Ministry of Foreign Affairs – (Danish Ministry of Energy, Utilities and Climate, MEUC & Department for Multilateral Cooperation and Climate Change, MKL)

Meeting in the Council for Development Policy 30 October 2018

Agenda item 4.b.

1. Overall purpose	For discussion and recommendation to the Minister
2. Title:	The Climate Envelope 2018: Voluntary Contribution to the International Renewable Energy Agency, IRENA on long-term planning
3. Presentation for Programme Committee:	23 February 2018

Voluntary Contribution to IRENA on long-term planning

Key results:

ASEAN 2050 energy transition outlook. ASEAN regional power system model-based analysis. Two country energy outlooks. One ASEAN country has increased renewable energy (RE) targets based on the outlook. Reports on analysis tools applied in end-use sectors and on socio-economic benefits of RE deployment and labour market skills gaps. Best practices exchanged among practitioners and policy makers on long-term planning and long-term energy planning capacity strengthened. Network of practitioners for sustained peer-to-peer exchange. Wider adoption of long-term model-based energy scenarios in G20 countries promoted by the Clean Energy Ministerial (CEM) campaign and analytical and methodological reports on CEM campaign themes. Contribution to the UNSG Climate Summit in 2019 and increased commitments to clean energy investment thorough the Clean Energy Investment Coalition. Reduced greenhouse gas emissions resulting from a higher RE share in the energy mix and improved energy efficiency (EE), based on more effective long-term planning and modelling scenarios that enable well-informed decision making in the green energy sector transition, which can help facilitate the right framework conditions to leverage the necessary clean energy investments.

Justification for support:

According to IRENA's "Global Energy Transformation" (2018), RE needs to be scaled-up at least six times faster for the world to meet goals of the Paris Agreement on climate change. The multi-agency global Energy Progress Report Tracking SDG 7 (2018) states that a significant number of countries have seen their RE share decline and that, based on current policies, the global RE share is expected to reach just 21% by 2030, with modern RE growing to 15% of final energy consumption, thus falling short of the SDG 7 RE target. There is clearly a compelling need for action. Long-term planning and solid energy scenarios are key to ensuring the right policies and investments, which can speed up the transition to renewable energy and there are ample opportunities to enhance the Danish bilateral engagement and core competences on the subject by increasing IRENA's focus on the subject. ASEAN is one of the most dynamic growth regions with a forecast 50% rise in energy demand by 2025. ASEAN countries have begun to explore scaling-up of RE. IRENA will sign an MoU for support of the ASEAN Plan of Action on Energy Cooperation. Strong momentum is being gained in the CEM campaign with IRENA as operating agent. With a mandate from 158-member countries and the EU, IRENA encourages governments to adopt enabling policies for RE investments, provides practical tools and policy advice to accelerate RE deployment and EE, and facilitates knowledge sharing and technology transfer.

Major risks and challenges:

Limited capacity to engage by partner governments. Vested interests and subsidy regimes for fossil fuels.

File No.	F2 2018-25829				
Country	Global				
Responsible Unit	MKL with the Ministry of Energy Utilities and Climate (MEUC)				
Sector	Climate and energy				
Partner	IRENA				
DKK mill.	**2018**	**2019**	**2020**	**2021**	**Tot.**
Commitment	40	0	0	0	40
Proj. annual disburs.	10	10	10	10	40
Duration	2019-2021				
Previous grants	N/A				
Finance Act code	06.34.01.70 Klimapuljen				
Head of unit	Henriette Ellermann-Kingombe				
Desk officer	Bo Jul Jeppesen				
Financial officer	tbd				

Relevant SDGs

Strategic objectives:

Partner countries supported in their efforts to achieve low-carbon development, implement the Paris Agreement on Climate Change and realise NDCs, meet SDG7 target 7.2: by 2030, increase substantially the share of RE in the global energy mix; target 7.3 double the global rate of improvement in EE; as well as SDG13 target 13.2: Integrate climate change measures into national policies, strategies and planning.

Justification for choice of partner:

IRENA, as the leading intergovernmental organisation on RE in the international energy and climate architecture, is a centre of excellence for knowledge and innovation, a global voice on RE, a network hub, and a source of advice and support for the global energy transformation.

Summary:

Single partner project with these outcomes: 1. Regional analysis and energy transition system dynamics: 1.1 Increased ambitions in RE/energy transition targets; 1.2 Accelerated country level action on RE uptake/energy transition; 2. Socio-economic benefits of RE deployment; 3. Enhanced South-South cooperation; 4. Wider adoption of long-term model-based energy scenarios in G20 countries promoted by CEM campaign; 5. The Clean Energy Investment Coalition has contributed to the UNSG Climate Summit and increased commitments to clean energy investment.

Budget in DKK million:

Output 1.1.1 ASEAN 2050 energy transition outlook.	5.40 mill.
Output 1.1.2 ASEAN power system model-based analysis.	2.34 mill.
Output 1.2.1 Two country energy outlooks.	3.61 mill.
Output 1.2.2 Analysis tools applied in end-use sectors.	2.94 mill.
Output 2.1.1 Reports on socio-economic impacts and skill gaps.	4.86 mill.
Output 3.1.1 Best practices exchanged among practitioners and policy makers.	2.79 mill.
Output 3.1.2 Long-term energy planning capacity strengthened.	2.66 mill.
Output 3.1.3 Network of practitioners for sustained peer-to-peer exchange.	2.46 mill.
Output 4.1.1. High-level political dialogue and community of practitioners from CEM campaign institutions.	4.99 mill.
Output 4.1.2. Analytical and methodological reports on CEM campaign themes.	1.25 mill.
Output 5.1.1 Investment scenario report with appropriate regional/sectoral analyses on short- and medium-term..	1.05 mill.
Output 5.1.2 Support for clean energy investment strategies and best practice in private investment mobilization.	1.05 mill.
Unallocated reserve for unforeseen expenses incl. currency fluctuations, or shortfalls on other budget lines	1.55 mill.
IRENA Administration (7%)	2.80 mill.
MFA Mid-term Review	0.25 mill.
Total	**DKK 40.0 mill.**

Contents

Abbreviations and Acronyms

ACE	ASEAN Centre for Energy
AMEM	ASEAN Ministers on Energy Meeting
AMG	MFA/Danida Aid Management Guidelines
AMS	Administration and Management Services
ASEAN	Association of Southeast Asian Nations
Balmorel	The energy system modelling tool http://www.balmorel.com/
CCEE	Copenhagen Centre on Energy Efficiency
CEC	Clean Energy Corridor
CEM	Clean Energy Ministerial
COP	Conference of the parties (under the UNFCCC)
CO_2	Carbon dioxide
CSP	Country Support and Partnerships
CTCN	Climate Technology Centre and Network
DAC	Development Assistance Committee (OECD)
Danida	brand name for Danish international development assistance, under the Ministry of Foreign Affairs of Denmark
DEA	Danish Energy Agency
DEPP	DEA Energy Partnership Programme
DG	Director General
DKK	Danish Kroner
DNA	Designated National Authority
DTU	Danish Technical University
E4	IEA Energy Efficiency in Emerging Economies Programme
EE	Energy Efficiency
Emerging economy	Developing countries with rapidly growing economies, particularly in Asia (examples: Vietnam, Indonesia)
ESMAP	World Bank Energy Sector Management Assistance Program
ETM	Energy Transition Model
EUDP	Danish development and demonstration programme for energy technology
F2	MEUC and MFA electronic archive system
G20	The Group of Twenty (leading World economies)
GCF	Green Climate Fund
GEF	Global Environment Fund
GHG	Green House Gas
GTF	Global Tracking Framework
IEA	International Energy Agency
IITC	IRENA Innovation and Technology Centre
INDC	Intended Nationally Determined Contribution
IRENA	The International Renewable Energy Agency
KPFC	Knowledge, Policy and Finance Centre
Long-tern planning	For the purposes of this project, long-term energy planning is understood[1] as the process that sets a long-term direction for energy sector development, based on qualitative approaches and quantitative analysis.
Long-term energy scenarios	Scenarios are consistent projections of developments used to map future uncertainties, to support informed decision-making. In this project the focus is placed on quantitative scenarios: long-term projections for the coming 20-40 years that are developed with the aid of modelling tools.

[1] There are several steps and components that constitute long-term energy planning, with scenario analysis and modelling as foundations, accompanied with other key elements such as the development of a vision for the energy sector, assessment of resource potentials, the establishment of targets and related enabling policy, regulatory, institutional and financial frameworks. Depending on the status of energy planning process and local capacity within a country/region, the approach may need to be customized to cover either full cycle of energy planning or only specific parts.

LDC	Least Developed Country
MENA	Middle East and North Africa
MEUC	Danish Ministry of Energy Utilities and Climate
MFA	Ministry of Foreign Affairs of Denmark
MKL	MFA Department for Multilateral Cooperation and Climate Change
MOU	Memorandum of Understanding
Modelling	In the specific context of this project, modelling[2] refers to a method to devise quantitative energy scenarios with the aid of computerised modelling tools.
MRV	Measurement, reporting and verification
MTS	Mid Term Strategy
NAMA	Nationally Appropriate Mitigation Actions
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
ODA	Official development assistance, as defined by OECD DAC
OECD	Organisation for Economic Co-operation and Development
PCA	Project Cooperation Agreement
PPS	Planning and Programme Support (IRENA)
PSC	Programme support cost
PV	Photo voltaic
RE	Renewable Energy
REmap	IRENA Renewable Energy Road Map
RRA	IRENA Renewables Readiness Assessment
SDG	Sustainable Development Goal
SEforALL	Sustainable Energy for All – the formerly used acronym was SE4ALL
SMART	Specific, measurable, attainable, relevant, timebound
SMED	Strategic Management and Executive Direction
SMG	Senior Management Group (IRENA)
SWOT	Strengths weaknesses opportunities and threats
ToC	Theory of Change
TQS	MFA Department for Technical Quality Support
TSO	Transmission service operator
UAE	United Arab Emirates
UDP	UNEP DTU Partnership
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UN Environment	United Nations Environment Programme – the previously used acronym was UNEP
UNFCCC	United Nations Framework Convention on Climate Change
UPR	The Danish Council for Development Policy
USD	United States Dollar
VC	Voluntary contribution
VRE	Variable Renewable Energy
WB	World Bank
WHO	World Health Organization
WRI	World Resources Institute

1 USD = approx. 6.40 DKK (August 2018, 90 days average)

[2] Many types of modelling approaches exist, with differences among them mainly related to their level of technological and economic representation. For example, certain models have detailed energy system representation with limited representation of economic feedbacks, while others have detailed representation of economic structure with limited representation of physical energy systems. Long-term energy scenarios are often developed using the first type of model, to understand possibilities and uncertainties around energy transitions, as physical realities are critically important in defining transition possibilities. The second type of model is important to understand the economic implications of transitions, which are often the critical factor in determining political feasibility.

1. Introduction

The International Renewable Energy Agency (IRENA) is an intergovernmental organisation founded in 2009 and established in 2011 with its Headquarters in Abu Dhabi, United Arab Emirates (UAE), an IRENA Innovation and Technology Center in Bonn, Germany, and an Office of the Permanent Observer to the United Nations in New York, USA. The number of IRENA Members is presently 158[3], including Denmark.

IRENA is the principal agency on renewable energy (RE) in the international sustainable energy and climate architecture, with a global mandate to support the transition to a sustainable energy future, serving as a platform for international cooperation and a centre of excellence and repository of policy, technology, resource and financial knowledge on RE. IRENA promotes the widespread adoption and sustainable use of all forms of RE, including bioenergy, geothermal, hydropower, ocean, solar and wind energy in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity. IRENA places strong emphasis on the importance of energy efficiency (EE) in the energy transition.

As a member country, Denmark provides assessed core funding of IRENA – the indicative Assessed Contribution to IRENA for 2018 is USD 0.14 million. According to IRENA's 2017 Annual Report (January 2018) the 2016-2017 biennium budget comprised assessed core funding contributions from member countries (USD 42.9 million), non-assessed core funding from UAE (USD 8.2 million), and from Germany (USD 10.0 million) for a total core budget of USD 61,1 million. In addition, voluntary contributions (totalling USD 23,1 million) were committed by Belgium, EC, France, Germany, Italy, Japan, The Netherlands, Norway, Sweden, and UAE, – of these commitments, USD 16.1 million had been received as of December 2017. Germany, UAE and Norway were the biggest voluntary contributors in 2016-2017. For the 2018-2019 biennium, the proposed core budget is almost unchanged at USD 64. 1 million, while IRENA invites[4] VC contributions[5].

IRENA has three principal organs: i) the Assembly of IRENA members, the agency's supreme decision-making body, which meets once a year; ii) the Council, which meets at least twice a year where IRENA's membership is represented in regions (21 members), but all members can

[3] 158 countries and the EU. Plus 24 states in accession.

[4] Para 96 in the WPB 2018-2019: "Implementation of the Work Programme will require significant reliance on non-core resources. In this context, IRENA will intensify its cooperation with donors and emerging partners through flexible and quality funding channels and instruments. Effective management of financial resources made available to the Agency, as well as their rigorous monitoring and reporting are essential to maintaining Members' trust and to the long-term ability to diversify the resource base. Thus, the enhancement of the management of voluntary contributions and donor reporting will continue to be paramount".

[5] It is important to note that since IRENA has a global mandate and membership, only a part of its resources relate directly to countries that qualify for Official Development Assistance (ODA) according to OECD DAC criteria. In his speech to the IRENA 12th Council (November 2016) the IRENA Director-General informed that IRENA has qualified as an ODA-eligible international organization meaning that donor countries may report their contributions to IRENA's core budget with an ODA coefficient of 66%, as well as voluntary contributions provided they meet the ODA requirement to have the promotion of economic development and welfare of developing countries as their main objective. The implications for the modality for Danish support were briefly discussed in the Danida Programme Committee.

attend the meetings as observers and iii) the Secretariat. The council meetings (and its two underlying committees) provide an opportunity for policy makers and experts to engage in discussions on key findings stemming from IRENA's recent work, and to consider programmatic, strategic and institutional matters during the implementation of the work programme and in preparation for Assembly sessions. Denmark has historically been represented in the council meetings by a head of department/ senior advisor and with the Danish Permanent Representative to IRENA (Denmark's Ambassador to UAE) acting as a head of delegation. At the Assembly, Denmark held the presidency of the 2012 Assembly session, and since has not been represented on a ministerial level. Denmark has instead mostly been represented by a senior management staff member / Deputy Permanent Secretary from the Ministry (MEUC) or the Danish Energy Agency (DEA Deputy Director General).

In May 2017, the Danish government informed IRENA of its interest in providing a multi-year voluntary contribution (VC). Following a consultative process involving MEUC and the DEA (see the intermediate key steps included in the Process Action Plan (PAP) in Annex 8), a proposal for support to IRENA was included in a consolidated Concept Note for all initiatives proposed for funding under the Danish Climate Envelope[6] in 2018. An important milestone was the IRENA 8th Assembly in January 2018, which approved the IRENA 5-year Medium-Term Strategy 2018-2022 and the IRENA Work Programme and Budget 2018-2019, thus providing a new strategic framework with which donor support should be aligned.

The Danida Programme Committee in its meeting on 23 February 2018 discussed the Climate Envelope Concept Note that included a one-page description of a proposed allocation of DKK 40.0 million for support to IRENA for "scenario and investment planning to promote renewable energy in emerging economies". The proposed 3-year earmarked support would focus on emerging economies and be delivered in a close partnership with the Danish energy authorities/institutions. The Programme Committee found the proposed support to IRENA very relevant but raised questions about the needs for earmarking[7] and a Coordination Group, concluding that a comprehensive strategic approach was important and that an appraisal should be undertaken of the proposed support. After a further dialogue process, IRENA on 6 July submitted a 4-page preliminary project outline with annexes. It was agreed between IRENA and MEUC that this outline was the basis for the detailed formulation process, which has resulted in the present Project Document. Within IRENA, the formulation of this document is anchored in the IRENAs Planning and Programme Support team, where the Director oversees the internal co-ordination and the strategic integration of extra-budgetary resources in IRENA's programmatic work; leads the reporting on programmatic matters to governing bodies and individual donors; and facilitates Agency-wide participation in global or thematic initiatives. Within MEUC, the process is anchored in the International Department.

This Project Document has been adjusted based upon recommendations of an appraisal team from the MFA Department for Technical Quality Support (TQS) that undertook appraisal of

[6] This project is under the part of the Danish Climate Envelope for which the Danish Ministry of Energy, Utilities and Climate has the initiative right (i.e. primary focus on emerging economies and climate change mitigation).

[7] See the Chairman's conclusions here. As for the Programme Committee's comment on earmarking, MEUC who was represented in the meeting, noted from the discussion that the view of the MFA technical department was that due to the ODA coefficient of 66%, a non-earmarked contribution would not be the best modality.

the proposed voluntary contribution during September. Annex 9 summarises the appraisal recommendations and the MEUC response to these recommendations, which were received on 5 October. This Project Document is the basis for approval at the meeting on 30 October of the Danish Council for Development Policy. The more detailed steps in the process are summarised in the Process Action Plan in Annex 8.

2. Brief Summary of Issues to be addressed and Institutional Context

IRENA's recent report "Global Energy Transformation – A Roadmap to 2050" (2018), states that RE needs to be scaled-up at least six times faster for the world to start to meet the goals set out in the Paris Agreement on climate change and underlines why long-term planning and solid energy scenarios are key to ensuring the right policies and investments, which can speed up the transition to renewable energy. Long-term planning and solid energy scenarios are furthermore a key factor in the Danish successful transition to Renewable Energy and therefore also a key priority in the Danish international engagement in particular in the major emerging economies, where Denmark seeks to speed-up the transition to low-carbon energy systems via dissemination of best-practice policies bilaterally via the DEA Energy Partnership Programme (DEPP) implemented by the DEA and multilaterally via especially IRENA, the International Energy Agency (IEA) and CEM. Implementation of these policies are key to develop the right framework conditions to unfold large-scale investments in renewable energy development.

When launching this landmark report the IRENA Director-General (DG) noted that increasing cumulative energy system investment by 30 per cent to 2050 in favour of renewable energy and energy efficiency, can create over 11 million additional energy-sector jobs, completely offsetting job losses in the fossil fuel industry. Immediate action would also reduce the scale and value of stranded energy-related assets in the future. The roadmap anticipates up to USD 11 trillion of stranded energy assets by 2050 – a value that could double if action is further delayed. The DG further noted that "Renewable energy and energy efficiency together form the cornerstone of the world's solution to energy-related CO_2 emissions, and can provide over 90 per cent of the energy-related CO_2 emission reductions required to keep global temperature rise to two degrees Celsius". "If we are to decarbonise global energy fast enough to avoid the most sever impacts of climate change, renewables must account for at least two-thirds of total energy by 2050". "Transformation will not only support climate objectives, it will support positive social and economic outcomes all over the world, lifting millions out of energy poverty, increasing energy independence and stimulating sustainable job growth". "An opportunity exists to ramp up investment in low-carbon technologies and shift the global development paradigm from one of scarcity, inequality and competition to one of shared prosperity – in our lifetimes. That is an opportunity we must rally behind by adopting strong policies, mobilizing capital and driving innovation across the energy system."

The multi-agency[8] global "Energy Progress Report - Tracking SDG 7" (2018) states that a significant number of countries have seen their RE share decline and that, based on current policies, the global RE share is expected to reach just 21% by 2030 (with modern RE growing to 15% of total final energy consumption), thus falling short of the substantial increase demanded by the SDG 7 RE target 7.2 :"by 2030, increase substantially the share of renewable

[8] IRENA is a co-custodian of SDG7 along with IEA, UNDESA, WB and WHO.

energy in the global energy mix". Similarly, the Report states that progress in reduction of global energy intensity still falls short of the 2.6 percent yearly decline needed to meet the SDG7 target of doubling the global rate of improvement in energy efficiency by 2030.

The global institutional context in the sustainable energy and climate space is increasingly characterised by a multitude of stakeholders including multilateral and bilateral development partners and civil society organisations. IRENA's mandate and role in this global context is clearly defined in its Statutes, and since its establishment in 2009, IRENA's wide, global membership and demand for its services reflect its strengths and value added in the global context. IRENA also partners with a range of other global actors, as evidenced for example in the above-cited global Energy Progress Report. IRENA's knowledge products, in particular REmap, is to an increasing extent playing a role for the national and regional policy formulation and goals for RE. As an example the results for the REmap, which showed that the EU could reach an over 30 % RE share cheaper than foreseen by the Commission's calculations, played a big role in the European Parliament's success in striking a deal with the Council and the Commission on a RE target on 32% in 2030. This is exactly an example of the huge potential of IRENA's publications to drive ambitious long term targets for RE. [9]

The nations of Southeast Asia constitute one of the most dynamic and growing regions in the world. Over the next decade, the region is expected to experience rapid economic growth averaging 5% per year, which will result in around a 50% rise in energy demand and a population increase by around 90 million, to 715 million inhabitants, by 2025. For these reasons, the region stands in a crossroads in terms of its collective energy future. The growth brings challenges as the ASEAN region strives to supply energy affordably, sustainably and securely. Thus, the ASEAN and several of its member countries have started to explore ways in which they can scale up the use of renewable energy and decouple energy demand growth from economic growth. It is therefore an optimal moment to consider sustainable options available toward a climate-proof energy future that is economically prosperous, secure and socially inclusive. IRENA has had substantive engagements in the ASEAN region (including the 2016 Renewable Energy Outlook for ASEAN) and most ASEAN member countries are also active Members of IRENA. In 2016, IRENA and Ministers at the 34th ASEAN Ministers on Energy Meeting (AMEM) discussed how to accelerate efforts to boost renewable energy deployment in the region. The resulting Statement commits to raising renewable energy ambition, in close cooperation with IRENA. In 2017 at the 35th AMEM, a joint AMEM-IRENA statement (see Annex 14) outlined the key areas for collaboration with a view to "*advancing the energy transition towards a low-carbon, clean, secure, affordable and sustainable energy future for ASEAN through strategic actions in promoting and supporting the development of renewable energy sources*"[10]. In the upcoming ministerial meeting in October 2018, ASEAN and IRENA will sign a Memorandum of Understanding to support the ASEAN Plan of Action on Energy Cooperation 2016-2025 and to facilitate the scaling-up of RE in the region. IRENA has also received multiple requests to engage further in the region, including at the country level.

[9] https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Feb/IRENA_REmap_EU_2018.pdf
[10] Joint Statement of the First Dialogue Between the ASEAN Ministers on Energy Meeting and IRENA, 28 September 2017.

It is also worth mentioning the Suzhou Declaration of the International Forum on Energy Transitions (2015) in Suzhou city, China, where it was agreed to establish the Energy Transition Coalition comprising initially representatives of China, Denmark, Germany, Indonesia, Mexico, Morocco and the United Arab Emirates. The Coalition is expected to be launched in the Suzhou Conference in October 2018 and Denmark has actively been a part of shaping the focus of the coalition to among other things on long-term planning and solid energy scenarios.

Understanding the socio-economic benefits of renewables is of vital importance for countries exploring ways to stimulate economic growth and industrial activity, while reducing the adverse effects of climate change, improving energy security and widening access to energy. IRENA's pioneering work on economic growth, welfare and jobs from renewable energy deployment is informing policy-makers on how to meet multiple objectives through energy transformation. This work is also bringing a greater transparency to gender aspects of the energy transition to ensure that progress is inclusive and promotes equality. To contribute to bridging the knowledge gap and support informed policy making, IRENA has been analysing socio-economic benefits of renewables by undertaking various global, regional and national-level quantitative and qualitative assessments. This work-stream has been reinforced through IRENA's Medium-term Strategy 2018-2022 with countries asking for an increased focus on such benefits and linkages between SDG7 on energy and the broader Sustainable Development Agenda.

IRENA's Medium Term Strategy 2018-2022, developed over a two-year period and in direct consultation with IRENA's global membership and with stakeholder input through its Coalition for Action, provides clear guidance on priority action areas for the next step change in the transformation of the global energy system. Of areas identified, the need to strengthen local capacity, facilitate exchange of best practice, and promote peer to peer learning, emerged as central to IRENA's work.

IRENA is a key organisation in ensuring progressive scenarios for RE globally, in regions and particular countries. No other intergovernmental organisation has a concentrated mission dedicated to advancing renewable energy globally. IRENA has played, and is increasingly playing, a key role to push other international energy organisations in a more progressive direction in terms of assessing the costs and benefits of RE. This includes organisations such as IEA, UN Environment, and the World Bank.

The dynamic nature of renewable energy offers a unique set of circumstances, as the emergence of new technologies, policies and business models makes the energy transition process unusually fast. Countries of the South have a particular role to play as they leapfrog with RE solutions, without the limitations of long-standing structures and systems that shaped infrastructure and economies. Adopting a South-South cooperation approach to RE that enables peer-to-peer exchanges of best practices and lessons learned – especially in the context of long-term energy planning, grid integration, and system operation – is therefore of significant relevance to their sustained energy sector transformation. With IRENA's universal membership and as a young organisation established just as much by the "South" as the "North", IRENA is *the* legitimate partner to facilitate such exchange on best practices on RE deployment.

The Clean Energy Ministerial (CEM) has a strong constituency among senior decision-makers for clean energy solutions, and a campaign on Long-term Energy Scenarios for the Clean Energy Transition has been launched with IRENA as the operating agent. The campaign launch was one of the key political results of the successful CEM9 ministerial meeting in Copenhagen, May 2018. The campaign[11] aims to promote the wider adoption and improved use of long-term model-based energy scenarios in particular in the CEM Member country, which consists of most of the G20 countries and green frontrunner nations such as the Nordics, by: sharing country experience in the use and benefits of energy scenarios in guiding the clean energy transition; showcasing innovative tools and methods for energy scenario modelling that address key transformative changes required in the clean energy transition; and identifying channels to build capacity for clean energy transition planning within the government sector. The campaign also has a strong focus on the role and perspectives of the private sector, whose motivation and resources are crucial for achieving RE solutions at scale and reaching energy and climate impact goals.

3. Strategic Considerations and Justification

The justification for the proposed project is based on its direct relevance in responding to the above-cited needs and priorities. IRENA can address these issues effectively in five project components/key outcome areas (ref. Annex 3), based on its knowledge and experience from engagements with the groups of partner country stakeholders and beneficiaries that are targeted (ref. context and partner analyses in Annex 1 and 2). IRENA's expertise, experience, tools, outreach and networks can make efficient use of project resources. The focus on influencing and capacitating both policy makers and practitioners and the efforts to demonstrate wider socio-economic benefits of RE deployment will facilitate sustainability and impact, as will the pro-active use of impact drivers that are identified in the Theory of Change (Section 4).

The cooperation builds on strategic considerations of the mandate and comparative advantages of IRENA and the concept has been developed over consultations during one calendar year between IRENA and MEUC. DEA has also been strongly involved in this process[12]. In particular, the five components have been developed and selected in order to maximize synergies and complementary activities to the Danish bilateral work on long-term planning and solid energy scenarios in DEPP implemented by the DEA.

[11] Annex 12 is the latest CEM campaign work plan. The campaign is currently running for 12 months (until May 2019 at CEM10 in Canada), but will with this grant be extended to CEM12 in 2021.

[12] As discussed in the process of consultations with IRENA on this voluntary contribution, it has been the intention to engage DEA in the project, in order to add value through synergies between IRENA's work and DEA's bilateral cooperation. This was reflected in the project outline dated 6 July where it was mentioned that an allocation of resources would be made to DEA and that DEA's inputs would be agreed though a memorandum of understanding with IRENA. The brief component descriptions circulated by IRENA on 20 July also identified priority areas for joint activities with DEA. However, the Danish Ministry of Foreign Affairs (MFA), which is overall responsible for the Danish Climate Envelope and for the donor agreement to be made with IRENA, has assessed and concluded that it will not be possible to channel resources to DEA through this Voluntary Contribution to IRENA as earlier considered. The programme is instead designed so the activities have a focus on creating Synergies and complementary activities to the bilateral activities supported by DEA. An example of this is to use the results from RE Outlooks from Vietnam and Indonesia to calculate broader benefits of RE in the countries. This will need to be further identified in the process of country selection and the detailed engagement of partners in countries that also cooperate with DEA.

An independent review[13] of IRENA's activities and impact during 2011-2015 found that IRENA had grown significantly while pushing forward the global debate on renewables; the global mandate and membership from both OECD and non-OECD countries was a strength; activities had delivered impact upstream on the renewable energy value chain, to help clear bottlenecks and promote the deployment of RE; IRENA had been established it as the global technical and knowledge leader on RE, the credible voice of RE in global forums and as a country advisor; IRENAs outputs were trusted, all IRENA Members interviewed indicated that there has been some form of tangible, positive impact as a result of IRENA's work. The Review also concluded that IRENA should focus on prioritizing core activities where IRENA is best placed to deliver impact, focus on defining and bolstering the RE business case (i.e. energy intensive end-use sectors and manufacturing) recognising that private sector engagement is critical, leverage strategic and activity level partnerships and communications to amplify its impact, and adapt its processes and organization to remain agile and respond to changing needs.

An Evaluation of IRENA REmap covering 2012-2017 found that countries expressed growing demand, unmet expectations and hopes for more support from REmap. The REmap tool and analysis should integrate the development and deployment of renewable energy more across sectors – power supply, transport, buildings, industry – and other aspects of energy systems, such as energy efficiency and storage (for country, regional and global analyses). IRENA work on socio-economic aspects, macro-economic effects, and geopolitical implications of renewable energies should also be fully integrated. On modalities, the evaluation noted some disadvantages of voluntary contributions (VCs came from a few countries; were often small and short-term, were provided with often very tight timeframes or restrictions on spending the funds and could have negative impacts on medium-longer term staffing levels, structures, work-flows, and organisational development).

Denmark does not at present have an organisation strategy for IRENA, since the strategic priorities for Denmark are imbedded in the general strategy for the international cooperation outside the EU anchored in the organizational strategy for MEUC and underlying institutions. Overall, Denmark focuses internationally on ensuring a cost-effective low carbon transition and aims to influence in particular the major emerging economies, since their transition is instrumental to reaching the goals in the Paris agreement. The Danish priorities for IRENA's work are articulated in Assembly and Council meetings and Denmark has been one of the most active countries here and formulated its strategy in mandate papers as a part of consultations leading up to the governance meetings and strategy processes. This is standard for the organisations, where MEUC is representing Denmark such as IEA, The Energy Charter, The International Energy Forum, etc. With the MFA foreseeing to be playing a bigger role in IRENA in the future, an organisational strategy will likely be developed. In the process leading-up to the IRENA MTS 2018-2022, Members were requested to respond to a number of questions from IRENA, including main developments that had emerged since the adoption of the current MTS that need to be taken into account for the next MTS; how growth in

[13] http://remember.irena.org/sites/Documents/Shared%20Documents/10th_Council/IRENA%20Impact%20Review%202011-2015.PDF

membership impacts MTS; which main stakeholders should be consulted, etc. Denmark's comprehensive response was articulated in MEUC communication to IRENA – some key points were:

- Climate change is well embedded in IRENA's MTR pillars.
- It should be a clear strategic priority that IRENA stays generic in its advisory work to governments and does not move further in the direction of being an implementing organization at country level, as other international organizations and donors are already fulfilling the role of implementing activities on country level, and IRENA should rather engage more in partner-ships with these actors.
- Crucial to streamline IRENA's activities in the medium and long-term for greatest impact in terms of deployed MW of RE and thematically focus on overcoming barriers, in order to take RE to the next level in global energy systems.
- Specifically focus on system integration of high shares of RE, market design that is fit for RE, risk mitigation for RE investments.
- As the RE share grows in the global energy mix, system integration is becoming increasingly important. Engagement with a wide range of stakeholders, including utilities, regulators and transmission system operators, will be of high importance and IRENA should engage with such stakeholders in its future work on system transformation. Energy companies, energy technology manufacturers and main consumers of energy should be consulted.
- With the broad global membership base, IRENA has a clear comparative advantage compared to other international energy organizations. IRENA should thus continue to strive to be a truly global energy organization. This should be done by reaching out to countries that are currently not members with a specific priority of incorporating all major growth economies.
- Strengthening the business case for RE should remain IRENA's priority, including by contributing to the effort to refine the market structures in this context. The needs for risk mitigation instruments and enabling policy frameworks remain vital elements of renewable energy deployment at scale. In addition, with climate finance instruments coming on-stream, the urgency of risk mitigation for investment has grown and IRENA should strengthen its ability to contribute in this context.
- Crucial that IRENA continues to engage closely with other international energy organisations and fora such as the Clean Energy Ministerial, IEA, etc., in order to avoid duplication of work and to enhance possible synergies.
- IRENA should be more transparent. This should be done especially through better external communication and better reporting, including project reporting that is more qualitative and outcome focused.

The IRENA MTS for 2018-2022 and its work programme and budget for 2018-2019 were approved by the Assembly in January 2018. IRENA can only accept voluntary contributions that are aligned with its strategic priorities and work programme; Table 3.1 shows how the proposed project outcomes and outputs are aligned to IRENA MTS and work programme.

Table 3.1 – Project alignment to IRENA Strategic frame: MTS 2018-2022 and Work Programme 2018-2019

IRENA MTS Pillars	IRENA 5-year MTS Strategic objectives	Proposed project outcomes	IRENA biennial work programme outputs	Proposed project outputs	Comments
Centre of excellence for energy transformation.	Empower effective policy and decision-making by providing authoritative knowledge and analysis on renewables-based energy transformation at global, national and sectoral levels.	Increased ambitions in RE targets and substantially improved understanding of energy transition. Wider adoption of long-term model-based energy scenarios in G20 countries[14] promoted by CEM campaign. The Clean Energy Investment Coalition has contributed to the UNSG Climate Summit and increased commitments to clean energy investment.	Countries provided with the tools and information necessary to support accelerated deployment of renewable energy. Countries are aware of the latest innovations in technology, policies and finance.	Analysis tools applied in end-use sectors. High-level political dialogue and community of practitioners from CEM campaign participating countries and institutions. Analytical and methodological reports on CEM campaign themes.	Deliverables under this output of relevance cover: - Knowledge creation - Tools and methodology Deliverables under this output of relevance cover - Engagement and outreach.
Global voice of renewables.	Shape the global discourse on energy transformation by providing relevant timely, high-quality information and access to data on renewable energy.	Socio-economic benefits of RE deployment. Substantially improved understanding of energy transition and increased ambitions in RE targets.	Contribution of renewable energy to socio-economic and climate goals articulated.	Reports on socio-economic impacts and skills gaps. Investment scenario report with appropriate regional/sectoral analyses on short- and medium-term investment needs as input to the Clean Energy Investment Coalition and the UNSG Climate Summit in 2019.	Deliverables under this output of relevance cover - Knowledge creation.
Network hub.	Provide an inclusive platform for all stakeholders to foster action, convergence of efforts and	Regional analysis and energy transition system dynamics: Increased	Regional action plans and initiatives supported by IRENA.	ASEAN 2050 energy transition outlook. Best practices exchanged among	Deliverables under this output of relevance cover: - Engagement and outreach

[14] Please refer to the definitions in the list of abbreviations on pages ii and iii

	knowledge sharing for impact on the ground.	ambitions in RE targets and substantially improved understanding of energy transition. Enhanced South-South cooperation.		practitioners and policy makers. Long-term energy planning capacity strengthened. Network of practitioners for sustained peer-to-peers exchange.	- Tools and methodologies
Source of advice and support.	Support country-level decision-making to accelerate the renewables-based transformation of national energy systems, advance strategies to diversify energy sources, reduce global emissions and achieve sustainable development.	Regional analysis and energy transition system dynamics: Accelerated country level action on RE uptake/energy transition. The Clean Energy Investment Coalition has contributed to the UNSG Climate Summit and increased commitments to clean energy investment.	Regional action plans and initiatives supported by IRENA.	ASEAN power system model-based analysis applied to select countries. Two country energy outlooks. Long-term energy planning capacity strengthened. Support provided to countries for clean energy investment strategies and dissemination of best practice in private investment mobilization.	Deliverables under this output of relevance cover: - Engagement and outreach - Tools and methodologies

IRENA is driven by demand[15] from its Members, and demand orientation and partner ownership and commitment are key to IRENA advice and support. This also implies alignment to national objectives and partner strategies such as member country NDCs, and opportunities for working with other multilateral and bilateral development partners and multilaterals, as already mentioned in the foregoing.

The proposed support is highly relevant to Denmark's development priorities as described in the Danish Government strategy for development cooperation and humanitarian assistance, "The World 2030"[16] Thus, the project is directly relevant to four of the five SDGs to be pursued particularly actively in global cooperation and global public goods: SDG7 (sustainable energy), SDG 13 (climate), SDG 5 (gender equality), and SDG 17 (partnerships). SDG 7, 13, and 17 are also prioritised in Danish cooperation related to transition and growth economies – and in addition, SDG8 (decent work and economic growth), and SDG 11 (sustainable cities and communities) are Danish priorities for this group of countries. Particularly SDG 8 is in focus for the project and its intended outcome in terms of socio-economic benefits including

[15] Annex 11 contains a list of IRENA focal point contacts at country level and among key partners, reflecting IRENA's entry points and dialogue partners relevant for the project.
[16] See Figure 1 page 10 in The Word 2030.

decent employment in RE and end use sectors. The project activities are also well aligned to priorities for funding under the Danish Climate Envelope[17] (which is the source of funding for the proposed project). The project will have a climate change mitigation impact that can be quantified under its Outcome 1 and assessed for other project outcomes as relevant.

The project is relevant in the context of other Danish multilateral and bilateral sustainable energy cooperation, including:

- The Clean Energy Ministerial (CEM), which will be directly involved in the proposed project.
- The IEA Energy Efficiency in Emerging Economies Programme (E4) phase one and two, which supports EE in several emerging economies including China, Thailand, Vietnam, Indonesia and where there can be synergies between the policy agendas on RE and EE promoted by IRENA and IEA. There are also synergies to the IEA's ambitious Clean Energy Transition Programme of EUR 30 million in total over four years. The programme was initiated by Denmark with the E4 continuation and Denmark managed to ensure contributions from 13 countries to work on energy system relevant advice in emerging economies to advance EE and RE.
- IRENA also cooperates directly with IEA several different ways. Recent examples include the publication "Renewable Energy Policies in a Time of Transition" (2018) that was a joint effort of IRENA, OECD/ IEA and REN21, and both IRENA and IEA are custodian agencies of the SDG7 within the UN processes. The CEM Secretariat is based at IEA.
- Synergies to the projects supported by Denmark under the Climate Envelope "Mobilizing Clean Energy Investments in Growth Economies trough the Multilateral Development Banks and OECD". The purpose of the two projects is to strengthen the ability of the MDBs and OECD to provide country-level support for the emerging economies that specifically targets improved conditions for mobilizing private investments in Clean Energy. There is a good link with this IRENA project's long-term planning and identification of investment opportunities - especially in the regional component with focus on ASEAN. Coordinated work on investment scenarios and the investment enabling conditions may also benefit the energy transition workstream in preparation of the UN Climate Summit in 2019 as well as the new CEM initiative on Investment and Finance. This is already included in Outcome 5.
- The Word Bank Energy Sector Management Assistance Program (ESMAP), which also serves as the knowledge hub in the Sustainable Energy for All architecture and which draws on IRENA inputs to landmark publications and tool including the above-cited SDG7 Progress Report.
- The Copenhagen Centre on Energy Efficiency (CCEE) under the UNEP DTU Partnership in Copenhagen, that is a global hub for EE and with which IRENA cooperates (e.g. in the IRENA Publication on Synergies between Renewable Energy and Energy Efficiency (2017).

[17] Guiding Principles for the Climate Envelope, Page 6: National strengths: Where possible, Climate Envelope funds will be targeted interventions where Denmark can add value in terms of national strengths, competences… Therefore, Climate Envelope interventions will thematically focus on energy including renewable energy, energy planning, energy efficiency and reform of policy frameworks. Page 6: Priority will be given to interventions where chances of achieving transformational change through accompanying changes in policy, markets or finance structures (both public and private) are largest.

- The Climate Technology Centre and Network (CTCN) that is the operational arm of the UNFCCC Technology Mechanism. CTCN and IRENA have cooperated e.g. on a 2017 webinar "Development of bankable mini-grid projects: 9 steps towards improved energy access".
- The DEA Energy Partnership Programme (DEPP) and other DEA international cooperation[18], with which there may be potential synergy for instance with regard to the experience gained in applying planning and modelling tools, developing energy outlooks, and producing data and information (e.g. in China, Vietnam, and Indonesia).

IRENA and the proposed project focus on several areas where Danish strengths are recognised in the global arena and where there is interest in engaging Danish public, private and civil society actors. These are further described in Annex 1.

4. Theory of Change and key Assumptions

A graphic illustration of the Theory of Change (ToC) is shown in Figure 4.1. The narrative ToC is briefly summarised below, as answers to key guiding questions in a ToC approach:

What are the changes this project wants to contribute to? The project will contribute to a green energy system transition and low-carbon development path consistent with SDG 7 [19](particularly target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix and 7.3: By 2030, double the global rate of improvement in energy efficiency) and SDG13 (target 13.2: Integrate climate change measures into national policies, strategies and planning), as well as contribute to partner countries' implementation of the Paris Agreement on Climate Change and the realisation of their NDCs including helping facilitate the right framework conditions to leverage the necessary clean energy investments.

How will change happen in the specific context? The project will support partner countries and regions, including the fast-growing ASEAN region, where energy demand is expected to double by 2025, to increase their ambitions in renewable energy (RE) and energy transition targets, accelerating country level action on RE uptake and energy transition. The energy transition will be accelerated though increased awareness of the socio-economic benefits (end use benefits

[18] The Danish Energy Agency (DEA) is an agency under MEUC that is involved in matters related to energy production, supply and consumption, as well as Danish efforts to reduce carbon emissions. DEA is also responsible for supporting the economical optimisation of utilities that in addition to energy include water, waste and telecommunication. DEA is engaged in a major programme of global cooperation, which comprises activities to share and apply Danish experience in shaping an energy system that combines a green, low-carbon and reliable energy supply with economic growth. DEA's international cooperation concentrates on emerging economies where the potential of reducing GHG emissions in the energy sector is the biggest. International scenario analyses indicate that climate and environmental issues, energy security, diversifying energy sources, resource efficiency and the ability to make long-term energy planning will be focal priority areas in the global energy markets of the future. As a result, many emerging economies are facing a huge energy transition to become cleaner, more efficient and more flexible while maintaining security of supply. DEA has pivotal knowledge on how to make a green energy transition while sustaining economic growth. Since 2012, DEA has shared these experiences through energy sector programmes specifically customized for the demands of the cooperating government. The long-standing cooperation with China, Mexico, Vietnam and South Africa is through the DEA Energy Partnership Programme (DEPP). More recent cooperation with Turkey and Indonesia is through the Danish government's Strategic Sector Cooperation - and with Ukraine, anchored in the Danish Neighbourhood Programme.

[19] It will also contribute to SDG 8 (decent work and economic growth) and SDG 17 (partnerships)

such as jobs, human welfare, GDP growth and nexus benefits in other sectors e.g. in water) of increased RE deployment. Responding to demands for increased peer-to-peer exchanges, South-South cooperation among practitioners and regional policy makers on long-term scenario planning and modelling will be facilitated through a series of workshops and support to collaborative platforms, and a network of practitioners established for sustained peer-to-peer exchange. Through engagement in the Clean Energy Ministerial campaign on long-term energy scenarios for the clean energy transition, bilateral and multilateral exchanges will be supported and analytical reports be produced and disseminated to demonstrate the benefits of model-based scenarios for energy transition, and voice private sector perspectives on long term scenario planning; capacity development will be undertaken for planning the energy transition, supported by innovative planning tools and methods, and global stock taking of scenarios providing insights for policy making, leading to wide adoption of long-term model-based scenarios that facilitate informed decision making and accelerate the green energy transition. By focusing on emerging growth economies where the potential benefits on climate change mitigation are the greatest, the climate change impact in terms of greenhouse gas emission reductions and RE deployment in terms of MW and share in the energy mix will be significant and quantified where possible. A further contribution to transformational change will be through a global report on investment needs to support the discussions at the UNSG's Climate Summit in September 2019. This will include an updated pathway with particular focus on the period up to 2030. Sustainable development aspects such as access to energy, employment and other indicators will be reflected. The study will underpin the identification of possible clean energy investment commitments by state and non-state actors at and beyond the Climate Summit. Up to and beyond the Climate Summit, IRENA will support countries in ASEAN in identifying opportunities for clean energy investment mobilization including i) clean energy investment strategies, which may or may not be integrated into NDCs; ii) disseminating best practice and building capacity in private investment mobilization through areas such as corporate sourcing and blended finance/risk mitigation ay seek to contribute its expertise, knowledge, global and regional convening power and country-level engagement to support holistic approaches to and acceleration of investment in the clean energy transition.

What is the role of the key project partner in the change process? IRENA will be the responsible partner for this project, and IRENA's key role as an intergovernmental agency with a key mandate in the international energy and climate architecture and wide and global membership and outreach, makes it uniquely placed to deliver on project outputs and outcomes, drawing on its mandated core functions as a centre of excellence for energy transformation, global voice of renewables, network hub, and source of advice and support. As an operating agent for CEM, IRENA plays a key role in the CEM campaign. And as an Institutional Partner of the Clean Energy Investment Coalition CEIC, IRENA will contribute its expertise, knowledge, global and regional convening power and country-level engagement to support the acceleration of investment in energy transition.

What are the conditions that must be realized before the goal is achieved? The inputs to the project must be delivered, project country and regional level partners selected and engaged based on their demands and commitment, the assumptions listed below must be fulfilled, the project work plans must be monitored effectively and adjusted as relevant in line with the

dynamic approach of the ToC, and impact drivers must be used proactively. Beneficiary countries for the project will be selected in accordance with the following criteria:

- **Demand:** A request by government officials to IRENA to undertake project activities in their country.
- **Impact:** Significant effect of the project output will be demonstrated in the selected country, including in terms of mitigation at national and, by extension, regional and global levels.
- **Geographical location:** Focus on developing countries where mitigation potential is significant, therefore countries where economy of size and scale is achievable will be preferred.
- **Implementation:** Commitment of the selected country is demonstrated, and likelihood of implementation is high.
- **Data:** Data and other necessary base information is available and of sufficient quality.
- **DAC-ability.** Qualifying for ODA support.

Who are the key partners that need to be engaged for this change to happen? Political decision-makers with responsibilities related to strategy and long-term planning for RE deployment and green energy system transition and practitioners engaged in energy planning in the public and private sectors/civil society in partner countries and regions.

What is within and beyond the influence the key project partner? As illustrated in Figure 4.1. there are factors that are within the control/influence/interest of IRENA. The agency inputs by IRENA and project activities and outputs are within its control (project activities of course in close collaboration with country/regional partners, who will be engaged due to their commitment and demand; for instance, output 3.1.3 network of practitioners can only be realised based on the active engagement of partners). Outcomes are within the sphere of strong influence by IRENA during the project, but ultimately depend on uptake and actions by country and regional partners and beneficiaries, for instance the realisation of socio-economic benefits of RE deployment. The achievement of impact and the goals of achieving low-carbon development, realise country NDCs and SDG 7 and 13 targets, are clearly within IRENA's sphere of interest within the project, but cannot be directly controlled and can indirectly be influenced by working with "boundary partners"[20] and with the active use of impact drivers, as reflected in the list below and in Figure 4.1.

How do outputs lead to outcomes that in turn lead to strategic objectives? The transformational change required to lead to outcomes impact and the ultimate goals is very much dependent on ownership and commitment of the country-level and regional partners, a conducive policy environment, a relevant diagnostic of key obstacles and opportunities, and uptake of knowledge approaches and tools provided based on recipient partner priority needs

[20] The concept of "boundary partners" refers to organizations, groups and champions of change that the project interacts with directly and with whom it can expect opportunities for influence, but not control, as the power to influence development rests with them. In this sense, the project is on the boundaries of their world, but it provides access to innovation, ideas, new resources, enhanced networking opportunities and other contacts and opportunities.

and demands through the project – and that country/regional partners have confidence in the relevance and quality of the approaches and solutions proposed. It is therefore important that IRENA can build upon its strong track record in the ASEAN region and beyond and the effective engagement in target countries and is able to help elicit key examples of best practice that can be exchanged among peers.

What assumptions are relevant for the change to happen? See the list of assumptions and impact drivers in Box 4.1. below and in Figure 4.1.

Box 4.1 Key assumptions and impact drivers

Key Assumptions:

From inputs to activities:

- Regional/country stakeholders committed to sustained engagement.
- Steering Committee's timely guidance on project priorities and work plans.
- Effective day-to-day management of work plans.
- Effective remedial action when deviations occur.

From activities to outputs:

- Regional/country stakeholders committed to sustained engagement.
- Steering Committee's timely guidance on project priorities and work plans.
- Effective day-to-day management of work plans.
- Effective remedial action when deviations occur

From outputs to outcomes:

- Stakeholders understand value of long-term energy planning for informed decision making.
- Stakeholder willingness to allocate resources to engage
- Stakeholders see the value of peer-to-peer exchanges of good practice.
- IRENA ability to ensure additionality and synergies in a field with many development partners.
- Sustained motivation for effective uptake of capacity development and tools.

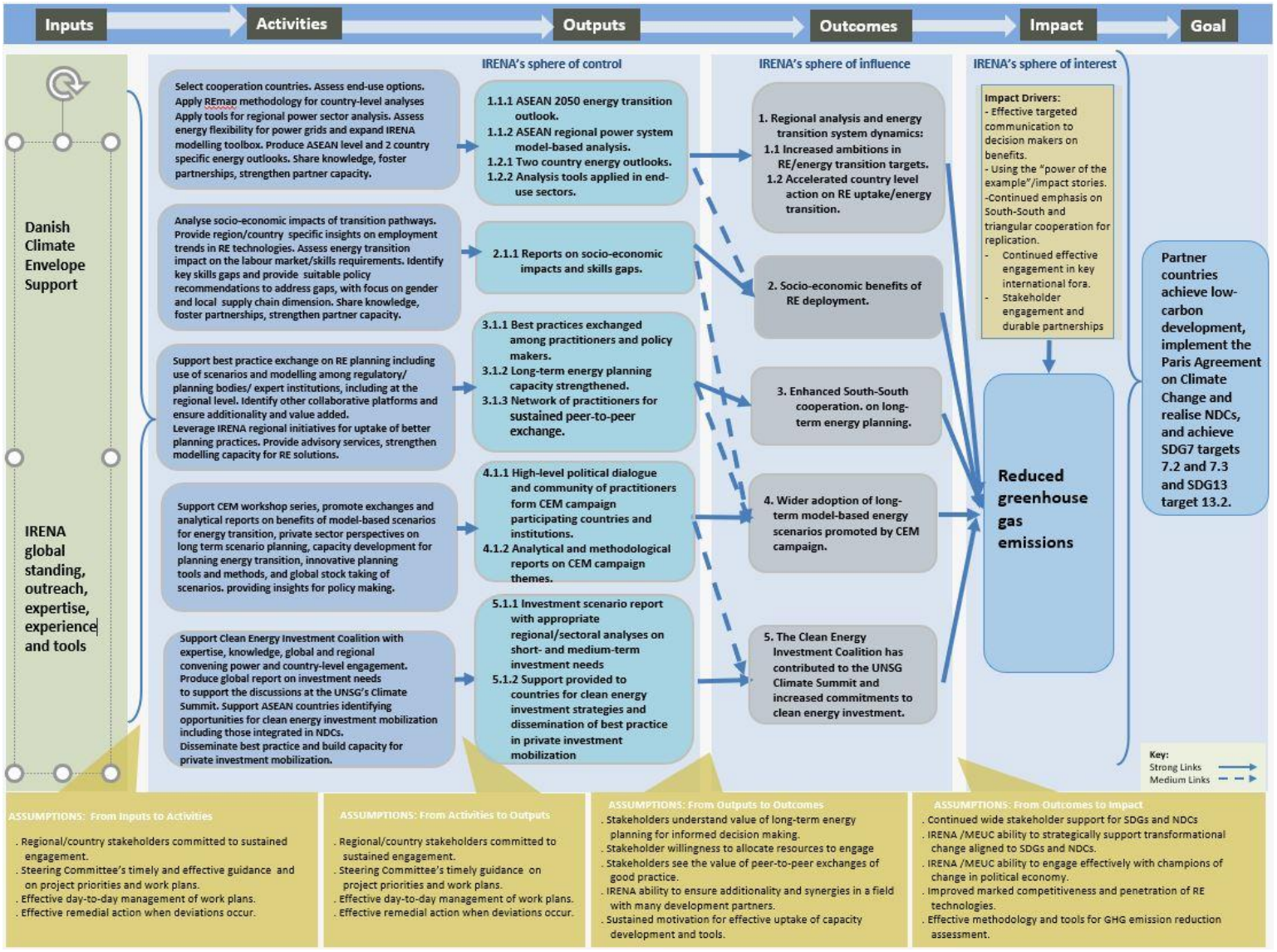
From outcomes to impact:

- Continued wide stakeholder support for SDGs and NDCs
- IRENA/MEUC ability to strategically support transformational change aligned to SDGs and NDCs.
- IRENA/MEUC ability to engage effectively with champions of change in political economy.
- Improved market competitiveness and penetration of RE technologies.
- Effective methodology and tools for GHG emission reduction assessment.

Impact drivers:

- Effective targeted communication to decision makers on benefits.
- Using the "power of the example"/impact stories.
- Continued emphasis on South-South and triangular cooperation for replication.
- Continued effective engagement in key international fora and cooperation with other key international actors.
- Stakeholder engagement, notably the private sector, investors and utilities.
- Formed and facilitated durable partnerships.

Figure 4.1 – Theory of Change[21]



[21] Inception Phase not reflected here.

5. Project Objective and Summary of Results Framework

Project objectives and a summary of the results framework at impact and outcome level is given in Table 5.1 below – the full results framework is found in Annex 3.

Table 5.1 – Summary results framework[22] at impact and outcome levels

Project Title		Voluntary contribution to IRENA on long-term planning.	
Project Objective		Partner countries supported in their efforts to achieve low-carbon development, implement the Paris Agreement on Climate Change, realise their NDCs and meet SDG7 target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix, 7.3: Double the global rate of improvement in energy efficiency- as well as SDG13 target 13.2: Integrate climate change measures into national policies, strategies and planning.	
Impact Indicator		The country/regional energy outlooks to be produced will address the impact in tons of CO_2 equivalent reduced. The increased use of long-term planning will lead to more well-informed decision making contributing to the achievement of the targets set in SDG 7.2 and 7.3 and SDG 13.2 and the Paris Agreement on Climate Change and target countries' NDCs. The financial leverage of the cooperation will be reported where relevant.	
Baseline	Year	2018	On current trends the world will not achieve the SDG 7 and international climate objectives set in the Paris Agreement will not be met. Key barriers relate to the policy and regulatory environment, awareness and capacity, needs for more holistic and effective long-term planning, subsidy regimes, challenges in the integration of high-share of variable RE in power systems, insufficient attention to end-use sectors, lack of data on impact of the energy transition on the labour market, non-alignment of climate and development objectives etc.
Target	Year	2021	Decision makers in partner countries are more aware of of the advantages of long-term energy planning and the socio-economic benefits of RE and; there is wider adoption of long-term model-based energy scenarios in G20 countries promoted, including through the CEM campaign; skill gaps have been identified and addressed and practitioners have strengthened capacity; best practices are shared among peers in increased South-South cooperation; ASEAN 2050 energy transition outlook has been produced, as well as a regional power system model analysis, and tools have been applied in end-use sector analysis, resulting in increased ambitions in RE/energy transition targets and accelerated country action on RE uptake.
Outcome 1.1		Increased ambitions in RE targets and substantially improved understanding of energy transition.	
Outcome indicator		# of RE/energy transition targets increased as a result of the cooperation.	
Baseline	Year	2018	The ASEAN is a fast-growing region with projected energy demand increasing by 50% by 2025 and a key region for high return on mitigation efforts. RE deployment is lagging far behind SDG7 and climate targets, but member countries are actively interested in a greener energy transition and IRENA REmap and RRAs have identified RE status and potentials in some countries. Collaboration with ACE has produced an ASEAN medium-term RE potential outlook. ASEAN and IRENA plan to sign MoU for support of ASEAN Plan of Action on Energy Cooperation and there are unmet demands from countries for IRENA support.
Target	Year	2021	RE targets increased in ASEAN regional long-term energy outlook and in most of ASEAN countries, leading to an enhanced low-carbon growth trajectory and identified emission reduction targets.
Outcome 1.2		Accelerated country level action on RE uptake/energy transition.	

[22] The project will commence with a 3-month inception phase to facilitate the selection of cooperation countries for Outcome 1 and for further consideration of synergies with Danish bilateral cooperation programmes.

Outcome indicator		RE targets increased in one country, leading to an enhanced low-carbon growth trajectory and identified emission reduction targets.	
Baseline	Year	2018	RE status lagging behind SDG and climate targets; medium-term potentials have been assessed by IRENA.
Target	Year	2021	One (or two) ASEAN countries have adopted the energy Outlooks and awareness and capacity has been strengthened, leading to evidence of action in terms of policy/regulatory framework development to implement accelerated action.
Outcome 2		Socio-economic benefits of RE deployment.	
Outcome indicator		# of references in partner country government documents that reflect the socio-economic benefits (benefits such as jobs, human welfare, GDP growth and nexus benefits in other sectors e.g. in water) of increased RE deployment. Awareness raised, and capacity developed for well-informed decisions in policy-making.	
Baseline	Year	2018	Key IRENA documents such as the "Renewable Energy Benefits – Measuring the Economics (2016)" have provided quantifications of macro-economic impact of doubling the global share of RE in the energy mix, but as RE deployment is lagging far behind SDG7 and climate targets, there is an urgent need to articulate the socio-economic benefits in order to facilitate political awareness and more well-informed decision making in partner countries with a view to increasing RE deployment.
Target	Year	2021	Partner governments have been equipped with increased awareness, capacity and tools to make more well-informed decisions that bring increased socio-economic benefits of RE.
Outcome 3		Enhanced South-South cooperation among practitioners and policy makers on long-term energy planning.	
Outcome indicator		#tools and innovative solutions exchanged and evidence of uptake and replication.	
Baseline	Year	2018	Very rapid developments in the energy transition process, with emergence of new policies, technologies, and business models and a need for increased peer-to-peer exchanges of experience and best practice. IRENA's wide membership (currently 158 countries and the EU) and its outreach and MTS focus on network hub function provide opportunities for facilitating and supporting South-South cooperation.
Target	Year	2021	South-South cooperation among practitioners and policy makers on long-term energy planning facilitated through a series of workshops and support to collaborative platforms, and a network of practitioners established for sustained peer-to-peer exchange. Local capabilities on energy planning enhanced through regional and country-specific capacity building and technical advisory activities.
Outcome 4		Wider adoption of long-term model-based energy scenarios promoted by CEM campaign[23].	
Outcome indicator		Evidence of institutional capacity strengthened and # of best practices and innovative tools exchanged with evidence of the uptake of toolkit and adoption of long-term model-based scenarios.	
Baseline	Year	2018	CEM, together with IRENA, MEUC and others, is active in promoting and facilitating the improved use of long-term model-based energy scenarios and CEM9 in Copenhagen agreed on a work plan for 2018/19. IRENA is operating agent for the campaign. At IRENA Council 15 in May 2018 a thematic meeting was held as part of the official campaign launch. The Campaign will inform and contribute to IRENA's ongoing work to develop an Energy Transition Model framework, ETS-Net in particular.
Target	Year	2021	Strengthened collaboration among the campaign-participating practitioners. Bilateral and multilateral exchanges and analytical reports on benefits of model-based scenarios for energy transition, private sector perspectives on long term scenario planning, capacity development for planning energy transition, innovative planning tools and methods, and global stock taking of scenarios providing insights for policy making, have led to wide adoption of long-term model-based scenarios that facilitate informed decision making and accelerate the

[23] Please see further narrative in Annex 12

			green energy transition.
Outcome 5		The Clean Energy Investment Coalition has contributed to the UNSG Climate Summit and increased commitments to clean energy investment.	
Outcome indicator		The Clean Energy Investment Coalition has visibly and measurably contributed to the Climate Summit and supported increased commitments and actions to clean energy investment.	
Baseline	Year	2018	Clean energy investment is lagging behind climate and SDG targets; Clean Energy Investment Coalition launched and UNSG Climate Summit set for September 2019. IRENA has assessed medium-term potentials, as well as links to NDCs.
Target	Year	2019	Using the outputs generated by IRENA as well as other CEIC partners, the Clean Energy Investment Coalition has increased awareness of the investment opportunities in clean energy and mobilized additional commitments to clean energy investment from state and non-state actors.
Target	Year	2021	In 2-4 countries, IRENA contributions have contributed to the development of national clean energy investment planning and mobilization of private investment.

6. Inputs/Budget

A budget not exceeding DKK 40.0 million will be made available through the Ministry of Foreign Affairs of Denmark (MFA) for the cooperation, sourced from the Danish Climate Envelope. Except for a budget of DKK 250,000 for the mandatory Mid-term Review (MTR) (that will be managed directly by the MFA), the budget covers an earmarked voluntary grant contribution to IRENA, who will administer the funds under a Donor Agreement between IRENA and the MFA. IRENA follows UN rules and develops the budget at output level accordingly (based upon the expenditure categories of i) project personnel[24]; ii) programme and expert meetings; iii) staff travel; iv) contractual services[25] (and, as relevant: v) general operating expenses; and vi) furniture and equipment)). The budget includes the costs of a three-year secondment of a Danish professional to IRENA, in accordance with the IRENA Secondment policy as adopted by the Assembly in decision A/2/DC/5 (see details in Annex 15). IRENA will ensure that the contribution is recorded in the accounts of IRENA. The budget at output level is found in Annex 4. IRENA financial management will be in accordance with IRENA's Financial Regulations. IRENA's standard administrative charge Project Support Cost (PSC) is 7%, which as required by Danida guidelines has been budgeted on a separate budget line. To counter the risk of currency exchange fluctuations an unallocated reserve of DKK 1,551,600 (3.88%) is foreseen. No other donors contribute directly[26] to the project. IRENA's own inputs are provided in-kind, comprising its strengths in the global institutional architecture, wide memberships base and outreach, extensive engagement and close links with regional[27] and national stakeholders, staff expertise and experience, and tools, and its management support and quality assurance. IRENA's work to date will also improve efficiency of the project, which will benefit from multiyear work that IRENA has undertaken at regional and country levels. In line with MFA regulations, the mandatory MTR can make recommendations on the possible

[24] Including individual short-term consultants.
[25] Consultancy company contracts.
[26] Germany contributes to the CEM Campaign with a VC partly covering activities in 2018.
[27] Including IRENA's work in the ASEAN region over the past three years, which gives significant acceleration to the timeline given that the political agreement on priorities is in place and will be formally adopted in October at the ASEAN ministerial meeting.

need for relevant reallocation of resources within the approved budget, aligned with IRENA's MTS.

7. Institutional Arrangements, Progress Monitoring and Reporting

The cooperation is anchored in the IRENAs Planning and Programme Support (PPS) team in the office of the Director-General, which oversees the internal co-ordination and the strategic integration of extra-budgetary resources in IRENA's programmatic work; leads the reporting on programmatic matters to governing bodies and individual donors; coordinates IRENA's climate work and facilitates Agency-wide participation in global or thematic initiatives. IRENA will appoint a responsible Project Manager (PPS staff member) and will involve expertise and experience from relevant parts of the agency. The project will become subject to IRENA internal management, implementation and monitoring practices, including at the Senior Management Group (SMG) level, to ensure timely progress, efficient implementation and alignment with the provisions of the agreement. Programmatic divisions, including Country Support and Partnership (CSP), IRENA Innovation and Technology Centre (KPFC) and Knowledge, Policy and Finance Centre (KPFC) will be responsible for delivery of outputs. In addition to the support provided by Administrative and Management Services, the project will benefit from Strategic Management and Executive Direction (SMED) support including communication, legal advice, and internal and external audit. IRENA will also report on the project to the Council and the Assembly at the regular governing body meetings through its Progress and Annual Reports. Further information on the IRENA organisational structure and how different units are involved in project delivery and management can be found in Annex 10.

The cooperation is a single partner project with IRENA as the responsible implementing partner. In order to ensure adequate dialogue and timely decisions about this project, a Steering Committee will be established with membership from IRENA and MEUC (including DEA). The Committee's functions will be to:

- Provide guidance regarding the theory of change, strategy, proposed activities and work plans for the project, including approval of the Inception Report 3 months after the start of the project and annual works plans for the following two years.
- Assess the progress made, the validity of assumptions and risk factors and recommend remedial action in case of deviations from agreed plans and targets and other factors that can affect the planned outputs, outcomes and impact of the project.
- Facilitate information sharing among the participating institutions and beyond[28], in order to ensure synergies and complementarities and the most effective and efficient use of expertise and experience and network contacts.
- Ensure that results and impact stories are identified, documented and disseminated/exchanged effectively[29].
- Endorse the shortlist of candidates for the Danish staff secondment to IRENA, for final decision by IRENA DG.

The Steering Committee will meet at least every six months and at least one meeting each year

[28] To their respective constituencies and partners.
[29] Annex 7 contains a preliminary plan for communication of results.

will require the physical presence[30] of the parties; other meetings can be via video conference or similar virtual platform.

[30] The venues for Steering Committee meetings could be IRENA Bonn, MEUC Copenhagen or other venues taking advantage of the presence of the parties at IRENA council and assembly meetings, CEM meetings, etc.

Table 7.1 – Indicators for Danida's reporting purposes

Impact/Outcomes/Outputs ref table 5.1 above and details in Annex 3	Reporting indicator
Impact	Tons of CO_2 equivalent reduced if outlooks produced by the project are implemented. Estimated financial leverage of project inputs.
Outcome 1.1	# RE targets increased and evidence of improved understanding of energy transition.
Output 1.1.1	2050 Outlook produced and evidence of partner awareness and capacity to follow-up.
Output 1.1.2	Power system model and long-term scenario-based planning approach applied in two ASEAN countries; evidence of country ownership and plans for follow-up action.
Outcome 1.2	RE targets increased in one ASEAN country.
Output 1.2.1	Two country energy outlooks produced and evidence of partner commitment to follow-up.
Output 1.2.2	# analysis tools applied in end use sectors.
Outcome 2	# of references in partner country government documents recognizing socio-economic benefits identified through the project.
Output 2.1.1	# of reports on socio-economic benefits produced and evidence of the commitment to consider recommendations by key target groups of decision makers.
Outcome 3	# of tools and innovative solutions exchanged and evidence of uptake and replication.
Output 3.1.1	# of tools and innovative solutions exchanged.
Output 3.1.2	# of institutions/persons who reported uptake and follow-up on capacity development delivered through project.
Output 3.1.3	# of peer-to-peer exchanges through network established.
Outcome 4	# of best practices and innovative tools exchanged with evidence of uptake.
Output 4.1.1	Evidence of high-level political dialogue and active community of practitioners from participating countries and institutions..
Output 4.1.2	Analytical and methodological reports delivered and widely disseminated, including at the IRENA Assembly.
Outcome 5	The Clean Energy Investment Coalition has contributed to the UNSG Climate Summit and increased commitments to clean energy investment.
Output 5.1.1	Documentation of the Clean Energy Investment Coalition having visibly and measurably contributed to the UNSG 2019 Climate Summit.
Output 5.1.2	# institutions that have been supported in developing clean energy investment strategies and received expert advice on private investment mobilization.

The responsible MFA Unit (MKL) will base the actual support on the agreed disbursement schedule and take into account the progress attained in the implementation of the project as described in the documentation submitted to the donor. Progress will be measured through IRENA's monitoring framework, which is currently under further development and strengthening, as will be reported to the next IRENA Assembly in January 2019. For Danida's reporting purposes the key outcome and output indicators have been selected to document

progress: are listed in Table 7.1 above. IRENA's approach to work planning and monitoring is briefly described in Annex 13.

IRENA will provide Progress Reports to MEUC and the MFA at least 2 weeks before each meeting of the Steering Committee. The indicators used for reporting will include those mentioned in Table 7.1. The reports will be analytical and issues-oriented, facilitating the committee members' easy assessment of progress [31]and key issues - supported as relevant by facts and figures. Key results and examples including impact stories will be specifically highlighted. The first meeting of the Committee will agree on the specific format for progress reporting and on formats for recording decisions made by the Committee and follow-up thereto. Similarly, draft annual work plans will be submitted by IRENA to the Committee 2 weeks in advance of the meetings that will consider the work plans. The MFA/MKL will be invited to Committee meetings and the Danish Energy Agency will also be invited to Committee meetings to provide substantive advice and facilitate synergies with DEA's bilateral cooperation programmes.

MEUC will oversee progress through participation in the Steering Committee and receipt of progress reports, as well as through the general Danish representation in the IRENA Council and Assembly meetings, which will provide opportunities to assess and highlight results and achievements of the cooperation and its alignment with IRENA strategies and work programme. MFA is also invited to the IRENA Council and Assembly meetings and will participate as usual with the Danish Ambassador to UAE and Permanent Representative to IRENA. Furthermore, an advisor from the MFA may participate in the IRENA governance meetings.

According to MFA regulations, it is mandatory to undertake a TQS-led mid-term review (MTR)[32] of the project. The responsible MFA unit (MKL) will initiate the mid-term review and draft the TOR for the MTR in cooperation with MEUC and IRENA. The funds for the MTR are budgeted separately as these are managed by the MFA. MKL, MEUC and IRENA will comment on the draft TQS review report and MEUC will - in liaison with IRENA and MKL - be responsible for responding to the recommendations of the MTR.

The MFA will sign a Donor Agreement with IRENA and transfer funds to IRENA on IRENA's request. The planned disbursement schedule and the issue of how to mitigate the currency fluctuation risk (through use of an unallocated reserve) will be explicitly mentioned in the donor agreement. The MFA will oversee progress through and receipt of progress reports

[31] A "traffic signal approach" can be used, where green signals that progress is on track; amber signals a need for closer monitoring of the activity and feedback to the Committee, while red signals a major issue that requires the Committee's urgent attention.

[32] MTR is mandatory for projects with a budget exceeding DKK 39 million. More information on the purpose and mandate of MTR can be found in the MFA/Danida AMG, Guidelines for Programmes and Projects, page 40-41-42. An MTR will typically assess political and strategic developments; progress against the results framework and theory of change including any changes to assumptions; risk management; achievements in documenting and communicating results; sustainability and exit strategies; project management, including work planning and budgeting, disbursements and expenditures; the relationship between results and financial progress, etc. TOR for the MTR will be prepared by MFA/MKL in liaison with MEUC.

and as mentioned above, may participate in Steering Committee meetings. The Steering Committee will be responsible for bringing to the MFA's attention any major strategic issues arising from the cooperation. As earlier noted the MFA will also be responsible for the mandatory MTR that can make recommendations within its mandate about required reorientation of the project including reallocation of funds; the MFA will liaise with MEUC in the follow-up to MTR recommendations. The MFA shall have the right to carry out other technical missions that might considered necessary to monitor the implementation of the project. IRENA will be informed of and consulted on terms of reference of such missions. After the completion of the project, MEUC and the MFA reserve the right to carry out evaluation of project activities.

IRENA will be responsible for ongoing quality assurance and monitoring according to its procedures, and IRENA may undertake reviews and evaluations of the project in accordance with IRENA evaluation policy. The project will be reported on to IRENA governing body meetings for the duration, as part of the progress and annual reports, and in the context of annual external audit.

The plan for communicating results is provided in Annex 7.

8. Financial Management, Planning and Reporting

The Danish support is earmarked to the activities outputs and outcomes specified in Annex 3. The funds shall be used exclusively to finance these activities and the indirect project support costs. Disbursement of the voluntary contribution shall be made upon written request from IRENA to the MFA in instalments based on the agreed disbursement schedule and the progress made of the project and shall take into account that payment shall be made in advance of the implementation of planned activities. All funds are in DKK and will be converted to USD at the official rate at the time of payment. The tentative payment schedule is: 2018: DKK 10 million; 2019: DKK 10 million; 2020: DKK 10 million; 2021: DKK 10 million.

IRENA will record and report the financial contribution in its financial management system and report it under its general financial reporting on Voluntary Contributions. Project management and expenditures shall be governed by the IRENA Financial Regulations.

IRENA will submit to the MFA and MEUC an income and expenditure report covering the previous calendar year by 31 May 2020, 31 May 2021, and 31 May 2022.

IRENA shall undertake all procurement under the project in accordance with IRENA's policies, rules and procedures for procurement and shall where relevant endeavour to include in the solicitations for services an assessment of potential sources of supply in the partners recipient countries for the project.

All payments received and made by IRENA under this project shall be subject to internal and external audit as provided for in IRENA's Financial Regulations. Should an audit report contain observations relevant to activities funded under this project, such information, along with IRENA's comments thereon, must be submitted without delay to MFA and MEUC.

IRENA is committed to maintaining standards of conduct that govern the performance of its staff including the prohibition of corrupt practices in connection with award and administration of contracts, grants, or other benefits, as set out in the IRENA Staff Rules, including the Code of Conduct and IRENA Financial Regulations. Any staff recruited specifically for the project will be subject to IRENA Code of Conduct and Ethics Policy.

The above provisions and other relevant information related to financial management and reporting will be confirmed in the Donor Agreement for the Voluntary Contribution.

9. Risk Management

The detailed risk matrix according to Danida format is given in Annex 5. There are three risk categories: contextual risks, programmatic risks, and institutional risks. Risk mitigation measures are mentioned, and the residual risks summarised. It is important to stress that the risk matrix must be closely monitored and updated as relevant during project implementation, and regular updates should be provided to the Steering Committee and in regular progress reporting. The Mid-term Review will also assess risk management.

Annex 1: Context Analysis

1. Overall development challenges, opportunities and risks

Briefly summarise the key conclusions from the analyses consulted and their implications for the programme regarding each of the following points:

For SDG7 (affordable and clean energy) the May 2018 joint tracking report (to which IRENA has contributed along with other key custodian agencies) provides the most comprehensive look available at the world's progress towards global energy targets. As of 2015, the world obtained 17.5% of its total final energy consumption from renewable sources, of which 9.6% represents modern forms of renewable energy such as geothermal, hydropower, solar and wind. The remainder is traditional uses of biomass (such as fuelwood and charcoal). Based on current policies, the renewable share is expected to reach just 21% by 2030, with modern renewables growing to 15%, falling short of the substantial increase demanded by the SDG7 target. Rapidly falling costs have allowed solar and wind to compete with conventional power generation sources in multiple regions, driving the growth in the share of renewables in electricity to 22.8% in 2015. But electricity accounted for only 20% of total final energy consumption that year, highlighting the need to accelerate progress in transport and heating. The share of renewable energy in transport is rising quite rapidly, but from a very low base, amounting to only 2.8% in 2015. The use of renewable energy for heating purposes has barely increased in recent years and stood at 24.8% in 2015, of which one third was from modern uses.

For SDG13 (climate action) and the Paris Agreement on Climate Change: IRENA's Global Energy Transformation Report (April 2018) shows that actual carbon dioxide (CO2) emission trends are not yet on track. Under current and planned policies, (including Nationally Determined Contributions under the Paris Agreement), the world would exhaust its energy-related carbon budget in less than 20 years. Even then, fossil fuels such as oil, natural gas and coal would continue to dominate the global energy mix for decades to come. Keeping the global temperature rise below 2 °C is technically feasible and would also be more economically, socially and environmentally beneficial than the path resulting from current plans and policies, known as the Reference Case. However, the global energy system must undergo a profound transformation, replacing the present system that is largely based on fossil-fuels. The total share of renewable energy must rise from around 18% of total final energy consumption (in 2015) to around two-thirds by 2050. Over the same period, the share of renewables in the power sector would increase from around one-quarter to 85%, mostly through growth in solar and wind power generation. The energy intensity (i.e. reflecting progress in energy efficiency) of the global economy will have to fall by about two-thirds, lowering energy demand in 2050 to slightly less than 2015 levels. This is achievable, despite significant population and economic growth, by substantially improving energy efficiency. As low-carbon electricity becomes the main energy carrier, the share of electricity consumed in the end-use sectors (buildings, heat and transport) would need to double, from approximately 20% in 2015 to 40% in 2050. Renewables must also expand significantly as a source for direct uses, including transport fuels and direct heat. The global energy transformation makes economic sense. Yet it calls for more investment in low-carbon technologies without delay. Understanding its socioeconomic footprint, meanwhile, is essential. The shift to renewables should create more energy jobs than those lost in fossil-fuel industries, IRENA's analysis shows. It would also boost global GDP by 1% in 2050 and significantly improve overall welfare.

The project will engage with the key political economy drivers of change (at political decision-making level and among practitioners) and build upon ownership and commitment in partner countries.

The key documentation and sources used for the analysis:

IRENA Global Energy Transformation report – a Roadmap to 2050 (April 2018): http://www.irena.org/publications/2018/Apr/Global-Energy-Transition-A-Roadmap-to-2050

Energy Progress Report - tracking SDG7 progress (May 2018): http://www.irena.org/publications/2018/May/Tracking-SDG7-The-Energy-Progress-Report

Renewable Energy Outlook for ASEAN (Oct 2016): http://www.irena.org/publications/2016/Oct/Renewable-Energy-Outlook-for-ASEAN

IRENA press release on renewable energy jobs in low-carbon economic growth: http://www.irena.org/newsroom/pressreleases/2018/May/Renewable-Energy-Jobs-Reach-10-Million-Worldwide-in-2017

SDG7: https://sustainabledevelopment.un.org/sdg7

SDG13: https://sustainabledevelopment.un.org/sdg13

Are additional studies / analytic work needed? How and when will it be done?

No additional studies/analytic work is needed as part of the preparation phase, but IRENA – and the proposed project – operates in an extremely dynamic context where new information is constantly made available from a wide range of sources. As the global knowledge centre on RE IRENA is actively engaged in analytic work undertaking studies of trends and issues (e.g. the above-cited IRENA Global Energy Transformation report – a Roadmap to 2050 (2018)) and IRENA works closely with other major development partners in the development of landmark publications and in key international fora (such as a custodian agency for the global Energy Progress Report - tracking SDG7 progress (latest

report, May 2018), the July 2018 high-level political forum on sustainable development at the UN in New York, energy lead in the UNFCCC climate action space, etc.

2. Fragility, conflict, migration and resilience

The target countries for this project are **emerging economies** and other developing countries that are not foreseen to include fragile states. Improved long-term energy planning and modelling scenarios are important for enhanced energy security in partner countries and can also contribute to increased resilience. The project's focus on socio-economic benefits of RE deployment is also relevant to strengthening resilience and mitigating against conflicts over energy poverty and access, unemployment - and potentially it could also have a positive contribution toward stemming migration although this is not a key issue in the target countries.

Are additional studies / analytic work needed? How and when will it be done?
No additional studies or analytical work required.

3. Assessment of human rights situation (HRBA) and gender[33]

IRENA places strong emphasis on the gender aspect as evidenced for example in the June 2018 article Active Participation of Women Essential to the Global Energy Transformation. As stated in para 51 of its work programme for 2018-2019, IRENA will continue its work on socio-economic benefits and in order to better understand the potential benefits of the renewables-based energy future, IRENA will continue to analyse and forecast socio-economic impact by undertaking quantitative and qualitative assessments. Through the collection of country and project-level data, as well as own estimates, IRENA will provide annual reviews on jobs in the sector, with continuous refinements of the analysis to add new perspectives, such as on gender and access. To strengthen the link to SDGs, IRENA will continue to analyse the socio-economic impact of renewable energy projects on communities, through primary data, providing best-practice examples with a special focus on gender and skills development.

While access to affordable, reliable, sustainable and modern energy for all is a Sustainable Development Goal (#7), access to renewable energy is not a human right in itself. But given the role of sustainable energy as a broader enabler of human and economic development, it is strongly interconnected with basic rights such as the right to life, food, health, shelter, education, etc. The contribution to be made by the project in terms of capacity development and tools for more well-informed and transparent decision making in the energy transition, including better understanding of the socio-economic benefits also in end-use sectors, will enable the *duty bearers* (i.e. the political decision makers and public authorities) to be mindful of the needs and priorities of end-users and ultimate beneficiaries at the household and enterprise level (*the rights holders in human rights terminology).* The human rights principles of participation, accountability, non-discrimination, and transparency will thus be supported - and this could be an example to be highlighted under project achievements. Regarding the cross-cutting concern about *youth* the project's emphasis on employment creation resulting from RE deployment in the energy transition is directly relevant.

Are additional studies / analytic work needed? How and when will it be done?
No additional studies or analytical work required. But as mentioned above IRENA continues to analyse the socio-economic impact of renewable energy projects on communities, through primary data, providing best-practice examples with a special focus on gender and skills development.

4. Inclusive sustainable growth, climate change and environment

-

This project has a strong focus on sustainable growth and climate change mitigation. The inclusiveness is considered in the support of mere well-informed long-term energy planning and a holistic approach to the energy transition and its social-economic benefits. With IRENA's mandate as a global leader on renewable energy and the project's focus on RE deployment, the environmental concern is paramount.

Are additional studies / analytic work needed? How and when will it be done?
No additional studies or analytical work required.

5. Capacity of public sector, public financial management and corruption

The project has a strong focus on capacity development of the public sector to undertake more effective long-term energy planning that is well-informed about the costs of the energy transition and its wider socio-economic benefits including its impact on job creation and GDP. The project's adherence to IRENA's robust Financial Regulations will guard against risks of corruption.

[33] The purpose of the analysis is to facilitate and strengthen the application of the Human Rights Based Approach, and integrate gender in Danish development cooperation. The analysis should identify the main human rights issues in respect of social and economic rights, cultural rights, and civil and political rights. Gender is an integral part of all three categories.

Are additional studies / analytic work needed? How and when will it be done?
No additional studies or analytical work required.

6. Matching with Danish strengths and interests, engaging Danish actors, seeking synergy

Briefly summarise the key conclusions and implications for the programme of the analysis of the below points:
The Danish Energy Agency (and other Danish energy institutions such as the transmission service operator Energinet) have strong competences in long-term model-based energy scenarios and energy planning for RE deployment, including grid integration of high proportions of variable RE. The foundation of the low-carbon transition in Denmark has been threefold: energy efficiency, renewable energy and system integration including electrification. Focusing on broader interactions and systems and the enabling environment, as opposed to individual components and concepts, is an important aspect of the Danish energy model [34], which is characterized by a holistic view of energy planning, with emphasis on integration of for instance heat and power production and establishing synergies between taxation schemes and policy support frameworks for renewable energy.

The Danish development and demonstration programme for energy technology (EUDP) supports new energy technology that can contribute to Denmark's goals in energy and climate change. The EUDP strategy 2017-2019 [35] identifies Danish strongholds and business potentials in energy technology and energy-related related research and development. The following are highlighted: Denmark as a world leader in wind technology; Denmark as relatively well positioned within energy efficiency in lighting, low-energy buildings, building materials and processes, as well as reduction of energy consumption in existing buildings; a Danish stronghold position in the biomass area; a strength in smart grids and system integration; and finally areas in which there are no major export revenues but where Denmark is also relatively strongly positioned in terms of publications and demonstration projects, for example within heat pumps, fuel cells, etc. Similarly, the State of Green highlights areas of Danish comparative strength in clean energy sources and elated areas such as energy efficiency, etc. and the Danish public and private actors who have particular expertise and experience in these areas. It is assessed that the outputs and outcomes of this proposed project will be of interest to Danish actors, subject of course to relevant procurement procedures in partner country institutions and international development partners, since solid and valid energy scenarios in general are key to showing the long-term benefits of investing in the Danish technologies, which are often not the most inexpensive from the outset, but rather the most cost-effective seen over a longer time period.

The Danish secondment to IRENA of an analyst on renewable energy scenarios and roadmaps has been agreed with IRENA and a draft job description has been included in Annex 15 of the project document, reflecting areas of comparative Danish strengths. The secondment will be for the 3-year duration of the project and the secondee will, among other tasks, be responsible for maximising synergies and complementarities with Danish international energy cooperation.

Identify: - where we have the most at stake – interests and values, - where we can (have) influence through strategic use of positions of strength, expertise and experience, and - where we see that Denmark can play a role through active partnerships for a common aim/agenda or see the need for Denmark to take lead in pushing an agenda forward.	- Denmark is a global leader in many aspects of the green energy transition, including RE and EE. Denmark's interests and values are strong in this space and the project with IRENA will give excellent opportunities for influence, using positions of strength in the substantive cooperation with IRENA, including in the project steering committee. Denmark as a Member also has a voice in the IRENA Assembly and Council to influence IRENA directions and priorities. The visibility of Danish interests/values/expertise will also be increased through IRENA's reporting to the Council and Assembly on this cooperation.
- Brief mapping of areas where there is potential for increased commercial engagement, trade relations and investment as well as involvement of Danish local and central authorities, civil society organisations and academia.	- In the general area of the energy transition and climate change mitigation there are many opportunities for commercial engagement for the Danish resource base. The business opportunities are announced through the IRENA procurement website (see below) and through national procurement systems

[34] The World Bank Regulatory Indicators for Sustainable Energy (RISE) in 2017 found that Denmark has the best framework conditions in the world when it comes to access to energy, energy efficiency and renewable energy. On a scale from 1-100, Denmark scored 100 in "energy access", 86 in "energy efficiency" and 94 in "renewable energy" – with a total of 94 points, Denmark received a world first place.
[35] https://ens.dk/sites/ens.dk/files/Forskning_og_udvikling/uk_total_final_eudp_strategi.pdf

	in target partner countries. Areas of particular Danish strength in this space were mentioned in Section 3 (The EUDP strategy 2017-2019 identifies Danish strongholds and business potentials in energy technology and energy-related related research and development).
- Assessment of the donor landscape and coordination, and opportunities for Denmark to deliver results through partners including through multilaterals;	- There are many donors supporting IRENA; procurement through IRENA follows its policies and procedures; IRENA is a knowledge and technical assistance organisation that does not implement "hardware" projects on the ground. Opportunities for consultancy work through IRENA can be found here: http://www.irena.org/procurement
List the key documentation and sources used for the analysis: State of Green EUDP report	
Are additional studies / analytic work needed? How and when will it be done? No additional studies or analytical work required.	

7. Stakeholder analysis

The key partners and stakeholders in the project are identified and briefly described in Annex 2 Partners.
Are additional studies / analytic work needed? How and when will it be done? As part of the start-up of project activities, further work is required to identify the specific stakeholders in the partner countries – this will build upon IRENA's prior knowledge and contacts in these countries and as such no major new analytical work is foreseen.

Annex 2: Partners

The key partners are presented in the table below.

Partner name *What is the name of the partner?*	Core business *What is the main business, interest and goal of the partner?*	Importance *How important is the programme for the partner's activity-level (Low, medium, high)?*	Influence *How much influence does the partner have over the project (low, medium, high)?*	Contribution *What will be the partner's main contribution?*	Capacity *What are the main issues emerging from the assessment of the partner's capacity?*	Exit strategy *What is the strategy for exiting the partnership?*
The International Renewable Energy Agency (IRENA)	The key intergovernmental agency with a global mandate on renewable energy supporting the global energy transformation. Denmark is a ratifying member of IRENA.	Low-medium. IRENA has a core budget of USD 64.15 million for the 2018-2019 biennium or roughly USD 32 million/year and the proposed Danish VC is equivalent to USD 6,2 million over 3 years or about USD 2.1 million per year.	High.	Contribution in-kind of IRENA political influence in the ASEAN, staff expertise and experience, tools, influence and credibility based on global position and centre of excellence, wide global membership and outreach.	IRENA has adequate capacity to engage in this cooperation, which is closely aligned to its MTS and work programme priorities.	No special requirements after end of project – IRENA will continue to pursue objectives related to the project as part of its MTS and building on project results and impact.
Clean Energy Ministerial (CEM)	(CEM) is a high-level global forum to promote policies and programs that advance clean energy technology, to share lessons learned and best practices, and to encourage the transition to a global clean energy economy. The 25 countries including Denmark and the European Commission that are members of CEM account for about 90 percent of global clean energy investments and 75 percent of global greenhouse gas emissions.	High – the CEM campaign that will be supported by the project is a high priority.	High as far as the CEM campaign is concerned.	Convening power for a series of workshops involving high level decision makers and practitioners, as well as private sector perspectives. Denmark hosted the CEM9 in May 2018 and has been a key actor in the multilateral transformation of CEM.	The CEM secretariat at IEA has limited capacity but the campaign is a priority.	No special requirements after end of project, but project outputs include reports on CEM campaign themes that CEM should use in the forward planning of its activities to increase impact. Progress made will be captured in IRENA and its ETS-Net, to ensure long-term benefit of investment.
ASEAN Centre for Energy (ACE)	The ASEAN Centre for Energy (ACE) is an independent intergovernmental organisation within the Association of Southeast Asian Nations' (ASEAN) structure that represents the 10 ASEAN Member States' interests in the energy sector. ACE accelerates the integration of energy strategies within ASEAN by providing	Low-medium.	Low-medium.	Expertise, experience, outreach and influence in the ASEAN region and in member states.	The capacity to engage has not been assessed in detail, but IRENA has positive prior experience from collaboration with ACE in the production of the ASEAN medium term energy outlook. ACE is also one of IRENA's regional partners designated by ASEAN/AMEM, thus the Agency's long-term collaborator.	No special requirements after end of project, but ACE will have a key role to play in using project outputs and outcomes for upscaling and replication in ASEAN for further impact.

	relevant information and expertise to ensure the necessary energy policies and programmes are in harmony with the economic growth and the environmental sustainability of the region. ACE is guided by a Governing Council composed of Senior Officials on Energy leaders from each member state and a representative from the ASEAN Secretariat as an *ex-officio* member. Hosted by the Ministry of Energy and Mineral Resources of Indonesia, ACE's office is located in Jakarta.					
National Governments in partner countries	National authorities responsible for the energy transition and climate goals in partner countries to be determined.	High – criteria for selection will include ownership and commitment to engage in reaching project objectives, actual or planned IRENA membership, demonstrated political commitment to RE and EE, specific requests to IRENA for support, quality of available data and information, etc.	Medium (for the interventions in the respective countries).	Political commitment, identification and appointment of key persons for sustained collaboration, time inputs in-kind, data, information.	The capacity of partner country government authorities will vary and in many cases be limited. The project's capacity development activities will address capacity and skill gaps that are critical for achievement of project objectives.	The exit strategies for the project in each partner country will need careful attention in the planning of activities and engagement with partners, in order to ensure uptake of knowledge products and tools, sustained commitment to implement long-term planning approaches and accelerated country level action on RE uptake and energy transition for a low-carbon development path, realising country NDCs, achieving national targets for SDG 7 and 13, and achieving socio-economic benefits of RE deployment.
Practitioners and the private sector in partner countries and regions.	Technical institutions that possess requisite expertise, data and information.	Medium – provision of expertise or data gap for the project.	Low	Provision of information of targeted input on specific sector or parameter needed for the project.	The ability to deliver what is required on time and of the necessary quality.	No special requirements after end of task/project.

Annex 3: Results Framework

Project Title		Voluntary contribution to IRENA on long-term planning.	
Project Objective		Partner countries supported in their efforts to achieve low-carbon development, implement the Paris Agreement on Climate Change, realise their NDCs and meet SDG7 target 7.2: by 2030, increase substantially the share of renewable energy in the global energy mix, 7.3: double the global rate of improvement in energy efficiency- as well as SDG13 target 13.2: Integrate climate change measures into national policies, strategies and planning.	
Impact Indicator		The project will contribute to emission reductions measured in tons of carbon dioxide equivalent, but this cannot be accurately estimated at the overall project level as impacts of the contribution are impossible to separate from those of other initiatives in the partner regions/countries in the space of renewable energy, climate change mitigation, and sustainable development. Moreover, impacts are likely to manifest themselves concretely in the longer term, beyond completion of the three-year project. However, all efforts will be made to assess emission reductions resulting from the interventions. Thus, the country/regional energy outlooks to be produced will address the impact indicator of tons of CO_2 equivalent reduced, and the project's four outcomes will all contribute to strengthened awareness and capacity of decision-makers and professionals to use long-term planning and develop models and scenarios that will lead to more well-informed decision making contributing to the achievement of the targets set in SDG 7.2 and 7.3 and SDG 13.2 and the Paris Agreement on Climate Change and target countries' NDCs. The financial leverage of the cooperation will be reported where relevant.	
Baseline	Year	2018	On current trends the world will not achieve the SDG 7 and international climate objectives set in the Paris Agreement will not be met. Key barriers relate to the policy and regulatory environment, awareness and capacity, needs for more holistic and effective long-term planning, subsidy regimes, challenges in the integration of high-share of variable RE in power systems, insufficient attention to end-use sectors, lack of data on impact of the energy transition on the labour market, non-alignment of climate and development objectives etc.
Target	Year	2021	Decision makers in partner countries are more aware of the advantages of long-term scenario-based planning and the socio-economic benefits of RE, there is wider adoption of long-term model-based energy scenarios promoted, including through the CEM campaign, skill gaps have been identified and addressed and modelling practitioners have strengthened capacity, best practices are shared among peers in increased South-South cooperation, ASEAN 2050 energy transition outlook has been produced, as well as regional power system model, and tools have been applied in end-use sector analysis, resulting in increased ambitions in RE/energy transition targets and accelerated country action on RE uptake. Increased investment in low-carbon technologies and energy projects.

Output 0		Inception Report approved.	
Output indicator		Inception Report approved by Steering Committee	
Baseline	Year	2018	Inception phase has not started
Target	Year 1	2019	After 3 months, a project Inception Report has been prepared by IRENA and approved by the Steering Committee. The key purposes of the Inception Report include selection of cooperation countries for Outcome 1, assessment of data availability for Outcome 2 and preliminary selection of countries, consideration of synergies with Danish bilateral cooperation programmes and investment activities, and the development of an agreed work plan for the first year of implementation. For the ASEAN region, the planned signing of an MoU on 30 October 2018 on IRENA support to the ASEAN Plan of Action on Energy Cooperation will further serve to ensure additionality and complementarity with other initiatives and the inception phase will emphasise close stakeholder consultation and engagement in the ASEAN region thus ensuring that interfaces and complementarities with other donor support (including form GIZ) to ACE and ASEAN are effectively addressed. During the Inception phase the possibility

			of engagement at the sub-national level will be addressed in consultations with the target partner countries. The opportunities for ASEAM member countries to engage in the project's activities related to Outcomes 2 (socio-economic benefits), Outcome 3 (South-South cooperation) and Outcome 5 (clean energy investments) will be specifically addressed.

Outcome 1 Regional analysis and energy transition system dynamics.			
Outcome 1.1		Increased ambitions in RE targets and substantially improved understanding of energy transition	
Outcome indicator		# of RE/energy transition targets increased as a result of the cooperation.	
Baseline	Year	2018	The ASEAN is a fast-growing region with projected energy demand increasing by 50% by 2025 and a key region for high return on mitigation efforts. RE deployment is lagging far behind SDG7 and climate targets, but member countries are actively interested in a greener energy transition and IRENA REmap and RRAs have identified RE status and potentials in some countries. Collaboration with ACE has produced an ASEAN medium-term RE potential outlook. ASEAN and IRENA plan to sign MoU for support of ASEAN Plan of Action on Energy Cooperation and there are unmet demands from countries for IRENA support.
Target	Year	2021	RE targets increased in ASEAN regional long-term energy outlook and in most ASEAN countries, leading to an enhanced low-carbon growth trajectory and identified emission reduction targets.
Output 1.1.1		ASEAN 2050 energy transition outlook with view for 10 ASEAN countries.	
Output indicator		2050 Outlook produced and evidence of partner awareness and capacity to follow-up.	
Baseline	Year	2018	IRENA/ACE ASEAN medium-term RE potential outlook has identified status and potentials and there is expressed demand for IRENA support.
Target	Year 1	2019	Concept of ASEAN regional power system model developed based on relevant modelling tools and identification of RE and EE transition potentials.
Target	Year 2	2020	Regional model in final stages of development. Deepened bioenergy assessment for the region.
Target	Year 3	2021	ASEAN 2050 Outlook produced, and awareness and capacity development activities delivered.
Output 1.1.2		ASEAN power system model-based analysis applied to select countries.	
Output indicator		Power system model and long-term scenario-based planning approach applied in two ASEAN countries; evidence of country ownership and plans for follow-up action.	
Baseline	Year	2018	Active interest from select counties in IRENA support to enhance RE and EE in a green energy transition. Various institutions across ASEAN countries have been using different modelling tools, have developed expertise in technical aspects of energy and power system modelling and demonstrate country ownership of these processes. Preliminary review of the modelling tools that beneficiary countries already use has been undertaken.
Target	Year 1	2019	Countries selected and engaged. The choice of model guided by existing capacities, knowledge and priorities of beneficiary countries. To the extent possible, experience from DEA in supporting country outlooks will be considered in the concept developed.
Target	Year 2	2020	Interlinked, national multi-nodal country models underway for the select countries including the application of a model on flexibility needs.
Target	Year 3	2021	Reporting on how models have been applied in the two countries –links with action under Output 1.2.1, 3.1.1, 4.1.1, and 4.1.2.

Outcome 1.2	Accelerated country level action on RE uptake/energy transition.
Outcome indicator	RE targets increased in one ASEAN country, leading to an enhanced low-carbon growth

		trajectory and identified emission reduction targets.	
Baseline	Year	2018	RE status lagging behind SDG and climate targets; medium-term potentials have been assessed by IRENA.
Target	Year	2021	One ASEAN country has adopted the energy Outlook and awareness and capacity has been strengthened, leading to evidence of uptake and action in terms of policy/regulatory framework development to implement accelerated action.
Output 1.2.1		Two country energy outlooks.	
Output indicator		Two country energy outlooks produced and evidence of partner commitment to follow-up.	
Baseline	Year	2018	There is ample documentation (REmap, RRAs, medium term ASEAN outlook, the Energy Progress Report tracking SDG 7, the Regulatory Indicators for Sustainable Energy, etc.) on the status challenges and opportunities for the green energy transition.
Target	Year 1	2019	Two countries selected and engaged. Coordination done with work stream under Output 1.1.2 and 1.2.2.
Target	Year 2	2020	Energy outlook production underway, along with analysis on grid/energy system flexibility, upon request
Target	Year 3	2021	Two country energy outlooks produced and evidence of country ownership and commitment to follow-up action.
Output 1.2.2		Analysis tools applied in end-use sectors.	
Output indicator		Reports on end-use sector analysis tools applied.	
Baseline	Year	2018	IRENA reports such as the Renewable Energy Policies in a Time of Transition clearly identify end-use sector analysis as a gap in the green energy transition, but there is increasing attention to sustainable energy as a broader enabler of economic and social development, including the nexus energy-water-food security. Deepening of the end-use sector analyses is necessary for decarbonization of the energy system.
Target	Year 1	2019	In close coordination with activities under Outputs 1.1.1 and 2.1.1, the specific contexts for application of analysis tools have been identified. Experiences gained with optimization model for the power sector and Flextool, and ways to mitigate shortcomings in optimization modelling tools in terms of VRE integration, demand response and sector coupling.
Target	Year 2	2020	Application of analysis tools, complementing regional and country analyses and engaging local expertise in select countries in exploring end-use technology choices and their economies.
Target	Year 3	2021	Reporting on development and application of the energy transition tool box. IRENA's capacity to support countries in decarbonization of end-use sectors significantly strengthened.

Outcome 2		Socio-economic benefits of RE deployment.	
Outcome indicator		# of reference in partner country government documents that reflect the socio-economic benefits (benefits such as jobs, human welfare, GDP growth and nexus benefits in other sectors e.g. in water) of increased RE deployment. Awareness raised, and capacity developed for well-informed decisions in policy-making.	
Baseline	Year	2018	Key IRENA documents such as the "Renewable Energy Benefits – Measuring the Economics (2016)" have provided quantifications of macro-economic impact of doubling the global share of RE in the energy mix, but as RE deployment is lagging far behind SDG7 and climate targets, there is an urgent need to articulate the socio-economic benefits in order to facilitate political awareness and more well-informed decision making in partner countries with a view to increasing RE deployment. Socioeconomic impacts are increasingly demanded in member countries.
Target	Year	2021	Partner governments have been equipped with increased awareness, capacity and tools to make more well-informed decisions that increases socio-economic benefits of RE.
Output 2.1.1		Reports on socio-economic impacts and skills gaps.	
Output indicator		Reports produced and evidence of their uptake by key target groups of decision makers.	
Baseline	Year	2018	Widely recognised need to facilitate political awareness and more well-informed

			decision making to achieve increased socio-economic benefits of RE deployment.
Target	Year 1	2019	Identification of priority countries and assessment of data availability for the macroeconomic analysis.
Target	Year 2	2020	Reporting on analyses of 2-3 countries with relevant data available from IRENA.
Target	Year 3	2021	Reporting on analyses of an additional 2 countries. Reporting on assessment of tools for macroeconomic, social and environmental impact assessment. Consolidated reports on end use benefits such as jobs, human welfare, GDP and nexus benefits in other sectors e.g. in water and with particular focus on gender and local supply-chains, skill gaps and policy recommendations to address identified gaps.

Outcome 3		Enhanced South-South cooperation among practitioners and policy makers on long-term energy planning.	
Outcome indicator		#tools and innovative solutions exchanged and evidence of uptake and replication.	
Baseline	Year	2018	Very rapid developments in the energy transition process, with emergence of new policies, technologies, and business models and a need for increased peer-to-peer exchanges of best practice. IRENA's wide membership (currently 158 countries and the EU) and its outreach and MTS focus on network hub function provide opportunities for facilitating and supporting South-South cooperation.
Target	Year	2021	South-South cooperation among practitioners and policy makers on long-term energy planning facilitated through a series of workshops and support to collaborative platforms, and a network of practitioners established for sustained peer-to-peer exchange. Local capabilities on energy planning enhanced through regional and country-specific capacity building and technical advisory activities.
Output 3.1.1		Best practices exchanged among practitioners and policy makers.	
Output indicator		# tools and innovative solutions exchanged (based on tracer studies, survey results etc.)	
Baseline	Year	2018	IRENA's wide membership and outreach, e.g. through clean energy corridors and regional action agendas, offer strong partnership platforms for regional cooperation, but facilitation and support are needed to ensure that best practices (and not sub-optimal solutions) are exchanged.
Target	Year 1	2019	Identification of target audiences and their needs, best practice examples in long-term energy planning, i.a. through IRENA RRA, REmap road maps and ETS-Net, and through CEM campaign on long-term planning. Identification of relevant collaborative platforms to support. Planning of a series of regional and global workshops and other exchange mechanisms (e.g. webinars). Close collaboration with CEM campaign (Outputs 4.1.1 and 4.1.2) and the Clean Energy Investment Coalition.
Target	Year 2	2020	Reporting on the implementation of regional and global workshops and support to collaborative platforms. Regional and country-specific capacity building and technical advisory activities.
Target	Year 3	2021	Continued implementation of regional and global workshops and support to collaborative platforms, and country-level activities. Consolidated reporting on results and how to sustain exchanges and maximise uptake of innovations, notably through IRENA's Energy Transformation framework and the Clean Energy Investment Coalition.
Output 3.1.2		Long-term energy planning capacity strengthened.	
Output indicator		# institutions/persons who reported uptake and follow-up on technical assistance, knowledge and examples of best practice delivered through the project (based e.g. on Survey Monkey results, Google Analytics, tracer studies, etc.).	
Baseline	Year	2018	IRENA has for each region identified key issues and unmet capacity development needs within design development and implementation of energy sector planning that are obstacles to accelerated RE deployment and the green energy transition.
Target	Year 1	2019	Further identify priorities and report on key capacity development needs in energy planning and scenario analysis. Identify target institutions/types of persons and selection criteria and formulate capacity development and technical assistance programme.

Target	Year 2	2020	Implement capacity development and technical assistance programme.
Target	Year 3	2021	Continue implementation of the programme and report on results in terms of uptake and follow-up action.
Output 3.1.3		Network of practitioners for sustained peer-to-peer exchange on long-term energy planning and modelling.	
Output indicator		Network anchored in the IRENA's energy transformation framework and its sustainability in terms of membership, platform, and value added documented as # peer-to-peer exchanges.	
Baseline	Year	2018	Best practice exchange has been requested from IRENA often, but additional resources are needed to do it. One of the pillars of the IRENA MTS 2018-2022 is the function as a network hub to provide an inclusive platform for all stakeholders to foster action, convergence of efforts and knowledge sharing for impact on the ground. IRENA has consolidated its work on planning to align it with the new strategic direction of playing a leading role in transformation of the global energy system. IRENA's work in regions over the years has enabled it to know existing regional networks and 'leapfrog' into supporting best practice exchanges in an informed manner once funding is available, and IRENA has a good appreciation of how to pair countries and people with similar level of expertise and country development so exchanges can become effective and sustained. IRENA has a particular advantage in facilitating and supporting inter-regional exchanges.
Target	Year 1	2019	In close coordination with activities under Outputs 3.1.1 and 3.1.2 as well as Output 4.1.1, identification has been made of the detailed substantive scope, groups of practitioners that are interested in South-South peer-to-peer exchanges on a sustained basis, and the modalities for exchange. Synergies with other networks have been clearly identified to ensure additionality.
Target	Year 2	2020	Anchoring of networking has been agreed and mechanisms to sustain exchanges beyond project duration defined. Exchanges have begun, and lessons on uptake and network sustainability have been documented.
Target	Year 3	2021	Exchanges have continued, and evidence of sustainability has been documented, report on network activities prepared and disseminated.

Outcome 4		Wider adoption of long-term model-based energy scenarios in G20 countries promoted by CEM campaign.	
Outcome indicator		# of best practices and innovative tools exchanged with evidence of the uptake of toolkit and adoption of long-term model-based scenarios.	
Baseline	Year	2018	CEM together with IRENA, MEUC and others is active in promoting and facilitating the improved use of long-term model-based energy scenarios and has at CEM9 in Copenhagen agreed on a work plan for 2018/19. IRENA is operating agent for the campaign. At IRENA Council 15 in May 2018 a thematic meeting was held as part of the official campaign launch. The Campaign will inform and contribute to IRENA's ongoing work to develop an Energy Transition Model (ETM) framework, ETS-Net in particular.
Target	Year	2021	Bilateral and multilateral exchanges and analytical reports on benefits of model-based scenarios for energy transition, private sector perspectives on long term scenario planning, capacity development for planning energy transition, innovative planning tools and methods, and global stock taking of scenarios providing insights for policy making, have led to wide adoption of long-term model-based scenarios that facilitate informed decision making and accelerate the green energy transition.
Output 4.1.1		High-level political dialogue and community of practitioners from CEM campaign participating countries and institutions.	
Output indicator		#countries, institutions and practitioners contributed to the CEM campaign	
Baseline	Year	2018	CEM campaign on long-term planning launched at CEM9 in Copenhagen. Work plan developed, initial structures put in place and number of consultative and technical events took place in 2018. 11 countries are participating in the campaign and IRENA is actively recruiting additional countries and institutions.
Target	Year 1	2019	CEM 10 reviews campaign progress and extends its duration. # of active participants increases.

Target	Year 2	2020	CEM 11 discusses campaign progress and analytical outputs. # of active participants increases.
Target	Year 3	2021	Ministerial discussion at CEM 12 on the improved use of long-term model-based energy scenarios, Strengthened collaboration among participating countries and institutions. Improved knowledge and global debate on long-term planning.
Output 4.1.2		Analytical and methodological reports on CEM campaign themes	
Output indicator		Analytical and methodological reports delivered and widely disseminated, including at the IRENA Assembly.	
Baseline	Year	2018	CEM campaign launched and as a country-driven process to promote the wider adoption and improved use of long-term model-based energy scenarios in G20 countries by: sharing country experience in the benefits and factors for success of energy scenario modelling for national and regional policy planning; showcasing innovative tools and methods for energy scenario modelling that address the integration challenges of variable renewable energy (VRE); and identifying channels to build capacity for clean energy transition planning in countries with limited experience. A special need for a more detailed methodology report on scenario development has been identified and prioritised under the CEM campaign. The 2018/19 work plan developed, and several events are implemented. Initial communication and web-based collaborative platform in place.
Target	Year 1	2019	Increase engagement with CEM and other stakeholders, identify channels to build and enhance capacity for clean energy transition planning, and update work plan. Support activities identified for 2019, including CEM campaign workshop at IRENA Bonn and roundtable at the CEM ministerial meeting CEM 10 in Canada in May. Campaign work plan extended beyond 2019. A campaign coordination unit formed at IRENA, communication infrastructure is maintained, stakeholders engaged through virtual and physical means, including webinars and workshops. A best practice report on the use and development of scenarios released. Concept, approach and methodology for report/toolkit developed.
Target	Year 2	2020	Campaign continued based on work plan (work plan subject to approval of CEM10), prepare and disseminate reports on key themes. Report/toolkit development underway with inputs from campaign events and stakeholders ensuring the methodology is widely applicable in target countries. Maintain and enhance the communication infrastructure, expand the community of participants.
Target	Year 3	2021	Campaign continued based on work plan. Finalisation and wide dissemination of methodology report to target users, supplemented with technical support for capacity development of target groups. A consolidated report prepared and disseminated on results of campaign, including # of best practices and innovative tools exchanged with evidence of the uptake of toolkit and adoption of long-term model-based scenarios.
Outcome 5			The Clean Energy Investment Coalition has contributed to the UNSG Climate Summit and increased commitments to clean energy investment.
Baseline	Year	2018	Clean energy investment is lagging behind climate and SDG targets; Clean Energy Investment Coalition launched and UNSG Climate Summit set for September 2019. IRENA has assessed medium-term potentials, as well as links to NDCs.
Target	Year	2019	Using the outputs generated by IRENA as well as other CEIC partners, the Clean Energy Investment Coalition has increased awareness of the investment opportunities in clean energy and mobilized additional commitments to clean energy investment from state and non-state actors.
Target	Year	2021	In 2-4 countries, IRENA contributions have contributed to the development of national clean energy investment planning and mobilization of private investment.
Output 5.1.1		Investment scenario report with appropriate regional/sectoral analyses on short- and medium-term investment needs as input to the Clean Energy Investment Coalition and the UNSG Climate Summit in 2019.	

Output indicator		Global report produced and actively utilized in the development of commitments and actions toward the Climate Summit.	
Baseline	Year	2018	Medium- and long-term clean energy scenarios have been developed by IRENA, as well as the assessment of their socio-economic impacts. IRENA also measured the contribution of private sector through corporate sourcing of renewables.
Target	Year	2019	An energy investment needs has been developed with an appropriate sector and regional analyses, including socio-economic impacts.
Output 5.1.2		Support provided to countries for clean energy investment strategies and dissemination of best practice in private investment mobilization.	
Output indicator		# institutions that have been supported in developing clean energy investment strategies and received expert advice on private investment mobilization	
Baseline	Year	2018	IRENA has identified priority policy and regulatory needs affecting investment in RE deployment and the clean energy transition.
Target	Year 1	2019	Collaboration on clean energy investment strategies agreed with 2-3 countries. Target institutions and priorities in capacity building identified.
Target	Year 2	2020	Capacity development provided to 1-2 countries.
Target	Year 3	2021	Capacity development provided to 1-2 additional countries.

Annex 4: Budget Details[36]

Budget at output level (all figures DKK 000)	2019	2020	2021	Total DKK
Output 1.1.1 ASEAN 2050 energy transition outlook.	1,868,800	1,785,600	1,740,800	5,395,200
Output 1.1.2 ASEAN power system model-based analysis.	780,800	780,800	780,800	2,342,400
Output 1.2.1 Two country energy outlooks.	1,088,000	1,260,800	1,260,800	3,609,600
Output 1.2.2 Analysis tools applied in end-use sectors.	979,200	979,200	979,200	2,937,600
Output 2.1.1 Reports on socio-economic impacts and skill gaps.	1,536,000	1,664,000	1,664,000	4,864,000
Output 3.1.1 Best practices exchanged among practitioners and policy makers.	480,000	1,152,000	1,152,000	2,784,000
Output 3.1.2 Long-term energy planning capacity strengthened.	416,000	1,120,000	1,120,000	2,656,000
Output 3.1.3 Network of practitioners for sustained peer-to-peer exchange.	1,024,000	1,024,000	416,000	2,464,000
Output 4.1.1 High-level political dialogue and community of practitioners from CEM campaign participating countries and institutions.	2,560,000	992,000	1,440,000	4,992,000
Output 4.1.2 Analytical and methodological reports on CEM campaign themes.	0	384,000	864,000	1,248,000
Output 5.1.1 Investment scenario report with appropriate regional/sectoral analyses on short- and medium-term investment needs.	1,052,800	0	0	1,052,800
Output 5.1.2 Support provided to countries for clean energy investment strategies and dissemination of best practice in private investment mobilization.	284,800	384,000	384,000	1,052,800
Unallocated reserve to safeguard against unforeseen expenses including currency fluctuation risk and shortfalls on other budget lines (3.88%)	517,200	517,200	517,200	1,551,600
IRENA Administration (7%)	933,334	933,333	933,333	2,800,000
MFA Mid-term Review	0	250,000	0	**250,000**
Total	**13,520,933**	**13,226,933**	**13,252133**	**40,000,000**

[36] Inception phase not budgeted separately

Indicative Budget Details

1. Assumptions

The below calculations use the following assumptions:

- Total amount of voluntary contribution: DKK 40,000,000;
- Term of voluntary contribution agreement: 3 years;
- USD / DKK foreign exchange rate: 6.40 (90-day average, June to August 2018)
- Unallocated reserve for currency fluctuation is spread equally over the term of the voluntary contribution agreement. The reserve is 3.88% of the voluntary contribution amount;

2. Cost estimates

IRENA uses UNGA-approved rates for staff costs and UN guidelines on consultants' remuneration. Travel of participants is guided by the provisions of the Assembly- decision A/2/DC/11 on the Fund for Developing Country Representatives. Programme and expert meeting costs are estimated based on IRENA's budgeting formulae, developed and refined with the experience to date, which are used for all budgeting of core and non-core resources. These formulae are aligned with financial policies and procedures that require efficiency, cost effectiveness and value for money, in accordance with procurement rules. Staff travel is guided by the provisions of IRENA Staff Regulations and Rules.

The Danish secondment to IRENA for the 3-year duration of the project of an analyst on renewable energy scenarios and road maps will be funded through this Voluntary Contribution, in line with the Secondment policy as adopted by the Assembly in decision A/2/DC/5. Please see Annex 15 for the draft job description and costing. The cost of the secondment is estimated at DKK 2,782,000.

External support will be required for the following outputs:

1.1.1. ASEAN 2050 energy transition outlook
1.1.2. ASEAN power system model-based analysis
2.1.1. Reports on socio-economic impacts and skills gaps
5.1.1 Investment scenario report

3. Indicative high-level budget for the project:

The table below shows the following:

- Object of Expenditure (OoE) for the 10 outputs combined, per year;
- Programme Support Cost (PSC) is 7% calculated on the total voluntary contribution amount, i.e. DKK 40,000,000;
- DKK 250,000 is factored in for MFA Mid-term Review scheduled for 2020;
- Unallocated reserve for unforeseen expenses including currency fluctuation or shortfalls on other budget lines is spread equally over the term of the voluntary contribution agreement. The reserve is 3.88% of the voluntary contribution amount;
- Rounding errors are adjusted, as appropriate, shown with italics.

Total by Object of Expenditure				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants[37], interns, project and seconded personnel	5,990,400	6,726,400	7,046,400	19,763,200
Programme and expert meetings	3,571,200	2,912,000	2,867,200	9,350,400
Travel of staff	1,049,600	1,049,600	1,049,600	3,148,800
Contractual[38] services	1,459,200	838,400	838,400	3,136,000
Programmatic sub-total	**12,070,400**	**11,526,400**	**11,801,600**	**35,398,400**
7% PSC	*933,334*	933,333	933,333	2,800,000
MFA Mid-term Review	0	250,000	0	250,000
Unallocated reserve for unforeseen expenses	517,200	517,200	517,200	1,551,600
Grand Total (DKK)	***12,951,334***	**13,649,333**	**13,399,333**	**40,000,000**

4. Indicative budget for each output:

The following tables show indicative budget for each output, based on standard budget line items used by IRENA.

Output 1.1.1. ASEAN 2050 energy transition outlook				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	1,056,000	1,056,000	1,056,000	3,168,000
Programme and expert meetings	531,200	448,000	403,200	1,382,400
Travel of staff	172,800	172,800	172,800	518,400
Contractual services	108,800	108,800	108,800	326,400
Total (DKK)	**1,868,800**	**1,785,600**	**1,740,800**	**5,395,200**

[37] Individual short-term consultants

[38] Consultancy company contracts

Output 1.1.2. ASEAN power system model-based analysis				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	544,000	544,000	544,000	1,632,000
Programme and expert meetings	0	0	0	0
Travel of staff	128,000	128,000	128,000	384,000
Contractual services	108,800	108,800	108,800	326,400
Total (DKK)	**780,800**	**780,800**	**780,800**	**2,342,400**

Output 1.2.1 Two country energy outlooks				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	595,200	595,200	595,200	1,785,600
Programme and expert meetings	211,200	384,000	384,000	979,200
Travel of staff	172,800	172,800	172,800	518,400
Contractual services	108,800	108,800	108,800	326,400
Total (DKK)	**1,008,000**	**1,260,800**	**1,260,800**	**3,609,600**

Output 1.2.2 Analysis tools applied in end-use sectors				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	979,200	979,200	979,200	2,937,600
Programme and expert meetings	0	0	0	0
Travel of staff	0	0	0	0
Contractual services	0	0	0	0
Total (DKK)	**979,200**	**979,200**	**979,200**	**2,937,600**

Output 2.1.1 Reports on socio-economic impacts and skills gaps				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	512,000	640,000	640,000	1,792,000
Programme and expert meetings	384,000	384,000	384,000	1,152,000
Travel of staff	128,000	128,000	128,000	384,000
Contractual services	512,000	512,000	512,000	1,792,000
Total (DKK)	**1,536,000**	**1,664,000**	**1,664,000**	**4,864,000**

Output 3.1.1 Best practices exchanged among practitioners and policy makers				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	0	640,000	640,000	1,280,000
Programme and expert meetings	384,000	416,000	416,000	1,216,000
Travel of staff	96,000	96,000	96,000	288,000
Contractual services	0	0	0	0
Total (DKK)	**480,000**	**1,152,000**	**1,152,000**	**2,784,000**

Output 3.1.2 Long-term energy planning capacity strengthened				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	0	640,000	640,000	1,280,000
Programme and expert meetings	320,000	384,000	384,000	1,088,000
Travel of staff	96,000	96,000	96,000	288,000
Contractual services	0	0	0	0
Total (DKK)	**416,000**	**1,120,000**	**1,120,000**	**2,656,000**

Output 3.1.3 Network of practitioners for sustained peer-to-peer exchange				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	640,000	640,000	32,000	1,312,000
Programme and expert meetings	320,000	320,000	320,000	960,000
Travel of staff	64,000	64,000	64,000	192,000
Contractual services	0	0	0	0
Total (DKK)	**1,024,000**	**1,024,000**	**416,000**	**2,464,000**

Output 4.1.1 High-level political dialogue and community of practitioners from CEM Campaign participating countries and institutions				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	1,152,000	416,000	864,000	2,432,000
Programme and expert meetings	1,216,000	384,000	384,000	1,984,000
Travel of staff	192,000	192,000	192,000	576,000
Contractual services	0	0	0	0
Total (DKK)	2,560,000	992,000	1,440,000	4,992,000

Output 4.1.2 Analytical and methodological reports on CEM campaign themes				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	0	384,000	864,000	1,248,000
Programme and expert meetings	0	0	0	0
Travel of staff	0	0	0	0
Contractual services	0	0	0	0
Total (DKK)	0	384,000	864,000	1,248,000

Output 5.1.1 Investment scenario report with appropriate regional/sectoral analyses on short- and medium-term

investment needs.				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	320,000	0	0	320,000
Programme and expert meetings	112,000	0	0	112,000
Travel of staff	0	0	0	0
Contractual services	620,800	0	0	620,800
Total (DKK)	1,052,800	0	0	1,052,800

Output 5.1.2 Support provided to countries for clean energy investment strategies and dissemination of best practice in private investment mobilization.				
Object of Expenditure	**2019**	**2020**	**2021**	**Total**
Consultants, interns, project and seconded personnel	192,000	192,000	192,000	576000
Programme and expert meetings	92,800	192,000	192,000	476,800
Travel of staff	0	0	0	0
Contractual services	0	0	0	0
Total (DKK)	284,800	384,000	384,000	1,052,800

Annex 5: Risk Management Matrix

Contextual risks[39]:					
Risk Factor	**Likeli-hood**	**Impact**	**Risk response**	**Residual risk**	**Background to assessment**
Vested interests and fossil fuels subsidy regimes hamper efforts to increase the level of ambition in the energy transition including uptake of RE and EE.	Likely	High	Select partner countries that have a focus on the issue in their green transition. Through awareness-raising and capacity development, support the momentum toward the green energy transition demonstrating the socio-economic benefits of RE deployment, the avoidance of stranded assets, etc.	Low	The price of fossil-fuels based energy is an important factor in in promoting and uptake of RE and EE. There is growing recognition of the negative consequences of fossil fuels subsidies, but this is controversial and changes in subsidy schemes have led to social unrest in many countries and there are strong vested interests.
Project affected by political instability or unrest, leading to lack of engagement and commitment with stakeholders and potential danger to project participants.	Unlikely	Medium	The emerging economies and other countries targeted for this project are not fragile states.	Low	Target countries are committed at senior levels to cooperation with IRENA. Should this risk materialise, a change of partner country and reallocation of resource could be required and if so will be raised in the Steering Committee.
Social acceptance of RE deployment.	Likely	Medium	Increased information and awareness of socio-economic benefits of RE deployment are outputs of this project and will help mitigate against the risk in some countries of social biases against RE.	Low	It is important to consider the social factors that can influence acceptance of RE/climate-friendly technologies. In this connection important factors can include the local context; the level of awareness of climate change; trust in the decision-making process, inclusiveness/fairness of the decision-making process; the transparent evaluation of benefits, risks and costs.
Political commitments to a green energy transition in target countries are undermined due to changes of government	Likely	High	Alignment to robust international frameworks including the relevant SDGs and the Paris Agreement on Climate Change. Awareness-raising and capacity development, and demonstration of benefits of the energy transition. Selection of beneficiary partner countries according to	Low	There is always the possibility of a change of government and related shift in policy priorities. But target countries are committed at senior levels to cooperation with IRENA, and there is a

[39] This category covers the range of potential adverse outcomes that may arise in a particular context, including the risk of harm beyond the immediate context or the country's borders and may include governance failure (e.g. the failure of effective public financial management or law enforcement); competition for resources; natural hazards; and pre-existing socio-political tensions. (Danida Guideline to Risk Matrix 2018).

and/or political priorities.			criteria that explicitly emphasise demand and high likelihood of implementation. Emphasis on peer-to-peer exchanges with other countries with comparable framework conditions.		strong emphasis on engaging practitioners who would not change with a change of government. Should this risk materialise, a change of partner country and reallocation of resource could be required and if so will be raised in the Steering Committee.
NDCs and national sectoral policies and strategies with which the project will align, prove to be vague and unambitious or are not enacted.	Likely	High	The project emphasises alignment to national policies and strategies in the efforts to influence these as part of the green energy transition. Many NDCs are insufficiently clear or ambitious. All Parties to the Paris Agreement agreed to either communicate their current NDCs or submit new or updated NDCs by 2020, and to do so every five years thereafter. This gives opportunities for the project to work with partners and provide inputs to raising the level of ambition in NDCs by 2020.	Low	A key focus of this project is to help countries raise their level of ambitions in their green energy transition, as reflected in policies and strategies such as the NDCs. There is also a need to more closely link NDCs with SDGs as a way to leverage and accelerate country action.
Programmatic risks[40]:					
Risk Factor	**Likelihood**	**Impact**	**Risk response**	**Residual risk**	**Background to assessment**
Government entities do not engage as expected.	Likely	High	The selection of partner countries is based on IRENA previous experience and engagement, as well as criteria that explicitly emphasise demand and high likelihood of implementation. In the event of non-engagement, it would first be important to identify reasons for nonengagement and respond accordingly through high-level consultations, provision of information and enhanced capacity development if demanded.	Low	The risk of non-engagement is significantly reduced through choice of partner countries country with prior IRENA engagement, and where continued contact with relevant actors at senior, personal level is active. This mitigates against the risk of non-engagement by government entities and other stakeholders and will help demonstrate the advantages of engagement. In the ASEAN region, the engagement at regional level will be an added advantage in ensuring that member states continue engagement – and the peer-to-peer exchanges to be

[40] This category covers include two kinds of risk: (1) the potential for a programme to fail to achieve its objectives; and (2) the potential for the programme to cause harm in the external environment. With regard to (1), the risk factors for programme failure include many of the contextual risks outlined above, as well as institutional and political factors. But there are many other reasons for potential programme failure, including inadequate understanding of the context or flawed assessment of what needs to be done; management and operational failures; and failures of planning and co-ordination. Risk is also associated with new or innovative programme approaches (although there may also be risk in failing to innovate). (Danida Guideline to Risk Matrix 2018). The categorisation of likelihood, impacts, and residual risk is also consistent with Danida guidelines.

					facilitated by the project will further reinforce this. Should this risk materialise, a change of partner country and reallocation of resource could be required and if so will be raised in the Steering Committee. It is also important to underline that IRENA/ MEUC/ MFA are not risk-averse and that opportunities for impact also come with taking informed risk.
Lack of political will to follow-through on commitments to action.	Likely	High	As above, the careful selection of partners, is key, building on expressed commitment and demand. Capacity development and peer pressures through regional focus, platforms for exchanges, exposure in international workshops/fora for showcasing of results and impact stories will reinforce this.	Low	As above.
Limited capacity of local partners impedes implementation progress and results.	Likely	High	As above, selection of committed and engaged partners who know IRENA and see value of engagement. Capacity development/technical assistance through the project.	Medium	Developing the capacity of political decisionmaker and practitioners in long-term energy planning as an important part of this project.
IRENA staff and resources are inadequate or not available when needed.	Unlikely	High	The project is closely aligned with the IRENA MTS and work programme.	Low	As this is a voluntary contribution it is over and above the core funding that is the basis for IRENA's staffing and support services.
Currency fluctuation risk	Likely	Medium /high	An unallocated reserve has been set aside in the project budget as a buffer to counter the risk of an appreciation of the USD vs. DKK.	Low	The Danish voluntary contribution is in DKK, but IRENA's budgeting and expenditure is in USD. The Danish MFA cannot accept any currency fluctuation risk.
Ineffective work planning and monitoring resulting in delays and/or non-achievement of outputs and outcomes.	Likely	High	The Theory of Change and results framework will guide the dynamic work planning and the indicators for monitoring have been identified therein. Indicators for reporting have been identified in Table 5.2. The project Steering Committee will have as a core mandate to ensure effective work planning and monitoring.	Medium	In a demand-driven project operating in a highly dynamic context, there will inevitably be risks associated with work planning and monitoring.
Scaling-up and replication of long-term model-based energy scenarios is unsuccessful.	Likely	High	The project's emphasis on engaging both at the political and practitioner levels will help develop strong national and regional capacities, and peer-to-peer exchange mechanisms, the anchoring with ASEAN, and the CEM campaign will all facilitate the sharing of results and experience. IRENA's global mandate and membership will facilitate the wider sharing of these achievements	Medium	The leverage of the project is key to wider impact.

			and stimulate replication. The project's emphasis on monitoring key assumptions and its proactive use of impact drivers - coupled with the emphasis on documenting the wider socio-economic benefits – will mitigate this risk.		
Project duplicates existing activities and sources of finance and/or fails to recognise interfaces and synergies with other initiatives in a crowded arena.	Likely	Medium	As mentioned in Table 3.1. IRENA's MTS-mandated function as a centre of excellence for energy transformation will empower effective policy and decision-making by providing authoritative knowledge and analysis on renewables-based energy transformation at global, national and sectoral levels. Also, the role as global voice of renewables helps shape the global discourse on energy transformation by providing relevant timely, high-quality information and access to data on renewable energy. And IRENA's role as a global network hub provides an inclusive platform for all stakeholders to foster action, convergence of efforts and knowledge sharing for impact on the ground. For the ASEAN region, the planned signing of an MoU on 30 October 2018 on IRENA support to the ASEAN Plan of Action on Energy Cooperation will further serve to ensure additionality and complementarity with other initiatives and the inception phase will emphasise close stakeholder consultation and engagement in the ASEAN region thus ensuring that interfaces and complementarities with other donor support (including form GIZ) to ACE and ASEAN are effectively addressed.	Low	The project will operate in a crowded and extremely dynamic field with many development partners, and the incentives for coordination and synergy may not always be effective. There is no comprehensive overview of initiatives in the wide field of energy transition and climate change mitigation. But IRENA's global mandate and membership provide good opportunities for synergy and avoidance of overlap.
Institutional risks[41]:					
Risk Factor	**Likelihood**	**Impact**	**Risk response**	**Residual risk**	**Background to assessment**
The project fails to deliver its outcomes, which will reflect negatively on IRENA, MEUC, and the MFA.	Unlikely	Major	The project will engage with country and regional partners selected based on needs and commitment to engage, as well as prior experience of cooperation with IRENA. The effective work planning and monitoring overseen by the project Steering Committee will be	Low	This project is strategic and high-profiled (e.g. through the CEM campaign) and it is essential to deliver on promised results and communicate these effectively.

[41] This category includes "internal" risk from the perspective of the donor or its implementing partners. It includes the range of ways in which an organisation and its staff or stakeholders may be adversely affected by interventions, e.g. damage to a donor's reputation if it fails to achieve its objectives, or from financial/fiduciary failure (Danida Guideline to Risk Matrix, 2018). The

			essential for ensuring the achievement of outcomes. A communication strategy (Annex 7) will ensure that results and achievements are communicated effectively to key audiences, and impact drivers will be used proactively.		
Unrealistic expectations to project impact in terms of CO2 emission reductions and financial leverage.	Likely	High	The project's outcome 1 will be able to quantify CO2 anticipated emission reductions while other outcomes will make all efforts to assess emission reduction potentials – but it will be important to realistically assess these and manage expectations in this regard. Similarly, given that IRENA is a knowledge organisation and not an implementer of hardware projects on the ground, the financial leverage must be assessed with the relevant caveats.	Medium	As the project is funded from the Climate Envelope, there are expectations regarding emission reductions and financial leverage.
Parties external to IRENA engage in fraud, corruption or misconduct under activities funded by the project.	Unlikely	Medium	The project will follow IRENA's financial rules and this risk is considered unlikely.	Low	Any corruption related to project activities could negatively affect the implementing and donor agencies.
Ineffective cooperation between IRENA and MEUC in project implementation.	Unlikely	High	The common interest and commitment to project goals, supported by the MoU and the Project Steering Committee will ensure close coordination. The mandatory mid-term review will assess the effectiveness of cooperation.	Low	The project is based on close ongoing cooperation between IRENA and MEUC, in the delivery of outputs and outcomes.
Failure to elicit and disseminate project results and impact stories.	Unlikely	High	IRENA, MEUC, CEM, and ACE have effective platforms for communication and the project design emphasises the timely and effective communication and sharing of results, tools, knowledge products, and impact stories.	Low	Communication is key.
Unrealistic expectations to opportunities for Danish private sector commercial interests related to the cooperation.	Likely	Medium	The project as such may give opportunities for procurement of consultancy inputs – if so these will be announced on the IRENA procurement website. As spin-off to project outputs and outcomes there may be commercial opportunities in partner countries, which will be announced on the relevant procurement platforms and in accordance with the procurement procedures of the agencies involved. The project's achievements should be communicated on platforms such and the State of Green, which is a good entry point for the resource base.	Medium	As Denmark has a strong resource base in RE EE and climate change mitigation, there are expectations that international cooperation in these areas give rise op commercial opportunities. This is also mentioned in the Danish government strategy "The World 2030" and is part of the mandatory context analysis in Annex 1.

Annex 6: List of Supplementary Material

Documents and sources of information	Source/internet link
IRENA:	
IRENA Medium-Term Strategy 2018-2022	IRENA
IRENA Work Plan and Budget for the 2018-2019 Biennium	IRENA
IRENA Statute	IRENA
IRENA Vision and Mission	IRENA
IRENA Members	IRENA
IRENA Assembly and Council	IRENA
IRENA management:	IRENA
IRENA events:	IRENA
Long-term modelling and tools to expand variable renewable power in emerging economies	IRENA
Danish Ministry of Energy Utilities and Climate (MEUC):	
Global cooperation	MEUC
Multilateral energy collaboration	MEUC
Clean Energy Ministerial (CEM):	
Ministerial meetings	CEM
Campaign on long-term energy scenarios for the clean energy transition	CEM
ASEAN Centre for Energy (ACE):	
ACE home	ACE
ACE & IRENA Launch of Renewable Energy Outlook for ASEAN	ACE
Other background material:	
SDG7	UN Sustainable Development
SDG13	UN Sustainable Development
NDCs	UNFCCC
Danida AMG	Ministry for Foreign Affairs of Denmark
Danish Climate Envelope	Ministry of Foreign Affairs of Denmark
The World 2030 – the Danish Government strategy for development cooperation and humanitarian assistance	Ministry of Foreign Affairs of Denmark
Council for Development Policy	Ministry for Foreign Affairs of Denmark
Danish Energy Agency (DEA):	
State of Green - DEA	State of Green
DEPP	DEA
Green global assistance	DEA
Global cooperation, partner countries	DEA
Balmorel Lite	DEA

Annex 7: Plan for Communication of Results

What? (the messages)	**When?** (the timing)	**How?** (the mechanisms)	**Audiences**	**Responsible**
Collaboration on long-term energy planning launched with support from Denmark. Long-term planning and solid energy scenarios are key to ensuring the right policies and investments, which can speed up the RE/EE based energy transition. Key socio-economic benefits of RE deployment, including impact on GDP and job creation in RE and end-use sectors. Work on investment needs supports the Clean Energy Investment Coalition and supports the UNSG 2019 Climate Summit. Impact stories for both country examples and public awareness.	When donor agreement signed. As soon as the project has generated new information.	IRENA website and newsletter. IRENA website and newsletter. IRENA governing body documents.	IRENA members and partners. Political decision makers and practitioners. General public.	IRENA
Denmark contributes to IRENA work in long-term energy planning in emerging economies and other developing countries. Long-term planning and solid energy scenarios are key to ensuring the right policies and investments, which can speed up the RE/EE based energy transition.	From the approval of the project and throughout the project duration and beyond.	MEUC website and State of Green.	Danish resource base and Danish tax payers. International development partners.	MEUC

Energy transition triggers job creation, prosperity and human welfare. Work on investment needs supports the Clean Energy Investment Coalition and supports the UNSG 2019 Climate Summit.				
Country experience in the use and benefits of energy scenario modelling for national and regional policy planning. Showcasing innovative tools and methods for energy scenario modelling that address the integration challenges of variable renewable energy (VRE).	As soon as the project/CEM Campaign has generated new information.	CEM workshops and CEM website.	Political decision makers.	CEM
Opportunities for RE deployment in ASEAN 2050 energy transition outlook and country energy outlooks.	When outlooks produced.	ACE website and ACE supported events.	ASEAN country policy makers and practitioners.	ACE
Impact stories for both country examples and public awareness.	During implementation as soon as available.	MFA public diplomacy Denmark Daily newsletters, World's Best News campaign.	The Danish resource base and tax payers.	MFA/MKL
Impact stories, replicable examples of good practice.	During implementation as soon as available.	Websites, newsletters, seminars.	Decision makers and the professional community in public and private sectors and academia.	Beneficiary institutions in partner countries

Annex 8: Process Action Plan

Action/product	Dates/Deadlines	Responsible/involved Unit	Comment/status
Inform IRENA of Danish interest in providing a multi-year voluntary contribution (VC).	May 2017	Danish Government (MEUC/MFA)	
Discussion paper outlining possible areas of cooperation.	August 2017	MEUC	
Approach IRENA to lead a campaign under the Clean Energy Ministerial (CEM)	November 2017	MEUC with Germany	
Budget included in the Climate Envelope 2018	2017	MKL	
Send IRENA updated list of possible activities that could be included in the cooperation.	December 2017	MEUC/DEA	
Meeting IRENA/MEUC/DEA on scope and modalities of cooperation	24 January 2018	IRENA/MEUC/DEA	
Presentation of proposal to Danida Programme Committee meeting	23 February	MEUC	As part of a list of multilateral and bilateral initiatives proposed for funding under the Danish Climate Envelope 2018.
Discussions on drafts of project outline and preparation of CEM campaign launch at CEM9 in Copenhagen, May 2018.	March-June 2018	MEUC, IRENA, DEA	Discussions on substance and modalities of cooperation. Hosting CEM9 was an excellent opportunity to assemble an ambitious group of countries and private sector actors for the CEM-campaign.
Final project outline for proposed VC contribution	6 July 2018	IRENA	Agreed basis for detailed formulation
Engagement of external process consultant	10 July 2018	MKL	
Meeting at IRENA/MEUC/DEA in Bonn to start detailed formulation	12 July 2018	IRENA	With facilitation by process consultant
Information to IRENA that DEA will not be a direct implementation partner	15 August	MEUC	Following information from MFA/MKL that a budget allocation to DEA from this project budget will not be possible.
Submission of draft Project Document to IRENA for comments	20 August 2018	MEUC	Based on draft from process consultant and consultation with MFA MKL and DEA.

Meeting at IRENA Bonn to discuss IRENA comments with MEUC and the process consultant	27 August 2018	IRENA	
Submission of draft Project Document to MFA/TQS and MKL ready for appraisal	31 August 2018	MEUC	
Appraisal	3 September – early October 2018	MFA/TQS	Draft appraisal report dated 4 October
Agreed follow-up on appraisal recommendations and comments to draft appraisal report	8 October 2018	MEUC with MKL in liaison with IRENA	
Final draft project document to MFA/MKL	9 October	MEUC	
Project Document to secretariat of Council for Development Policy	12 October 2018	MFA/MKL	
Presentation to meeting of the Council for Development Policy	30 October 2018	MEUC	
Approval by Danish Minister for Development Cooperation	November 2018	MFA	
Document to Danish Parliament Finance Committee for approval	At Finance Committee meeting 7 December		
Commitment of funding	Mid-December 2018	MFA/MKL	
Signed voluntary contribution agreement	Before end December 2018	IRENA-MFA/MKL	After presentation to IRENA Director-General and agreement on the VC
First disbursement of funds	If possible end December 2018 else January 2019	MFA	Based on IRENA request
Start of project activities	January 2019	IRENA	

Annex 9: Signed Table of follow-up Actions taken on TQS appraisal Recommendations

Title of Project	**Voluntary Contribution to IRENA on Long-term Planning**
File number/F2 reference	**2018-25829**
Appraisal report date	**5 October 2018**
Council for Development Policy meeting date	**30 October 2018**
Summary of possible recommendations not followed All recommendations were followed.	
Overall conclusion of the appraisal The conclusion of the appraisal is that proposed Voluntary Contribution to IRENA is recommended for presentation to the Council for Development Policy after taking into consideration the recommendations of the appraisal. The project documentation generally is well elaborated and contains the required key elements in the main text and the annexes. The background analysis and justification sections are detailed and comprehensive. However, the sections providing the actual description of the project intervention, including the theory of change, objective and results framework needs further work by complementing with a short descriptive section on the expected activities under each outcome. In particular, there is a need to clarify and describe how IRENA and the project will contribute to the CEM (Clean Energy Ministerial) process beyond the CEM10 high-level meeting in May 2019. The overall objective of the support is well aligned to the Danish development policies, in particular the priority given to renewable energy transformation (SDG 7) with focus on economies in transition and growth economies and as a global public good. Further, the project address areas where Denmark has something to offer with opportunities to involve the Danish resource base. A Danish secondment/advisor to IRENA should be considered to capitalise further on this opportunity and connect to Danish know-how The project contributes directly to the implementation, IRENA's strategic framework 2018-2022 and its current work programme, and it builds on and enhance the planned collaboration with the ASEAN Centre for Energy (ACE) and ASEAN Member States to accelerate renewable energy deployment and investment. The project partners and stakeholders in the ASEAN region have, however, not been sufficiently consulted and involved in the project preparation, since IRENA have foreseen most of the consultation in the inception phase. As a result, there is potentially significant overlaps between the proposed activities and existing renewable energy transformation support programmes (e.g. GIZ and others) in the region. As already highlighted in the programme document, the AT finds it of utmost importance for IRENA to refine, redesign and adjust the activities in the ASEAN region during the inception phase in close collaboration with ACE, potential target countries and existing RE support programmes in the region. The inception phase should also consider how ACE and ASEAN member states will be involved in the activities under outcome 2. (socio-economic benefits of RE deployment) and outcome 3. (enhanced South-South cooperation).	
Recommendations by the appraisal team	**Follow up by the responsible unit**

Even though the project document is well elaborated, the preparation process in the ASEAN region has not been sufficiently detailed and inclusive in the form of involvement and consultation with regional and local stakeholders, and development partners. There may thus be significant overlaps between the proposed activities and existing renewable energy transformation support programmes in the region. ***Recommendation 1:*** *Activities in the ASEAN region should be adjusted during the inception phase in close collaboration with ACE, potential target countries and existing RE support programmes in the region, including by Germany and Denmark. In addition to country selection, data assessment and development of work plan, the inception phase should comprise detailed consultations with the ASEAN level stakeholders and development partners.*	Agreed. While the project was not sufficiently discussed with the regional stakeholders, the need for support has been subject to discussions for a few years now and planning is specifically noted in the upcoming MoU which will be signed in October 2018 at the ASEAN ministerial meeting. Detailed discussions will be held with the local stakeholders after that time and during the inception phase, as planned in the programme document. In this regard, it should be noted that IRENA is aware and will continue to map out partner engagement (for instance, albeit not mentioned in the appraisal report, a very significant partner is ADB) to ascertain where the project would benefit from collaboration. In this, IRENA will be guided by ACE and their plans and preferences.
The current project design does not have any mechanisms for engaging the Danish resource base and draw on Danish experience in the project, even though such engagement has been explicitly demanded by IRENA and seems highly relevant. The appraisal suggests that including a Danish secondment/advisor in the project budget would help strengthen the link to the Danish (and international) experience and expertise. ***Recommendation 2****: Include a Danish secondment / advisor in the project design and budget, following IRENA's rules and regulations, to facilitate access to Danish and international expertise relevant for the project.*	The project formulation and design has been undertaken in collaboration with the Danish Energy Agency and MEUC for about a year before the appraisal. The context analysis in Annex 1 of the project document in its item 6 "matching with Danish strengths and interests, engaging Danish Actors, seeking synergy" identifies areas where the Danish resource base has strong competences and how the visibility of these strongholds will be increased through the project. The Danish secondment to IRENA of an analyst on renewable energy scenarios and roadmaps has been agreed with IRENA and a draft job description has been included in the project document, reflecting areas of comparative Danish strengths. The secondment will be for the 3-year duration of the project and the secondee will, among other tasks, be responsible for maximising synergies and complementarities with Danish international energy cooperation.
The project document would be more readable and useful for the implementers and other users, if it included more narrative text on the activities, and added details to the theory of change, objectives and results framework. ***Recommendation 3:*** *Include narrative text on the activities under each outcome and output and provide more details in the Theory of Change, objectives and results framework.*	Additional narrative text has been added in the main text (under summary of issues to be addressed, in the narrative part of the Theory of Change) and in the detailed Annex 3 with the results framework.

The outcomes of the project on socio-economic benefits of renewable energy and on south-south cooperation do not specifically mention ASEAN Member States in the target group. Their participation is however highly relevant and will strengthen the focus and impact of the project. ***Recommendation 4:*** *Include several ASEAN Member States in the national level analysis on socio-economic benefits under Outcome 2 and on the south-south cooperation activities under Outcome 3.*	Agreed. The criteria for country selection have been outlined and ASEAN countries will be considered for socio-economic analyses, upon request. The purpose of South-South collaborate is to cross-pollinate within and among the regions of the global South, so ASEAN is an integral part of this part of the project. Given the intensive work in the region during the project period, it is likely that the engagement of ASEAN Member States would be high.
The project will contribute to the Clean Energy Ministerial (CEM) campaign on long-term energy scenarios. However, the project document only covers CEM campaign activities up to May 2019. i.e. only 5 months into the three-year project period. In addition, it is not clear what additional best practices and tools will be produced. ***Recommendation 5:*** *Provide more details on the CEM campaign work plan, covering the full three-year period of the project, and more details on reports and tools that will be produced.*	Agreed. More details have been added in the main text under (under summary of issues to be addressed), in the detailed Annex 3 with the results framework beyond summer 2019, and in Annex 12 that describes the CEM campaign work plan. It should be clarified that the campaign will not produce tools and practices but identify and share experiences and best practice. The workplan for 2019-2021 will be developed with all the partners in the campaign. To produce tools and practices is part of the IRENA's work and programmatic activities (Energy Transition frameworks) that contribute to the campaign but are not developed under its umbrella. It is perhaps useful to note that the website for the Campaign is already in place as is a webinar series.
To facilitate implementation and appropriate monitoring here is a need to clarify and harmonize the use of indicators and targets, that are presented in different forms in the document. ***Recommendation 6:*** *During the inception phase the results framework and the specific indicators and targets should be revised and harmonised based on the recommendations of the appraisal and taking into consideration the standard indicators of the Danish Climate Envelope.*	The indicators in the project results framework have been defined with careful consideration of the required core indicators (emission reductions and financial leverage), and voluntary project indicators specified in the Guiding Principles for the Danish Climate Envelope as well as the Guideline for Monitoring of the Danish Climate Envelope, (including the outcome indicators suggested under mitigation). During the inception period the work plan and related monitoring framework will be developed with careful consideration of the requirements under Danish Climate Envelope funding. As required by Danida Aid Management Guidelines, indicators are mentioned separately under i) the results framework at outcome level in the main text; ii) the table on indicators for reporting to Danida; iii) the detailed results framework in Annex 3 of the project document.

I hereby confirm that the above-mentioned issues have been addressed properly as part of the appraisal and that the appraisal team has provided the recommendations stated above.

Signed in…… on the ……..…….…….….

Appraisal Team leader/TQS representative

I hereby confirm that the responsible unit has undertaken the follow-up activities stated above. In cases where recommendations have not been accepted, reasons for this are given either in the table or in the notes enclosed.

Signed in……..….on the…….…..……..…

Head of Unit/Mission

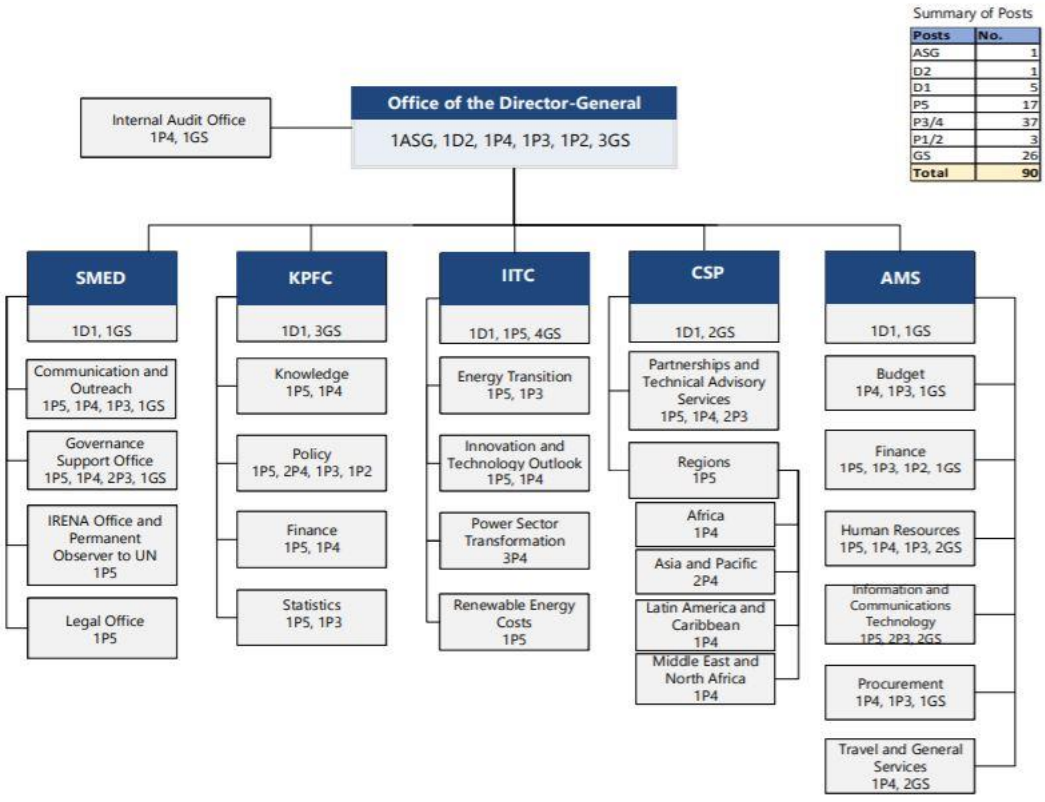
Annex 10: IRENA Organisation and Staffing & Organisation of Project Delivery

IRENA Organisation and Staffing

IRENA has 90 core staff posts, of which 83 were filled or under recruitment as of December 2017 (75 filled and 8 under active recruitment) and seven were vacant. The 75 staff were from 43 nationalities, 45 % women and 55 % men. IRENA's staff salaries are in conformity with the United Nations (UN) common system standards.

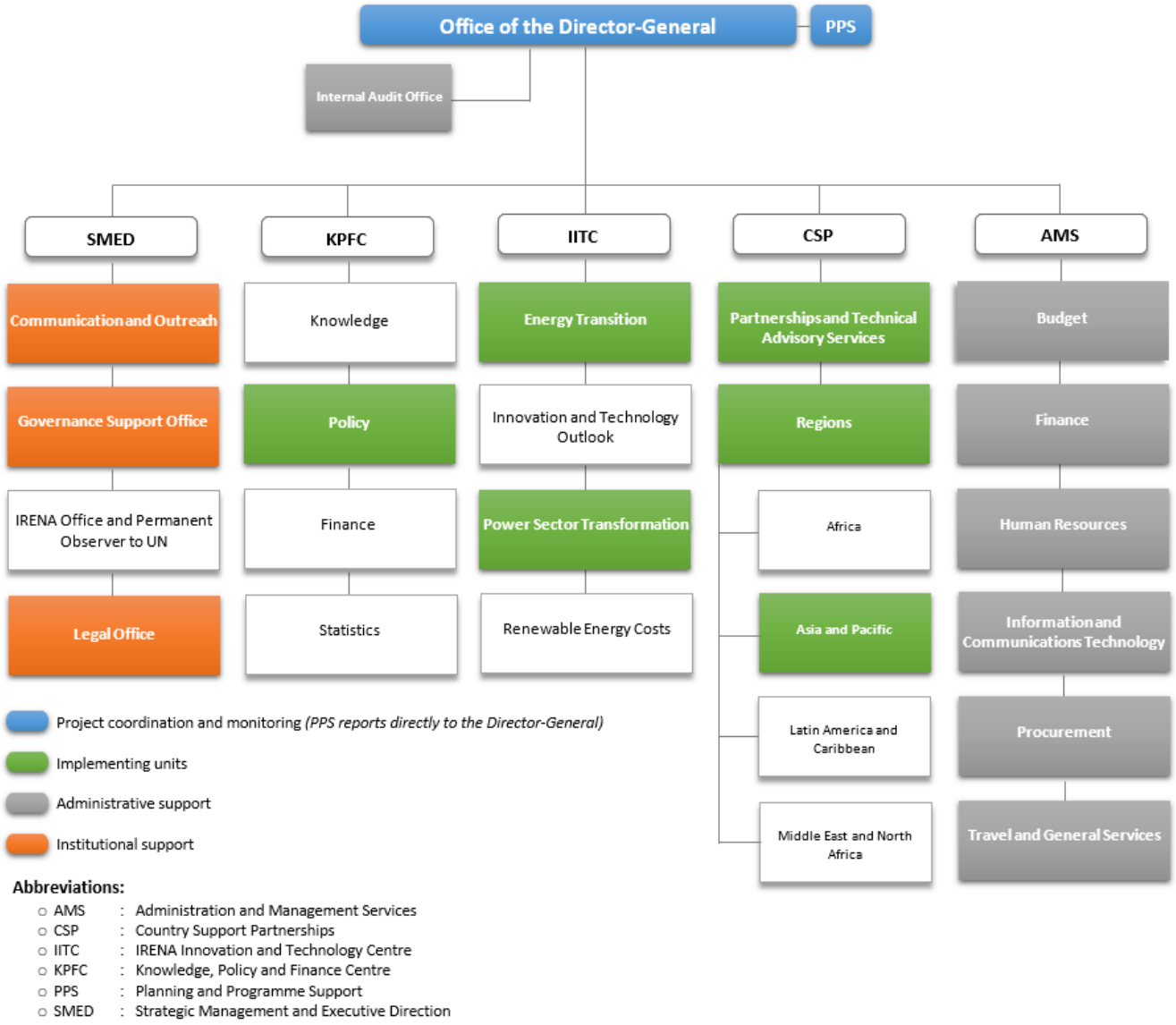
In the approved budget for the 2018-2021 biennium staff costs are USD 34.826 million out of a total core budget of USD 64.150 million or 54%, while the staff travel budget amounts to 3,0 %; and consultants, interns, and project & seconded personnel account for 25.1%.

The IRENA organisational structure as of May 2018 is shown below:



Abbreviations: SMED: Strategic Management and Executive Direction; KPFC: Knowledge, Policy and Finance Centre; IITC: IRENA Innovation and Technology Centre in Bonn; CSP: Country Support and Partnerships; AMS: Administration and Management Services.

Organisation of Project Delivery:



Delivery of **Outcomes 1.1** and **1.2** of the project will be led by IITC (*Energy Transition* and *Power Sector Transformation* units), while the CSP division (*Partnerships and Technical Advisory Services* and *Regions: Asia and Pacific* units) will provide support to the delivery of work. **Outcome 2** of the project will be led by KPFC (specifically the *Policy* unit). **Outcome 3** will be led by CSP (*Partnerships and Technical Advisory Services* and *Regions: Asia and Pacific* units), supported by IITC (*Energy Transition* and *Power Sector Transformation* units). **Outcome 4** will be led by IITC (*Energy Transition* and *Power Sector Transformation* units). **Outcome 5** will be led by PPS, with inputs from IITC, KPFC and CSP.

These units are marked as "implementing units" (green in the organogram).

Project coordination and monitoring, as well as liaison with and reporting to Denmark, will be performed by the PPS that reports directly to IRENA's Director-General (blue in the organogram). PPS also undertakes coordination with the institutional and administrative areas of the Agency. PPS will also ensure that the project is reported on to the governing bodies through IRENA's regular reporting to the Council and Assembly.

The overall **institutional support** of the project will be provided by IRENA's Communication and Outreach unit, Governance Support Office and Legal Office (orange in the organogram). This will include support for the organisation of related events on the margins of the Council and Assembly meetings, development of communication materials and dissemination of information in social media, and provision of legal advice as required.

Administrative support will be provided by the following units: Budget, Finance, Human Resources, Information and Communications Technology, Procurement, Travel and General Services and Internal Audit Office (grey in the organogram). They will support the implementation in accordance with the Assembly-approved Staff and Financial regulations and rules and aligned with IRENA's policies and practices.

Annex 11: IRENA National Focal Points and key Partner Contacts

IRENA National Focal Points

DEA Priority Countries

Country	Entity	Title of Focal Point
China	China National Renewable Energy Centre	Head of Department
Ethiopia	Ministry of Water, Irrigation and Electricity	Director
	Embassy of Ethiopia in Abu Dhabi	Permanent Representative to IRENA and Ambassador
India	Ministry of New and Renewable Energy	Director
	Embassy of India in Abu Dhabi	Permanent Representative to IRENA and Ambassador
Indonesia	Ministry of Energy and Mineral Resources	Director General
Mexico	Ministry of Energy	Director General
South Africa	Department of Energy	Chief Director, Clean Energy
Turkey	Ministry of Foreign Affairs	Acting Deputy Director General
	Embassy of Turkey in Abu Dhabi	Permanent Representative to IRENA and Ambassador
Ukraine	State Agency on Energy Efficiency and Saving of Ukraine	Head of Department
Vietnam		

ASEAN Countries

Country	Entity	Title of Focal Point
Brunei Darussalam	Prime Minister's Office	Permanent Secretary - Energy
Cambodia	Ministry of Industry, Mines and Energy	N/A
Indonesia	Ministry of Energy and Mineral Resources	Director General
Lao PDR		
Malaysia	Ministry of Energy, Green Technology and Water	Secretary-General
Myanmar		
Philippines	Renewable Energy Management Bureau of the Department of Energy	Director
	Embassy of the Philippines in Abu Dhabi	Permanent Representative to IRENA and Ambassador
Singapore	Ministry of Foreign Affairs Singapore	Director General
Thailand	Ministry of Energy	Executive Director
Vietnam		

Other partners

Key partners for the ASEAN region

Entity	Country
ASEAN Centre for Energy (ACE)	Indonesia
Asia Development Bank (ADB)	Philippines
Asia Investments and Infrastructure Bank (AIIB)	China
Asia Pacific Economic Cooperation (APEC)	Singapore
Centre for Energy Studies. Gajah Mada University	Indonesia
Danish Energy Agency (DEA)	Denmark
Energy Research Institute, Nanyang Technological University	Singapore
Energy Research Institute. Chulalongkorn University	Thailand
Energy Studies Institute. National University of Singapore	Singapore
GIZ Renewable Energy Support Programme for ASEAN (ASEAN-RESP)	Indonesia
Indonesian Institute for Energy Economics	Indonesia
Institute of Energy Policy and Research. University Tenaga Nasional	Malaysia
Joint Graduate School of Energy and Environment (JGSEE). King Mong Kut University	Thailand
Solar Energy Research Institute (SERI), University Kebangsaan	Malaysia
UN-ESCAP	Thailand

IRENA Institutional Partners considered relevant to the overall project

Entity	Country
African Development Bank	Côte d'Ivoire
Africa Renewable Energy Initiative	Côte d'Ivoire
African Union Commission	Ethiopia
Cambridge Econometrics	United Kingdom
Department of Planning and Cooperation, Ministry of Energy and Mines	Lao People's Democratic Republic
Department of Research and Innovation, Ministry of Education	Myanmar
New and Renewable Energy Department, Ministry of Industry and Trade (MOIT)	Vietnam
Electricity Program Development, Ministry of Energy and Mineral Resources (MEMR)	Indonesia
Renewable Energy Technology, Sustainable Energy Development Agency	Malaysia
EAC Centre for Renewable Energy & Energy Efficiency	Uganda
Economic Commission for Latin America and the Caribbean (ECLAC)	Chile
Economic Community of Central African States	Gabon
ECOWAS Centre for Renewable Energy & Energy Efficiency	Nigeria
ECOWAS Commission on Energy and Mines	Nigeria
Electricity and Renewable Energy Authority, Ministry of Industry and Trade (MOIT)	Vietnam
External Relations Department, Energy Planning & Development Division, Energy Market Authority	Singapore
External Relations, Energy Planning and Development Division,	Singapore

Energy Market Authority	
GIZ ASEAN-German Energy Programme (AGEP)	Indonesia
GIZ, GIZ Energy Programs Central America	El Salvador
GIZ, Promotion of a climate-friendly Interconnected Power System in the West Africa	Cape Verde
HAPUA	Indonesia
Transport and Energy & Minerals Divisions, ASEAN Economic Community Department, ASEAN Secretariat	Indonesia
IDB	United States
Institute of Renewable Energy Promotion, Ministry of Energy and Mines	Lao People's Democratic Republic
Latin-American Energy Organization (OLADE)	Ecuador
SADC Centre for Renewable Energy & Energy Efficiency	Namibia
Southern Africa Power Pool	South Africa
USAID Clean Power Asia	Thailand
West African Power Pool	Benin

Annex 12: CEM Campaign Work Plan

Long-term energy scenarios for the clean energy transition

Political background and relevance

Global and regional scenarios developed by international and research organisations have played a role in guiding high-level policy debate surrounding the clean energy transition, while government-devised energy plans have been instrumental in providing foresight to attract investment. At both levels, it is now recognised that robust long-term energy scenario modelling and communication of results can be fundamental to foster political consensus, inform policy, and improve investment decisions in the clean energy transition.

Against this background, the CEM launched a "Long term energy scenarios for the Clean Energy Transition" campaign. The campaign was one of major deliveries of the CEM9 Ministerial meeting in Copenhagen in May 2018. Up to CEM9 Denmark, Germany and IRENA provided significant outreach to ensure the broad backing from Governments, private sector actors and knowledge institutions. The significant scope and depth of the campaign in terms of continuation until 2021 was also developed with the Danish VC to IRENA in mind. Normally CEM campaigns are of a shorter duration and with a smaller group of constituents. The CEM is an important forum to inspire for impactful policy change since CEM members includes most of the G20 countries and a number of green frontrunner nations, such as the Nordic Countries. The CEM members are responsible for around 90% of global investments in clean energy and 75 % of global CO2 emissions. Furthermore, CEM is a flexible non-bureaucratic forum, which allows for equal cooperation between governments, private sector actors and knowledge institutions. Read more on: http://www.cleanenergyministerial.org/

The Campaign (will as other CEM campaigns) be executed through a series of workshops to promote bilateral and multilateral exchange involving different types of stakeholders, as well as potential analytical reports to support and strengthen workshop outcomes. Both scenario developers (modelers) and scenario users (decision makers) across government, academic and private sectors will be engaged during the Campaign. The work plan for 2018/2019 is developed in cooperation with the current Campaign participants and included below. The document is a living draft that is adjusted as the Campaign matures and as new participants join.

Tentative areas of focus in the workplan for 2019 (fall) – 2021 (summer)

Considering the high relevance of the subject and significant interests in participation, the lead Countries Denmark and Germany have decided to continue the campaign until CEM12 in 2021. While the exact work plan would reflect interests of all member countries signed up to

the Campaign and would be subject the CEM Ministerial approval, the future work could possibly encompass bilateral and multilateral exchanges and analytical reports on benefits of model-based scenarios for energy transition, private sector perspectives on long term scenario planning, capacity development for planning energy transition, innovative planning tools and methods, and global stock taking of scenarios providing insights for policy making. This project would cover part of the personnel costs for operational and analytical work, and costs for organizing conferences and meetings, including one dedicated CEM campaign event per year to be attended by all the members. IRENA as an operating agent would continue facilitate the work of the Campaign, as well as ensure its long-term impact including through IRENA's Energy Transition Framework. The specific expected outcomes are developed in detail in the results framework for outcome 4 " Wider adoption of long-term model-based energy scenarios in the G20 countries promoted by CEM campaign."

Work Plan 2018/2019[42]

The agreed CEM campaign work plan for 2018/2019 is given on the following pages.

[42] This is a living document for the campaign, this version is as of September 2018. Activities in 2018 are implemented with IRENA core resources and a voluntary contribution from the Government of Germany.

IRENA
International Renewable Energy Agency

Long-term energy scenarios for the clean energy transition

Work Plan

27 September, 2018

Summary

The world's energy systems are entering profoundly uncharted territory – unprecedented technological advances in production, communication, and transport make predictions about future energy use highly uncertain, while at the same time urgent Sustainable Development Goals and the Paris climate accord insist on a transition to clean energy use as fast as possible. In this context, clear views of the future energy landscape have become invaluable, and the way in which those views are developed arguably requires a sea change.

The *Long-term Energy Scenarios for the Clean Energy Transition* campaign aims to promote the wider adoption and improved use of long-term model-based energy scenarios as a key driver of this effort, by: (1) sharing country experience in the use and benefits of energy scenario modelling for national and regional policy planning; (2) showcasing innovative tools and methods for energy scenario modelling that address the integration challenges of variable renewable energy (VRE); and (3) identifying channels to build and enhance national capacity for clean energy transition planning and to share with countries with limited experience.

The campaign will be executed through a series of workshops to promote bilateral and multilateral exchange involving different types of stakeholders, as well as potential analytical reports to support and strengthen workshop outcomes and other political events during the campaign, including Ministerial meetings in the CEM. Partnerships are being actively sought out, and subject to availability of funds and other resources, both dedicated thematic workshops as well as side-events at the margins of partner's existing events will be held on a collaborative basis.

The overview below provides initial ideas to further the debate in designing the programme of the campaign, countries are invited to propose additional activities. Country participation can range from

LTES
LONG-TERM SCENARIOS FOR THE ENERGY TRANSITION
A CAMPAIGN BY THE CLEAN ENERGY MINISTERIAL

CLEAN ENERGY MINISTERIAL
Accelerating the Global Clean Energy Transition

expert engagement in workshops to organization of dedicated events and study tours as well as in-depth analytical work. Contributions can be provided in-kind or through voluntary contributions.

Goals and objectives

(1) Share country experience in the use and benefits of long-term energy scenario modelling for national and regional policy planning

Model-based energy scenarios have long been used as a tool to guide international and national policy debates and decision making under uncertainty. Ownership of these scenarios typically belonged to international organizations and research organizations. While the importance of these institutions remains, national governments are increasingly looking to devise their own planning tools and scenarios to support the development of future energy strategies. Many now recognize that robust long-term energy scenario modelling and communication of results can be fundamental to spark political consensus, inform policy, and improve investment decisions during the clean energy transition, by identifying roles for new technologies, bottlenecks, and/or potential risk of stranded assets. This can also be the case at the regional level, particularly in the development of physical interconnectors and the creation of regional markets. Such regional coordination often requires parallel political coordination, and can facilitate more efficient operation of power systems with high shares of VRE.

To spread the benefits of long-term energy scenarios more widely, a key element of this campaign will be to share the successful experience of leading countries regarding necessary resources, challenges, methodologies, and roles for different stakeholders in the modelling process (e.g. governments, utilities, academics, international organisations, etc.).

(2) Identify innovative tools and methods for long-term energy scenario modelling

Given the influence of energy scenarios, whether these scenarios are fit to assess today's energy landscape and its imminent transformation is a major concern. Traditional sector dynamics are being revolutionized as low-cost renewable energy dominates new global investment, disruptive technological innovations are applied in new ways, and the climate imperative drives increasingly ambitious Nationally Determined Contributions to increase efficiency and reduce fossil fuel use in the coming three to four decades. In this context of fundamental change, many traditional models need to be adapted to reflect a new reality, and to allow the exploration of profound but uncertain change.

Thankfully, new approaches to long-term energy scenario modelling are emerging, to address the unique characteristics of VRE sources such as solar and wind, reflect the increased importance of power and end-use sector coupling and electrification, and explore potential disruptive innovations like demand side flexibility and battery storage. New trends include the representation of higher temporal and spatial granularity within models, better data analysis, and the increased use of suites of modelling tools.

This campaign aims to identify the cutting-edge energy scenario modelling tools and methodologies that are emerging, the policy applications of these solutions, and how they can enhance the quality of clean energy transition planning, particularly towards high shares of VRE.

(3) Identify channels to build and enhance capacity for clean energy transition planning

Many CEM countries have been using model-based energy scenarios as a tool to guide policy debates and decision making under uncertainty. However the ways that such capacity has been set-up vary significantly across countries. At the same time, more and more CEM countries aim to share their experience with clean energy transition planning using model-based energy scenarios, and key lessons are emerging from the support of other countries with limited experience. New initiatives are emerging to establish platforms to exchange best practices and provide the opportunity for peer-to-peer learning among governments and international organizations.

This campaign aims to identify different modality of building and enhancing governments' capacity in clean energy transition planning using model-based energy scenarios within the CEM countries and sharing it beyond.

Summary by type of proposed activities and deliverables

(timeframe to be decided – the campaign is intended to be multi-annual)

The campaign will be executed through a series of workshops and other political events around the three themes discussed above. Partnerships are being actively sought out to support the campaign. Both dedicated thematic workshops as well as side-events at the margins of existing partner events are expected to be held on a collaborative basis. Each event is organized around dialogues among the participants based on pre-defined set of questions, and address one or some of the workshop themes depending on the types of participants.

Workshop themes

(1) To exchange country experience in the use and benefits of long-term energy scenarios for the clean energy transition.

The campaign will establish a network of government planning offices and regional energy institutions, and workshop(s) will be organized to provide them with platforms to identify best practices in the use of long-term energy scenarios for policy making. The focus will be on those scenarios developed and owned by governments for clean energy transition planning purposes. The workshops will discuss issues that are linked with both the development and application of scenarios. In terms of development, the workshop aims to identify areas of improvement in current modelling practice, particularly with respect to tracking end-use sectors and integrating sector coupling. On the application of scenarios, particular focus will be given to the process for deriving policy recommendations from scenario results. It will also address the different institutional frameworks in which scenarios are developed, and their impacts on the effectiveness on deriving policy recommendations.

One key sub-theme is the benefit of regionally coordinated energy planning, particularly regarding interconnectors and how they can facilitate integration of variable renewable energy in power systems.

Key topics to be discussed include:

- Evaluation of strengths and weaknesses of existing energy planning tools for energy transition scenario and policy support
- Development of long-term energy scenarios
- Policy development and priority setting based on scenario results
- Monitoring process

- Regional planning process – development of long-term energy scenarios
- Regional planning process – drawing policy recommendations from scenario results
- Improving regional cooperation for better integration of renewables, power trading, and generation adequacy?

(2) Private sector perspective on long-term energy scenarios

One of the key components of the campaign is private sector engagement. Potential workshops in this area will bring together key private sector players to discuss the role of long-term energy scenarios in shaping private sector investment. The workshops will address in particular how such scenarios are used to understand investment risks, opportunities, and decision making. Roles of different institutions (government, international organizations, academic institutions, private sector etc.) in developing scenarios will also be discussed.

Two main topics to be discussed include:

- How do investors approach long-term uncertainty in energy markets and its impacts on their business, especially carbon risks in their investment portfolio?
- How are long-term energy scenarios used in the private sector to assess uncertainty and business opportunities? How can policy roadmaps make decarbonization scenarios more credible for investors?

(3) To identify the critical synergies and gaps to support capacity building for planning the clean energy transition

The workshops will be organized to provide fora to discuss and identify different modalities of building and enhancing capacity related to modelling tools for clean transition planning and the lessons learnt from these country experiences. Special attention is given to various modes of institutional relationships between scenario developers and scenario users, especially policy makers. The workshops also aim to discuss how the lessons learnt can be shared with countries with limited experiences, and to stock-take ongoing initiatives, available modes of support.

The workshops will draw on recent initiatives such as round table discussions on energy planning (UK DFID), the Energy Modelling Platform for Africa (UNECA), and the Energy Planners Forum for Latin America (UN-ECLAC).

(4) To identify innovative planning tools and methods to develop long-term energy scenarios

The campaign will establish a network of leading scenario development experts and organize technical workshops to discuss innovative planning tools, methods, and policy application examples specifically designed to address clean energy transition. The focus will be on identifying the gaps in current scenario approaches in exploring deep decarbonization pathways with renewables, including the integration of variable renewables in power systems, the additional integration of other end-use sector solutions, and assessment of behavioral change due to potentially disruptive innovations enabled by digitalization trends, among others. The campaign also aims to identify new and innovative modelling and scenario approaches that address these issues.

(5) Global stock taking of existing national, regional, global scenarios

Under this workshop theme, the aim is to take stock of existing national, regional, and global scenarios for the clean energy transition, and the insights that can be derived for policy making.

Partnership with existing initiatives is particularly key for this theme. Potential partners include the IEW community; ESTAP community, 2050 pathways platform, Climate Watch (WRI), IPCC, IDDRI, E3G, Agora Energiwende, among others.

High-level meetings:

(1) CEM 10: Event on the sidelines of CEM 10

This campaign is intended to play a role in the high-level section of CEM 10, through a preliminary discussion of results at a high-level public-private roundtable and at a technical side event (to be specified).

Reports:

(1) Planning clean energy transitions with long-term energy scenarios: Best practices and challenges

The report will assess the use of long-term model-based energy scenarios for clean energy transition in CEM countries, based on survey results and workshop discussions, and will identify best practices and challenges.

(2) Catalogue of innovative planning tools and methods

This catalogue will be prepared based on the workshops and additional inputs from IRENA's engagement with the modelling community. The catalogue will be featured in IRENA's ongoing project to develop an analytical framework focused on energy transition assessment through the development of a toolkit to support countries in planning for an increased share of renewable energy.

(3) Private sectors perspective on the use of long-term energy scenarios

This report will summarize the key findings from the dialogue at Workshop 2.

Time line for the first year

A series of sessions at relevant workshops and conferences are organized to discuss the issues related to use and development of scenarios for clean energy transition. Below are the confirmed and potential events which can host the CEM campaign sessions. In addition, state participants are encouraged to organize in-country workshops.

June 2018: Fifth RGI future scenario exchange workshop organized by Renewable Grid Initiatives and hosted by ENTSO-E Headquarters (Belgium)

- A session on "Modelling the clean energy transition – Clean Energy Ministerial campaign on long-term scenarios"
- Target group: NGOs, TSOs

June 2018: The 37th Edition of International Energy Workshop hosted by Charmers university (Sweden)

- A side event on "Renewable energy and the future of long-term energy scenarios: Emerging practices and channels for policy impact"
- Target group: Energy modelers

July 2018: Workshop on the Exchange of Experience with the Modelling of Energy Systems for Planning Purposes organized by International Atomic Energy Agency and hosted by Energy Institute Hrvoje Pozar (Croatia)

- Sessions on "Solutions to Analytical Challenges and Improving Analysis in Member States" and on "Relevance of Energy Systems Analysis for Policy in Member States"

September 2018: IRENA Innovation Week 2018

- *A side event on "Innovations and the future energy system: What's missing in today's long-term scenarios?"*

October 2018: The first International Forum on Energy Transition at Suzhou city (China)

- *A workshop "China Power System Modeling Workshop: Enabling Transformation" jointly organized with 21st Century Power Partnership*

November 2018: The Energy Technology Systems Analysis Program (ETSAP) workshop (Stuttgart)

November 2018: Global Science, Technology & Innovation Conference organized by VITO (Belgium)

- A session on "practical examples and the impact of the application of long-term energy scenarios, and their better use/development"

December 2018: CEM LTES meeting (Rio de Janeiro – TBC)

December 2018: REmap/LTES event in Germany (Berlin - TBC)

January 2018: World Future Energy Summit (UAE)

March 2019: Forum on Scenarios for Climate and Societal Futures hosted at University of Denver (USA)

- A session on "deep renewable decarbonization: how can we improve scenarios for clean energy transition?"

March/April 2019: CEM campaign workshop hosted by IRENA (Germany)

- Three-day workshop that brings the CEM campaign members as well as technical institutions together
- Finalization of the inputs to the roundtable discussion at the CEM ministerial meeting

April 2019: Berlin Energy Transition Dialogue (Germany)

May 2019: Roundtable discussion at the CEM ministerial meeting

- Presentation of the findings (best practices and recommendations on the use and development of scenarios for clean energy transition) from the first year

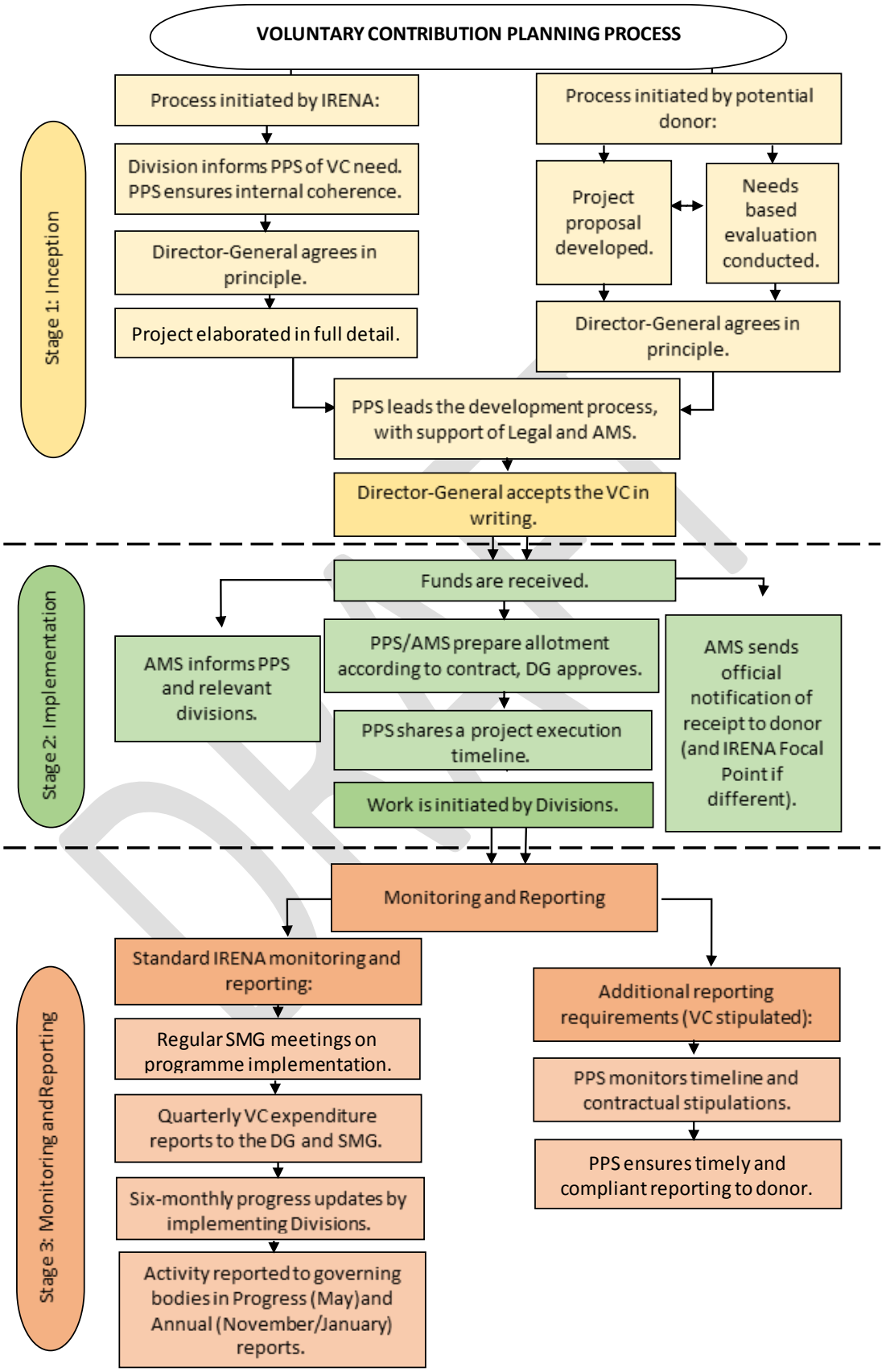
Annex 13: IRENA Work Planning, Monitoring and Reporting

Effectiveness and impact are key underpinnings of all IRENA programmatic activities. The new structure for Work Programme and related reporting was developed in 2018 to align the programmatic cycles with the Medium-Term Strategy, thus clarify the focus and direction of IRENA's overall work and allow for systematic measurement of progress and evaluation of impact.

The Agency's resources comprise core assessed resources, core non-assessed and other voluntary contributions. To retain strategic coherence, management of all streams of funding is aligned and brought under the unified system; programmatically, managerially and administratively. The implementation of all activities is guided by the Director-General and the Senior Management Team (SMG). SMG holds annual retreats, normally after the Assembly session, to plan for the upcoming year. SMG also meets regularly in the course of the year, for routine review of the programme implementation as well as on specific topics as needed. Divisional directors hold monthly coordination meetings, and separate monthly voluntary contributions related meetings. Given the increase in voluntary contributions, the Planning and Programme Support unit was established in 2016. The Unit Director reports directly to the Director-General and ensures substantive coherence of VCs and their alignment with the MTS and biennial work programmes. PPS provides weekly updates on VCs to Directors and quarterly updates to the DG and SMG.

Resources for implementation of programmatic activities (Work Programme and VC-related) are allotted to responsible divisions by the Director-General. Divisions are responsible for projectising of resources allotted to them and accountable for achievement of set goals and priorities at the divisional level. The DG and Divisions are provided with monthly overviews of their expenditures to monitor progress and alert of any issues that may arise.

Below flow chart maps out institutional processes in relation to voluntary contributions.


VOLUNTARY CONTRIBUTION PLANNING PROCESS
Stage 1: Inception
Process initiated by IRENA:
Division informs PPS of VC need. PPS ensures internal coherence.
Director-General agrees in principle.
Project elaborated in full detail.
Process initiated by potential donor:
Project proposal developed.
Needs based evaluation conducted.
Director-General agrees in principle.
PPS leads the development process, with support of Legal and AMS.
Director-General accepts the VC in writing.
Stage 2: Implementation
Funds are received.
AMS informs PPS and relevant divisions.
PPS/AMS prepare allotment according to contract, DG approves.
PPS shares a project execution timeline.
Work is initiated by Divisions.
AMS sends official notification of receipt to donor (and IRENA Focal Point if different).
Stage 3: Monitoring and Reporting
Monitoring and Reporting
Standard IRENA monitoring and reporting:
Regular SMG meetings on programme implementation.
Quarterly VC expenditure reports to the DG and SMG.
Six-monthly progress updates by implementing Divisions.
Activity reported to governing bodies in Progress (May) and Annual (November/January) reports.
Additional reporting requirements (VC stipulated):
PPS monitors timeline and contractual stipulations.
PPS ensures timely and compliant reporting to donor.

Annex 14: Joint Statement of the First Dialogue Between the ASEAN Ministers on Energy Meeting and IRENA

IRENA
International Renewable Energy Agency

ASEAN 50
PHILIPPINES 2017
PARTNERING FOR CHANGE, ENGAGING THE WORLD

Pasay City, the Philippines
28 September 2017

JOINT STATEMENT OF THE FIRST DIALOGUE BETWEEN THE ASEAN MINISTERS ON ENERGY MEETING AND INTERNATIONAL RENEWABLE ENERGY AGENCY

1. The First Dialogue between the ASEAN Ministers on Energy Meeting (AMEM) and the International Renewable Energy Agency (IRENA) was held on 28 September 2017 in Pasay City, the Philippines, during the 35th AMEM and its Associated Meetings from 25-29 September 2017. H.E. Alfonso G. Cusi, Secretary of Energy of the Philippines on behalf of the AMEM Chaired the Meeting and co-chaired by Mr. Adnan Z. Amin, Director-General of IRENA.

2. H.E. Alfonso G. Cusi, Secretary of the Department of Energy of the Philippines officiated the first AMEM-IRENA Dialogue and highlighted the importance of the first Dialogue in charting out the commitment of ASEAN's target for increasing its renewable share to 23% by 2025. He emphasised the importance of Research and Innovation in achieving the target and the collaboration with IRENA is timely in providing better and more sustainable energy for the people.

3. Mr. Adnan Z. Amin, Director-General of IRENA welcomed the convening of this first AMEM-IRENA Dialogue as a valuable opportunity to strengthening long-term cooperation between ASEAN and IRENA with a view to scaling-up renewables in the ASEAN region. Mr. Amin underlined that the region possessed abundant renewable energy resources which could be harnessed to assist the region in fuelling economic growth, meeting growing energy demand, achieving greater energy security and meeting climate objectives. The Director-General emphasized that the Agency stood ready to work closely with ASEAN and support its efforts to meets its regional aspirational target and accelerate its transition to a sustainable energy future which is both technically feasible and economically attractive.

4. The Ministers recognised that IRENA is the global intergovernmental organisation mandated to promote the widespread and increased adoption and sustainable use of all forms of renewable energy, and that it supports countries in their transition to a sustainable energy future, serves as the principal platform for international cooperation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy.

5. The Ministers thanked IRENA for the strong collaboration that has been made in the past in promoting and disseminating policies and measures on renewable energy in the ASEAN region through various activities such as joint study and capacity building between IRENA and the ASEAN Centre for Energy (ACE) on Renewable Energy Outlook for ASEAN - a REmap Analysis.

6. The Ministers and the Director-General of IRENA agreed that advancing the energy transition towards a low-carbon, clean, secure, affordable and sustainable energy future for ASEAN, through a reduction in energy intensity and an increase in the deployment of renewable energy options, would yield significant benefits for ASEAN, in terms of improved energy independence and enhanced the climate resilience, and bring long-term societal and economic prospects.

7. The Ministers and the Director-General of IRENA also agreed that an ASEAN-wide aspirational renewable energy target can serve to escalate investments in renewable energy systems in the ASEAN Member States (AMS), and facilitate the integration of energy infrastructure and markets at the regional level.

8. The Ministers and the Director-General of IRENA recognised that establishing a strategic partnership on renewable energy development between ASEAN and IRENA is very important and that it would help drive policies and efforts for realising the sustained growth of renewable energy for energy security and environmental sustainability in the ASEAN region.

9. The Ministers and the Director-General of IRENA agreed to pursue and deepen this dialogue through strategic actions in promoting and supporting the development of policies and measures for renewable energy.

10. With this, the Ministers and the Director-General of IRENA agreed to undertake the following cooperation:

    - To continue and enhance co-operation with a view to advancing the energy transition towards a low-carbon, clean, secure, affordable and sustainable energy future for ASEAN through strategic actions in promoting and supporting the development of renewable energy sources;

    - To develop a Memorandum of Understanding (MoU) on the long-term co-operation between ASEAN and IRENA to support the realisation of the APAEC 2016-2025, and to facilitate the regional energy transition process of scaling up renewable energy deployment in ASEAN;

    - To institutionalise regular high-level dialogues between ASEAN and IRENA through the platform of the ASEAN Ministers on Energy Meeting (AMEM) and the ASEAN Senior Officials Meeting on Energy (SOME); and

    - To establish close collaboration with Renewable Energy Sub-sector Network (RE-SSN), focusing on specific initiatives with respect to renewable energy planning or roadmap development, system integration, innovation, renewable energy costing, project facilitation and financing, as well as social and economic benefits in line with IRENA's work programme and the actions undertaken by RE-SSN taking reference from the Renewable Energy Outlook for ASEAN - a REmap Analysis

11. The two sides expressed their sincerest gratitude and appreciation to the Government and people of the Philippines for the warm hospitality accorded to the delegations and the excellent arrangements made.

12. The Ministers of the ASEAN Member States and the Director General of IRENA agreed to convene the next AMEM-IRENA Dialogue in Singapore in 2018.

Annex 15: Secondment of Danish Advisor, Budget Details and Draft Job Description

Under especially Outcome 1 expert capacity is needed to support the outputs on scenario development, energy systems modelling and power sector transition planning and in particular to maximize synergies and complementary activities to the Danish bilateral work on long-term planning and solid energy scenarios in the Danish Energy Partnership Programme (DEPP) implemented by the Danish Energy Agency (DEA) in a number of the largest emerging economies. IRENA would like to have the services of a Danish expert for the duration of the project, funded through this Voluntary Contribution, in line with the Secondment policy as adopted by the Assembly in decision A/2/DC/5.

This expert will partly provide the technical expertise to launch, build, operate models and other tools as well as interpretation of results and their communication through means of documents, presentations or otherwise. The expert will have a proven track record in this field and be overall familiar with the tools or similar tools as those being deployed in the project. Furthermore, the expert will have solid knowledge about the Danish Energy Partnership Programme (DEPP) implemented by the Danish Energy Agency (DEA). The expert will also contribute to the activities of the project as a whole to ensure consistency and synergies among the different components.

The post will be advertised by the Ministry of Foreign Affairs of Denmark (MFA) on its website under vacancies in international organisations: http://um.dk/da/om-os/Stillinger/ledige-stillinger. The MFA together with MEUC and in liaison with DEA will undertake pre-screening of candidates and make a short list that will be endorsed by the Steering Committee. The final selection will be made by the IRENA Director General.

Estimated budget[43]

	2019	**2020**	**2021**	**Total**
Salary	620,000	620,000	620,000	1,860,000
Post adjustment	180,000	180,000	180,000	540,000
Assignment and repatriation	95,000		95,000	190,000
Unforeseen expenses	64,000	64,000	64,000	192,000
Total (DKK)	**959,000**	**864,000**	**959,000**	**2,782,000**

[43] Estimated based on UN Salary scale and associated costs as at September 2018.

Draft Job Description

Analyst, renewable energy scenarios and roadmaps (P3)
(Bonn, Germany; maximum three years)

To contribute to the project on long-term planning, the analyst will:

- Contribute to develop and enhance energy and power systems modelling tools for ASEAN region and countries.
- Contribute to the development of the ASEAN and country outlooks.
- Assess established and emerging renewable energy technology options in terms of potential, cost and relevant economic and environmental impact.
- Assist in further development of Energy Transformation toolbox for renewable energy and energy efficiency analysis.
- Assist in the South-South capacity building for energy systems and power sector planning for energy transition.
- Be responsible for maximizing synergies and complementary activities to the Danish bilateral work on long-term planning and solid energy scenarios in the Danish Energy Partnership Programme (DEPP) and other programmes implemented by the Danish Energy Agency (DEA) in a number of the largest emerging economies and liaise with the Danish Ministry of Energy Utilities and Climate (MEUC) and the Danish Ministry of Foreign Affairs (MFA) on the project's contribution to the CEM campaign and its inputs to the 2019 UNSG Climate summit, as well as to ensure synergies with other Danish supported international initiatives and programmes, such as the International Energy Agency (IEA), the World Bank energy programme ESMAP, the Copenhagen Centre on Energy Efficiency (CCEE) and the UNEP DTU Partnership (UDP).
- Contribute to the dialogue with governments and other stakeholders for development of scenarios and roadmaps.
- Contribute to link the analytical outputs to the clean energy investment agenda.
- Prepare various written outputs and other materials to support the analysis and contribute to the outreach activities.
- Provide substantive support to consultative and other meetings, conferences, including preparation of documents and presentations.
- Performs other duties as required.

Competences:

Professionalism: Shows pride in work and in achievements; demonstrates professional competence and mastery of subject matter; is conscientious and efficient in meeting commitments, observing deadlines and achieving results; shows persistence when faced with difficult problems or challenges; remains calm in stressful situations.

Communication: Speaks and writes clearly and effectively; listens to others, correctly interprets messages from others and responds appropriately; asks questions to clarify and exhibits interest in having two-way communication; tailors language, tone, style and format to match audience; demonstrates openness in sharing information and keeping people informed.

Teamwork: Works collaboratively with colleagues to achieve organizational goals; solicits input by genuinely valuing others' ideas and expertise; is willing to learn from others; places team agenda before personal agenda; supports and acts in accordance with final group decision, even when such decisions may not entirely reflect own position; shares credit for team accomplishments and accepts joint responsibility for team shortcomings.
Accountability: Stands accountable for the accuracy and completeness of information under his/her control and handling of the information in a discreet and confidential manner; takes ownership for all responsibilities and honour commitments; delivers outputs for which one has responsibility within prescribed time, cost and quality standards; supports subordinates, provides oversight and takes ownership of delegated responsibilities and authorities; takes personal responsibility for his/her own shortcomings and those of the work unit, where applicable; operates in compliance with organizational regulations and rules.
Planning and Organising: Develops clear goals that are consistent with agreed strategies; identifies priority activities and assignments; adjusts priorities as required; allocates appropriate amount of time and resources for completing work; foresees risks and allows for contingencies when planning; monitors and adjusts plans and actions as necessary; uses time efficiently.
Client Orientation: Considers all those to whom services are provided to be "clients" and seeks to see things from clients' point of view; establishes and maintains productive partnerships with clients by gaining their trust and respect; identifies clients' needs and matches them to appropriate solutions; monitors on going developments inside and outside the clients' environment to keep informed and anticipate problems; keeps clients informed.

Qualifications:
Education: Advanced University degree (Master's degree or equivalent) in energy planning, economics, engineering, or other relevant field related to the development of energy scenarios and modelling and political implementation of long-term energy planning. A first-level university degree in combination with qualifying experience may be accepted in lieu of the advanced university degree. Understanding of technology and policy issues related to energy transitions in both power and end-use sectors in terms of integration of renewable energy. Experience and/or knowledge of energy systems modelling and scenario development, including the use of different models (LEAP, MAED, MESSAGE, TIMES-MARKAL, BALMOREL, PLEXOS, etc.) is an advantage. Knowledge of energy efficiency in general would also be an advantage.
Experience: Proven track record and a minimum of five years of experience in energy analysis, modelling, renewable energy deployment and grid integration, or energy efficiency. Strong knowledge of Danish energy policies, strategies and methodologies and understanding of the Danish energy sector and model. Knowledge of the Danish best practice on long-term planning and international energy partnerships as a part of the Danish Energy Partnership Programme (DEPP) implemented by the Danish Energy Agency (DEA). Ability to develop and sustain a constructive dialogue with stakeholders, ability to deliver under high pressure in a rapidly changing policy environment. In-depth knowledge of the methodologies for preparing and implementing national energy policies, strategies and action plans. A good network to support national analyses and knowledge of global renewable energy and climate change issues.
Language: Excellent command of written and spoken English is required. Knowledge of other languages is desirable.

---000---