the period 2016-2030 is set as a 1.9% annual reduction of the intensity of final energy demand.

The 2016-2018 Special Energy Transition Programme (Programa Especial de la Transición Energética –PETE- 2016-2018, December 2016) is the road map that marks actions to meet the goal for clean energy; by the end of 2024, 35% electricity is to be generated from clean sources (renewable energy, efficient co-generation and nuclear), with foundations laid to achieve the intermediate goals of 25% for 2018 and 30% for 2021.

To reach the targets and goals stated requires substantial work. The most suitable clean energy sources must be identified and made available, the energy system has to be ready to receive new types of energy, numerous sectors have to be prepared to contribute and all decisions should be made on an informed basis which requires new ways of conducting analyses with new models and methods. At the same time oil exports and taxes on fuels still provide nearly 30% of federal revenue on an annual basis in Mexico, making the federal budget very vulnerable to changes in oil prices.

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 DEA have been actively cooperating on modelling related to national emissions baselines and potentials for emission reductions.

In 2014, a 3 year cooperation was initiated with focus on decreasing CO₂ emissions from the Mexican energy sector, in particular through increased use of renewable energy and enhanced energy efficiency, and enhancing the policy analyses of Mexico's reduction potentials, emissions tracking and development of concrete initiatives for mitigating climate change. This cooperation was anchored partly at SEMARNAT, and partly at the Mexican Ministry of Energy, SENER.

SEMARNAT, SENER and their underlying institutions (INECC, the national institute for ecology and climate change, the system operator CENACE and the CONUEE, the national commission for energy efficiency) have all been partners of the cooperation with DEA in the previous programme period. SENER and SEMARNAT are the ministries responsible for policy development and planning aspects in energy and climate, and several positive results from the cooperation have been achieved including development of analyses of numerous scenarios as input to Mexico's work with an energy transition strategy and new scenarios on CO₂ prices were analysed as input to the SENER's Renewable Energy Outlook 2016. Further, feasibility studies for two pilot sugar mills on EE and cogeneration has been carried out, and proposal for NAMA support project for sugar sector has been developed and submitted to the NAMA Facility, and selected for next step (with SENER and INECC). Also with INECC, early input from DEA on modelling made SEMARNAT able to submit Mexico's INDC as the first developing country. Cooperation with INECC has also produced two technology catalogues that will feed into the scenarios and

modelling work.

CENACE, who is responsible for the operation of the transmission system and of balancing supply and demand, is the key player in the integration of RE into the power system. The Danish TSO cooperates with CENACE, and the collaboration has completed technical grid codes for generation and demand, and drafted codes for e.g. planning.

CONUEE is responsible for increased EE in the country and DEA has cooperated with positive results with successful pilots. For buildings, cooperation with three states on enhancing enforcement of building codes and EE demand is ongoing. Also, the work with larger companies on EE has resulted in implementation of energy management systems in all participating pilot companies. This experience will serve as good examples for a roll out of a pilot incentive scheme for energy management system in large companies, inspired by the Danish voluntary agreement scheme, where funding is being sought and expected by May 2017.

Programme partners and other stakeholders

The Danish Energy Agency (DEA) Energy Partnership Programme with Mexico is a partnership with SENER and SEMARNAT and selected subordinate entities. A short introduction to the partners is presented below. For a fuller description of these institutions please refer to Annex A.

The Ministry of Energy - SENER is responsible for energy sector policy, planning and regulation, and design and implementation of energy policy in Mexico. It also supervises activities undertaken by the state-owned energy companies and manage the energy transition and planning for the medium and long term. Under SENER's jurisdiction is i.a. CENACE, as the Mexican energy system operator, which exercises operational control of the national electricity system, the operation of the wholesale electricity market, etc. Also under the jurisdiction of SENER is CRE, the Energy Regulatory Commission (independent), which will manage rules and regulation. The departments in SENER with which the Partnership Programme will work more closely are the General Directorate of Clean Energy, the General Direction of Planning and Energy Information, and the General Direction of Energy Efficiency and Sustainability. For details on mandates and current staffing visit annex A.

The National Commission for Efficient Energy Use, CONUEE, is an administrative body within SENER, with technical and operational autonomy. CONUEE aims to promote energy efficiency and is a technical body on sustainable use of energy, promoting the optimal use of energy, from exploitation to consumption. The Partnership Programme will work mainly with the Directorate of Energy Management Systems (for industry), with the Direction for Energy Efficiency Norms (buildings), and with the Directorate for Policies and Programmes for data on energy end-use and modelling.

The lead agency for climate change is SEMARNAT, the Ministry of Environment and Natural Resources. Together with the agencies linked to the environmental sector, it works within areas of biodiversity, pollution, water and climate change. This cooperation will be working more closely with the Directorate General of Climate Change Policies (DGCCP), which, among other thing, represents SEMARNAT and Mexico in the UNFCCC climate negotiations.

INECC, the National Institute of Ecology and Climate Change, is a technical and scientific research institute under SEMARNAT. Among other things, INECC is responsible for formulation, implementation and evaluation of public policies that lead to green growth and climate change adaptation and mitigation. INECC is also mandated to carry out research relevant for the implementation of climate change policies in Mexico

Germany, UK, and USA are the main donors to Mexico in relation to cooperation on energy and climate change, while others include World Bank and IEA. The terms and topics of the cooperation and approach and strategy followed for implementation varies, but most of the time their counterparts in Mexico are the same, for instance SENER and CENACE on issues related to energy policy and planning, regulation, or electric system operation respectively, or SEMARNAT and INECC on climate policy. German cooperation is managed GIZ (the Agency for International Cooperation). GIZ has i.a. focus on energy efficiency in small and medium sized companies and cogeneration, (whereas the CCMEP has worked and continue to work with large companies and energy consumers). GIZ also looks into the potential development of a carbon market in Mexico, with technical support for the development and implementation of the National Emissions Registry and the high level dialogue on climate policy, whereas CCMEP has worked with data and modelling.

The US cooperation, had the “Mexico Low Emissions Development - MLED” programme 2011-2016. The MLED has been recently continued with a budget of USD 25 million of which USD 11 million for RE. The focus is on monitoring, reporting and verification of national emissions, support to the electricity sector planning, integration of renewable energy into the electricity mix, developing smart-grids and embedded generation, and supporting the development of a carbon market in the country. Thus they also cooperate with CENACE; however not on the same issues as the CCMEP, or the Partnership Programme.

UK have supported Mexico in setting up a climate change unit within SEMARNAT and on developing the regulatory and policy frameworks on climate change. From 2016, focus is on activities that lead to implementation of mitigation actions, within i.a. energy, in the areas of oil and gas, energy efficiency and renewable energy: more specific, focus is i.a. on industrial and environmental safety, social impact in renewable energy projects.

In Mexico, the relevant areas where the World Bank operates are within technology development and investments in energy efficiency in municipalities, the latter was agreed in March 2016. The international Energy Agency, IEA, works in Mexico under the initiative E4 – Energy Efficiency in Emerging Economies (partly financed by Denmark) and has been most active on energy efficiency in buildings. With Mexico’s engagement in IEA further collaboration can be expected. DEA has supported IEA in their current activities, with TA, and coordinate closely.

It is expected that the activities under the Partnership Programme will be coordinated closely to exploit the different focus and to get maximum effect out of the support. The programme strives to make sure that no duplication takes place, and engage in dialogue with both partners and other donors. Cooperation with other donors on specific activities took place in the previous programme period through the donor community and with partners on specific issues where relevant, and this is expected to continue.

Public consultations are part of the policy and planning process in Mexico. Civil society and academia follow closely the developments around the choices for the future energy supply path of the country and are very involved in the public consultations.

The private sector companies are also very interested in the climate and energy agenda in Mexico. Companies interested in RE are pressing for the removal of barriers that restrain their commercial opportunities and potential investment in RE, and EE interested companies are eager to see increased attention to wasteful energy consumption and ways to enhance energy efficiency. Also, through cooperation, specific requests for technologies rise sometime. The importance of mobilising the private sector, with their competences and technologies will be an underlying part of the Partnership Programme, and an improved enabling environment also paves the way for partnerships between the private sector in Mexico and Denmark. Close collaboration with the Danish Embassy in Mexico on issues related to private sector is expected.

2. PRESENTATION OF THE PARTNERSHIP PROGRAMME

2.1. Programme Rationale and Justification

Through the thematic government-to-government cooperation, it has been possible to make Danish core competencies available and brought into play to support Mexican counterparts in their implementation of relevant national programmes and plans and in this way contribute to improving the framework conditions for a more sustainable and low-emission development.

The rationale for this programme stems from the ambitious Mexican policies for climate change mitigation, national laws to have larger shares of clean energy including RE in its energy supply mix and increased EE of energy use as presented above, complemented by the Danish policies that intend to make Denmark rely 100% on non-fossil fuels by 2050, Danish experience from energy and climate policies gained over the last 25 years, as well as the Danish Climate Envelope that i.a. are meant to support other countries in the road to a less carbon-intensive economy.

The point of departure for the Danish cooperation with Mexico on energy and climate is the fact that Denmark has experience in the process of transforming the energy sector which Mexico is going through these years. The experience in Denmark has shown that through persistent, active and cost efficient climate and energy policy with ambitious renewable energy goals, enhanced energy efficiency and support for technical innovation and industrial development, it is possible to sustain significant economic growth, a high standard of living and a high level of security of energy supply, while reducing fossil fuel dependency and mitigating climate change.

The Partnership Programme focuses on areas where Denmark has unique competences and experience and where Danish assistance will be catalytic. Accordingly, the outcomes and outputs have been designed to reflect priorities and objectives in Mexico's legislation and strategy and planning documents. Most areas of cooperation under this programme will be a continuation of previous cooperation, and aim to further strengthen Mexican competences that will be necessary to meet the country's own ambitions.

Priority of the Partnership Programme is given to interventions where transformational

change to RE, EE and Climate Change mitigation can be achieved through cost-effective changes to policies and market structures. This includes particularly changes to existing systems and structures where partners have already expressed the desire to implement reform, including in policy, planning and technological innovation.

The Partnership Programme will continue to work with SENER, CENACE, CONUEE, SEMARNAT and INECC on defined areas that have been identified in collaboration, taking into account also other donors' activities. Also, in previous cooperation, it has come to light that there is some overlap in the requests from different Mexican institution for example related to data and modelling, where it makes sense to coordinate efforts and agree on using same data sources. Mexican institutions are therefore interested to coordinate efforts, and the cooperation with Denmark is seen as unique due to the direct interaction between specialized ministries at the implementation level facilitated by the Programme.

The programme approach followed in Mexico is to support a larger penetration of RE and increased EE by: 1) Assisting the policy and planning efforts at SENER/CENACE and to enable those implementation aspects that contribute to a larger share of RE in the power supply mix 2) Supporting activities of CONUEE to increase the EE of energy use. Specifically, the programme will support Mexico in saving energy by designing and applying EE policies, as well as implementing energy management systems in larger industries, and through EE being applied in the building code.

For climate change cooperation with SEMARNAT/INECC, the programme approach is to support Mexico to increase its ambition levels in GHG abatement by contributing to the policy development and paving the way for public and private investments through identification of cost estimates and suitable measures. Danish experience in using models to assess i.a. national baselines and potentials for reduction of carbon emissions, assessing costs etc. and other kind of policy planning tools, which are very important to Mexico when they are deciding on future energy paths, will continue to be shared and adapted to Mexican use.

2.2. Thematic Programme Objective

The development objective of the Partnership Programme with Mexico is that Mexico is in transition to decouple carbon emissions from economic growth through cost-efficient mitigation actions.

The achievement of the programme objective will be attained through three Development Engagements (DEs), the objective of which is as follows:

- Additional renewable energy is efficiently being integrated in the power sector in line with the clean energy goals in the Energy Transition Law.
- Efficiency in the use of energy is increased in line with the energy efficiency targets of the Energy Transition Law.
- Mexico has identified and initiated additional measures to reach the un-conditional climate target and identified most cost-efficient pathway to increase to conditional climate target.

2.3. Theory of Change

The Theory of Change related to the collaboration on RE with SENER/CENACE is that (i) by influencing and supporting the policy and planning process of the Government of Mexico, and (ii) by demonstrating the feasibility of biomass in the power supply mix, then the increasing RE in the energy mix of the country will be reinforced. Also (i) by strengthening CENACE's capacity to integrate RE into the grid, (ii) developing CENACE's knowledge and capacity to operate the power system with a higher degree of flexibility and cost-efficiently, then Mexico will be able to integrate larger shares of RE into the power supply.

The Theory of Change related to EE in partnership with CONUEE is that (i) by targeting the energy use in intensive energy using industries through implementation of a pilot incentive scheme based on implementation of energy management systems in large industries, through engagement in voluntary agreements, and design and management setup for a long term scheme (ii) by supporting a number of show-case municipalities in applying and enforcing the federal EE codes and laws at local level, (iii) by helping disseminate exemplary cases of EE implementation and lessons-learned to a wider audience in the relevant sectors, (iv) by helping establish some local capacity in the private sector to implement EE measures in buildings, and (v) by strengthening the capacity of CONUEE in acquiring data and modelling end-use EE in several sectors, then a reduction of the energy intensity of the economy can be achieved.

The Theory of Change related to climate change mitigation with SEMARNAT/INECC is that (i) by supporting the SEMARNAT to increase its ambition level concerning GHG emissions reduction and having an updated National Strategy on Climate Change (ENCC), (ii) by developing a NDC implementation plan and an portfolio of actions and projects for GHG reducing measures, (iii) by ensuring that NDC measures is implemented using quality data, and (iv) by testing measures and actions in selected state(s) and engage in direct dialogue with selected states on specific actions and methods, then this DE can indirectly contribute to the reduction of greenhouse gasses as stated in the NDC.

2.4. Development Engagements

DE 1: Efficient integration of additional renewable energy in the power sector with SENER

The objective (outcome) of this DE is that additional RE is efficiently being integrated in the power sector in line with the clean energy goals, by assisting the SENER in developing more comprehensive energy planning capabilities that encompass the efficient deployment and integration of renewable energy technologies and to pave the way for a potential larger role of bioenergy in the power supply mix. The DE will also assist CENACE to integrate a larger share of RE into the electricity grid by (i) developing best practices on transmission grid planning, including technical grid analysis, cost/benefit analysis and investment criteria, and (ii) increase reliability and efficiency in the operation of the electricity system, including enhanced forecasting of RE generation.

SENER is responsible for modelling and developing scenarios which reflect the policy options of the government and feedback into them. SENER has a long-term cooperation with the National Autonomous University of Mexico (UNAM) for modelling the energy

sector, so UNAM specialists will also be included as part of the cooperation, through SENER. Part of the engagement will also entail the cooperation with the Bioenergy Directorate at SENER.

This DE focuses on strengthening the planning outputs of the SENER for the energy sector in Mexico, particularly with a view to achieving the established targets for clean energy and also reinforcing the role of bioenergy in the power supply mix. From the previous programme in Mexico, one can learn that the Planning and also the Bioenergy Directorate are reliable partners and have human resources at a sufficiently high level to assimilate the knowledge and skills transfer. At CENACE (which is under the jurisdiction of SENER) the Planning Department will be the main responsible for the appropriate implementation of this DE. The CRE will be invited to participate in core activities under the CENACE output. A complete description of this Development Engagement is found in Annex D.

The outcome of this DE is that additional RE is efficiently being integrated in the power sector in line with the clean energy goals in the Energy Transition Law. This outcome will be achieved by realising four outputs:

- 1) Methodologies are established for renewable energy planning and planning capacity is strengthened.
- 2) MEMLAB, a platform for data and modelling and maintenance hereof is established
- 3) Bioenergy resources identified and assessed
- 4) Reliability and security of supply with variable RE in the power system improved.

The overall implementation of this Development Engagement is the responsibility of SENER's Director General for Clean Energy in co-operation with the Director General for Planning. Daily implementation is the responsibility of the Development Engagement Implementation Group (DE1 Implementation Group) consisting of relevant counterparts at SENER's Clean Energy Department joined by directors from SENER's Planning Department for output 1-3, and from CENACE for the implementation of output 4, the Long-Term Adviser, the DEA focal point and specialists as required, that will provide detailed guidance to the implementation. DE1 Implementation Group reports to an established Management Group for the entire Programme, and are accountable to the Programme Steering Committee.

This DE will have no cash transferred or disbursed directly to the Development Engagement partners. Hence, there are no requirements for accounting of funds and financial reporting at Development Engagement level.

The technical assistance to SENER will be delivered by a Long-term International Adviser to be stationed at SENER (shared with CONUEE), by experts from DEA and by international and/or national experts as required during implementation. The technical assistance to CENACE will be delivered by a twinning arrangement with the Danish Transmission System Operator Energinet.dk and other international and/or national advisers as required during implementation. Study tours can be part of this DE as deemed necessary during implementation.

DE2: Cooperation to Increase Energy Efficiency with CONUEE

The objective (outcome) of this DE is that efficiency in the use of energy is increased and the energy efficiency targets of the Energy Transition Law are reached, by assisting CONUEE in development and setup of a long term incentive scheme for implementation of energy management in large companies (funding for the scheme is not part of this cooperation), and implementation of a pilot incentive scheme, both based on voluntary agreements with high energy intensity industries; engaging states and municipalities in applying and enforcing EE standards in buildings; and by supporting CONUEE in end-use data acquisition and modelling so that it can suitably inform the political choices in the country.

CONUEE is by law mandated to promote all relevant measures to increase EE and report on the achievements. DEA has engaged successfully in the past with several departments of CONUEE. This Development Engagement focuses on strengthening a number of EE regulatory and implementation aspects that are mandated to CONUEE. From the DEA existing programme in Mexico one can learn that CONUEE is a reliable partner and has human resources at a sufficient high level to assimilate the knowledge and skills transfer. A complete description of this Development Engagement is found in Annex D.

The outcome of this DE is that efficiency in the use of energy increased and the energy efficiency targets of the Energy Transition Law are reached. This outcome will be achieved by realising three outputs:

- 1) Incentive scheme based on voluntary agreements for energy management systems in large energy consuming industries established and used
- 2) Energy Efficiency requirements for new buildings integrated into building codes and enforced in selected states/municipalities.
- 3) End-use EE model established and system for data acquisition in place, in areas where Denmark has a specific and unique knowledge, and which is related to other activities of the Partnership Programme.

The overall implementation of this Development Engagement is the responsibility of CONUEE's General Director. Daily implementation is the responsibility of the Development Engagement Implementation Group (DE2 Implementation Group) consisting of relevant counterparts for industry, transport and buildings from CONUEE joined by the Long Term Adviser, the DEA focal point and specialists as required, that will provide detailed guidance to the implementation. The DE2 Implementation Group reports to an established Management Group for the entire Programme, and is accountable to the Programme Steering Committee.

This DE will have no cash transferred or disbursed directly to the Development Engagement partners. Hence, there are no requirements for accounting of funds and financial reporting at Development Engagement level.

The technical assistance to CONUEE will be delivered by a Long-Term International Adviser to be stationed at SENER, by experts from DEA and by other international and/or national experts as required during implementation. Study tours can be part of this DE as deemed necessary during implementation.

DE3: Cooperation on Climate Change mitigation measures with SEMARNAT

The objective (outcome) of this DE is that Mexico has identified and initiated additional measures to reach un-conditional climate target and identified most cost efficient pathway to achieve conditional target by assisting SEMARNAT and INECC create enabling conditions to achieve the climate change mitigation goals and targets, through development of an implementation plan and subsequently a portfolio of actions that ultimately will show where increased mitigation ambition of the government can be delivered. Some of the selected measures and actions will be tested in selected state(s) to assess real value. The DE also supports the establishment of the enabling tools (models), the use of appropriate data to define scenarios and calculate costs of the mitigation measures and the elaboration of supporting technical studies at INECC. On the basis of improved knowledge of data and technical studies, communication to selected states and public/private stakeholders on actions and measurement will take place. INECC is under the authority of SEMARNAT, and SEMARNAT will be the responsible development partner.

SEMARNAT is by law mandated to promote all relevant measures to achieve the climate change mitigation goals of the government. DEA has engaged successfully in the past with SEMARNAT and several departments of INECC. From the previous programme period one can learn that SEMARNAT and INECC are reliable partners and have human resources at a sufficient high level to assimilate the knowledge and skills transfer. A complete description of this Development Engagement is found in Annex D.

The outcome of this DE is that Mexico has identified and initiated additional national and sub-national measures to reach un-conditional climate target and identified most cost-efficient pathway to achieve conditional target. This outcome will be achieved by realising two outputs:

1. NDC actions defined and updated ENCC are developed in order to reach the ambition of 36% GHG emission reduction
2. Modelling of NDC measures established and data quality improved.

The overall implementation of this DE is the responsibility of SEMARNAT's Director General for Climate Change. Daily implementation is the responsibility of the Development Engagement Implementation Group (DE3 Implementation Group) consisting of relevant counterparts from SEMARNAT for output 1 and INECC also for implementation of output 2, joined by the Long-Term International Adviser stationed with SEMARNAT, the DEA focal point and specialists as required, that will provide detailed guidance to the implementation. The DE3 Implementation Group reports to an established Management Group for the entire Programme, and is held accountable by the Programme Steering Committee.

This DE will have no cash transferred or disbursed directly to the Development Engagement partners. Hence, there are no requirements for accounting of funds and financial reporting at Development Engagement level.

The technical assistance to SEMARNAT/INECC will be delivered by a Long-term International Adviser to be stationed at SEMARNAT, by experts from DEA and by international and/or national advisers as required during implementation. Study tours can be part of this DE as deemed necessary during implementation.

2.5. Assumptions and Risk Analysis

Key assumptions

A successful achievement of the outcomes from the Partnership Programme's support to Mexico rests on a set of assumptions that reflect the change logic: (i) the Government of Mexico retains its commitment to climate change mitigation and related targets on energy, most particularly on renewable energy and energy efficiency and this commitment is reflected in key planning documents as well as in resource allocation to responsible ministries and institutions, also after election in 2018 (ii) the partner institutions have ownership of the cooperation, (iii) partner's staff remains in posts long enough to take up results from the cooperation and to carry through change, (v) Danish experience is relevant for the proposed interventions, and (vi) DEA makes available adequate staff resources.

An additional assumption is that the programme – jointly with other measures taken by the Mexican government and support by other development partners - will succeed in creating enabling conditions for private sector investment in climate change mitigation in general and in RE and EE in particular. Furthermore, that the private sector will seize the opportunities created, an assumption that is supported by the significant recent private investments in RE power supply and EE measures in Mexico. A final assumption is that civil society will use information generated by this programme and apply it to their work in national and local platforms related to climate change and clean energy.

Contextual Risks

Mexico is a stable partner country and the contextual risk level is assessed as being low. The contextual risk factor considered for the programmatic and institutional risk assessment is corruption. Mexico is ranked 95 of 176 countries on the Transparency International 2016 Corruption Perception Index.

Risk analysis using the Risk Matrix of the Danidas Aid Management Guidelines identified no significant residual risks to the programme, however, the election in 2018 might change that. Common risks such as lack of partner absorption capacity and changes in overall government policy were addressed as part of programme design.

Corruption: Corrupt practice in Mexico would constitute a risk of reputational loss and a risk of programme failure if activities were to be postponed or abandoned. If discovered in relation to direct partners, it will have consequences for the collaboration for the partner in question and potentially lead to discontinuation of the cooperation and directing support to other parts of the cooperation not affected. However, as no cash is transferred or disbursed directly to the Development Engagement partners, this latter risk is considered minimal.

External economic dislocations or crises: Such crises or internal financial disruption (inflation, foreign debt, currency crisis etc.) are possible because, although the economic situation is generally stable, foreign debts are high and increasing and current geopolitical and trade-related uncertainty might spill over to the Mexican economy. If a shock were to occur, planning and budgeting would be made difficult, but with the power sector being important to continued development of the country, the likelihood of significant disruption to the programme is seen as being relatively small.

Programme and Institutional Risks

The government does not retain its commitment to low carbon development: This would negatively affect the longer term impact of the cooperation, but the risk is assessed to be minor. All long term development, climate and energy policy documents indicate the strong commitment of Mexico to climate change mitigation, RE and EE, and the cooperation will assist Mexico with identifying implementation routes to meet short- and long term targets.

There are elections to be held in 2018 that might result in the change of the governing party. The risk here is that government commitment for the low carbon development path will diminish. The chance is assessed as minor as the existing laws that govern the sectors where the DEA intervention takes place and the commitment to a low carbon development path have had the support of all major parties represented in the parliament. However, there is a real risk that key counterparts are changed if a new governing party wins the election.

Lack of ownership to the cooperation from key partner institutions: The Danish support is in high demand and all direct partners demonstrate a genuine ownership to the cooperation as it has also been confirmed by the high-level participation in the meetings organised during the formulation. The risk is minor.

Staff turnovers and resource constraints with partner institutions: Demand is high but partners lack resources and key counterparts are often very busy with daily tasks. The risk is considered medium but will partly be mitigated through a flexible approach to provision of technical input. The Partnership Programme will continue to reallocate resources towards tasks where the Mexican counterparts have highest demand and capacity to absorb technical assistance.

Change in energy prices: If energy prices change, it will change the business case for investing in the energy system and in specific energy sources as well as efficiency. A decrease in energy prices will discourage investment in the grid and renewables or adoption of energy efficiency measures.

There are no other major risks identified that have not been mitigated as part of the design. Any residual risks and new potential risks will be monitored closely throughout implementation and measures to address any arising issues will be developed as necessary and findings included in the regular reports will be carried out accordingly.

The flexibility of the programme, where the Implementation Groups meet regularly, TA is delivered through pool of experts and DEA, and no commitment in terms of equipment is made, makes it relatively easy to adjust the programme and activities if changes in the climate and energy focus occur. Thus the programme is designed to be able to adjust to changes in demand along the way.

3. OVERVIEW OF PARTNERSHIP PROGRAMME MANAGEMENT

In Mexico, a Steering Committee for the partnership programme is established and expected to meet once or twice per year. The Steering Committee will be composed of representatives of SENER (Vice-minister, Co-chair), SEMARNAT (Vice-minister, Co-

chair), CONUEE, CENACE, CRE, INECC, DEA (Deputy Director General/Director General, Co-chair). Its main task will be to approve the annual work plans, budgets and reports, and review annual progress. The Steering Committee should provide strategic guidance to the Partnership Programme, discuss and resolve issues related to programme progress and decide on any reallocation between the Development Engagements. Decisions are made by consensus. Also, the Steering Committee is a forum for high level policy dialogue on matters of relevance to the programme.

A Management Group for the Partnership Programme between Mexico and Denmark is established with representatives from the Development Engagement partners at senior operational level, joined by the two Long-term Advisors and DEA-representative(s). Decisions are made by consensus. The Management Group follows progress, check and consolidate work plans with associated technical assistance procurement plans to be reported to the Steering Committee (annual), advises the Steering Committee and is a forum for dialogue on technical aspects of policy and planning. This group will meet regularly and have the responsibility to: i) consolidate and check annual and detailed bi-annual work plans with associated TA procurement plans against Development Engagement partners work plans and budgets; ii) monitor and report performance progress at output level, using the “traffic light” system; iii) ensure cross-fertilization between Development Engagements.

Each Development Engagement will establish an Implementation Group to undertake daily management of the engagement implementation. It will be composed by representative(s) from the Development Engagement partner, the LTA(s), the DEA focal point and specialist(s) as relevant. The Implementation Group(s) will meet when required and will i) develop annual and detailed bi-annual work plans matching priorities in Development Engagement partners work plans; ii) determine need for national and international technical assistance input and develop technical assistance procurement plans; iii) approve TORs developed and iv) monitor and coordinate day-to-day progress of implementation. Provision of TA should be based on the principles of a) national TA where relevant b) DEA/Energinet.dk experts where peer advice is required; and; c) international specialists where dedicated specialist tasks will be needed. Procurement of agreed international TA (in any form) will be carried out by DEA and follow Danish procurement rules or drawn from a pool of experts. Final selection of procured TA will be done in close cooperation with partners based on no objection from the Implementation Groups

The Partnership Programme in Mexico will be supported by two LTAs, one with focus on RE and EE, the other with focus on climate. This is to ensure proper TA in two different areas, energy and climate, and with two different partners, SENER and SEMARNAT.

The Partnership Programme between Mexico and Denmark is part of the DEA Energy Partnership Programme (DEPP) supported by the Danish Climate Envelope with four countries including South Africa, China, Vietnam and Mexico. Daily operation and coordination of DEPP is the responsibility of the DEA.

To oversee the overall DEPP implementation an Advisory Group will be established in Copenhagen with representation from Danish Ministry of Foreign Affairs (MFA) and the Danish Ministry of Energy, Utilities and Climate. DEA will act as Secretary to the Advisory Group. The Advisory Group will meet at regular intervals to discuss programme progress

and solicit cross-programme countries experience and to discuss opportunities from learning across partnerships. DEA will, in its capacity as Secretary to the Advisory Group be responsible for i) submission to the Advisory Group of progress reports consolidated from the four countries and ii) management of funds allocated for activities above individual country-level including mid-term reviews.

3.1. Results Monitoring Mechanisms

Overall programme monitoring will be undertaken by the Management Group reporting to the Steering Committee of the Partnership Programme. The Steering Committee will follow progress towards the programme targets and progress towards the Development Engagement outcome and output targets through the annual progress report.

Bi-annual reports on performance management will be submitted to the Steering Committee for approval as well as a full annual end-of-year report, which includes progress against indicators and a discussion of challenges that have been encountered or which may lie ahead for approval by the Steering Committee.

Performance monitoring reported to the Steering Committee through the biannual progress report at output and Development Engagement level will be using a “traffic-light” system, where:

- “green” is on-track – implementation continues as scheduled;
- “yellow” is partly on-track which needs an explanation by the Implementation Group to the Management Group, including actions taken to get back on-track and closer monitoring of progress by the Management Group;
- “red” is off-track, which needs a detailed explanation by Management Group to the Steering Committee with recommendations of changes to the implementation to get the engagement back on-track. If “red” in two consecutive reporting periods, the Steering Committee may consider reallocation between outputs within or between the Development Engagements as deemed relevant.

The initial results frame is established for each of the Development Engagements and appears in Annex B. During the inception phase, indicators and specific targets will be revisited, validated and potentially refined. These will be approved by the Steering Committee and informed to the Advisory Group in Copenhagen overseeing the entire DEPP in the four countries (Vietnam, China, South Africa and Mexico). Any material changes to the Partnership Programme between Mexico and Denmark and included Development Engagements, including the final budgets, indicators and targets have to be approved by the Steering Committee. A detailed inception report will be produced three month after implementation start, including documentation of any changes in indicators and targets and include the first annual work plan.

The Danish MFA shall have the right to carry out any technical or financial mission that is considered necessary to monitor the implementation of the programme, which may include a mid-term review. After the termination of the programme support the Danish Government reserves the right to carry out evaluation in accordance with this article.

3.2. Outcome Level Budget

The overall budget for the DEPP is DKK 115 million, out of which DKK 37.9 million have been allocated to Mexico including (technical) assistance from DEA.

The budget for each outcome of the three Development Engagements is set out in the following table. Note that each engagement has one outcome and that the table only includes the funds contributed by Denmark. The costs of the two LTAs are included. The costs of one LTA are expected being shared equally between DE1 and 2 and one LTA for DE3.

Budget in Millions DKK (not final)

Development Engagement Outcomes	DE Partner	17/18	18/19	19/20	Total
DE 1: Cooperation on Renewable Energy	SENER	4.22	4.22	4.22	12.65
DE 2: Cooperation on Energy Efficiency	CONUEE	3.38	3.38	3.38	10.14
DE 3: Cooperation on Climate Change	SEMARNAT	3.76	3.76	3.76	11.29
Grand total		11.36	11.36	11.36	34.07

The outcome budget includes costs for the international Long-term Advisers.

4. THE PARTNERSHIP PROGRAMME BUDGET

Because each Development Engagement will yield one major outcome, the programme budget is identical to the outcome budget tabulated above. A detailed output based budget is annexed to this programme document. Detailed output budgets showing technical assistance inputs and costs are included in each DED. The total amount of hours from DEA allocated over the programme period to the programme is 16465.

ANNEXES

Annex A: Partners - brief description

A.1 - The Environmental sector

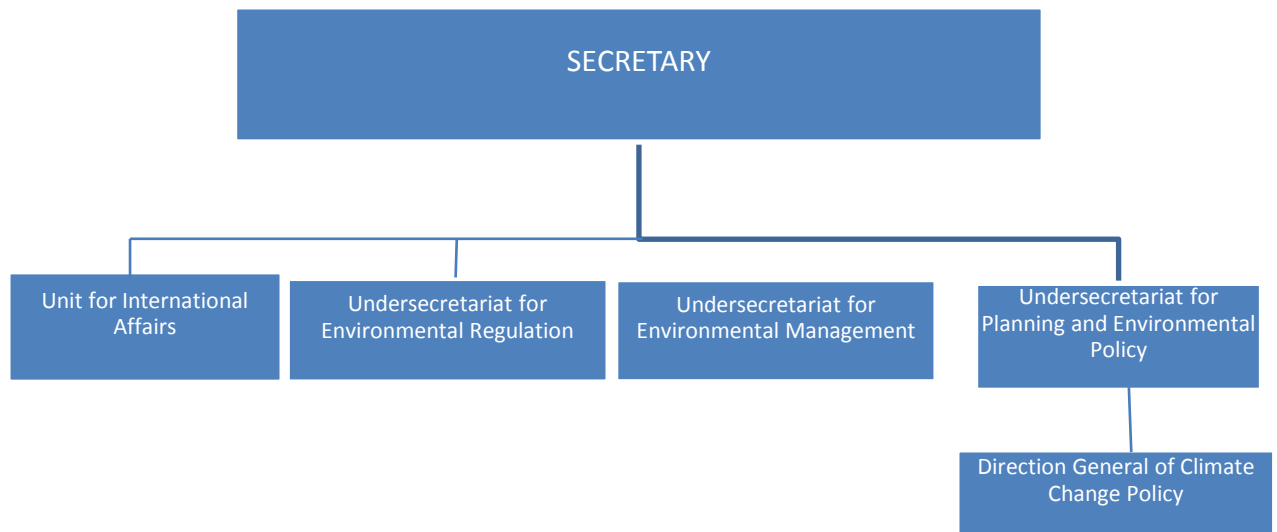
A.1.1 - SEMARNAT

The lead agency for the environmental sector is the Ministry of Environment and Natural Resources (SEMARNAT). SEMARNAT, together with the agencies linked to the environmental sector, work in four main areas:

- Conservation and sustainable use of ecosystems and its biodiversity.
- Pollution control and prevention.
- Integral management of water resources.
- Combat to climate change.

Within SEMARNAT, the area that the Danish Energy Partnership Programme (DEPP) will be working more closely is the Direction General of Climate Change Policies (DGCCP) that responds to the Under Secretary of Planning (see organigram). The DGCCP is in charge of implementing SEMARNAT's responsibilities regarding the General Law on Climate Change. Specifically, this area is responsible of the National Emissions Registry, the Mexican Emissions Trading System, the Inter-ministerial Climate Change Commission and the National Climate Change System. These last two are part of the national climate change policy. Likewise, the DGCCP represents SEMARNAT in UNFCCC negotiations.

Figure 1: SEMARNAT structure.

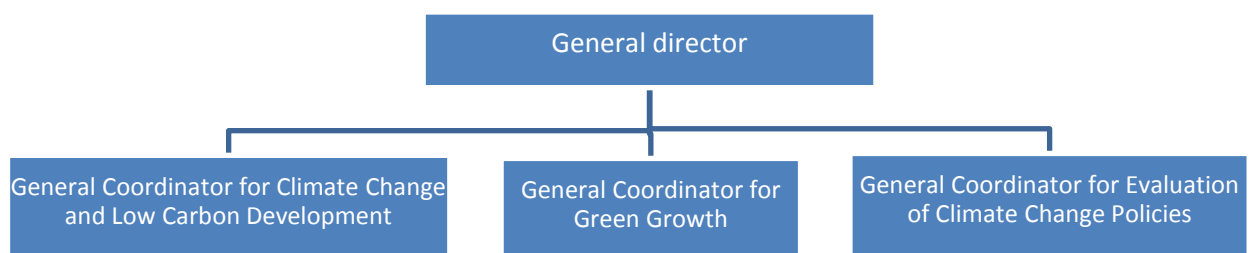


A.1.2 - The National Institute of Ecology and Climate Change (INECC)

INECC is a technical and scientific research institute for the formulation, implementation and evaluation of public policies that lead to environmental protection, ecological restoration and preservation, green growth and climate change adaptation and mitigation.

The General Law on Climate Change mandates INECC to carry out research relevant for the implementation of climate change policies in Mexico. It is in charge, for example, of the development and updating of the National Emissions Inventory; the development of economic models relevant for green growth, and the evaluation of climate change policies in Mexico. More recently, as a result of the budget cuts in the sector, INECC received from SEMARNAT the responsibilities for coordinating the work on Nationally Appropriate Mitigation Actions in Mexico as well as with the states and municipalities.

Figure 2: INECC Structure.



The DEPP will be working more closely with the General Coordination of Green Growth Department, and with the General Coordination of Climate Change and Low Emissions Development. This department is also responsible for the GHG emissions inventory, the Nationally Appropriate Mitigation Actions coordination and the work with states. Their mandates and current staffing is described in Table 1 below:

Table 1 - Mandates and staffing of key cooperation departments of INECC.

Name of Coordination General	Mandate	Staff
Climate Change and Low Emissions Development	To coordinate, promote and develop, scientific and technological research on climate change mitigation, including low emissions development, analysis of clean and low emissions technologies, support of technology innovation and development of the national emissions inventory.	26
Green Growth	To coordinate, promote and develop, scientific and technological research on the economic analysis of environmental and climate change measures, economic modelling for the analysis and development of environment and climate change policies, and design of economic, financial, fiscal and market instruments for the environment and climate change.	19

INECC is also the responsible institution for the development of Mexico's National communications under the UNFCCC. It is currently working on the Sixth National Communication that should have a first draft by autumn 2017.

A.2 - The Energy Sector

The government-level institutional framework for the energy sector consists of SENER, four thematic commissions with regulatory-related mandates (incl. CRE and CONUEE, see below), two national control centres (CENACE for electricity and CENAGAS for natural gas), and two state-owned companies in the areas of energy production (CFE for electricity and PEMEX for hydrocarbons):

1. Secretaría de Energía (Ministry of Energy).
2. Comisión Reguladora de Energía (Energy Regulatory Commission).
3. Comisión Nacional de Hidrocarburos (National Hydrocarbons Commission).
4. Comisión Nacional de Seguridad Nuclear y Salvaguardias (National Commission of Nuclear Safety and Safeguards).
5. Comisión Nacional para el Uso Eficiente de la Energía (National Commission for Efficient Energy Use).
6. Centro Nacional de Control de Energía (National Energy Control Center).
7. Centro Nacional de Control del Gas Natural (National Center for Natural Gas Control).
8. Comisión Federal de Electricidad (Federal Electricity Commission).
9. Petróleos Mexicanos (PEMEX).

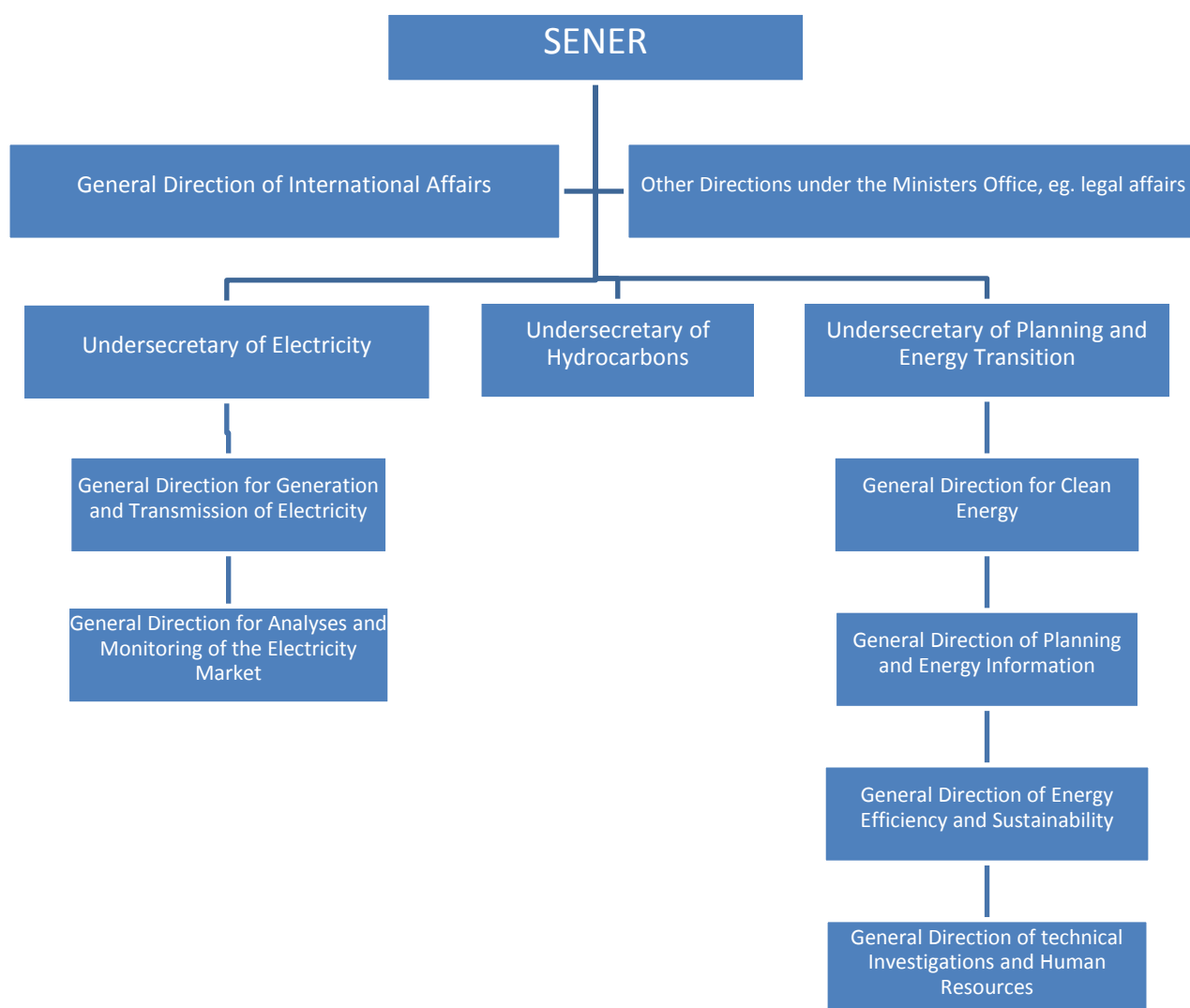
A.2.1 – SENER

According to Article 33 of the Organic Law of the Federal Public Administration, the Ministry of Energy is responsible for: *“Establishing, leading and coordinating the country's energy policy and monitor compliance with priority for energy security and diversification, energy saving and environmental protection, for which it may, among other actions and in terms of the provisions applicable, coordinate, implement and promote programmes, projects, studies and investigations on matters within its competence, and others identified in various legal systems”*.

SENER is responsible for energy sector policy, planning and regulation as well as:

- The design and implementation of energy policy in Mexico.
- Supervision of activities undertaken by the state-owned productive energy companies (CFE and PEMEX), including the programming of activities in the oil and gas supply chain.
- Energy transition and planning for the medium and long term.
- Promotion of participation by private entities in accordance with existing regulation.

Figure 3: SENER structure.



The departments in SENER with which the DEPP will work more closely are the General Direction of Clean Energy, the General Direction of Planning and Energy Information, and the General Direction of Energy Efficiency and Sustainability. Their mandates and current staffing is described in Table 2 below:

Table 2 - Mandates and staffing of key cooperation departments of SENER

Name of Department	Mandate	Staff
Clean Energy	Responsible for development and implementation of the Special Programme for Energy Transition, special responsibility on geothermal, bioenergy and Carbon Capture and Storage projects, responsible for National Inventory and mapping of renewable energy, biennial renewable energy report; coordination of the energy transition fund;	10
Planning and Energy Information	Short, medium and long term energy planning, incl. Renewable Energy Outlook and other outlooks, develop the energy balance and national energy indicators, elaborate energy transition strategy, manage general energy data and information, and provide inputs to the National Development Plan.	10
Energy Efficiency and Sustainability	International programme coordination within energy efficiency and sustainable cities, energy efficiency finance, energy transition strategy, responsible towards SEMARNAT on energy sector mitigation and adaption, oversee activities of CONUEE, and is responsible for the PRONASE activities which are outside CONUEE's mandate.	10

A.2.2 - Energy Regulatory Commission (CRE)

Article 41 of the Law of Coordinated Regulatory Entities on Energy Matters stipulates that in addition to the powers established in the Hydrocarbons Law and the Electric Industry Law, it is up to the Energy Regulatory Commission to regulate and promote the efficient development of the following activities:

1. Transport, storage, distribution, compression, liquefaction and regasification, and the sale to the public of oil, natural gas, liquefied petroleum gas, petroleum products and petrochemicals.
2. Pipeline transportation, storage, distribution and sale to the public of bioenergy.
3. Electricity generation, transmission utilities and electric distribution, transmission and distribution that is not part of public service and the sale of electricity, and other specified in various legal systems.

CRE administers the Clean Energy Certificates system, administers and approves rules for the clean energy auctions, and they are responsible for developing Mexico's smart grid

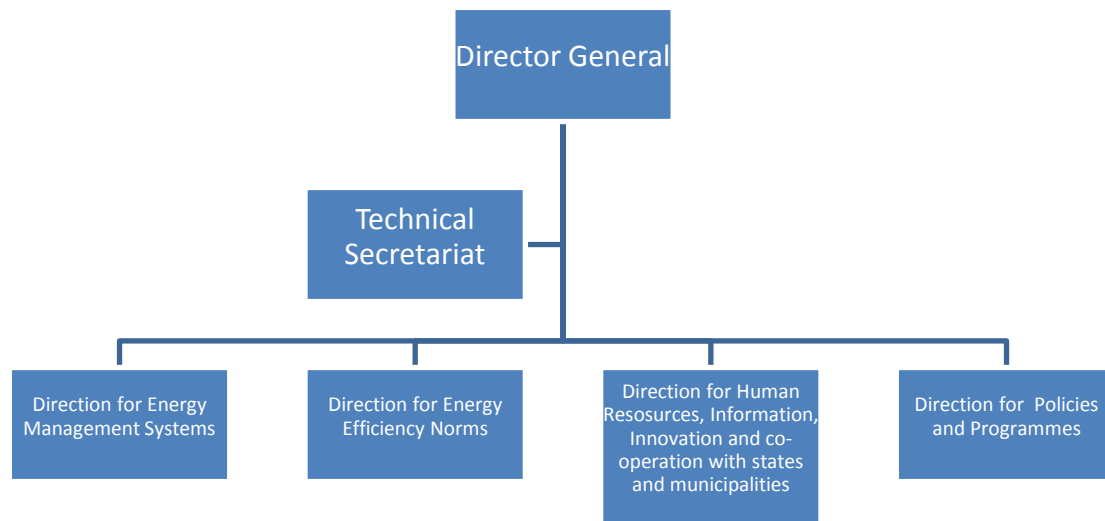
strategy and rules for distributed generation. Furthermore, they approve all grid codes coming from CENACE.

A.2.3 - National Commission for Efficient Energy Use (CONUEE)

The Article 10 of the Sustainable Use of Energy Law, states that the Commission is an administrative body within the Ministry of Energy, with technical and operational autonomy. It is the main responsible party for the preparation and implementation of the PRONASE programme (Programa Nacional de Sustentabilidad Energética). CONUEE aims to promote energy efficiency and is a technical body on sustainable use of energy, promoting the optimal use of energy, from exploitation to consumption. Sectors covered include agriculture, public buildings, state energy companies (CFE and PEMEX), UPACs (big energy users) Small and Medium Enterprises, municipalities and states, residential and commercial buildings, and transport.

Organisational diagram of CONUEE is provided below. The DEPP will work more closely with the Direction of Energy Management Systems (for industry), with the Direction for Energy Efficiency Norms (buildings), and with the Direction for Policies and Programmes for data on energy end-use and modelling.

Figure 4: CONUEE structure.



A.2.4 - National Energy Control Centre (CENACE)

According to Article 1 of Decree by which the National Energy Control Centre is created, it is a decentralised agency of the Federal Public Administration, under jurisdiction of SENER, with legal personality and its own assets.

It aims to exercise operational control of the national electricity system, the operation of the wholesale electricity market, ensure open and not unduly discriminatory access to the National Transmission Grid and public distribution systems, and propose the expansion and modernisation of the National Transmission Network and the elements of the public distribution systems that correspond to the Wholesale Electricity Market.

The Danish-Mexican cooperation will work with the Direction of Planning and Operation.

A.2.5 - Federal Electricity Commission (CFE)

Article 2 of the Law of the Federal Electricity Commission states that the Federal Electricity Commission is a State Production Company wholly owned by the Federal Government, with legal personality and its own assets, and enjoy technical, operational and managerial autonomy.

They can count on productive subsidiaries enterprises and affiliates enterprises which must be aligned to the business plan of the Federal Electricity Commission, under strategic planning and supervision of the Board of Directors of the Federal Electricity Commission, ensuring that the Board is responsible to lead the entire corporate group.

CFE aims to develop the business, economic, industrial and commercial activities in terms of its object, generating economic value to the Mexican State, seeking for the improvement of productivity and minimize the costs of the electricity industry to benefit the population

Annex B: Results Framework

Country Programme	Energy Partnership Programme between Mexico and Denmark
Thematic Programme Objective	Mexico is in transition to decouple carbon emissions from economic growth through cost-efficient mitigation actions
Impact Indicator	Tons of carbon dioxide equivalent (tCO ₂ eq.) reduced contributed to by the programme in Mexico

Development engagement 1

Outcome	Additional RE is efficiently being integrated in the power sector in line with the clean energy goals in the Energy Transition Law.		
Outcome indicator	At least 27% clean energy in mix		
Baseline	Year	2017	20% clean energy in mix
Target	Year	2020	<ul style="list-style-type: none"> • Expertise, initiatives and plans in place and providing support to the target for clean energy • At least 27% clean energy in the power supply mix.

Output 1	Methodologies are established for renewable energy planning and planning capacity is strengthened. SENER uses improved methodologies in their planning		
Output indicator 1	SENER's planning dept., or a SENER approved entity, runs the energy model including the Balmorel model and is fully equipped to translate policies into model assumptions and vice-versa: to analyse the results of modelling and transform them into policy options.		
Baseline	Year	2017	<ul style="list-style-type: none"> • SENER has limited capacity to do energy sector modelling. • UNAM has some capacity to do energy sector modelling. • REO is developed with support from others
Target	Year 1.5	2018	<ul style="list-style-type: none"> • SENER/UNAM has some capacity to integrate into the energy modelling the RE data with sufficient spatial refinement. • REO is actualized with minor support, and published
Target	Year 3	2020	<ul style="list-style-type: none"> • Model in place that more accurately represents the RE potential and regional distribution in Mexico. • SENER/UNAM integrate RE data with sufficient spatial refinement into the energy model. • SENER/UNAM run the model • REO is updated by SENER and published.

Output 2	MEMLAB established Coordination between institutions enhanced and a common centre for data and model maintenance Mexican Energy Modelling Laboratory (MEMLAB) established		
Output indicator 2	Platform for MEMLAB developed and in use		
Baseline	Year	2017	No platform exists, coordination fragmented
Target	Year 1.5	2018	Plan for MEMLAB, including aim, mandate, and plan for execution, developed
Target	Year 3	2020	MEMLAB established

Output 3	Biomass resources identified and assessed SENER has sufficient capacity to map, plan and deploy biomass resources and technologies for energy usage, within technologies where Denmark has distinctive competences.		
Output indicator 3	Consolidated Mexican biomass roadmap exists, that includes an		

			implementation action plan and feasibility studies as well as a proposal for additional incentives to promote the increase of biomass in the energy mix.
Baseline	Year	2017	No plan for deployment of biomass usage exists, neither for agricultural residues, such as straw, stalks and manure, nor for mixed organic residues from industries and waste water treatment plants.
Target	Year 1.5	2018	1-2 feasibility studies completed for the most promising selected technologies and biomass resources and an indication of possible, realistic incentives for further deployment is prepared together with SENER.
Target	Year 3	2020	Output indicator 3.1 achieved

Output 4	Reliability and security of supply with variable RE in the power system improved. CENACE uses best practices developed on transmission grid planning and operation, and are able to effectively integrate variable RE in the electricity system.		
Output indicator 4	CENACE capable to ensure effective integration		
Baseline	Year	2017	CENACE has some capacity for RE integration.
Target	Year 1.5	2018	CENACE has improved its capacity for RE integration.
Target	Year 3	2020	<ul style="list-style-type: none"> • The installed RE capacity is being exploited (very limited curtailment) • Security of supply at least at same level as situation in 2017 but now with more RE integrated • CENACE has capacity for handling RE integration.

Development Engagement 2

Outcome	Efficiency in the use of energy increased In line with the energy efficiency targets of the Energy Transition Law.		
Outcome indicator	1.9% annual reduction of the intensity of final energy demand is reached.		
Baseline	Year	2017	Efficiency not measured as per the defined baseline
Target	Year	2020	Expertise at CONUEE, initiatives, plans and agreements in place and support the target for EE. 1.9% annual reduction of the intensity of final energy demand is achieved.

Output 1	Incentive scheme based on voluntary agreements for energy management systems in large energy consuming industries established and used CONUEE has approved voluntary agreement scheme for energy management including incentives for its wider scale implementation - and administrative setup in place		
Output indicator 1	Voluntary agreement scheme for energy management developed and functioning and incentives agreed for long term scheme		
Baseline	Year	2017	<ul style="list-style-type: none"> • Pilot scheme not yet rolled out • Little capacity to develop and administrate a Voluntary Agreement scheme at CONUEE • Information about the benefits of EE not adequately disseminated.

			<ul style="list-style-type: none"> • Limited know-how on international energy management systems among Mexican verifiers
Target	Year 1.5	2018	<ul style="list-style-type: none"> • Pilot scheme tested and evaluated • Long term scheme under development • Fiscal incentives analysed and agreed by key stakeholders. • Information about the benefits of EE adequately disseminated. • Training of relevant verifiers and business organizations well underway
Target	Year 3	2020	<ul style="list-style-type: none"> • Long term scheme designed and in place and set up approved by CONUEE • Voluntary agreements signed with at least 40 companies • Access to capable Mexican verifiers and businesses • Fiscal incentives in place.

Output 2		Energy Efficiency requirements for new buildings integrated into building codes and enforced. At least three states/cities enforce the building code	
Output indicator 2.1		At least 3 states/ cities have adopted EE standards in building codes after participating in workshops and training	
Baseline	Year	2017	<ul style="list-style-type: none"> • A limited number of states and municipalities are well in the process of implementing the federal standards at local level. • Limited dissemination of experiences with EE in buildings.
Target	Year 1.5	2018	<ul style="list-style-type: none"> • Two additional states and/or municipalities are well in the process of implementing the federal standards at local level.
Target	Year 3	2020	<ul style="list-style-type: none"> • A total of four states and/or municipalities are well in the process of implementing the federal standards at local level.
Output indicator 2.2		At least three states/cities enforce the building code	
Baseline	Year	2017	<ul style="list-style-type: none"> • Local enforcement of building codes still weak. • Not enough architects and engineers aware of EE potential in buildings.
Target	Year 1.5	2018	<ul style="list-style-type: none"> • Local enforcement of building codes in the municipalities that participated in previous programme is in place. • Training of trainers programme in place
Target	Year 3	2020	<ul style="list-style-type: none"> • The local building codes in the cooperating municipalities are enforced. • Through business associations, training of at least 100 relevant trainers - building experts - in applying EE measures in buildings in line with building codes.

Output 3		End-use EE model established and system for data acquisition in place, in areas where Denmark has a specific and unique knowledge, and which is related to other activities of the Partnership Programme. CONUEE uses data and model for reporting on development in energy intensity, as required by law, in selected areas	
Output indicator 3		Reporting takes place regularly	
Baseline	Year	2017	<ul style="list-style-type: none"> • Systematic gathering of EE data only limited • Limited capacity for end-use EE modelling • No regular reporting on energy intensity
Target	Year 1.5	2019	<ul style="list-style-type: none"> • Systems for gathering data designed and agreed • CONUEE has some capacity for EE end-use modelling and

			reporting.
Target	Year 3	2020	<ul style="list-style-type: none"> • CONUEE gather reliable EE data • CONUEE reports on progress in decreasing energy intensity • CONUEE uses EE end-use modelling and quantify effects of EE measures.

Development Engagement 3

Outcome	Mexico has identified and initiated additional national and sub-national measures to reach un-conditional climate target and identified most cost efficient pathway to achieve conditional targets In line with the NDC targets		
Outcome indicator	Measures supporting NDC identified and initiated		
Baseline	Year	2017	No additional measures in place
Target	Year	2020	Additional measures identified and actions agreed

Output 1	NDC actions defined and updated ENCC are developed in order to reach the ambition of 36% GHG emission reduction. SEMARNAT submitted ENCC and plan for actions developed with and approved by relevant international, national and local stakeholders based on implementation plan and subsequent list of actions and costs		
Output indicator 1.1	Identified and selected actors or areas committed to reduce GHG emissions		
Baseline	Year	2017	NDC exists and approved but no plan for increased ambition to 36% GHG emissions reductions
Target	Year 1.5	2018	Implementation plan finalized and shortlist of areas that are selected for further analyses developed
Target	Year 3	2020	Plan for actions developed including assessment of costs
Output indicator 1.2	ENCC approved and published		
Baseline	Year	2017	ENCC from 2013 and needs to be updated to reflect eg. NDC
Target	Year 1.5	2018	ENCC under way and reflecting priorities of new government
Target	Year 3	2020	ENCC finalized and approved
Output indicator 1.3	Actual actions at state level supported and completed		
Baseline	Year	2017	Some actions at state level, but could be improved through more systematic approach with focus on most cost efficient actions to support the local, low carbon transition
Target	Year 1.5	2018	1 state engaged in planning for implementation of selected actions
Target	Year 3	2020	At least two actions agreed and implemented

Output 2	Modelling of NDC measures established and data quality improved. INECC models NDC and other measures with improved data		
Output indicator 2.1	INECC uses technology catalogues in planning and projections		
Baseline	Year	2017	Technology catalogue for biomass and transport only
Target	Year 1.5	2018	The two technology catalogue on renewable energy for distributed generation under development
Target	Year 3	2020	Technology catalogues developed and in use
Output indicator 2.2	INECC models NDC measures with improved data		
Baseline	Year	2017	<ul style="list-style-type: none"> • Cost analyses not finalized • Model runs with less reliable data, and with no specific technology paths included

Target	Year 1.5	2018	<ul style="list-style-type: none"> Implementation plan finalized with INECC input
Target	Year 3	2020	<ul style="list-style-type: none"> INECC models measures INECC has procedures for handling and maintaining the improved data
Output indicator 2.3		Identified and selected states, municipalities and other stakeholders committed to reduce GHG emissions, and their technical capacities for mitigation actions has improved	
Baseline	Year	2017	Three states have been selected to enhance their technical capacities in climate policies and actions
Target	Year 1.5	2018	<ul style="list-style-type: none"> At least six states are engaged in improving Private stakeholders approached and engaged in dialogue
Target	Year 3	2020	<ul style="list-style-type: none"> Six states now have better knowledge and technical capacities for mitigation actions Private stakeholders involved in mitigation actions, with better knowledge of possibilities and implications

Annex C: Budget at output level

Development Engagement 1: Renewable Energy (SENER)

Outputs	DKK'000
1. Methodologies are established for renewable energy planning and planning capacity is strengthened	3151
Technical assistance	2.401
Travel costs etc. attached to technical assistance	600
Delegations to Denmark	50
Other costs	100
2. MEMLAB established	780
Technical assistance	680
Travel costs etc. attached to technical assistance	100
Delegations to Denmark	-
Other costs	-
3. Biomass resources identified and assessed	3815
Technical assistance	2.916
Travel costs etc. attached to technical assistance	600
Delegations to Denmark,	100
Other costs	200
4. Reliability and security of supply with variable RE in the power system improved.	2949
Technical assistance	2549
Travel costs etc. attached to technical assistance	300
Delegations to Denmark,	-
Other costs	100
International Long-Term Adviser	1950
GRAND TOTAL	12.646

Development Engagement 2: Energy efficiency (CONUEE)

Outputs	DKK '000
1. Incentive scheme based on voluntary agreements for energy management systems in large energy consuming industries established and used	2.535
Technical assistance	2.135
Travel costs etc. attached to technical assistance	200
Delegations to Denmark	100
Other costs	100
2. Energy Efficiency requirements for new buildings integrated into building codes and enforced.	3.682
Technical assistance	2982
Travel costs attached to technical assistance	350
Delegations to Denmark	150
Other costs	200
3. End-use EE model established and system for data acquisition in place.	1.971

Technical assistance	1721
Travel costs etc. attached to technical assistance	200
Delegations to Denmark	-
Other costs	50
International Long-Term Adviser	1950
GRAND TOTAL	10.139

Development Engagement 3: Climate change mitigation (SEMARNAT, INECC)

Outputs	DKK '000
1. NDC actions defined and updated ENCC are developed to reach the ambition of 36% GHG emission reduction	2765
Technical assistance	2.265
Travel costs etc. attached to technical assistance	300
Delegations to Denmark	50
Other costs	150
2. Modelling of NDC measures established and data quality improved.	4.621
Technical assistance	3.971
Travel costs attached to technical assistance	450
Delegations to Denmark	100
Other costs	100
International Long-Term Adviser	3.900
GRAND TOTAL	11.285

Annex D: Development Engagement Documents