



EAST AFRICAN COMMUNITY

EAC Energy Security Policy Framework

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This energy security policy framework for the East African Community is intended to provide policy guidance towards better understanding, measurement, monitoring, evaluation and management of energy security risks and challenges in the energy sector of the region. The framework develops models for energy security monitoring, evaluation and management in the biomass, oil and gas and electricity sub-sectors through an approach for integrated overall energy security management. It employs both well-known energy security metrics, such as in the oil and gas sub-sector, as well as putting forth new dimensions to energy security management in the biomass and electricity sub-sectors. The framework proposes institutional framework both for the monitoring, evaluation and reporting functions for biomass, electricity and oil and gas supply security and the coordination of decisions and directives for overall energy security management and emergency responses. The energy security policy framework is not a binding policy document for the region but aims to provide the foundational policy framework so that the Partner States will take action to devise an energy security policy, strategy and action plan, along with institutionalization. The framework is developed based on consultative processes in the EAC Partner States.

EXECUTIVE SUMMARY

The EAC energy security policy framework focuses on putting forth an approach for conceptualizing, measuring, monitoring and managing energy security in the biomass, electricity and oil and gas sub-sectors. It further identifies the institutional and operational arrangements for ensuring energy security.

Biomass energy constitutes as the most dominant primary energy source in the EAC. In Burundi, over 90% of the population rely on firewood and charcoal as a source of cooking energy. Over 82% of urban and 34% of rural population of Kenya rely on charcoal, and firewood is a preferred source of cooking energy for 89% of the rural population. In Rwanda, 85% of the energy used is in the form of biomass, and over 88% of rural households rely on wood fuel as a major source of energy. All rural households and about 98% of urban households in Uganda rely on biomass energy for cooking. Similarly, wood energy accounts for 90% of Tanzania's overall energy supply, and 75% of cooking energy in Zanzibar. It is, therefore, apparent that ensuring the security of supply of biomass energy will remain a crucial challenge in the energy sector of the EAC.

Demand and supply conditions in the EAC indicate that Burundi faces a biomass energy (wood and charcoal) supply deficit ranging from 56%-155%. Kenya's deficit for wood biomass energy is at 70%, and a 122% charcoal deficit. Mainland Tanzania similarly has annual wood demand and supply imbalance and deficit of 19.5 million m³, or 20% deficit. In Zanzibar, assessments indicate a supply deficit of 10% for wood and 178% for charcoal. Uganda and Rwanda similarly faced deficits estimated at 69% and 29%, respectively. *Based on demand and supply conditions for fuel wood and charcoal in the EAC, and large deficits in available wood supply meeting current demand, the biomass energy sub-sector in the region is in a state of deepening energy insecurity.* Biomass energy experts in the Partner States identified numerous impacts of this energy insecurity, including in food and nutrition, health, rising energy costs and overall vulnerability of the population to scarcity. The energy security framework for biomass energy puts forth eleven dimensions in which action can restore the system back to greater sustainability and security. These are: forest fires and crime management; efficient conversion technologies adoption; improving forest productivity; resource stocking; expanding energy plantations; forest health; alternative biomass access; land use and climate change management; value chain organization and regulation; improving the efficiency of cooking technology and managing the effects of population and economic growth.

In the oil and gas sub-sector, based on 4.6% to 7.5% growth rates in the Partner States for the 2006-2030 period, forecasts for petroleum products demand show significant growth. Between 2015-2025, demand growth expectation stands at 16% in Kenya, 17% in Tanzania, 18% in Uganda and a relatively stable demand for Rwanda and Burundi at 0.2 and 0.1 million metric tons, respectively. Based on conservative economic growth rates of between 2.3% and 3.75% between 2005 and 2025, liquefied petroleum gas (LPG) demand growth expectation are 36% in Kenya, 50% in Tanzania, 94% in Uganda and 41% in Rwanda and Burundi. Based on the recent World Economic Outlook faster economic growth forecast, the demand for petroleum products and LPG is expected to grow faster. *Therefore, it is apparent that security of supply of oil and gas will be crucial to minimizing the impacts of energy insecurity.* The challenges of dependence on imported fuel, oil market volatility and impact, energy import and corridor security, energy use efficiency, pipeline and refining capacity, and strategic petroleum reserve capacity challenges require

policy attention. Actions are recommended in eleven dimensions based on the developed oil and gas supply security framework to restore oil and gas supplies security. These are: exploration and development of oil and gas; market volatility and political risks management; reducing import dependence; maritime and inland transit security; conversion technologies and efficiency; domestic production capacity; refinery and distribution networks; strategic petroleum reserves; fuel switching capacity; value chain organization and regulation and demand restraint measures.

Demand and supply conditions for electricity in the EAC indicates that the near-term energy prospects vary in the Partner States. With the implementation of planned energy sector projects through 2030 in Burundi, the energy deficit is expected to narrow, and transition to some supply capacity margin, which is expected to once again close in the 2025-2030 period, likely bringing energy deficits again. With the implementation of planned energy projects, including the 5,000+ MW generation expansion national initiative, Kenya is expected to acquire surplus capacity, particularly in the 2018-2020 period. Rwanda, with the implementation of generation expansion, can acquire better supply margin, however, in the current period the margin is narrow. Uganda is expected to have a similar experience as in Kenya, with power surplus through 2030. Tanzania's power supply margin relative to demand is expected to hold in the 2016-18 period. However, the margin is expected to narrow in the 2018-2020 period. These demand and supply conditions are, however, expected with implementation of generation expansion plans and growth of electricity demand as anticipated in the plans of Partner States.

Action in ten dimensions of the developed framework for supply security of electricity is called for to increase electricity system resilience and security. These are: fuel and resources input supply stability; diversity of generation technology and entities; generation adequacy; reduction in stranded power capacity; reduction in power not supplied; interconnection capacity; the cost of electricity; planning capacity; market organization and regulation; and demand side management, including energy efficiency.

To implement measures in the various dimensions of the framework for energy security policy for the EAC, institutionalizing the monitoring, evaluation, reporting, advising and decision-making functions is required. In the case of biomass energy, the Ministry in charge of energy is advised to create a desk to institutionalize the monitoring, evaluation and reporting functions by the identified pillars relevant for supply security of biomass. The framework recommends the setting-up of an Inter-Ministerial Committee for Biomass Energy Security, with Ministerial, agency head and authority executive level representation to coordinate decisions and issue directives to restore biomass energy security and address supply emergencies. The composition of the Committee is envisaged to include the Ministry mandated with upstream forest resource management, forest service (where available), specialized agencies/authority on forest/natural resources, the Ministry in charge of energy, and the energy sector regulator with an expanded mandate over downstream biomass energy supply regulation.

For oil and gas, the Ministry in charge of energy is advised to institutionalize tracking and reporting on oil and gas supply security based on the monitoring and evaluation dimensions identified. Related to decision coordination and issuance of directives related to supply security of oil and gas and emergency management, the adoption of the plan developed by EAC through the Petroleum Supply Emergency Plan (2008) is recommended. The Plan calls for the establishment of the Management of Energy Emergency

Teams (MEET), or to be named Inter-Ministerial Committee for Oil and Gas Supply Security, constituted by Ministries responsible for energy, finance trade, immigration, infrastructure, internal security, revenue authorities and EAC.

In the case of electricity supply security, monitoring, the Ministry in charge of energy is envisaged to undertake evaluation and reporting functions, as part of its mandate, through the establishment of a new desk, in tandem with similar functions for biomass and oil and gas supplies security. The identified electricity supply security monitoring and evaluation dimensions are recommended to guide the function. The institutional framework calls for the establishment of Committee for Electricity Supply Security, constituted by the Ministry in charge of energy, the sector regulator, and state generation, transmission and distribution entities, constituted by a Minister and executives of the relevant institutions.

Partner States, as a way forward, are advised to pursue:

1. Based on the regional energy security policy framework, *development of national energy security policy, strategy and laws* towards the development of a more resilient energy system that ensures biomass, electricity and oil and gas supplies security.
2. *Regional cooperation for energy security management* based on common challenges faced in biomass, electricity and oil and gas supply security, and shared policy opportunities to address them.
3. *Establish an institutional framework for energy security monitoring and evaluation, and for coordination of decisions and directives for energy security and emergency management.*
4. *Expand the mandate of energy sector regulator to encompass downstream biomass energy* to address the current state of unregulated downstream biomass value chain.
5. *Develop and strengthen national capacity in energy sector statistics and energy security monitoring database* based on the identified monitoring and evaluation indicators for biomass, electricity and oil and gas supply security.
6. *Engage development partners, donors, civil society organizations, regional and international partners, foundations and other partners to supplement national efforts in supporting policy, strategy and institutional and human capacity development and implementation of measures relevant for improving energy security.*

The EAC, as a way forward, is advised to support:

1. *Mainstreaming the EAC Energy Security Policy Framework into country policies, strategies and laws* as part of EAC mandate under the Treaty to pursue regional harmonization of policies in the energy sector.
2. *Mobilization of resources for the development of energy security policies, strategies and action plans in the Partner States* complementary to efforts at the country level.

3. *Capacity development to strengthen energy security monitoring and evaluation* in partnership with national, regional and international organizations.
4. *Development of regional energy security monitoring and reporting capacity at EAC* through strengthening energy statistics capacity in tandem with capacity development efforts in the Partner States.
5. *Regional harmonization of common standards and codes in relevant energy security pillar areas of biomass energy, electricity and oil and gas* in support of regional efforts for addressing common energy security challenges and the pursuit of regional mitigation opportunities.