

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

Danida

**Energy Partnership Programme
between Viet Nam and Denmark
Programme Document**

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Acronyms and Abbreviations

| | |
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| AMG | Aid Management Guidelines (DANIDA) |
| BAU | Business as usual |
| DEA | Danish Energy Agency |
| DED | Development Engagement Document |
| DEPP | DEA Energy Partnership Programme |
| DKK | Danish Krone |
| ECCO | Energy Efficiency and Conservation Office |
| EE | Energy Efficiency |
| EOR | Energy Outlook Report |
| ERAV | Electricity Regulatory Authority of Viet Nam |
| GDE | General Directorate of Energy |
| GDP | Gross Domestic Product |
| GHG | Greenhouse Gas |
| GOV | Government of Viet Nam |
| LNG | Liquid Natural Gas |
| LTA | Long-term Technical Advisor |
| MEUC | Ministry of Energy, Utilities and Climate |
| MOIT | Ministry of Industry and Trade |
| NDC | Nationally Determined Contribution |
| NGO | Non-Governmental Organisation |
| NLDC | National Load Dispatch Centre |
| PC | Power Corporation |
| PDP | Power Development Plan |
| RE | Renewable Energy |
| TOE | Tons of oil equivalent |

1 Introduction and National Context

Viet Nam has seen significant economic growth in recent years. Political and economic reforms have transformed Viet Nam from one of the poorest nations in the world to a middle-income country within a quarter of a century. With 88.5 million people from 54 different ethnic groups, the country has seen growth in GDP of averaged 6.16 percent from 2000 until 2016. Growth has been equitable—with a dramatic reduction in poverty—and social outcomes have improved significantly. Per capita income in Viet Nam has gone from around \$100 in the 1980s to about \$2,100 in 2015 and the number of people living in extreme poverty has dropped from 58.1 percent in 1993 to 3% percent in 2016. Access to basic infrastructure has also improved substantially: Electricity is available to almost all households, up from less than half in 1993.

In 2015 Viet Nam was denoted as the 28th largest emitter of CO₂ in the world and with energy use growing faster than in any other country in the region and with energy intensity of the economy among the highest in the world. Viet Nam's GHG-emissions have almost tripled and its carbon intensity (of GDP) has increased by 48 percent from 2000 to 2010, resulting in the second highest carbon intensity in the region after China.

The Danish Development Policy and Humanitarian Strategy emphasizes that Denmark will support partner countries in fulfilling their commitment to the Paris Agreement obligations. With the Partnership Programme focusing on government-to-government cooperation, a particular emphasis will be on knowledge sharing and capacity building in order to support the follow-up of the Paris Agreement and long term energy transition in. The three Development Engagements contribute directly to the achievement of these targets. The proposed programme also contributes to the implementation of the Paris Agreement and Viet Nam's NDC which aims at 8% GHG emission reduction by 2030 using only domestic resources, potentially reaching 25% with international support.

Viet Nam is planning to increase the capacity of hydropower sources from less than 17,000 MW in 2016 to approx. 27,800 MW in 2030. Yet the electricity produced from hydropower sources will account for approx. 30 percent in 2020 but only approx. 16 percent in 2030 as electricity demand. Under current trends and policies, the share of coal for power will rise from 17 percent in 2010 to nearly 60 percent by 2030, of which around 80 percent will be imported. Viet Nam has recently become a net importer of coal, domestic oil reserves are being depleted and are expected to drop significantly in the next 5 years and natural gas production has peaked, such that Viet Nam will need to start importing Liquid Natural Gas (LNG) beginning in 2023. This underlines the need for Viet Nam to avoid investment in technology and infrastructure that will 'lock in' highly energy inefficient economic structures. Successfully doing so will lead to positive spill-over effects with regard to economic growth, productivity, and avoided health costs.

Viet Nam is proactively implementing climate change response activities as the Government considers climate change response a crucial issue. The Renewable Energy (RE) Strategy of 2015 constitutes the key policy document on renewable energy promotion. The wider climate change and green growth policies are established in the National Climate Change Action Plan, the National Green Growth Strategy and the National Green Growth Action Plan. The renewable energy strategy sets overall RE targets of increase of production and use of RE sources from approx. 25 million TOE (tons of oil equivalent) in 2015 to approx. 62 million TOE in 2030 and 138 million TOE in 2050; of RE share in total primary energy

consumption in 2015 of 31.8%; 32.3% in 2030 and 44% in 2050. In addition, the strategy sets a number of technology specific targets for a number of RE technologies.

Viet Nam has quite a comprehensive policy and legal framework for promotion of energy efficiency (EE), particularly with regards to large, energy intensive industries. Recently MOIT has proposed the National Target Program on Energy Efficiency for the period 2016 – 2020 for approval by the Prime Minister. The proposal includes specific objectives to achieve at least 7% reduction of energy consumption in energy-intensive industries and to achieve savings at 7- 8% of commercial energy consumption for the period.

Looking into the future, Viet Nam has defined as its strategic goals to complete the construction of a moderately prosperous society and to create a prosperous, strong, democratic, culturally developed and harmonious modern socialist country by the middle of this century. Viet Nam is making efforts to embark on a sustainable development path that is in line with its national circumstances and leads to multiple wins in terms of economic development, social progress and combating climate change. These priorities, the policies developed to realise them and government practice, as learned from the previous cooperation and as assessed in the screening notes (see programme annexes) are in accordance with Danish foreign policy, human rights, gender equality, and the application of the human rights-based approach.

Programme partners and other stakeholders

This particular programme between Viet Nam and Denmark is a partnership between the Danish Energy Agency (DEA) and the Ministry of Industry and Trade (MOIT). The three Development Engagements will be anchored in two Departments of the General Directorate of Energy (GDE) and the Electricity Regulatory Authority of Viet Nam (ERAV).

MOIT is the governmental agency responsible for state management of industry and trade including electricity, renewable energy, oil and gas. MOIT is, through the Planning department of its General Directorate of Energy (GDE), in the process of strengthening its energy sector planning capacity to assess impacts of different policy choices. Institute of Energy, a Science & Technology Research Organization, established by the MOIT supports the planning department on technical matters. In 2005 the ERAV was established as an entity under the MOIT to assist MOIT “with the functions of regulating the electricity activities and power market” including regulation of the three National Load Dispatch Centres (NLCDs) and the Power Corporations (PCs) engaged with power transmission, distribution, production and retail. MOIT is, through the Department of Science, Technology and Energy Efficiency of the GDE, in the process of strengthening the implementation framework for energy efficiency in industry. At provincial level implementation is the responsibility of the Department of Industry and Trade (DOIT). For further description of these institutions please refer to Annex A.

Albeit closely aligned to government, there are civil society entities engaged in the energy field that constitutes a resource to assist in research and information dissemination. The Viet Nam Science and Technology Association of Energy Conservation and Efficiency (VECEA) has 400 members, including energy efficiency centres in provinces, local government departments and individual academic experts. The Viet Nam Sustainable Energy Alliance (VSEA) has developed scenarios for sustainable development of the energy system. Both could be valuable counterparts for the program.

The programme may contribute to improving framework conditions and expand the market for RE and EE and hence also indirectly benefit Danish companies engaged in Viet Nam, for example as providers of various RE and EE technologies. As the capacity of Viet Nam to generate and utilize renewable energy and to realize EE potentials in industry increases, demand for cost-effective green energy solutions will be raised significantly.

In terms of Development Partners, several organisations are currently assisting with developing regulations for the operation of a competitive power market and directions for the regulations' implementation including, most notably GIZ, the World Bank, EU and the Asian Development Bank. USAID is negotiating a sustainable energy program with MOIT.

Other Development Partners (EU, UNDP, UNIDO and World Bank) undertake activities in the area of energy efficiency (mainly the provision of investment funding) but are not currently directly involved in policy or regulatory adjustment. A mechanism for coordination of Development Partner activities in the energy sector, the Viet Nam Energy Partnership Group, is being established which would serve to facilitate identification of opportunities for synergy. Moreover, a facility for providing technical assistance (TA) to meet needs in the energy sector is being set up with EU funds, co-funded and administered by GIZ, which could be a source of funding for additional support for capacity development identified by the partnership programme.

2 Presentation of the Partnership Programme

2.1 Programme Rationale and Justification

The Partnership Program is based on the counterparts' expressed demand for Danish support to Viet Nam's green growth transition. The counterparts recognize the value and relevance of Denmark's energy transition away from a fossil fuel based economy, which is a high priority focus area for the government of Viet Nam. At the same time, the Danish government wishes to support emerging economies that are pursuing a less carbon-intensive economy.

The partnership program builds on the successes of the ongoing program Low Carbon transition in the Energy Efficiency sector in Viet Nam (LCEE) including its support on long-term energy system planning with particular focus on integration of renewable energy into the power sector; as well as the component on energy efficiency in SMEs.

If variable renewables are to be recognised as a viable alternative, it is critical important that they are integrated efficiently and in a manner that avoid losses. For this purpose, the energy planning support of LCEE has already provided a power sector analysis model for Viet Nam, and capacity has been built at Institute of Energy to operate the model. By use of the model, a comprehensive long-term power sector analysis has been performed, and the results are being reported in a first Energy Outlook Report for Viet Nam. Going forward, the scope of analysis/modelling will be further expanded to cover the entire energy sector (excluding transport), and to further strengthen the analytical capacities in assessing the long-term impact of integrating more intermittent energy into the power sector. In addition, the Danish experiences of operation a power system with particular large shares of wind and other intermittent energy sources will be made available in a separate engagement to help

Viet Nam design a functional power system by making use of short-term forecast and effective and secure short-term balancing of the power system.

MOIT recognises that although significant progress on implementation of EE has been made many enterprises still does not fully abide by the Law on Energy Efficiency and Conservation (LEEC) and its supporting decrees and executive orders. The GDE recently confirmed that “improvement of economic efficiency via ... innovation of energy-use technologies ... to ensure overall effectiveness in energy efficiency and conservation according to the Law on Energy Efficiency and Conservation” would be a priority of GDE in the immediate future. The EE component of the LCEE program has already developed a comprehensive intervention combining awareness raising, training, technical service and a financial mechanism (Green Investment Facility) to transform energy technology markets in the industry sector. The mechanism will be consolidated into a permanent structure, and it will not be part of the Partnership Program. However, the intervention has provided much insight into the challenges and shortcomings of the current regulation of energy efficiency in the industrial sector as well as the institutional setup of the sector. These insights together with the long-standing Danish experience of developing and effectively implementing energy efficiency policies will be the foundation for the Danish contribution to the partnership.

2.2 Thematic programme objective

The objective of the wider Energy Partnership Programme between Viet Nam and Denmark is that most cost-effective opportunities for low carbon transition in energy system are more widely adopted throughout Viet Nam. This objective is in alignment with Viet Nam’s Plan for Implementation of the Paris Agreement and the Viet Nam National Green Growth Strategy and aligned with the Danish Climate Envelope objective.

In Viet Nam, the program will support three development engagements as follows:

- Capacity Development for long-range energy sector planning with GDE, Planning Department
- Capacity Development for Renewable Energy Integration into the Power System with ERAV
- Low carbon development in the industrial sector with GDE, Department of Science, Technology and Energy Efficiency

The first two of these engagements aim, respectively, to help increase the proportion of renewable energy in the energy sector in general and in the power sector in particular. Firstly by promoting comprehensive long range planning and secondly by efficient use of power from renewable energy. The third engagement seeks to improve energy efficiency and the use of low-carbon technology in industry. Thus, the long-term effects of all three, if successful, would be decreased use of fossil fuels and associated GHG-emissions reductions.

2.3 Theory of change

The Theory of Change related to the development engagement with GDE is that if GDE is capacitated to present evidence-based policy options to decisions makers based upon solid long-term modelling results, more ambitious policies can be implemented as described in the NDCs (including more ambitious targets) with greater certainty about central issues of concern such as costs, security of supply etc. The outputs of this DE will be able to feed into the updates of the Power Development Plan (PDP), thus contributing to the implementation of the Renewable Energy Strategy by GDE and potentially facilitate decisions on using

subsidies, pricing and other policy measures, including feed-in tariffs for wind energy, to ensure that the respective returns on investment in RE and fossil fuel based power matches their socio-economic value including CO₂ costs.

The engagement builds on the assumption that long term planning and policy implementation scenarios building on factual based input data are effective tools to better informed policy dialogues and policy making and that the scenarios will demonstrate that RE is indeed cost-effective and technically feasible in Viet Nam.

The theory of change related to the development engagement with ERAV is that by enabling system operators and power market participants to make more accurate forecast of electricity supply and demand and by facilitating that effective auxiliary services are available, then the operational paradigm of the power system will be able to effectively integrate intermittent production from wind and solar with regard to the ability to maintain demand and supply in constant equilibrium and hence avoiding blackouts. For this to materialize, ERAV is assisted to build capacity with power system participants for them to develop and implement supportive measures for engaging auxiliary services and for them to do more accurate forecasting.

The engagement rests on the assumption that government retains its commitment to expansion of RE-generation capacity in the power mix. Attached to this, is the assumption that intermittent RE generation capacity will be constructed in a scale that requires increased attention to the technical and operational grid integration issues that this cooperation addresses.

The theory of change related to the third development engagement is that if evidence of cost effective opportunities for energy savings in industry is compiled and challenges related to enforcement of existing laws and regulations on energy saving promotion is better understood, then consensus among key stakeholders could potentially be reached on the policy and legislative change required. Assuming such consensus is reached next step would be drafting of selected, high impact national regulatory instruments that addresses weak spots in the current framework. Based on this targeted DOITs will be assisted to draft legal instruments, guidelines, enforcement strategies and templates that will increase compliance. The piloted regimes can then be adjusted based on initial results and rolled-out to the rest of the country. This roll-out is achieved by implementing a capacity development plan aimed at the DOITs which is to be executed by GDE. As a result, compliance rates with the legal requirements will increase.

The engagement rests on the assumption that the Government of Viet Nam retains its commitment to a low-carbon transition, and that this commitment is reflected in key planning documents as well as in resource allocation to responsible ministries and local government. It is also assumed that industries can be brought to compliance through a combination of persuasion and regulatory pressure, despite the barriers presented by the need to invest and to find qualified suppliers of goods and services.

2.4 Development engagements

The DEA partnership programme with MOIT has been focused on demands presented by MOIT that matches unique Danish energy regulatory experiences to promote sustainable growth and development. This had led to three development engagements:

DE 1: Capacity Development for long-range energy sector planning with Ministry of Industry and Trade, Planning Department of the General Directorate of Energy

The objective of the Development Engagement is that Viet Nam's energy system is more sustainable through implementation of cost-optimised policy and planning by working with the planning department to develop capabilities to model different scenarios for energy system development and present these for decision makers.

The principal responsibility of the Planning Department of the General Directorate of Energy is to develop the PDP, at least every five years. This development engagement for the planning department focuses on capacity development within planning, including continued support to use the Balmorel model, to enhance the quality of the input data to ensure that the scenarios produced are as reliable as possible.

The intended outcome of the DE is that Vietnamese energy policy and planning is informed by analyses and dialogue around the potential for cost-effective sustainable energy systems. This will be achieved through assisting the GDE Energy Planning Department and institutions involved in power system planning such as Institute of Energy to commission, develop, and analyse comprehensive long-term energy scenarios. The results of the analyses will be interpreted in an Energy Outlook Report which will be disseminated to stakeholders and constitute a platform for policy dialogue. This outcome will be achieved through the following outputs:

- 1) Capacity development on integrated, scenario-based long-range modelling of the energy system: The capacity of the GDE Planning Department and institutions involved in power system planning to commission, develop, and analyse comprehensive long-term energy scenarios of various energy and power sector development scenarios is developed.
- 2) Output 2: Energy Outlook Reports published The Energy Outlook Report provides a narrative description of the consequences of the policy alternatives analysed under output 1. The Energy Outlook Report is used as a tool to disseminate essential information to planners and decision makers in other sectors and as a platform for policy dialogue as the availability of energy and power becomes a critical issue for the continuing growth of Viet Nam's economy.

The overall implementation of this development engagement is the responsibility of the Planning Department. Daily implementation is the responsibility of the Development Engagement Implementation Group (DE1 Implementation Group). Through its head the DE1 Implementation Group reports to an established Management Group for the entire Partnership Programme between Viet Nam and Denmark, and is held accountable by the Steering Committee of the programme.

The development engagement will have no cash transferred or disbursed directly to the development engagement partner. Hence, there is no requirement for accounting of funds and financial reporting at development engagement level.

The technical assistance will be delivered by experts from the Danish Energy Agency, a long-term advisor, by international consultants and by national consultants.

A complete description of this development engagement is found in Annex E.

DE 2: Capacity Development for Renewable Energy Integration into the Power System with ERAV

The objective of the Development Engagement is efficient integration of renewable energy into the Viet Nam power system, with consequent reduction of CO₂ emissions by assisting ERAV in training NLDCs and PCs integrating a larger share of RE into the electricity grid..

The outcome of this development engagement is that ERAV has improved the capacity of the NLDC and PC to integrate the increasing share of intermittent RE in the power system. The outcome will be achieved through the following outputs:

- 1) Enhancement of capacity in forecasting of load and of generation from intermittent RE: Power system participants have strengthened capacity in load forecasting as well as in forecasting on RE-generation including through adequate tools/models/systems at hand and access to relevant data to do accurate forecasting.
- 2) Improved capacity for calculating need for and secure availability of ancillary services to ensure stability of the power system as well as power market: Power system participants calculate the power systems needs for ancillary services more accurately. Methods to secure adequate availability of ancillary services are developed as a result of the support, and applied.

The development engagement is anchored in the Power Market Development Research and Training Centre of ERAV that has the overall responsibility for implementation of the engagement. Daily implementation is the responsibility of the Development Engagement Implementation Group (DE2 Implementation Group). Through its head the Implementation Group reports to an established Management Group for the entire Partnership Programme, and is held accountable by the Steering Committee of the Partnership Programme.

The development engagement will have no cash transferred or disbursed directly to the development engagement partner. Hence, there is no requirement for accounting of funds and financial reporting at development engagement level.

The technical assistance will be delivered by experts from the Danish Energy Agency, by international experts and by national experts. The Danish Transmission System Operator would be an excellent candidate to undertake the capacity development. The technical assistance will in addition be delivered by experts from DEA, by international experts and by national experts as required during implementation.

A complete description of this development engagement is found in Annex E.

DE 3: Low carbon development in the industrial sector with Ministry of Industry and Trade, Department of Science, Technology and Energy Efficiency of GDE

The objective of the Development Engagement is that the most cost-effective opportunities for low carbon transition in industry are more widely adopted throughout Viet Nam by assisting GDE to strengthen the implementation framework for energy efficiency in industry. GDE is responsible for the regulations of the industrial sector in Viet Nam including regulation related to energy usage and the key partner for industrial energy efficiency.

The outcome of the development engagement will be that legal instruments contributing to the industrial low carbon policy are developed and revised and implementation is supported at provincial level to target the most cost beneficial opportunities. The outcome will be achieved through the following outputs:

- 1) Proposal for an improvement of the national-level low carbon regulatory framework for industry: Possibilities for improvements of the national EE policy framework is recognized by GDE including an in-depth understanding of the benefits and potentials of low carbon development as well as of the prevailing barriers that prevent or retard such development.
- 2) Development of low carbon legal instruments for industry at provincial level: More efficient instruments in place strengthening the local regulatory - and implementation framework and local authority opportunities to implement including through new, more specific guidance documents and tools.
- 3) National and local institutional capacity to ensure implementation of legal instruments is strengthened: Building on the preliminary results of output 1 and 2 a detailed plan to be executed by GDE for institutional capacity development at local level to interpret national regulations and skills to design strategies and procedures to implement regulations on the ground is developed.

The overall implementation of this development engagement is the responsibility of the Leader of GDE Department of Science, Technology and Energy Efficiency. Daily implementation is the responsibility of the Development Engagement Implementation Group (DE3 Implementation Group). Through its head the Implementation Group reports to the established Management Group for the entire Partnership Programme between Viet Nam and Denmark, and is held accountable by the Steering Committee of the programme.

The development engagement will have not cash transferred or disbursed directly to the development engagement partner. Hence, there are no requirement for accounting of funds and financial reporting at development engagement level. The technical assistance will be delivered by experts from the Danish Energy Agency, by international experts and by national experts.

A complete description of this development engagement is found in Annex E.

2.5 Assumptions and risk analysis

Key assumptions

A successful achievement of the outcomes rests on a set of assumptions that explains the change logic: (i) the Government of Viet Nam retains its commitment to climate change mitigation and related targets on energy, most particularly on renewable energy and energy efficiency and that this commitment is reflected in key planning documents as well as in resource allocation to responsible ministries and institutions, (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, (iv) Danish experience is relevant for the proposed interventions, and (v) DEA makes available adequate and qualified staff resources.

An assumption is also that low prices on coal will not affect the long-term appetite to implement renewable energy and energy efficiency, and; the programme will work on reducing barriers for RE penetration and improving EE. It is also assumed that industries can be brought to compliance with EE regulation through a combination of persuasion and regulatory pressure, despite the barriers presented by the need to invest and to find qualified suppliers of goods and services.

Contextual risk level

Viet Nam is a stable partner country and contextual risk level is assessed as being low. The contextual risk factors considered for the programmatic and institutional risk assessment are corruption and human rights violations.

Viet Nam is ranked 112 of 168 countries on the Transparency International 2015-Corruption Perception Index. In spite of improvements over the past years, corruption is still considered widespread throughout the country and Viet Nam still lags behind other Asian countries in terms of control of corruption and most governance indicators. The Anti-Corruption Law, adopted in 2005, criminalises several types of corruption, establishes asset disclosure requirements for governmental officials, and whistle-blower protection. A number of institutions which aim to fight corruption are now in place, including the Office of the Central Steering Committee for Anti-Corruption. The modality of the proposed support, entirely TA with no transfer of funds renders the corruption risk low.

Violation of human rights: Protection of human rights has been a long-standing challenge in Viet Nam. Violations occur, relating to i.a. violence against women and girls; and discrimination against indigenous people. The "space" for NGOs, human rights defenders and the press appear to be narrowing and key oversight institutions are still weak. Given the nature of support, however, risks associated with the programme are minor. In addition, Embassy of Denmark participates in dialogue with the government on human rights issues and support to human rights activities - in close cooperation with likeminded development partners. Nevertheless the situation should be monitored closely.

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. However, the country remains an important venue for investors in labour intensive manufacturing, primarily textiles. 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.

Programmatic and institutional risks

Common risks such as lack of partner absorption capacity and changes in overall government policy are unlikely as described above (Section 2.2) because the commitment of GOV is strong, arising from compelling strategic concerns in the energy sector. Any residual risk 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. The risks analysed includes the following:

Poor political commitment to retain low carbon development. On a medium to long term a moderate risk is that the government would lack the determination and political will to maintain long-term sustainability of over short-term economic gains but Government of Viet Nam has established NDC, so the risk is unlikely. Continue support and dialogue with Government, and through targeted engagements that supports a long term sustainability and a low carbon path will mitigate the risk and the residual risk is minor.

Lack of interest and ownership to the cooperation from key partners. Government budget for renewable energy and energy efficiency is limited, but MOIT has increasingly proven commitment to the current cooperation and have signed MoUs with Denmark to expand the cooperation beyond the scope of the ongoing cooperation. With a continued close cooperation; strengthening the relations at high level in MOIT and delivering results of the programme will mitigate the risk and the residual risk is minor.

Government of Viet Nam may restructure MOIT and reallocate responsibilities of renewable energy and energy efficiency. The Government is in a process of making MOIT more streamlined and fit for purpose. The process is on-going and indications show a continued institutional priority of renewable energy and energy efficiency. The programme is designed flexible and the outputs and outcomes of the program will remain valid regardless of institutional anchor. Capacity development is related to functions that would need to be carried out also in a restructured institution. The residual risk is minor.

Overlap of activities with other Development Partners in the sector. Energy sector is of great interest to several of DPs with well-funded programmes on-going and planned. There are more needs in the sector than what is provided by the DPs combined, but this need to be coordinated and distributed in the right direction. This is mitigated through design with focus on special needs where Denmark has unique expertise and a good track-record in Viet Nam. Continues dialogue with DPs and adjust as program evolves will also assist in keeping the residual risk to minor.

Failures in the design of interventions: Most engagements are part of larger programmes or undertakings, responding to agreed national strategies for which competent analysis and appraisals exist. All engagements are under the umbrella of MOIT, but within separate departments to spread risk within MOIT so that a single instance of design failure would only impact the specific engagement. Moreover, lessons learned and histories of previous engagements informed the design. Risks are therefore minor. During implementation, however, it is important that partners focus on quality, validate the theories of change and causality and ensuring that engagements respond flexibly to revised findings. They should

also invest in continued and wider stakeholder consultations and careful identification and application of indicators and targets.

3 Overview of Partnership Programme Management

In Viet Nam a Steering Committee is established and expected to meet once or twice per year. The Steering Committee should be co-chaired by Vice Minister of MOIT and the Danish Ambassador to Viet Nam and include a representative from Danish Energy Agency and heads/deputy heads of departments for the development engagement partner institutions. Its main task will be to approve 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 program 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 is established with representatives from the partner institutions at senior operational level, LTA, DEA-representative(s) and EDK representative. The Management Group will be led by DEA country coordinator, EDK programme manager and MOIT Programme Director. The Management Group follows progress, approve work plans with associated TA procurement plans to be reported to the Steering Committee (annual), advises the Steering Committee and is a forum for technical level policy dialogue. This group will conduct meetings at least twice per year and have the responsibility to: i) consolidate and check annual and detailed half-year 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 engagements. Decisions are made by consensus.

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, the DEA-country coordinator, the programme officer at EDK and specialist(s) as relevant. The Implementation Group will meet at regular intervals and will: i) develop annual and detailed half-year work plans matching priorities in the 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.

Procurement of agreed national specialist TA, not covered by the above, will be carried out by the EDK in consultation with DEA, and follow Danish procurement rules for local procurement of TA. Final selection will be done by in close cooperation with the Implementation Group.

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

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

It has been decided to dedicate 8.0 DKK million as unallocated funds at the overall DEPP level. The unallocated funds could be activated by having any of the Country Steering Committees in the four countries submit a proposal to the Advisory Group for approval if one of the following criteria is fulfilled:

- Dissemination of lessons learned across the four partnership countries that would stimulate cross fertilization (south-south dialog).
- Activating partnerships between Civil Society Organisation and academia on e.g. awareness, consultation, analysis, monitoring etc.
- Activities that will address barriers and opportunities to mobilize and leverage of funds from other sources or engage the private sector to be the benefit of both Denmark and the partner country.
- Promote a policy agenda of interest for both Denmark and the partner country e.g. accelerating implementation of a strategy, policy or plan developed as part of a Development Engagement.

A proposal to activate the unallocated funds should be submitted at least prior to the mid-term review. This would leave at a minimum of 1.5 year for implementation. Only proposals encouraged by both the DEA and the Development Engagement partners will be considered. The proposals should be drafted and quality assured by country Management Group upon request of the country Steering Committee.

An approved proposal to activate unallocated funds at overall DEPP level should be submitted for processing and recommendation for approval by the Advisory Group. Unallocated funds could thus be activated at any time during the implementation period. Appraisal of proposals will follow procedures described in Danida Aid Management Guidelines.

3.1 Results Monitoring Mechanisms

Overall program monitoring will be undertaken by the Management Group reporting to the Steering Committee of the Partnership Programme between Viet Nam and Denmark. 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 and 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.

Detailed indicators for each specific development engagement output will be revisited and potentially refined as part of the inception, where annual targets, in line with already defined targets will be adjusted with reference to the guidelines for monitoring of the Danish Climate Envelope. Monitoring towards these targets will be reported through the bi-annual progress reporting 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 DEIG 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 or potentially refined. These will be approved by the Steering Committee and informed to the Advisory Group in Copenhagen overseeing the entire Energy Partnership Programme in the four countries (Viet Nam, Mexico, China and South Africa). Any material changes to the Partnership Programme between Denmark and Viet Nam and 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 Ministry of Foreign Affairs 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 budget for the overall Energy Partnership Program is DKK 115 million of which [xx (to be inserted once finally determined)] have been allocated to the Partnership Programme between Denmark and Viet Nam including technical assistance from the 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.

| Development Engagement Outcomes | Partner | DKK million/year | | | |
|--|---------|------------------|---------|---------|-------|
| | | 2017/18 | 2018/19 | 2019/20 | Total |
| DE 1: Capacity Development for long-range energy sector planning | GDE | 2,80 | 2,80 | 2,80 | 8,40 |
| DE2: Capacity Development for Renewable Energy Integration into the Power System | ERAV | 1,98 | 1,98 | 1,98 | 5,93 |
| DE 3: Low carbon development in the industrial sector | GDE | 2.44 | 2.44 | 2.44 | 7.31 |
| Unallocated | | | | | |
| Grand Total | | | | | 21.64 |

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. Detailed output based budgets are included with the partner documentation for each development engagement. The total amount of hours from DEA allocated for the programme is 7,475.

ANNEXES

Annex A: Partners - brief description

The Ministry of Industry and Trade (MOIT) is the governmental agency responsible for state management of industry and trade including electricity, new energy, renewable energy, oil and gas. MOIT was the partner for the previous programme and will continue be the direct partner of the DEPP.

The institutional oversight of the energy sector in Viet Nam is undergoing a major restructuring which is in process as this document is being prepared and expected to be approved before the start of the programme. New appointments are expected at the very top of the ministry. The overall remit of the ministry will still include the activities covered by the Partnership Programme.

General Directorate of Energy – Energy Planning Department

In 2012, the MOIT established General Directorate of Energy (GDE) to better align the MOIT's departmental responsibilities in the energy sector. The Planning Department of the GDE will be the direct partner of Development Engagement 1. Its responsibilities include overall energy planning and policy formulation; appraisal of power and energy compliance; reviewing power demand forecast, conducting system studies, and recommending measures to achieve supply–demand balance; and monitoring implementation of power projects. The planning department is in the process of strengthening its energy sector planning capacity to assess impacts of different policy choices. The planning department has responsibility for updating the Power Development Plan (PDP) at least every five years. The PDP reports the outcome of scenario analysis and serves as a mechanism to guide stakeholder input into policy development and acts as a vehicle for attaining technical consensus.

General Directorate of Energy - Science, Technology and Energy Efficiency Department

According to the Energy Efficiency Law, MOIT presides over coordination with relevant ministries in issuing norms and technical regulations on energy use for industries and, at the provincial level, to provide guidelines to designated energy users to develop and implement annual and 5-year plans, providing for samples of annual and 5-year reports. The Science Technology and Energy Efficiency Department is a dedicated unit in the MOIT leading the implementation of Viet Nam Energy Efficiency Program and the energy efficiency and conservation laws, decrees, and regulations.

Electricity Regulation Authority of Viet Nam The Electricity Regulatory Authority of Viet Nam (ERAV) was set up in 2005 under the MOIT. The responsibilities of the ERAV include: developing regulations and directions to implement and regulate competitive power markets; developing technical codes and performance standards for power distribution and transmission, and for monitoring/certifying compliance; monitoring electricity tariff review and tariff setting; issuing reliability criteria for power supply, guiding and monitoring Energy Assessment compliance; reviewing power demand forecast, conducting system studies, and recommending measures to achieve supply–demand balance; and monitoring implementation of power projects.

The Power Market Development Research and Training Centre of ERAV is legally obligated to training to external stakeholders including the three NLDCs and the PCs engaged with

power production, transmission, distribution and retail to prepare for power market reform and increasing shares of RE.

Institute of Energy

Institute of Energy is a Science & Technology Research Organization established by the MOIT supports the planning department on technical matters. From 1995, Institute of Energy became a member unit of Electricity of Viet Nam Group (EVN), but since 2010 Institute of Energy has been shifted to direct management of MOIT. Institute of Energy is a leading national research institution in the field of energy and power, and the principal consultant in formulation of Viet Nam energy & power development strategies, policies and master plans. The Institute has with 210 employees in 11 departments and 4 centres and one key laboratory for high voltage techniques-

Annex B: Results Framework

| | |
|------------------------------|--|
| Country Programme | Energy Partnership Programme between Viet Nam and Denmark |
| Thematic Programme Objective | The most cost-effective opportunities for low carbon transition in energy system are more widely adopted throughout Viet Nam |
| Impact Indicator | Tons of carbon dioxide equivalent (tCO ₂ eq) reduced contributed to by the programme in Viet Nam |

Development Engagement 1

| | | | |
|-------------------|--------|--|---|
| Outcome | | Vietnamese energy policy and planning is strengthened Recurrent planning processes and associated inputs are informed by more consolidated data, forecasts, peer reviewed assumptions and additional long range policy and policy implementation scenarios for a less carbon-intensive energy sector, including through the expansion of RE-generation capacity. | |
| Outcome indicator | | Consultations among stakeholders and decision makers on the future development paths of the energy sector are based on the EOR and the comprehensive scenario analyses carried out. | |
| Baseline | Year | 2017 | Power development policy developed based on low-cost scenarios for conventional fuel sources and preliminary assessment of renewable energy integration in the power system. |
| Target | Year | 2020 | Long-term cost-optimized scenarios with integration options for renewable energy are used for informing policy dialogue and policy preparation on sustainable energy systems. |
| | | | |
| Output 1 | | Capacity development on integrated, scenario-based long-range modelling of the energy system | |
| Output indicator | | Balmorel model is used in energy planning process in Viet Nam. | |
| Baseline | Year | 2017 | Planning Department and institutions involved in power system planning has basic understanding of the use of Balmorel and other models in modelling energy system. |
| Annual target | Year 1 | 2018 | Detailed demand forecasts developed based on disaggregated demand |
| Annual target | Year 2 | 2019 | In drafting EOR 2019, the Planning Department |

| | | | |
|------------------|----------|---|--|
| | | | demonstrates competence in selection, use and customisation of a range of energy planning models. |
| Target | Year 3 | 2020 | Policy options identified based on long range scenarios |
| | | | |
| Output 2 | | Energy Outlook Reports published | |
| Output indicator | | Long-term scenarios of low-carbon energy sector possibilities published in key policy papers and subject to dialogues | |
| Baseline | Year | 2017 | First EOR expected to be available with preliminary assessment of renewable energy integration in the power system. |
| Target | Year 1.5 | 2019 | 2 nd EOR that includes long-term scenarios of low-carbon energy sector possibilities published and subject to dialogues with right holders and duty bearers (including government stakeholders, academia, civil society, private sector investors and other relevant stakeholders). |
| Target | Year 3 | 2020 | Policy recommendations include long-term scenarios of low-carbon possibilities. |
| | | | |

Development Engagement 2

| | | | |
|-------------------|------|--|---|
| Outcome | | Enhanced power system ability to integrate the renewable energy generated in a cost effective way. | |
| Outcome indicator | | Capacity to effectively integrate RE into the grid. | |
| Baseline | Year | 2017 | 1) Limited capacity available to integrate the targeted increase of power generated from RE. 2) No significant curtailment with current level of RE integration |
| Target | Year | 2020 | 1) NLDC and PCs has the capacity to integrate all generated RE in accordance with the ability of power grid while at the same time minimizing the costs of the auxiliary services needed to balance the variable nature of the resource 2) No significant curtailment with the increased level of RE integration |

| | | | |
|------------------|------|--|---|
| Output 1 | | Enhancement of capacity in forecasting of load and of generation from fluctuating RE Power system participants manage more accurate short term and medium term forecasting including through use of real time weather data as available. | |
| Output indicator | | Progress in execution of capacity development programme established for the Danish support | |
| Baseline | Year | 2017 | NLDC, PCs and relevant stakeholders have basic capacity in short-term load forecasting and forecasting production from fluctuating RE |

| | | | |
|------------------|---------|---|--|
| MTR Target | Year 1½ | 2019 | Detailed capacity development program developed, and activities initiated including expert-review of adequacy of existing forecasting tools/methodologies/systems. |
| Target | Year 3 | 2020 | Capacity development program successfully completed and evaluation shows that participants are enabled to do more accurate forecasting. |
| | | | |
| Output 2 | | Improved capacity for calculating need for and secure availability of ancillary services to ensure stability of the power system as well as power market NLDCs and other relevant stakeholders calculate the power systems needs for ancillary services more accurately. Methods to secure adequate availability of ancillary services are developed as a result of the support, and applied. | |
| Output indicator | | Ability of NLDCs and relevant stakeholders to calculate needs for ancillary services and availability of methods to secure availability of ancillary services are developed. | |
| Baseline | Year | 2017 | NLDC and relevant stakeholders have basic capacity in calculating needs for ancillary services. |
| MTR Target | Year 1½ | 2019 | NLDC and relevant stakeholders have enhanced capacity for understanding methods to identify needs of each kind of ancillary services for ensuring stable operation of the power system and power market. |
| Target | Year 3 | 2020 | NLDC and relevant stakeholders assess more exactly the needs for ancillary services and methods to secure availability of ancillary services. |

Development Engagement 3

| | | | |
|-------------------|------|---|--|
| Outcome | | Strengthened implementation framework for energy efficiency in industry A strengthened implementation framework for provincial level to target the most cost beneficial opportunities for low carbon development in industry and a more coherent and consistent national level regulatory framework contributing to industrial low carbon policy. | |
| Outcome indicator | | Pending approval by legislators as required, revised legal/regulatory instruments (circulars, decrees, Ministerial decisions, guidelines, reporting templates) issued and/or implemented in at least one province. | |
| Baseline | Year | 2017 | The present national regulatory- and local level implementation framework is not sufficiently stimulating release of low carbon potential in industry. |
| Target | Year | 2020 | Revised legal/regulatory instruments issued/implemented |
| | | | |
| Output 1 | | Proposal for improvement of the national-level low carbon regulatory framework for industry | |

| | | | |
|------------------|----------|---|---|
| | | Possibilities for improvements of the national EE policy framework is recognized by GDE including an in-depth understanding of the benefits and potentials of low carbon development as well as of the prevailing barriers that prevent or retard such development. | |
| Output indicator | | Tangible inputs for improvement of national-level low carbon regulatory framework addressing weak spot identified and proposing key legal/regulatory instruments to put in place, provided to GDE. | |
| Baseline | Year | 2017 | National regulation in need of revision |
| Target | Year 1.5 | 2018 | Consultation by GDE of draft inputs is ongoing |
| Target | Year 3 | 2020 | Tangible inputs to a strengthened national regulatory framework provided |
| | | | |
| Output 2 | | Development of low carbon legal instruments for industry at provincial level More efficient instruments in place strengthening the local regulatory- and implementation framework and local authority opportunities to enforce including through implementation of new, more specific guidance documents and tools. | |
| Output indicator | | New/revised low carbon regulations and guidance for industry at local level issued | |
| Baseline | Year | 2017 | Present-day regulation is not sufficiently powerful |
| Target | Year 1.5 | 2019 | Final draft of new/revised regulation ready for legislators |
| Target | Year 3 | 2020 | Improved EE regulations and guidance for local level issued |
| | | | |
| Output 3 | | National institutional capacity to ensure implementation of legal instruments is strengthened Building on the preliminary results of output 1 and 2 a detailed plan to be executed by GDE for institutional capacity development at local level to interpret national regulations and skills to design strategies and procedures to implement regulations on the ground is developed. | |
| Output indicator | | Costed Capacity Development Plan developed | |
| Baseline | Year | 2017 | No Capacity Development Plan |
| Target | Year 1.5 | 2019 | Inputs from Output 1 and 2 provides sufficient basis for initiating development of Costed Capacity Development Plan |
| Target | Year 3 | 2020 | Implementation of Capacity Development Plan 1st Year initiated. |

Annex C: Budget at output level

Development Engagement 1:

| Outputs | DKK'000 |
|--|----------------|
| 1. Capacity development on integrated, scenario-based long-range modelling of the energy system | 3.134 |
| Technical assistance | 2.364 |
| Travel costs etc. attached to technical assistance | 370 |
| Delegations to Denmark | 100 |
| Other costs | 200 |
| 2. Energy Outlook Reports published | 1.489 |
| Technical assistance | 1.238 |
| Travel costs etc. attached to technical assistance | 151 |
| Delegations to Denmark | 0 |
| Other costs | 200 |
| | |
| International Long-Term Adviser | 3.780 |
| GRAND TOTAL | 8.403 |

Development Engagement 2:

| Outputs | DKK'000 |
|--|----------------|
| 1. Enhancement of capacity in forecasting of load and of generation from intermittent RE | 2.964 |
| Technical assistance | 2.116 |
| Travel costs etc. attached to technical assistance | 298 |
| Delegations to Denmark | 350 |
| Other costs | 100 |
| 2. Improved capacity for calculating need for and secure availability of ancillary services to ensure stability of the power system as well as power market | 1.882 |
| Technical assistance | 1.081 |
| Travel costs etc. attached to technical assistance | 451 |
| Delegations to Denmark | 350 |
| Other costs | 100 |
| | |
| International Long-Term Adviser | 1.080 |
| GRAND TOTAL | 5.926 |

Development Engagement 3:

| Outputs | DKK '000 |
|---|-----------------|
| 1. Proposal for improvement of the national-level low carbon regulatory framework for industry | 2.275 |
| Technical assistance | 1.786 |

| | |
|---|--------------|
| Travel costs etc. attached to technical assistance | 219 |
| Delegations to Denmark | 200 |
| Other costs | 70 |
| 2. Development of low carbon legal instruments for industry at provincial level | 2.198 |
| Technical assistance | 1.894 |
| Travel costs attached to technical assistance | 234 |
| Delegations to Denmark | 0 |
| Other costs | 70 |
| 3. National institutional capacity to ensure implementation of legal instruments is strengthened | 2.297 |
| Technical assistance | 1.722 |
| Travel costs etc. attached to technical assistance | 235 |
| Delegations to Denmark | 250 |
| Other costs | 70 |
| | |
| International Long-Term Adviser | 540 |
| GRAND TOTAL | 7.310 |

Annex E: Development Engagement Documents