SDG7 Energy Compact of [Ministry of Water, Irrigation and Energy of Ethiopia]
A next Decade Action Agenda to advance SDG7 on sustainable energy for all, in line with the goals of the Paris Agreement on Climate Change

SECTION 1: AMBITION

1.1. Ambitions to achieve SDG7 by 2030. ***[Based on National Ten Year Development Plan, NDC Plan and National Electrification Program)***

☐ **7.1.** By 2030, ensure universal access to affordable, reliable and modern energy services. 7.1.a Universal Electricity Access	Baseline 47% Target(s): ***100%*** Time frame: ***2021-2030*** Context for the ambition(s): **Through a full-fledged sector wide integrated grid and off-grid electricity access program, Ethiopia aims at achieving universal access to electricity services by 2030 and becoming a renewable energy hub in Eastern Africa.**	
7.1.b Clean cooking biogas technology	Baseline: 33,000 Biogas digesters Target(s): 98***,000 Biogas digesters*** Time frame: ***2021-2030*** Context for the ambition(s): **This biogas dissemination target will be achieved through National Biogas Program in the Country.**	
7.1.C Dissemination of improved cook - stove	Baseline: 10 million improved cookstoves Target(s): 20 ***million improved cookstoves*** Time frame: ***2021-2030*** Context for the ambition(s): **This target will be achieved by developing and demonstrating improved cookstoves with 30% higher efficiency and 80% less household air pollution compared to existing improved cookstoves.**	

☐ **7.2.** By 2030, increase substantially the share of renewable energy in the global energy mix. • Increase hydropower Generation capacity (MW) • increase other renewable energy capacity (MW)	Baseline: 4,129 MW Target(s): 14,436 MW Time frame: **2021-2030** Baseline: 349 MW Target(s): 5,464 MW Time frame: **2021-2030** Context for the ambition(s): **In the coming 10 years it is planned to increase a significant new renewable energy resources (geothermal, wind, solar, and biomass) in addition to hydropower. This will diversify the renewable energy mix in the country and will reduce the hydropower dependency from 92% to 72.5%.**	
☐ **7.3.** By 2030, double the global rate of improvement in energy efficiency. 1. Reduce transmission and distribution loss 2. Increasing the no. of Private electric vehicles 3. Increasing the no of public electric transport, 4. Energy efficiency savings from Demand side management	Baseline: 19.6% Target(s): 12.5% Time frame: 2021-2030 Baseline: negligible Target(s): 148,000 Time frame: 2021-2030 Baseline: none (excluding electric railway, which is already functioning in the country) Target(s): 4,850 Time frame: 2021-2030 Context for the ambition(s): energy efficiency improvements will be attained by both in supply and demand side management through installation of energy efficient technologies and increasing productivity by installing efficient management system. Baseline: 2020: zero saving Target(s): 5,327 GWh (16% of total 32,756 GWh sales excluding export) Time frame: 2021-2030 Context for the ambition(s): the total energy savings from demand side management is calculated as a percentage of total energy use by 2030 in all customer groups namely; domestic, commercial, industry and street light customers.	
☐ **7.b.** By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services	Baseline: 19,746 km	

• Expand the transmission line (km) • Regional power export (GWH)	Target(s): 33, 497 Km Time frame:2021-2030 Context for the ambition(s): This is based on ten-year development plan. Baseline: 1,488 GWh Target(s): 6,942 GWh Time frame:2021-2030 Context for the ambition(s): It is planned to reduce carbon emission through provision of affordable and sustainable renewable energy to the Eastern African Countries.

1.2. Other ambitions in support of SDG7 by 2030 and net-zero emissions by 2050.

With our policy intervention, the energy sector plans to contribute less than 4% of the total CO2 emissions in the country by 2030 which is one of the lowest CO2 emitter in the world. Among energy consuming sectors the transport sector will also reduce the demand for petroleum through leapfrogging to green mobility solutions including e-mobility, railways and non-motorized transport.

Table 1 – GHG emission projections in BAU, unconditional and conditional pathways

Sector	BAU emission projection (Mt CO_2e)			Unconditional emission projection (Mt CO_2e)		Conditional emission projection (incl. unconditional) (Mt CO_2e)	
	2020	2025	2030	2025	2030	2025	2030
Energy	10.7	14.4	20.0	12.7	14.9	10.4	9.5
All Sectors TOTAL (Mt CO_2e)	**302.9**	**348.8**	**403.5**	**324.3**	**347.3**	**218.8**	**125.8**

Table 2–Sectoral emissions in the business-as-usual/BAU and mitigation potentials by sector and conditionality

Sector	BAU emission projection (Mt CO2e)		Unconditional mitigation potential (Mt CO2e) (Mt CO_2e)		Conditional mitigation potential (incl. unconditional) (Mt CO2e (incl. unconditional) (Mt CO_2e)	
	2025	2030	2025	2030	2025	2030
Energy	14.4	20.0	1.7	5.1	4.0	10.5
All Sectors TOTAL (Mt CO_2e)	**348.8**	**403.5**	**24.5**	**56.2**	**129.9**	**277.7**

SECTION 2: ACTIONS TO ACHIEVE THE AMBITION

2.1. Please add at least one key action for each of the elaborated ambition(s) from section 1. *[Please add rows as needed].*

2.1. National Electrification Program (NEP)	2021-2030
2.2 National Biogas Program	2021-2030
2.3 dissemination of improved cookstoves	2021-2030
2.4 diversify the share of renewable energy generation	2021-2030
2.5 Reduction of transmission and distribution loss	2021-2030
2.6 Energy savings from demand side management	2021-2030
2.7 Regional RE power export	2021-2030

SECTION 3: OUTCOMES

3.1. Please add at least one measurable and time-based outcome for **each** of the actions from section 2. *[Please add rows as needed].*

Outcome	***Date***
3.1. 96% of the population will get electric access through grid connection and 4% of the population through off-grid program. More than 24.3 million households will get access to electricity.	2030
3.2 A total of 98,000 biogas digesters will be installed in rural Ethiopia which is used of clean energy for cooking and lighting.	2030
3.3 As part of promoting clean cooking technologies around 10 million additional households will be using improved cook stoves.	2030
3.4 The renewable energy generation capacity is expected to be increased from the current 4.5GW to 19.9GW in 2030. The renewable energy resources mix (geothermal, wind, solar) will increase from 7% to 27% and hydropower portion will reduce from 92.8% to 72%.	2030
3.5 transmission and distribution technical and non-technical losses will be reduced to 12.5%. This will improve Power system reliability.	2030
3.6 Energy Saving from demand side management will be saved up to 16% of total electric sales (in GWh) in the country.	2030
3.7 the introduction of 148,000 new private electric vehicles will reduce the air pollution and GHG emission.	2030
3.8. the introduction of 4,850 Public electric transport including railways will reduce the air pollution and GHG emission.	2030

SECTION 4: REQUIRED RESOURCES AND SUPPORT

4.1. Please specify required finance and investments for **each** of the actions in section 2.

Actions	Investment required	Required support
4.1. National Electrification Program (NEP)	6.5 billion USD	5 billion USD
4.2 National biogas Program	65.5 million USD	5.9 million USD for technical assistance

4.3 dissemination of improved cookstoves	More than 2.0 million USD	I million USD for technical assistance
4.4 diversify the share of renewable energy generation including transmission and substation infrastructure	40 billion USD	5 million USD for capacity building and technical assistance
4.5 Reduction of transmission and distribution loss	Included in 4.1	
4.6 increase the share of private electric vehicles	Financed by MOT	Financial and Technical assistance will be considered
4.7. increase the share of Public electric transport including railways	Financed by MOT	Financial and Technical assistance will be considered

MOT= Ministry of Transport

Total committed contribution = USD 37.1 billion

4.2. [For countries only] In case support is required for the actions in section 2, please select from below and describe the required support and specify for which action.

[Examples of support for Member States could include: Access to low-cost affordable debt through strategic de-risking instruments, capacity building in data collection; development of integrated energy plans and energy transition pathways; technical assistance, etc.]

☒Financing	*Description* *From the total investment required for universal energy access more than 5 billion USD is a gap which required support.*
☐ In-Kind contribution	*Description*
☒ Technical Support	*Description* *We need technical support and capacity building for RE generation mix grid and process modernization, data collection, monitoring and verification for SDG Programs*
☐ Other/Please specify	*Description*

.SECTION 5: IMPACT 5.1

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5.1. Countries planned for implementation including number of people potentially impacted.

	Actions	*Impact*
5.1.1	*Achieving Universal Electric Access*	*24.3 million households will benefit from electric access. By balancing the efficiency and equity in access delivery will support the socio-economic growth and human development in the country.*
5.1.2	*National biogas Program*	*It will reduce biomass dependence and deforestation It will reduce indoor air pollution, it will benefit women and children to have more time and give opportunity for personal development by more time to engage in education and it will have positive health improvement*
5.1.3	*dissemination of improved cookstoves*	*It will reduce biomass dependence and deforestation. Similar impact as the biogas program*
5.1.4	*diversify the share of renewable energy generation.*	*Hydropower dependency will be reduced and the power sector climate change resiliency will be enhanced. All standby diesel generates replaced by RE contributing to GHG emission reduction*
5.1.5	*Reduction of transmission and distribution loss*	*The supply side energy efficiency will significantly improve the reliability and efficiency of the power sector*
5.1.6	*Energy efficiency savings from Demand side management*	*The demand side energy efficiency will improve the energy savings up to 16% of total sales in the country.*
5.1.7	*Increase the share of private electric vehicles*	*Contribute for the reduction of urban air pollution and GHG emission, it will reduce dependence on imported fossil fuel price fluctuation.*
5.1.8	*Increase the share of Public electric transport including railways*	*Contribute for the reduction of air pollution and GHG emission , it will contribute to enhanced availability of mass transport.*

5.2. Alignment with the 2030 Agenda for Sustainable Development – Please describe how each of the actions from section 2 impact advancing the SDGs by 2030.
[up to 500 words, please upload supporting strategy documents as needed]

5.2.1 National Electrification Program (NEP):

Electricity access is crucial for achieving almost all of the Sustainable Development Goals (SDGs), from its role in the eradication of poverty through advancements in health, education, water supply and industrialization to mitigating climate change. By 2030, Ethiopia aims at achieving universal access to electricity services and becoming a renewable energy hub in Eastern Africa. The current survey revealed that the electricity connection rate for the country in 2018 is of overall 44%, where 33% of access is provided through grid connection and 11% through off-grid. More than 60 million population is currently without access to an adequate and reliable source of electricity service. To solve this problem, the Government is committed and launched National Electrification Program (NEP) to achieve Universal Access by 2030 through grid and off-grid solutions to provide 24.3 million households. This program in addition to helping the socio-economic development of the country will contribute to reduction of global warming through avoiding deforestation. (NEP: 2 is attached)

5.2.2 Access to Clean Cooking Solutions

The National biogas program was launched in 2009. At the end of 2018 more than 14,000 biogas digesters had been installed in different parts of the country. Scaling up the dissemination of bio-digesters is one of the country's priority program and is included in the SDG action plan. Until 2025 it is planned to implement more than 35,000 biogas digesters to the rural households. By 2030 a total of 98,000 biogas digesters will be installed in rural Ethiopia which is used of clean energy for cooking and lighting as well as from use of bio-slurry as high value fertilizer.

Traditional biomass currently accounts for more than 80% of total primary energy in the Ethiopian households. The National Improved Cook Stove Program is one of the key components of the Climate Resilient Green Economy (CRGE) Strategy to reduce population dependence on biomass based fuels. As part of promoting clean cooking technologies more than 10 million improved cook stoves were distributed until 2018. In the coming 10 years there is a plan to distribute additional 10 million improved cookstove in the country.

5.2.3 Diversifying the Share of Renewable Energy

Ethiopia is blessed with an abundant clean and diversified renewable energy base: large and small hydro; solar, geothermal, wind and biomass. The country has become an outlier in the Eastern Africa Region with almost 98% of its generation coming from clean energy sources mainly hydropower. In the coming 10 years there is a plan to increase a significant new renewable energy resources (hydro, geothermal, wind, solar and sugar) that will be added until 2030. This will diversify the renewable energy mix in the country and will reduce the hydropower dependence

5.2.4 Increasing Energy Efficiency

The Sustainable Development Goal 7 call on countries to collectively double the rate of improvement in energy efficiency and technological progress and a shift away from energy intensive activities. The energy intensive level of primary energy (a ratio of energy supply to GDP) should be lower. A lower ratio indicates the less energy is used to produce one unit of output. When we see the Ethiopian rapid economic growth and transition to modern energy system and social demands will put pressure towards increasing energy intensity. So in the coming years, we will not expect the decreasing of energy intensity in the country. However, energy efficiency improvements are a lot both in supply and demand side management through installation of energy efficient technologies and increasing productivity by installing efficient management system.

As a supply side management;

A lot of activities are now implemented by the power sector to improve the quality of service. To mention some of the activities:

- *Implementation of ERP system.*
- *Implantation of electric network rehabilitation and expansion project in many towns including Addis Ababa.*
- *Installing distribution SCADA system.*
- *Establishment of GIS platform,*
- *Reduction of transmission and distribution technical and non-technical losses*
- *installation of smart energy meters, and technical service quality measured by SAIDI/SAIFI.*

From Demand side management:

The main intervention is to make energy use productive and efficient in major consuming sectors, namely; Domestic, commercial, industry and street lighting customers. The transport sector is treated separately.

5.3. Alignment with Paris Agreement and net-zero by 2050 - Please describe how each of the actions from section 2 align with the Paris Agreement and national NDCs (if applicable) and support the net-zero emissions by 2050.

[Please refer the above SECTION 1.2]

SECTION 6: MONITORING AND REPORTING

6.1. Please describe how you intend to track the progress of the proposed outcomes in section 3. Please also describe if you intend to use other existing reporting frameworks to track progress on the proposed outcomes.

The Energy Compact Proposal is aligned to Ethiopia's 10 Year Development Plan. The SDG targets including emission reductions and adaptive actions are monitored and verified through sector Key Performance indicators and MRV systems upon implementation of each activity in the context of the 10YDP. *The monitoring and reporting mechanism for Universal electric access is indicated in the NEP 2:0 Document.*

SECTION 7: GUIDING PRINCIPLES CHECKLIST

Please use the checklist below to validate that the proposed Energy Compact is aligned with the guiding principles.

I. Stepping up ambition and accelerating action - Increase contribution of and accelerate the implementation of the SDG7 targets in support of the 2030 Agenda for Sustainable Development for Paris Agreement

I. 1. Does the Energy Compact strengthen and/or add a target, commitment, policy, action related to SDG7 and its linkages to the other SDGs that results in a higher cumulative impact compared to existing frameworks?

☒Yes ☐No

I.2. Does the Energy Compact increase the geographical and/or sectoral coverage of SDG7 related efforts? ☒Yes ☐No

I.3. Does the Energy Compact consider inclusion of key priority issues towards achieving SDG7 by 2030 and the net-zero emission goal of the Paris Agreement by 2050 - as defied by latest global analysis and data including the outcome of the Technical Working Groups? ☒Yes ☐No

II. Alignment with the 2030 agenda on Sustainable Development Goals – Ensure coherence and alignment with SDG implementation plans and strategies by 2030 as well as national development plans and priorities.

II.1. Has the Energy Compact considered enabling actions of SDG7 to reach the other sustainable development goals by 2030? ☒Yes ☐No

II.2. Does the Energy Compact align with national, sectoral, and/or sub-national sustainable development strategies/plans, including SDG implementation plans/roadmaps? ☒Yes ☐No

II.3. Has the Energy Compact considered a timeframe in line with the Decade of Action? ☒Yes ☐No

III. Alignment with Paris Agreement and net-zero by 2050 - Ensure coherence and alignment with the Nationally Determined Contributions, long term net zero emission strategies.

III.1. Has the Energy Compact considered a timeframe in line with the net-zero goal of the Paris Agreement by 2050? ☒Yes ☐No

III.2. Has the Energy Compact considered energy-related targets and information in the updated/enhanced NDCs? ☒Yes ☐No

III.3. Has the Energy Compact considered alignment with reaching the net-zero emissions goal set by many countries by 2050? ☒Yes ☐No

IV. Leaving no one behind, strengthening inclusion, interlinkages, and synergies - Enabling the achievement of SDGs and just transition by reflecting interlinkages with other SDGs.

IV.1. Does the Energy Compact include socio-economic impacts of measures being considered? ☒Yes ☐No

IV.2. Does the Energy Compact identify steps towards an inclusive, just energy transition? ☒Yes ☐No

IV.3. Does the Energy Compact consider measures that address the needs of the most vulnerable groups (e.g. those impacted the most by energy transitions, lack of energy access)? ☒Yes ☐No

V. Feasibility and Robustness - Commitments and measures are technically sound, feasible, and verifiable based a set of objectives with specific performance indicators, baselines, targets and data sources as needed.

V.1. Is the information included in the Energy Compact based on updated quality data and sectoral assessments, with clear and transparent methodologies related to the proposed measures? ☒Yes ☐No

V.2. Has the Energy Compact considered inclusion of a set of SMART (specific, measurable, achievable, resource-based and time based) objectives? ☒Yes ☐No

V.3. Has the Energy Compact considered issues related to means of implementation to ensure feasibility of measures proposed (e.g. cost and financing strategy, technical assistant needs and partnerships, policy and regulatory gaps, data and technology)? ☒Yes ☐No

SECTION 8: ENERGY COMPACT GENERAL INFORMATION

8.1. Title/name of the Energy Compact

Ethiopian Renewable Energy Compact

8.2. Lead entity name (for joint Energy Compacts please list all parties and include, in parenthesis, its entity type, using entity type from below)

Ministry of Water, Irrigation and Energy

8.3. Lead entity type

☒ Government ☐ Local/Regional Government ☐ Multilateral body /Intergovernmental Organization

☐ Non-Governmental Organization (NGO) ☐ Civil Society organization/Youth ☐ Academic Institution /Scientific Community

☐ Private Sector ☐ Philanthropic Organization ☐ Other relevant actor

8.4. Contact Information

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8.5. Please select the geographical coverage of the Energy Compact

☒Africa ☐Asia and Pacific ☐Europe ☐Latin America and Caribbean ☐North America ☐West Asia ☐Global

8.6. Please select the Energy Compact thematic focus area(s)

☒ Energy Access ☒ Energy Transition ☒ Enabling SDGs through inclusive just Energy Transitions ☒ Innovation, Technology and Data ☒ Finance and Investment.

SECTION 9: ADDITIONAL INFORMATION (IF REQUIRED)

Please provide additional website link(s) on your Energy Compact, which may contain relevant key documents, photos, short video clips etc.

We have already sent the National Electrification Program (NEP 2:0) and the country NDC.