

Boosting African regional markets of highly efficient appliances through effective energy efficiency and trade policy

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Abstract

Policymakers in Africa are evaluating opportunities to improve the availability of affordable high efficiency products on their markets by implementing energy efficiency policy. In the Economic Community of West African States (ECOWAS), 5 of 15 member states are currently enhancing or implementing for the first time standards and labeling programs for major appliances. Under the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), some regional standards have been developed and agreed on by all member states. The Common Market for Eastern and Southern Africa (COMESA) is working on enhancing sustainable regional energy markets through the implementation of standards for widely traded appliances. At the Continental level, the African Union Commission (AUC), along with the EU Technical Assistance Facility, are working on “Guidelines for Minimum Energy Performance Standards, Energy Labeling and Eco-Design at the Continental Level”.¹

On the other hand, 49 out of 55 members of the African Union established the framework for the African Continental

Free Trade Area (AfCFTA).² As part of the agreement, countries have committed to removing tariffs on 90 % of goods.³ Such tariff reductions on intra-regional trade, along with regional standards harmonization, have led other markets to be dominated by products manufactured and traded within their regional borders. The intra-regional trade of room air conditioners in the Association of Southeast Asian Nations (ASEAN) has the potential to be a good example: a regional harmonization framework for room air conditioner standards in combination with a Common Effective Preferential Tariff among ASEAN members resulted in ASEAN countries importing 68 % of all room air conditioners from other ASEAN countries.

What if coupling proven energy efficiency policy tools with effective trade policy could reshape the regional market of highly efficient appliances in Africa? This paper evaluates the opportunity to boost the market of highly efficient appliances in Africa by leveraging regionally harmonized standards with an enhanced intra-regional trade facilitated by the AfCFTA.

1. RCREEE news release on the 1st Technical Meeting on “Guidelines for Minimum Energy Performance Standards (MEPS), Energy Labelling and Eco-Design at the Continental Level”, October 2018. <http://www.rcreee.org/content/rcreee-supports-1st-technical-meeting-%E2%80%9Cguidelines-minimum-energy-performance-standards-meps>.

2. To date, 52 countries have signed the AfCFTA Agreement with the exception of Nigeria and Zambia. “Nigeria is currently engaged in impact and readiness assessment for the AfCFTA following a 7-month nation-wide sensitisation and consultation exercise to assess the potential risks and benefits of signing the Agreement”. <https://www.tralac.org/documents/resources/faqs/2377-african-continental-free-trade-area-faqs-june-2018-update/file.html>.

3. Eligible products will need to comply with rules of origin in order to access preferential tariffs under the AfCFTA. It is not yet clear what rules of origin will be in place under the AfCFTA Rules of Origin Annex. <https://www.tralac.org/documents/resources/faqs/2377-african-continental-free-trade-area-faqs-june-2018-update/file.html>.

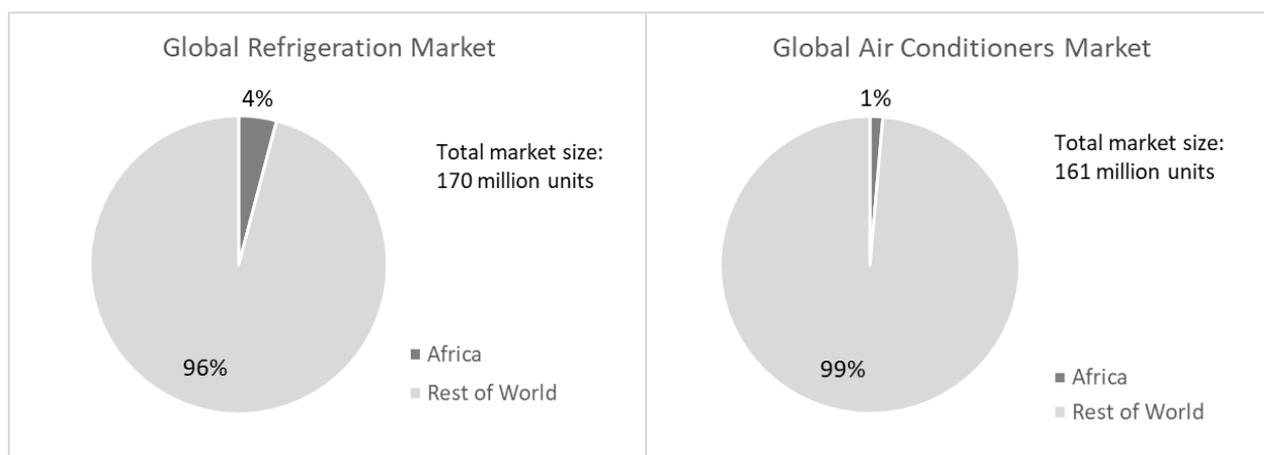


Figure 1. African market shares in the global air conditioners and refrigeration markets (EUROMONITOR. "Refrigeration Appliance Market Sizes." and "Air Conditioner Market Sizes." 2018).

Introduction

African countries import most, if not all, of their cooling equipment.⁴ Our analysis focuses on the cooling sector, especially room air conditioners, as Africa, and West Africa in particular, will lead the world in room air conditioner market growth through 2023.⁵ According to the IEA, cooling is the fastest growing end-use in buildings,⁶ due to warmer temperatures and increased population and economic growth.

For international appliance manufacturers, market size in a country is an important consideration, especially when import requirements include compliance with energy efficiency standards. Large markets like the EU or the US will drive manufacturers to redesign or improve components in order to comply with efficiency or other requirements, as their large scale makes any investment worthwhile. That is not the case for smaller markets, especially if there are particular requirements that will make compliance with the standard costly and where the investment by the manufacturer may not be recovered.

African markets represent a very small portion of the global market for air conditioners and refrigeration appliances, accounting for 1 % and 4 %, respectively (in volume), see Figure 1.⁷ African countries also rely mostly on imports from a handful of large trading partners.

This paper explores opportunities to boost the market share of high efficiency appliances in Africa by leveraging the benefits of a joint approach to energy efficiency and trade policy. We begin by providing an overview of energy efficiency policy in Africa, discussing current efforts to develop and implement standards and labelling (S&L) programs for cooling appliances (room air conditioners and refrigerators) in the region. We also highlight the risks to small import markets associated with a

diverse set of S&L requirements. As all African countries rely on imports, and their markets represent a very small portion of the global market for cooling appliances, enforcement of multiple energy efficiency standards in the 55 countries will likely be challenging and costly.

Next, we dive into the main trading partners for cooling products in Africa and describe energy efficiency and refrigerants transition trends in their markets. There are significant differences in African markets vis-à-vis major trading partners (i.e., efficiency of products available in Africa is much lower to what is available in the country of origin), which provides an opportunity for African policy makers to enhance local markets for high efficiency products. By reviewing trade policy in the region through customs unions in the Economic Community of West African States (ECOWAS) and the East African Community (EAC), and import tariffs for countries outside the unions, we also highlight opportunities to create a better environment for intra-regional trade.

Finally, we provide a case study of successful regional standards harmonisation and trade policy that has shifted the regional market in ASEAN, and derive some lessons learned that could be applicable to the newly formed African Continental Free Trade Area (AfCFTA) or any other economic association at the sub-regional level.

African cooling energy efficiency policy under development

African countries are lagging behind other regions in the development of energy efficiency standards for cooling products. Only 18 % of countries in the region (10 countries) have developed or implemented⁸ minimum energy performance standards (MEPS) and/or labels for room air conditioners (ACs) and refrigeration appliances.⁹ Figure 2 shows countries in Africa that have implemented or developed cooling S&L.

4. Room air conditioner units are mostly imported; main brands are primarily from China and South Korea. However, some countries like Nigeria have in-country AC assembly plants for major brands like Samsung and LG. <https://clasp.ngo/publications/scoping-study-of-african-air-conditioner-markets>.

5. The African air conditioning market is forecast to grow at an above average 5.5 % CAGR between 2017–2023, by volume, according to market research company BSRIA. <https://www.coolingpost.com/world-news/africa-tops-global-air-conditioning-forecasts/>.

6. <https://www.iea.org/topics/energyefficiency/buildings/cooling/>.

7. EUROMONITOR, 2018.

8. Implemented refers to a standard that is drafted and has already entered into force (for instance, it has been published in an official journal); developed refers to a standard that is drafted but the implementation date is still to be defined.

9. CLASP Policy Database. <https://clasp.ngo/policies>.

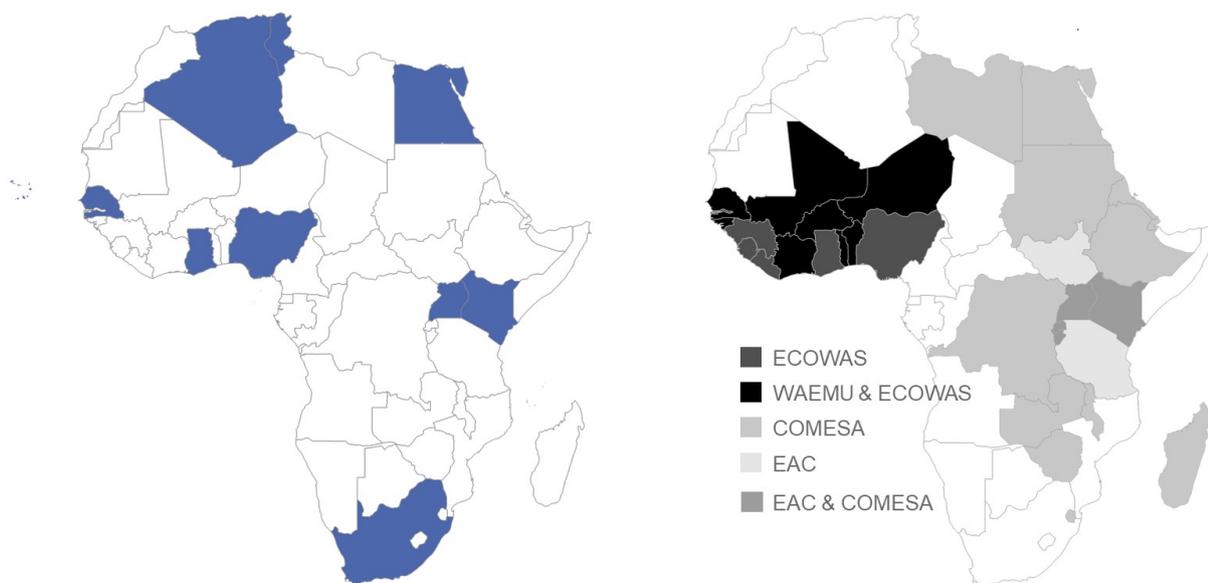


Figure 2. African S&L cooling policy and regional associations. Left, status of S&L for cooling appliances in Africa [as per CLASP Policy Database; countries in dark shade have implemented S&L programs]. Right, relevant regional associations in West Africa – ECOWAS and WAEMU (a subset of countries in ECOWAS) – and in East Africa – COMESA and EAC (a subset of countries in COMESA and outside COMESA).

In ECOWAS, two-thirds of the 15 member states do not currently have S&L in place. At the national level, Ghana and Nigeria¹⁰ have well-established S&L programs, while three additional member states¹¹ are currently enhancing or implementing their national programs for the first time. Since 2013, the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) has developed several regional MEPS – two lighting standards (on-grid and off-grid) and standards for refrigerators and room ACs – but the standards have not been adopted by any member state. ECREEE is developing a roadmap to speed up the implementation of these standards at the national level. In addition to the ECOWAS regional efforts, the West African Economic and Monetary Union (WAEMU), a subset of mostly French-speaking West African countries¹², has drafted but not implemented harmonized product labels. Figure 2 shows the overlap of these two regional associations in west Africa. The ECOWAS roadmap will take advantage of these existing efforts to develop a harmonized label for the entire region.

In the EAC, only Kenya has developed and implemented energy efficiency standards for room ACs and refrigerators¹³, while standards are currently being developed in other countries in the community (Uganda and Rwanda). At the same time, the Common Market for Eastern and Southern Africa (COMESA) is working on enhancing sustainable regional en-

ergy markets through the implementation of energy efficiency standards for widely traded appliances. Figure 2 shows the overlap of these two regional associations in east Africa.¹⁴

In the North and South, Egypt, Tunisia, and South Africa have a long history of S&L, having implemented standards as early as 2002, 2005, and 2004, respectively. Egypt and South Africa also represent larger markets for cooling appliances in the continent.

The actions described above highlight an active effort at the national, sub-regional and regional levels¹⁵ to develop and implement S&L frameworks and enhance the availability of more efficient products in African markets. However, the uncertainty around the level of alignment among these efforts and countries' commitment to adopting proposed regional standards poses certain risks to local markets. Major differences in test methods and metrics in efficiency standards adopted by countries in Africa can make it more difficult for importers to comply with local regulations, increasing compliance costs, and ultimately resulting in higher costs to consumers.

RISKS FOR SMALL IMPORT MARKETS IN AFRICA

The lack of alignment in S&L development in Africa represents a risk for policy makers and consumers in the region, as the enforcement of multiple energy efficiency standards in the 55 countries will likely be challenging and costly. These markets are not large enough to drive international manufacturers to redesign or change their current production lines to comply with multiple requirements. Furthermore, idiosyncratic testing requirements combined with a lack of testing capacity may lead

10. Nigeria is the largest economy in ECOWAS, accounting for 52 % of the population and 73 % of the GDP in 2015.

11. Cape Verde, Senegal, and Ivory Coast.

12. Guinea-Bissau, a Lusophone country, also belongs to WAEMU. The remaining members are French-speaking countries. WAEMU countries have a COMMON currency: CFA (with a fixed exchange rate with the EURO).

13. Kenya's MEPS for room ACs and refrigerators first went into effect in July 2017. A revision of both standards is currently under preparation. A draft of the standard DKS 2463:2018 Non-ducted air conditioners – Testing and rating performance was circulated for public comments in August 2018.

14. The two last members to join COMESA in 2018, Tunisia and Somalia, were not included in Figure 2.

15. In this paper, the term 'regional' refers to efforts relevant to an aggregate group of countries, rather than a local region within a country.

Table 1. Top 10 trading partners for cooling products in ECOWAS and EAC (COMTRADE, 2019).

ECOWAS Top 10 Trading partners				EAC Top 10 Trading Partners			
Room Air Conditioner		Refrigeration		Room Air Conditioner		Refrigeration	
Country	Share	Country	Share	Country	Share	Country	Share
China	48 %	China	49 %	China	35 %	China	35 %
Thailand	14 %	Turkey	5 %	Thailand	18 %	Thailand	13 %
France	6 %	South Africa	5 %	United Arab Emirates	12 %	India	10 %
Malaysia	4 %	Italy	4 %	Rep. of Korea	9 %	South Africa	6 %
United Arab Emirates	4 %	France	4 %	South Africa	5 %	Indonesia	5 %
USA	3 %	USA	4 %	Turkey	3 %	United Arab Emirates	5 %
Germany	2 %	Romania	4 %	Italy	2 %	Turkey	4 %
Rep. of Korea	2 %	India	3 %	India	2 %	Italy	3 %
India	2 %	Indonesia	3 %	Malaysia	2 %	Germany	2 %
Italy	2 %	Denmark	2 %	Japan	2 %	Belgium	2 %

to higher compliance costs and long delays in placing products on the market, or even more likely to cases of non-compliant products. There is a strong case for African policy makers to align current S&L efforts regionally, in order to secure the availability of high efficiency and affordable products on their markets.

For instance, Kenya implemented its first MEPS for ACs in 2016 and, after their entry into force in 2017, importers were unable to bring compliant products into the market.¹⁶ At the time, the policy required that ACs be tested under high ambient temperature conditions, an inappropriate requirement given average Kenyan temperatures.¹⁷ The requirement made compliance difficult, burdensome, and costly to the point that imports fell 60 % in 2018 compared to the same period in 2017.¹⁸ Importers raised their concerns with Kenyan policy-makers, who moved swiftly to revise the standard and issued a proposed revision in late 2018. This is a cautionary tale for policy makers in Africa that are currently developing S&L for the first time. Energy efficiency standards in markets – especially small markets – that rely on imports will have a better chance in promoting the markets for efficient appliances when aligned with international standards, major trading partners, or a trading block within the region.

The trade connection

ENERGY EFFICIENCY TRENDS IN MAJOR TRADING PARTNERS

Countries in ECOWAS and EAC import 80 % to 90 % of their cooling appliances from 10 major trading partners.^{19, 20} China is the top exporter of cooling appliances, accounting for almost

50 % and 35 % of all products imported to ECOWAS and EAC, respectively. This is no surprise, as China manufactures 68 % of all room ACs and 64 % of refrigerators worldwide.²¹ Thailand, the second largest AC manufacturer, accounts for 14 % and 18 % of imports to these two African regions. Refrigerator imports from Thailand are significant in the EAC, taking second place after China. Refrigerator imports from South Africa, the only African trading partner featured in the top 10 list, take third and fourth place in ECOWAS and EAC.

China, Thailand, South Africa, and other trading partners listed in Table 1, have S&L in place for room ACs and refrigerators, and in most instances, their MEPS are more stringent than what is currently required in African countries. Table 2 provides an overview of current MEPS for room ACs in selected countries in Africa and their top trading partners.

A CLASP review of African AC markets in 2018, shows that 80 % of room AC units available in the markets had an energy efficiency ratio (EER) between 2.8 and 3.4 W/W.²² Inverter ACs, which can be as much as 51.7 % more efficient than fixed speed ACs²³, tend to have lower market share (<20 %) in most African countries. MEPS levels in Ghana, Kenya and Nigeria were all at an EER of 2.8 W/W. On the other hand, the current Chinese MEPS for ACs corresponds to an EER of 3.2 W/W. In Thailand, most of the products available in the market comply with a voluntary label with a minimum level set using the seasonal energy efficiency ratio (SEER) at 11.15 Btu/hr/W (or 3.27 W/W); a comprehensive market assessment in 2018 shows that the market is dominated by relatively high efficiency products, with inverter units comprising 32 % of the market.²⁴ While SEERs are not directly comparable to EER requirements, ACs at an EER of 2.8 W/W would not be allowed in the Thai market.

16. Cooling in a warming world: Global Markets & Policy Trends. CLASP, January 2019.

17. The testing method used in the Kenya standard was as per the international standard ISO 5151, but it required testing under the T3 condition, which is only used for high ambient temperatures, not applicable to Kenya.

18. According to official statistics by the Kenya Revenue Authority.

19. COMTRADE. "International Trade Statistics Database." 2019. <https://comtrade.un.org/>.

20. Trading partner is referred herein as the country of origin (i.e., products imported from a particular country).

21. EUROMONITOR, 2016.

22. Africa Air Conditioner Market Scoping Study. CLASP. August, 2018. <https://clasp.ngo/publications/scoping-study-of-african-air-conditioner-markets>.

23. Yoon, M.S., J. H. Lim, T. S. M. Al Qahtani, Y.J. Nam. "Experimental Study on Comparison of Energy Consumption between Constant and Variable Speed Air-Conditioners in Two Different Climates." Proceedings of the 9th Asian Conference on Refrigeration and Air-conditioning. June 2018.

24. Thailand Room Air Conditioner Market Assessment and Policy Options Analysis. CLASP. (Forthcoming).

Table 2. Current MEPS for room ACs in selected countries in Africa and their trading partners.

Selected African MEPS		Top trading partner MEPS	
Country	EER (W/W)	Country	Efficiency ratio (W/W)
Ghana	2.8	China (EER)	3.20
Kenya	2.8	Thailand (SEER)	3.27
Nigeria	2.8	South Africa (EER)	3.00

Similarly, most ACs available in African markets could not be sold in China.

These differences in the efficiency of room ACs available in African markets vis-à-vis their major trading partners highlight another opportunity for African policymakers to improve and promote the availability of high efficiency products through energy efficiency policy.

A viable option is to assess the potential to align national or regional energy efficiency standards with trading partners. Since manufacturers already produce equipment to comply with the local regulations at the country of origin, there would not be any trade barriers (in terms of complying with African local regulations) and compliance costs would be minor.²⁵ In doing so, African markets could transform their local markets to highly efficient products and avoid becoming recipients of sub-efficient products rejected in their country of manufacture.²⁶

REFRIGERANTS TRANSITION ALREADY TAKING PLACE IN TRADING PARTNERS

Improving energy efficiency is just one issue on the agenda for improving environmental performance of cooling products. Countries around the globe are phasing out hydrochlorofluorocarbons (HCFCs) and phasing down hydrofluorocarbons (HFCs), as part of the Montreal Protocol and Kigali Amendment²⁷ efforts to replace refrigerants that have ozone depleting potential (ODP) and high global warming potential (GWP) with more environmentally friendly alternatives.

The same 2018 review of AC markets in Africa found that R-410A (a zero ODP and high GWP refrigerant) is the dominant refrigerant in new ACs, while R-22 (medium ODP and high GWP) units are still found in some markets. Trends in the main trading partners indicate already a transition away from R-22 to alternatives with lower GWP, in particular to R-32 (a zero ODP and lower GWP refrigerant). In China, manufacturers have begun mass production of R-32 units,²⁸ while eight major AC manufacturers committed to selling 220,000 R-290 units (zero ODP and low GWP refrigerant) in the Chinese market by mid-2019.²⁹ In July 2017, Thailand banned the use of R-22 for

their domestic market and R-32 units already account for 34 % of market share in 2018.

African policymakers may need to consider at least regulating imports of AC units that use HCFCs (R-22) if they want to avoid becoming dumping grounds for equipment already banned in their main trading partners. For instance, the R-22 ban in Thailand only applies to ACs for the domestic market, thus any remaining stock could potentially be sent to unregulated markets in Africa or markets with less stringent standards. Proper disposal of old equipment using R-22 would be required if African countries want to avoid releasing to the environment this refrigerant, which is a potent greenhouse gas.

AFRICAN CUSTOMS UNIONS AND TARIFFS

In West Africa, all ECOWAS states have a common external tariff and zero tariffs on other ECOWAS countries. In East Africa, the EAC countries as part of their customs union have also established free trade on goods and services amongst themselves and agreed on a common external tariff.

The current tariffs for room AC and refrigerator imports differ in ECOWAS and EAC. Table 3 lists tariffs for non-ECOWAS members and non-EAC members for relevant commodity codes under the Harmonized System (HS) – a six-digit classification of products and commodities used by all countries to establish their tariff schedules for international trade.³⁰

According to Table 3, ACs imported from South Africa (or any country outside the customs union) to ECOWAS and EAC under the current scheme will be subject to a tariff of 12.5 % and 25 %, respectively. If the AfCFTA is ratified, the free trade area will allow free access to many commodities, goods, and services across the continent, creating a better environment for intra-regional trade as the tariff will effectively be zero. In other words, South African exports (or any other country within the region with a local manufacturing base) would greatly benefit from the agreement.

Aligning energy efficiency standards in the region would bring additional significant benefits to intra-regional trade, reducing compliance costs for government and manufacturers. Savings from reduced tariffs and lower compliance costs will translate into lower costs for consumers purchasing more efficient cooling appliances.³¹

25. Imported products would still be subject to tariffs (import duties) as they currently are.

26. Some products sold in Africa may be manufactured by old production lines that are highly lucrative to continue running for manufacturers.

27. Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer. Kigali, 15 October, 2016. https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-2-f&chapter=27&clang=_en.

28. JARN's Review of the Global AC Market in the First Half of 2018.

29. 8 major Chinese RAC makers commit to selling 220k R290 units in 2019. Hydrocarbons 21. Dec 03, 2018. http://hydrocarbons21.com/articles/8713/8_major_chinese_rac_makers_commit_to_sell_220k_r290_units_in_2019.

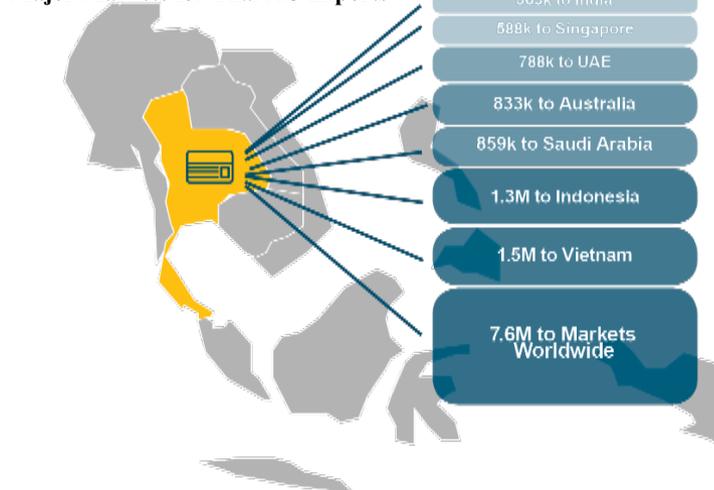
30. Tariffs downloaded January 2019 from the WTO Tariff Download Facility (<http://tariffdata.wto.org/>).

31. Currently there are only few countries in Africa that manufacture cooling equipment (i.e., South Africa, Nigeria, and Senegal).

Table 3. Tariffs for non-member states under ECOWAS and EAC Customs Unions for relevant products.

Commodity Code (HS)	Non-ECOWAS Member Tariff	Non-EAC Member Tariff
841510 (Room Air Conditioners)	12.5 %	25 %
841590 (Air Conditioner Components)	7.5 %	10 %
841810 (Refrigerator-Freezer)	12.5 %	25 %

Major Markets for Thai AC Exports



Share of Imports in ASEAN, 2015

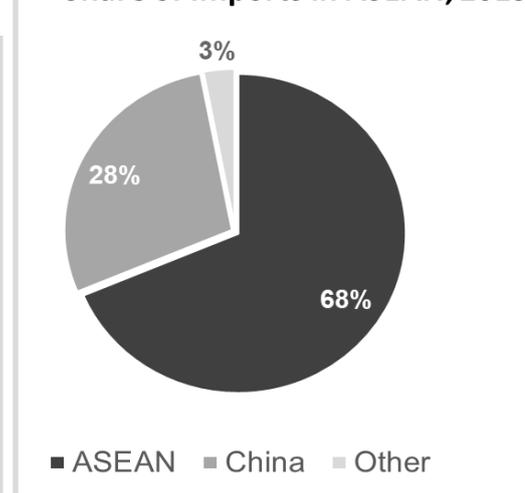


Figure 3. AC trade in ASEAN. Left, major markets for Thai AC exports. Right, share of AC imports in ASEAN in 2015.

Regional harmonization and trade success – the ASEAN experience

The Association of Southeast Asian Nations (ASEAN)³² has stimulated regional trade in AC units by harmonizing their test standard and reducing import tariffs within the member states. In 2015, under the ASEAN SHINE framework, ASEAN member states agreed to adopt a common MEPS target by 2020 to promote highly efficient ACs in the regional market.³³ Although the MEPS target should be achieved by 2020, all ASEAN member states already adopted a harmonized test method (following the international standard ISO 5151) and are transitioning to a seasonal performance metric (the cooling seasonal performance factor, or CSPF). A harmonized test method and a common metric can facilitate trade of equipment across borders, as manufacturers do not need to re-test products in order to comply with varying requirements.

In ASEAN, 68 % of all ACs are imported from other ASEAN countries, and only 28 % of imported ACs come from China.³⁴ This is in stark contrast to other markets where Chinese im-

ports can account for up to 50 % (see, for instance, the case of ECOWAS). The ASEAN Common Effective Preferential Tariff³⁵ created a free trade area within ASEAN, with no tariffs on most products traded within. For ACs, the intra-ASEAN tariff is 5 %, while tariffs on ACs from China and other countries are 15 % and 30 %, respectively. This intra-regional trade has stimulated investment in local manufacturing, and as mentioned earlier, Thailand is now the world's second largest AC manufacturer and exporter (see Figure 3).³⁶

Conclusions for boosting the African market for highly efficient appliances

The experience by ASEAN and some actions highlighted throughout this paper to create a better environment for intra-regional trade show a path for African policy makers on how to boost the markets for high efficiency appliances in Africa by leveraging the benefits of a joint approach to energy efficiency and trade policy.

32. ASEAN member states are Indonesia, Thailand, Malaysia, Singapore, Philippines, Vietnam, Cambodia, Myanmar (Burma), Brunei, and Laos.

33. Promotion of higher efficiency air conditioners in ASEAN: A regional policy roadmap. ASEAN SHINE program. February 2015. <http://www.aseanshine.org/asean-shine-task-force/d/asean-regional-policy-roadmap-for-harmonization-of-energy-performance-standards-for-air-conditioners>.

34. The role of Trade Policy and Energy Efficiency Policy to promote highly efficient air conditioner markets. CLASP. February 2019. <https://clasp.ngo/publications/the-role-of-trade-policy-and-energy-efficiency-policy-to-promote-highly-efficient-air-conditioner-markets>.

35. The Common Effective Preferential Tariff (CEPT), signed in 1992, was the mechanism by which tariffs on goods traded within the ASEAN region, which meet a 40 % ASEAN content requirement, were reduced to 0–5 % by the year 2002/2003. https://www.asean.org/storage/images/2012/Economic/AFTA/Common_Effective_Preferential_Tariff/Agreement%20on%20the%20Common%20Effective%20Preferential%20Tariff%20Scheme%20for%20the%20ASEAN%20Free%20Trade%20Area.pdf

36. The role of Trade Policy and Energy Efficiency Policy to promote highly efficient air conditioner markets. CLASP. February 2019. <https://clasp.ngo/publications/the-role-of-trade-policy-and-energy-efficiency-policy-to-promote-highly-efficient-air-conditioner-markets>.

A regional framework for appliance energy efficiency, or at least a common set of energy efficiency standards, would strengthen regional trade and protect markets from inefficient, environmentally harmful, and poor performing cooling products. Energy efficiency standards in small markets that rely on imports will have a better chance at promoting the markets for efficient appliances when aligned with international standards, major trading partners, or a trading block within the region.

The efficiency gap of cooling equipment available in African markets vis-à-vis major trading partners further highlight opportunities for African policymakers to improve and promote the availability of high efficiency products through energy efficiency policy. Options include assessing the potential to align national or regional energy efficiency standards with trading partners, or requiring imports from trading partners to be compliant with local regulations at the country of origin.

African policymakers can transform their local markets to highly efficient products and avoid becoming the recipients

of sub-standard products, by enhancing energy efficiency policy and considering, at least, regulating imports of cooling equipment that use refrigerants being phased out. In doing so, they can avoid becoming dumping grounds from equipment already banned in the domestic markets of their main trading partners.

Finally, aligning energy efficiency standards in the region would bring additional significant benefits to intra-regional trade, reducing compliance costs for government and manufacturers. Savings from tariffs³⁷ and compliance costs will in turn translate into lower costs for consumers purchasing high efficiency cooling appliances.

Further research on other products beyond cooling appliances could show additional evidence to support this approach. Additional challenges in Africa, with only few manufacturers of cooling appliances, informal imports of goods and imports of second-hand appliances, should be explored as they could hinder the process and reduce impact.

37. Import duties are one of the main source of revenue for many of the AU member states, making the case for reduced tariffs difficult. However, reducing electricity demand would be beneficial to many AU countries dealing with peak load management issues, or with not enough electricity production.

