

Working Paper: Industrial energy efficiency in Kenya and Uganda: A political economy review

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Industrial energy efficiency in Kenya and Uganda: A political economy review

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Abstract

It is well documented that energy efficiency can enhance the long-term sustainability of energy supply. Studies show that efficiency in energy management could enhance the sustainability of industrial activities and reduce operational costs within the industrial sector. However, in low- and middle- income countries, industrial energy efficiency regulations are challenging due to a lack of economic incentives, inadequate policy frameworks, the high upfront cost of advanced technologies, and other energy market features. Where there is an electricity supply shortage and problems with accessing infrastructure, it is politically difficult to make a case for the prioritisation of energy efficiency. This is because energy conservation as a policy and political agenda is hard to advance politically when energy access and supply are limited. Where it is taken up as a policy priority, implementation and enforcement can also be hindered by political–institutional barriers. This working paper uses political economy to examine efforts to promote industrial energy efficiency in Kenya and Uganda. The study demonstrates that, while supply-side crises often trigger a demand for energy efficiency, the pace and extent of policy adoption and implementation are primarily determined by the perceived legitimacy of the agenda by different interest groups and the political and technical capacity of institutions to monitor compliance. Building on this observation, we argue that the success of energy efficiency as a policy agenda depends on the ability of its proponents to build consensus among key stakeholders. As the Kenyan experience demonstrates, successful institutionalisation of industrial energy efficiency would require building an institutional platform with the intention of aligning interests around a shared understanding of the trade-offs and benefits. We also argue that, to reap its benefits, (industrial) energy efficiency needs to be an integral part of national energy security and its mandate should be embedded within the broader energy governance framework.

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1 Introduction

In low- and middle-income countries, where the ambition is to widen energy access and improve economic productivity, energy efficiency can play an important role in reducing cost and enhancing the long-term sustainability of supply (IPCC, 2014). To emphasise this potential, the International Energy Agency (IEA, 2018) refers to energy efficiency as 'the first fuel' of economic development. In the industrial sector, which comprises highly energy-intensive economic activities such as the production of cement, iron, and steel, energy efficiency is seen to play an important role in contributing towards countries' climate goals. Studies show that efficiency in energy management could increase the sustainability of industrial activities, enhance competitiveness, and reduce operational costs (Fuchs *et al.*, 2020). From the perspective of policymakers, these energy-saving potentials make the industrial sector a key stakeholder in improving national energy security (Santana and Bajay, 2016).

However, policies to regulate industrial energy efficiency are challenging to implement. Some note this is due to a lack of economic incentives and the high up-front cost of advanced technologies (Apeaning and Thollander, 2013; Olsthoorn *et al.*, 2017). Others identify market failures, such as inadequate policy frameworks and poor infrastructure (Kounetas and Tsekouras, 2008; Martin *et al.*, 2012). Fowle and Phadke (2017) observe that whether the benefits of energy efficiency can be realised depends on the quality of the electricity supply infrastructure and the complementarity of other energy market structures. Olsthoorn *et al.* (2017) organise the barriers to industrial energy efficiency at the micro and macro levels. At the micro level, the authors note that firms face technical and financial risks, economic uncertainties, and high transactional costs; at the macro level, they face distorted energy prices and limited overall capacity. Governments are therefore often advised to take a mixed policy approach and combine information diffusion with financial incentives (de la Rue du Can *et al.*, 2017; Ryan and Campbell, 2012; UNIDO, 2011). Furthermore, support for energy efficiency is not always straightforward. Where the empirical evidence regarding the benefits of energy efficiency is either limited or not so visible, it is politically difficult to make a case for the prioritisation of energy efficiency (de la Rue du Can *et al.*, 2017). Where energy supply is inadequate, efficiency is not usually a priority (Weldemariam *et al.*, 2016). Where it is taken up as a policy priority, efforts are often hindered by political–institutional barriers ranging from conflicting institutional incentives to diverging interests between different groups and departments (Langlois-Bertrand *et al.*, 2015).

This working paper reviews efforts to promote industrial energy efficiency in Kenya and Uganda. The paper aims to analyse how competing priorities, political–institutional barriers, and implementation challenges hamper efforts to regulate industrial energy efficiency. The study uses political economy as an analytical framework to offer a partial explanation as to why policies that are apparently desirable are difficult to implement (Barnett, 2014). This approach is taken to observe how policy actions and inactions are intermingled with political and economic considerations. Doing so allows exploring how institutions, actors, and interests shape policy decisions and their implementation. More specifically, we look into the decision making process involved in the articulation and adoption of policies (in this case, industrial energy efficiency regulation), the implementation of those policies (in this case, the operationalisation of the decisions), and the political economy that shapes the outcomes. Here, decision making refers to an actor's ability to incorporate diverse perspectives and identify a strategic course of action that balances economic, social, environmental, and political needs. This is a complex and interactive process that is influenced and shaped by actors and institutions with conflicting interests, competing ideas, and different bargaining power.

Once a decision has been made and policies have been adopted, implementation follows. Implementation refers to the series of activities by governments and others that (need to) take place to achieve the goals and objectives articulated through policy statements and decisions. Thus, it naturally follows from the previous domain (policy decision making) and is often carried out by a different set of actors and institutions. The translation of policies to programmes and actions involves a range of activities such as planning, resource mobilisation, inter-agency coordination, performance monitoring, and enforcement. However, implementing agencies also often face financial and human resources barriers, difficulties in coordinating activities across multiple agencies, and interference or opposition from powerful interest groups (Sabatier and Weible, 2007). A political economy account of (policy) implementation activities pays attention to how actors and institutions that represent different interests (incentives) influence the process and its outcomes.

The rest of the paper is organised as follows. Section 2 offers an overview of the events that trigger the need for industrial energy efficiency in Kenya and Uganda. Section 3 discusses the barriers to implementing industrial energy efficiency regulations in the two countries. Section 4 offers a discussion and a conclusion. The study demonstrates that, while supply-side crises trigger the demand for energy efficiency, the pace and extent of regulation implementation (i.e. operationalisation and enforcement) are primarily determined by the perceived legitimacy of the agenda and the political and technical capacity of

institutions to monitor compliance. We also argue that the success of energy efficiency as a policy agenda depends on the ability of its proponents to build consensus among key stakeholders and national priorities. In closing, the paper argues that, to reap its benefits, industrial energy efficiency needs to be an integral part of national energy security, with its mandate embedded within the broader energy governance framework. Furthermore, as the Kenyan experience demonstrates, successful institutionalisation of industrial energy efficiency would require building an institutional platform with the intention of aligning interests around a shared understanding of the trade-offs and benefits.

2 From energy crisis to energy efficiency

In Uganda, energy efficiency gained momentum when the country experienced chronic power shortages due to a prolonged drought that lowered the level of Lake Victoria, reducing the power generation capacity of hydroelectric facilities (Maweje *et al.*, 2013). This resulted in large-scale load shedding that lasted for many months, hurting the economy. To mitigate the deficits in supply, the government installed diesel-fuelled thermal power plants (Maweje *et al.*, 2013). Between 2006 and 2010, the contribution of thermal power plants to the overall supply increased by 180% (Maweje *et al.*, 2013). At the same time, the price of electricity increased by 115%, prompting the government to spend US\$ 50 million per year in operating costs to make electricity affordable to consumers (Heffner *et al.*, 2010). In Kenya, the drought that occurred between 1999 and 2002 triggered efforts towards energy efficiency and conservation. The drought drastically affected the hydropower generation capacity, resulting in a prolonged energy crisis with a devastating effect on the national economy. Reports show that the government was losing up to US\$ 70 million per month in revenues due to reduced industrial production and the high cost of renting thermal generators to meet demand (Eberhard *et al.*, 2018). This trend continued until 2009, at which point Kenya's dependence on emergency thermal generators increased to 290MW (Maweje *et al.*, 2013; Eberhard *et al.*, 2018).

In Uganda, with support from the World Bank, the government initiated several energy efficiency programmes. These initial efforts focused on demand-side management and control of the peak load. In 2006, lighting fixtures were distributed to households. In 2012, power factor correctors (PFC)¹ were distributed to large industries (Okoboi and Maweje, 2016). These initiatives delivered results. One study estimates that, by 2007, 30MW had been saved due to the distribution of lighting fixtures (Heffner *et al.*, 2010). Another study that investigated the impact of the power factor improvement scheme also estimates that, between 2013 and 2014, a total saving of 8.04 Mega Volt Amperes of demand (equivalent to 8.4MW of electricity) was achieved (Okoboi and Maweje, 2016). Furthermore, an energy audit programme that targeted energy-intensive industries was carried out by the Ministry of Energy and Mineral Development (MEMD), with support from GIZ (2015–17). The programme confirmed that energy management practices within the industrial sector could result in a 15% to 20% saving in electricity consumption (MEMD, 2015).

In the early 2000s, in Kenya, the response to the power crisis came from the Kenya Association of Manufacturers (KAM), with assistance from the Global Environment Facility (GEF) (Kiunga *et al.*, 2014). KAM is the representative organisation for manufacturing industries in Kenya. It was established in 1959 to represent and advocate its members' interests. The issue of improving energy efficiency within the manufacturing sector was therefore spearheaded by industries, specifically through KAM in collaboration with the Ministry of Energy and the Ministry of Industry and Trade (Kiptum, 2018). The GEF–KAM project Removal of Barriers to Energy Conservation and Efficiency in Small and Medium Enterprises (2001–06) kicked off this process and collaboration. From 2001 to 2006, the GEF–KAM programme provided support to the commercial and industrial sectors to improve their energy efficiency. In 2006, at the end of the project, the Centre for Energy Efficiency and Conservation (CEEC) was established. CEEC, which sits within KAM headquarters, manages activities to promote energy efficiency in close collaboration with, as well as annual budgetary support from, the Ministry of Energy (Kiunga *et al.*, 2014). CEEC was set up to help companies identify energy wastage processes, determine saving potential, and recommend measures to be implemented. Since its inception in 2006, the centre has helped KAM members implement the recommended energy-saving measures and, according to one study, this resulted in energy savings equivalent to 168MW by 2013 (Kiunga *et al.*, 2014).

¹ Power factor is the measure of how efficiently incoming power is used in an electrical installation. It is the ratio of active to apparent power. A poor power factor results in more current being required for the same amount of work. A PFC is an extra electrical equipment that improves the power factor, and therefore the power quality. It reduces the load on the electrical distribution system, increases energy efficiency, and decreases the likelihood of instability and failure of equipment.

In Uganda, early initiatives became the basis for developing industrial energy efficiency action plans, including the Energy Efficiency Strategy of Uganda (2010–20) (MEMD, 2009). The strategy outlined an intervention plan across all economic sectors—households, industry, commerce, and power transmission and distribution. The plan focused on five key areas of intervention: information distribution and awareness-raising; training and education; research and development; finance; and legislation. The strategy paved the way for establishing the Energy Efficiency and Conservation Department within MEMD and drafting the Energy Efficiency and Conservation Bill (2010) to provide the statutory basis needed to operationalise the strategy. The overall objective of the legislation was to provide a legal framework, institutional set-up, and regulatory mechanism to promote efficient utilisation of all forms of energy. The bill set out the institutional framework to improve the efficient utilisation of energy in all sectors, including industries. It included a plan to require industries to implement an energy management system (EnMS) that met international standards (ISO 50001). The EnMS, an automation system that collects, analyses, and processes energy data, was designed to help firms improve their energy performance continually. The bill also outlined a directive for industries to appoint an energy manager, conduct periodic energy audits, and report implemented measures. The draft bill identified the Department of Energy Efficiency and Conservation within MEMD as the principal executing agency responsible for creating awareness and monitoring compliance.

Various policies and legislation have also been developed to address energy efficiency in Kenya. Sessional Paper No. 4 (2004) was one of the early documents to outline objectives to promote energy efficiency by enhancing the provision of energy audits and the development of standards and codes of practice among industries. In 2012, the Energy Management Regulations were adopted to guide energy efficiency and conservation. More specifically, the regulation stipulated that industrial consumers using more than 180MWh equivalent of energy per year must develop an energy management policy for the facility and have it approved by both top management (the authorised decision making body in the facility) and the energy regulatory authority. It also required facilities to carry out energy audits once every three years and to implement at least 50% of the recommendations as stipulated in the energy audits. This was followed by the Energy Management Standards (2018), a document developed by the Kenya Bureau of Standards for efficiency performance measurement and verification standards.

3 Barriers to implementing industrial energy efficiency regulations

As noted earlier, implementation refers to the series of activities that translate, enact, and enforce policies and regulations. It naturally follows from the previous domain (policy decision making) but often with different institutions, actors, and interest groups in play. This usually depends on organisations' (ministries and regulatory authorities) capacity to act (e.g. technical, financial, operational). For this reason, implementation is process-oriented, interactive, and encompasses multiple goals and objectives over a long period of time. Success depends on the alignment of institutional arrangements, incentives, and resources. It is also a complicated process, and activities within this space face a wide range of barriers, including gaps in financial and human resources, difficulty coordinating across implementing agencies, and interference or opposition from powerful interest groups (Sabatier and Weible, 2007). In low- and middle income countries, as this study notes, when it comes to implementing industrial energy efficiency, agencies are often constrained by institutional arrangements that are not conducive to inter-agency coordination, insufficient technical capacity or a lack of political will.

The key barrier to industrial energy efficiency in Uganda has been the failure to adopt the Energy Efficiency and Conservation Bill (2010). Despite several rounds of reviews, and notwithstanding the Ministerial Cabinet's approval of its principles in 2016, the bill has never been officially endorsed. This failure to ratify the legislation has had a sobering effect on subsequent efforts to implement and institutionalise the practice of industrial energy efficiency. Failure to ratify meant that the National Energy Efficiency Strategy (2010–20) had to be shelved and MEMD had to abandon the plan to set up an Energy Efficiency and Conservation Fund designed to incentivise firms. Without a mandate to implement the National Energy Efficiency Strategy, the Department of Energy Efficiency has also not been able to fully exercise its duties or set up financing schemes as envisaged in the bill.

This failure to legally endorse the bill indicates a lack of consensus and diverging interests among the key stakeholders. At the time of writing this paper, the average tariff for residential customers was in US\$ 0.18/kWh; for industrial users, it is US\$ 0.15/kWh. The cost of electricity is an issue for industries. Industries argue the cost per unit negatively affects the cost of production, reduces industrial productivity, and renders most firms uncompetitive compared to their peers in the region (Maya, 2022). The political leadership led by the President shares the view that the cost of electricity impedes private sector growth in Uganda (Calabrese *et al.*, 2019; Maya, 2022). Concerned about the potential deterrent effect of high electricity tariffs on investment, President Yoweri Museveni has strongly advocates for the utility to reduce the tariff rate for industries, citing US\$ 0.05/kWh as the ideal price range (Meyer *et al.*, 2018). Such a rate is likely to be below the cost of generation.

Currently, there are no explicit policies in place or under discussion to achieve this rate for industries. The Ugandan Manufacturers Association (UMA) also strongly advocates for and actively lobbies the government to lower tariffs for large factories and industries (Natezza, 2021). UMA is an advocacy organisation for the industrial and manufacturing communities with a mission ‘to promote and protect the interests of industrialists and manufacturers in Uganda’. UMA advocates on behalf of its members in matters relating to policy, ranging from environmental regulation to taxation, the cost of doing business, and budgeting. It advises the government’s political and technical officials, including parliamentarians and ministers, on policies to foster a conducive business environment.

One key area where Kenya’s experience has diverged from that of Uganda is that, in Kenya, energy efficiency was championed and spearheaded by industries, specifically through KAM (Kiptum, 2018). CEEC continues to collaborate with the Ministry of Energy to promote energy efficiency. This close collaboration between the ministries and KAM has favourably influenced the status of energy efficiency within Kenya’s manufacturing sector. The association’s members also see this relationship between KAM and the government energy agencies favourably. A recent study shows that the industries advocate for the association (and CEEC) being involved in articulating energy efficiency plans and investment financing negotiations and arrangements (Energy and Petroleum Regulatory Authority (EPRA), 2020). One key difference between the two countries and their approach to industrial energy efficiency is thus that, in Kenya, key stakeholders were brought on board early on, which was followed by continued engagement. In Uganda, all activities were spearheaded by the Ministry of Energy, more specifically the Department of Energy Efficiency, with support from international development partners, leaving a limited role for other key stakeholders such as the Regulatory Authority and UMA.

Capacity is an essential aspect of the implementation of industrial energy efficiency policies and regulations. The technical capacity of regulating agencies is key to monitoring performance, enforcing compliance, and providing advice. Increased understanding of energy efficiency and the transmission of sound scientific and technical advice are essential for coherent institutional governance. In Kenya, the Energy Management Regulations (2012) required firms to carry out energy audits and submit their report with an energy management plan to the regulator within the first three years of the regulations being adopted (i.e. by 2015). Only 42% of firms complied during the first round of audits and reporting. Data from EPRA show that, of the 3,383 facilities classified as medium-energy and high-energy consumers, only 1,439 had conducted energy audits between 2013 and 2019 (EPRA, 2020). This lower level of compliance has been attributed to two factors: first, the lack of administrative capacity to enforce the regulation; and second, the Energy Management Regulations (2012) do not provide a strong legal instrument to deal with non-compliance. Another limitation is that there are not enough licensed energy auditors in the country. Currently, fewer than 80 experts have been licensed to practise as energy auditors. Similarly, although the regulation requires industries to appoint an energy officer, compliance has been difficult since few people are skilled in energy management. As a result, fewer than 1% of designated facilities currently have a licensed energy manager (Ministry of Energy, 2020).

In Uganda, a lack of skilled staff hinders compliance and uptake of energy auditing and management activities within industries. At the time of writing, there is no certification programme for energy auditors in Uganda, or for the accreditation of inspectors. According to the ministry (MEMD), there are only a few certified energy auditors, one certified energy manager, and no certified measurement and verification professional (MEMD, 2019). Government-sponsored energy audit programmes also did not result in increased uptake of energy management by industries. Of the 15 companies that were audited, only three took measures to improve their operational efficiency (de la Rue du Can *et al.*, 2017), while lack of confidence in the quality of the energy audits is often mentioned as a reason for the limited interest in participating in government-led energy audit programmes. Firms are often wary of these efforts due to general reluctance to disclose and share commercial and operational data with government agencies.

4 Discussion and conclusion

In Kenya in the early 2000s, as demand for electricity increased due to economic growth, industrialisation, and urbanisation, the gap between demand and supply, coupled with the high volatility of the hydropower plants, meant frequent power outages and increased dependence on imported fuel. Twenty years ago, Uganda also experienced a similar crisis due to a gap in demand and supply and periodic droughts that resulted in power shortages and impacted the economy. Hence, in Kenya and Uganda, (energy) crisis mitigation has been the main motivator for policymakers and industries’ interest in energy efficiency. However, since their respective crises, as noted in this paper, the two countries have taken different approaches to industrial energy efficiency.

Both Kenya and Uganda are currently revising their policy approach to industrial energy efficiency. In Kenya, the draft Energy (Energy Management) Regulations (2020) aim to address the limitations of the 2012 regulation. This revision follows the Energy Act (2019), which authorises EPRA to coordinate the implementation of national energy efficiency programmes and oversee the qualifications necessary for energy auditors and managers. The draft Energy (Energy Management) Regulations (2020) also address some of the shortcomings of the previous regulatory document (EPRA, 2012). For instance, the latest draft regulations broaden the definition of high-energy users by including power utilities, ensuring that energy conservation is a demand-side and supply-side responsibility. The draft policy document demands that high energy-consuming industries should designate an accredited energy manager (previously an energy officer), and makes the failure to do so an offence. It also sets out a plan to support the establishment of accredited Energy Service Companies (ESCOs). ESCOs are companies engaged in undertaking energy audits and the development, design, financing, and building of energy conservation projects, and whose compensation is directly linked to actual energy savings. ESCOs already exist and operate in Kenya. The proposed regulation provides guidance on the licensing of these entities (an accreditation process), bringing regulatory oversight and ensuring standards of service and legal protection for their clients. Should the draft regulation come into force, it will substantially improve the 2012 regulation. It will also create opportunities for those in the energy management sector, while improving the confidence of industries in the quality of the service they receive.

In Uganda, energy efficiency is now a subsection embedded within the draft National Energy Policy (2021). The draft policy document sets out a plan to promote energy efficiency across all sectors of the economy. However, for the most part, the details remain the same as in the Energy Efficiency Bill (2010). It proposes to promote commercial financing of demand-side management initiatives in industries and encourages high-energy consuming facilities to undertake regular energy audits. One significant shift from the earlier policy is that the current policy document no longer mandates industries to put an EnMS in place. Firms are no longer required to appoint an energy manager or conduct periodic energy audits and report on implemented measures to the government. Compared to Kenya, therefore, industrial energy efficiency in Uganda seems to have gone down, not up, as a policy priority. However, this is not to say that energy efficiency is no longer a policy issue. On the contrary, different ministries and departments continue to pursue the principle in their engagement with industries. One such example comes from our own research experience. As part of the ongoing engagement of the authors of this paper with public institutions in Uganda, and following our sharing of the findings from this research project, the Ministry of Finance, Planning and Economic Development included the iron and steel industry in its Sustainable Public Procurement National Action Plan with the objective of using the government's buying power to influence best practices in the sector.

One key reason for the divergence in policy progress in Kenya and Uganda is the lack of consensus between critical stakeholders due to conflicting interests and competing ideas. Where industrialisation ambitions influence countries' energy policies and national development strategies emphasise the linkages between economic activity and the need to increase the volume of energy, energy efficiency and conservation are rarely prioritised. For instance, the Uganda National Development Plan III (2020) notes that 'more needs to be done to increase industrial energy consumption' (National Planning Authority, 2020, p. 137). This ambition is not necessarily at odds with energy efficiency, and the National Development Plan is not suggesting that industries may waste energy or consume inefficiently. If anything, the statement reflects the national aspiration to achieve industrialisation-led economic transformation. However, in the absence of a commitment to improving efficiency in how industries use energy, such a statement underemphasises the environmental impact of industrialisation. This is not to say Uganda should not pursue industrialisation; however, while industrialisation may benefit economic growth, it will also lead to environmental degradation. Thus, to achieve structural transformation and sustainable development, there needs to be high-level commitment to improving energy efficiency and creating opportunities for leapfrogging or technology transfer in the industrial sector.

Where diverging interests and priorities drive institutions and actors, building consensus is not an easy task. In Uganda, influential stakeholders have diverging views on what needs to be prioritised in the energy sector. UMA and its influential members and high-level political leaders see reducing the cost of electricity as more of a priority than regulating the energy consumption of industries. On the other hand, the Kenyan experience demonstrates the importance of aligning interests and preferences among different stakeholders. In this regard, KAM and CEEC appear to play an essential role in facilitating and coordinating the dialogue between industries, ministries, and the energy regulator. The Kenyan experience highlights the vital mediating role other actors can play in building shared objectives to elevate and institutionalise industrial energy efficiency. This also demonstrates that there is a role for other actors—beyond industries and government regulatory agencies—to play in providing necessary evidence, facilitating access to finance, and enhancing agency capacity to monitor firms' compliance. At the same time, such actors (which may include research institutes, universities, and subnational or local authorities) could also

be empowered to play a role in creating space for collaboration and dialogue with an objective to build coalitions around shared interests.

For the most part, firms fail to invest in energy efficiency technology due to a lack of sector-specific codes/standards, the high upfront cost of energy audits and technologies, the lack of credible information to evaluate efficiency programmes, and concerns about disruption to daily operations. In response to these risks and limitations, there are a few steps policymakers can take. One is to foster the energy services market through ESCOs. Because ESCOs work on energy performance contracts where payments are linked to a firm's energy performance (i.e. no energy savings means no payment), the risk-sharing aspect should be attractive to industries (UNIDO, 2011). In Kenya, if the draft Energy Management Regulations (2020) are adopted, ESCOs are set to play a vital role in supporting industries' energy efficiency. However, besides energy audits and ESCOs, there are also other ways governments can create a conducive environment for industries to prioritise energy efficiency. One tool that policymakers in Kenya or elsewhere in Africa could potentially adopt to promote the uptake of energy efficiency by industrial firms is the energy efficiency revolving fund (EERF). EERF is a mechanism through which firms access public finance as a loan to cover the initial costs of energy efficiency projects and use some of the resulting energy savings to repay the loan over a period of time (Aditya, 2018). Furthermore, by developing a policy or a strategy plan regarding how to mitigate and address the risks of increasing greenhouse gas emissions from the industrial sector, governments can create an opportunity for industries to tap into global climate-related finance and funding mechanisms.

In closing, we note that the presence of an enabling statutory basis for establishing energy efficiency institutions is essential. Such legislation can enable the institutional frameworks and implementation arrangements to carry out energy efficiency interventions. Of course, such a statutory basis is itself rooted within the political economy dynamics of the country—and, therefore, its creation will require collaborations between public and private actors, for which Kenya's experience may provide a useful example. Furthermore, strengthening technical, managerial, and funding capacities is critical for ensuring policy coherence. Both Kenya and Uganda demonstrate that having the desire to improve industrial energy efficiency is not enough. It needs to be supported by agencies with the capacity and authority to manage the process—and financial assistance or incentives will be required to accelerate industrial adoption of energy efficiency. Third, and importantly, the alignment of interests and values among the key stakeholders involved is crucial. Energy efficiency initiatives need to be supported by high political commitment. This also means that industrial energy efficiency does not need to be seen as a hindrance to industrialisation. In other words, coherent governance on energy efficiency may require a redefinition of national interests in the light of energy security and climate change. At the policy level, energy efficiency needs to be an integral part of national energy security with a well-defined mandate embedded within the national energy governance. It would also mean building a robust governance framework for broader stakeholder engagement with the objective to build consensus and align interests around a shared understanding of the costs and benefits.

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