When the Party's Over, Don't Turn off the Lights! - Making Donor Funded S&L Programs Sustainable

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Abstract

Residential Standards and Labelling (S&L) Programs have come a long way since first being introduced in the US in the early 1970's; and are now a proven approach to reduce electricity consumption. Indeed, a 2014 study identified over 80 countries with S&L programs, many of which in developing and certain emerging countries, are donor funded[1]. And here the benefit of repetition and experience has meant that project outcomes for most developing country programs are well known and include label design, selection of appliances, testing facilities, awareness and compliance. Typically, high penetration and large electricity consuming appliances are selected; namely, refrigerators, laundry, lighting, cooling (fans and AC) and more recently televisions – with some slight variations due to cultural preferences (rice cookers in Asia) and income. Certainly, this was the case for South Africa, which in 2011 received a $4.3 million GEF grant to implement a residential S&L program. However, implementation comes with challenges; and key amongst these is sustainability of the program – an issue likely to be faced by most developing countries whose programs' continued viability, and in certain instances existence, is heavily reliant on donor funding. What happens to the sustainability of the program when donor funding and time limits approach expiry? This paper communicates the South African experience with the objective of providing a possible approach for other countries to consider.

Due to a slow start, GEF granted the South African S&L project two extensions, which ultimately proved to be the correct decision, as the project's implementation revived due to renewed commitment and stakeholder prioritization. The continuation of these successes and other critical work-in-progress outcomes such as compliance, is however coming under threat as the project deadline looms. Indeed, current Minimum Energy Performance Standards (MEPS) are already becoming obsolete as appliance efficiencies improve; and of greater concern has been the real risk that the program would not expand beyond the 11 original appliances selected in 2011.

To mitigate these risks, the "*Next Set of Appliances*" study was commissioned using existing project resources; so as to: 1) Evaluate the existing MEPS to identify which could be strengthened; and, 2) Identify new electrical equipment (expanded to light commercial equipment). In this, a broad approach was adopted, where the consultants identified as many as 96 potential pieces of electrical equipment and then narrowed these down to 8, based on mutually agreed criteria, (penetration rates, opportunity for electricity savings, global MEPS implementation, ease of adoption and technology / other barriers). The maximum electricity savings and benefits were demonstrated to the Department of Energy's Clean Energy Branch Director; placing the unit in a position to make informed decisions to support an application for an allocation in the upcoming internal budgeting process (outcome pending at time of writing). Moreover, the study provides reliable, robust, up-to-date information and data needed for new donor funding applications.

The paper explains the approach followed, industry responses, report on the outcomes and the next steps to integrate the program into national planning. And in so doing, the paper provides an approach for other countries to consider when faced with the inevitable issue of sustainability of their S&L program.

Theo Covary writes in his personal capacity and the view expressed are his own and do not necessarily reflect those of the South African Government or the UNDP

[1] By example, the Global Environment Facility has supported Energy Efficiency S&L projects in South Africa, Russia, Turkey, India, Nigeria, Kenya, Mauritius, Cape Verde, and Liberia.

Introduction to South Africa's Residential Appliance S&L Program

The issue of residential appliance minimum energy performance standards (MEPS) and labelling, features prominently in the Energy White Paper (1998) **[2]** and was specifically identified as a key intervention of the Department of Minerals and Energy's (now Department of Energy) 2005 Energy Efficiency Strategy **[3]**, which set an overall energy intensity reduction target of 12% by 2015 and a 10% reduction in the residential sector. This initiative also features in the Industrial Policy Action Plan (IPAP) **[4]** updated in 2010 by the Department of Trade and Industry, an implementing partner of the program.

Here, a formal project was deemed necessary to address the policy, information, technology and financial barriers preventing widespread introduction and uptake of efficient appliances. A successful government application to GEF, through the UNDP, was endorsed and a budget of US$ 4.375 million allocated to provide assistance to Government, national agencies and the private sector, to introduce and implement a mandatory S&L program – and the official start date of the five-year program was September 2011. In facilitating a comprehensive market transformation towards the use of energy efficient (electrical) residential appliances, the GEF-funded project aims to reduce greenhouse gas emissions. The project targets large electrical appliances as detailed in the South African National Standard 941 **[5]** and shown in Figure 1**.**

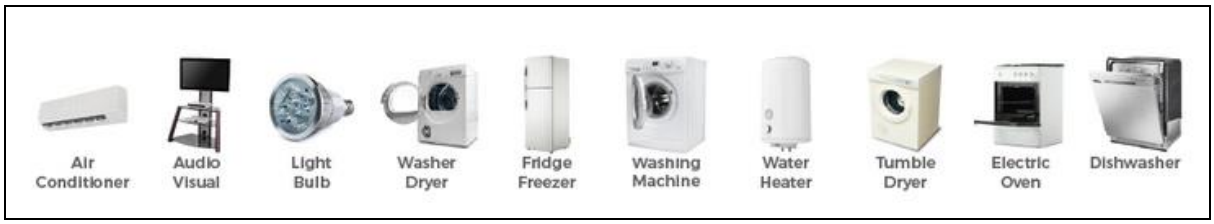

Figure 1: Residential Appliances selected for South Africa's S&L program

The S&L project funding application, commonly referred to as the ProDoc, submitted to GEF, estimated that as much as 388 GWh of electricity would be saved per year, leadin 4.6 Mt of direct CO_2 emissions reduction (over the lifetime of the appliances covered) and indirect CO_2 emissions reduction of 11.5 Mt CO_2 **[6]**. However, achieving these savings would require the removal of the most significant and persistent barriers impeding the widespread uptake of energy efficient residential appliances. Consequently, the GEF-funded S&L project was designed accordingly and consisted of six outcomes:

Outcome 1: Policy and regulatory framework for the S&L program

Outcome 2: Define labelling specifications and MEPS thresholds for the 12 products considered by the DoE & DTI for S&L regulation

Outcome 3: Strengthen the capacity of institutions and individuals involved in the S&L program

Outcome 4: Awareness-raising campaign for standards and labels - targeting manufacturers, distributors, retailers and end-users

Outcome 5: Implementation of S&L Market Surveillance & Compliance (MSC) regime to ensure energy performance standards is met

Outcome 6: Development of Monitoring and Evaluation (M&E) capacity

S&L Program: 2011 until 2015

As is customary for all GEF-funded programs, a Mid-Term Review (MTR) is undertaken to evaluate progress and effectiveness. This effort was delayed due to a sluggish beginning and the report was only issued in May 2016, less than 18 months before program closure. Here, a high-level summary of the MTR **[7]** findings is presented in Table 1. In presenting this summary, the objective is to outline the most important issues facing the project, most of which are by no means unique or particular to South Africa. In no means does this table serve as indictment of the performance of the UNDP or the

Government of South Africa, nor does it seek to dwell on the underlying causes, but to rather demonstrate typical program implementation challenges, through the use of a credible case study.

Undoubtedly, the most pertinent consequence of challenges faced, is that program implementation had fallen behind schedule; leading to a mutually agreed revision of the end date between the UNDP and the Government of South Africa, to March 2019. The next section now details the actions taken to address implementation since then, as well as the progress achieved during this period.

Table 1: Summary of Mid-Term Review Findings of South Africa's S&L Program

Strengths and Major Achievements	
Highly relevant with respect to national priorities	Program was initiated during national power outages, benefiting from broader EE initiatives
Country ownership shown through co-financing contributions	DoE and SABS (national test laboratory) funded studies and upgraded test laboratories in excess of US$1.2 million. National standards developed and regulation passed to make specifications mandatory
Strong willingness among industrial sector to comply with new EE regulations	Excluding electric water heaters, most appliances met the new MEPS in advance of the regulations – acting in advance to ensure compliance
Highly qualified and skilled enabling stakeholders	Government and industry representatives are knowledgeable and participatory. A highly noteworthy outcome which significantly increases the likelihood of the program being effectively implemented
Strengthened institutional and individual capacities, and facilitated strategic partnerships	Implementing partners had undertaken multiple international visits to build capacity (Korea, UK, Australia and Brazil) and created a strategic partnership between SABS and a UK test laboratory
Major Shortcomings and Opportunities for Improvement	
Lower-than-expected GHG, based on midterm estimations	Primarily due to the delayed start of the project, the GHG would be lower than originally forecast. It was recommended that the estimations be -re-calculated
Delays associated with cash disbursement have significantly impacted project effectiveness	A failure between the UNDP and DoE to agree on a payment modality, left the implementing partner without funds. The project could not procure and became reliant on DoE funding
Inconsistent project governance	Although Project Steering Committee met regularly, decisions and recommendations were not enacted
Unclear management arrangements	Stronger working relationship needed between the UNDP and the national implementing partners
Unsatisfactory delivery	The delay in appointing a PM, the funding modality issues, low level of readiness of the national test laboratory and Regulator – resulted in only 8% of the GEF funds spent at the project's mid-point
Likelihood of achieving project objective diminished by lower-than-expected co-financing	An international donor withdrew US$4 million of funding, citing unsatisfactory progress, and so did the national utility for a similar amount, due to funding constraints. This shortfall was somewhat offset by contributions made by the SA Government as detailed above
Stakeholder engagement has not been sufficiently integrated into existing structures	Deemed that industry consultation was lacking
Industry frustrated by lack of communication from regulator	Ever increasing backlog in the approval process of compliance approvals by the Regulator, compounded by insufficient communication and preparedness
Questionable financial sustainability of market surveillance, control and enforcement	Concerns raised regarding the Regulator's ability to fund its activities, demonstrated by the low level of compliance activities and slow approval process
Awareness is low, largely due to delay in implementing communication strategy	Activities not initiated
Unsatisfactory progress with respect to developing and implementing incentive programs	Weak knowledge management and limited online information regarding the project. Preliminary study to identify possible incentive programs undertaken, but an inadequate report delivered by the service provider raised more questions that it answered

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Project's Second Half: 2015 up to March 2019

The South African S&L project is undoubtedly a story of two halves. Following the release of the MTR, a concerted effort to achieve the project's objectives was further underpinned by the national urgency for electricity savings, as the country continued to experience power outages due to the vertically integrated utility's inability to meet national demand. Herein, actions taken can be categorized into two – direct and indirect. The former being discrete actions to address specific program issues, while the latter were more strategic in nature, as they were intended to effect change within a broader sphere. Some of the key actions taken, and the outcomes thereof, are provided below.

UNDP Organization Changes (Indirect)

A new country director (CD) and program manager for the energy portfolio were appointed. And an outcome of the findings of the MTR (Table1), released soon after the CD took on his new role, was that it precipitated new discussions between the UNDP and the DoE, which led to renewed commitment to achieve the objectives of the program. A more flexible approach, to allow the project team to respond more effectively and efficiently, was adopted. The program manager was replaced in the second half of 2016. A new project manager, a direct intervention, was appointed in early 2017. Overall, new people foster new relationships and are proven to be a key success factor.

Procurement (Direct)

Recognizing the program's high procurement requirements, the Department of Energy contracted a state agency to manage the process. The UNDP also agreed to procure on behalf of the project, thus providing two procurement channels. These actions also resolved the cash disbursement and funding modality issue which had hampered delivery, as detailed in the MTR (Table1).

Project Governance and Private Sector Involvement (Direct)

Although Project Steering Committee (PSC) meetings were being held, they were largely ineffective. This was corrected by: 1) The frequency of meetings being increased from 3 or 4, to a minimum of six per year; and, 2) The UNDP CD and senior officials from the Department of Energy starting to attend the meetings. The combination of these two actions led to greater accountability and significantly increased performance. Also, industry association representatives at the PSC were asked to play a more active role, and to assist the project by fulfilling their mandate with greater enthusiasm and commitment.

From 2017 to 2019, under the new project manager appointed, over 30 service contracts were awarded. By March 2019, 98% of the GEF allocated budget, compared to 8% reported in the 2015 MTR, had been spent or encumbered. This performance value, brought by the outputs of the contracts, was recognized by all stakeholders as a major achievement **[8]**. And from the implementing agency (UNDP) perspective, it can point to a resuscitated project, which can move now towards closure, having met most of its objectives. But from the perspective of the S&L program - what happens next?

Projects have a Start and End Date – Programs Do Not.

In theory, the benefits of an S&L program to the nation - including substantial bills' savings for consumers - should justify government funding for the S&L program internally, without donor funding. However, without donor funding, important climate and sustainability programs in many developing countries may have a low priority, with the implications that they are either not considered, delayed indefinitely or enjoy limited political will and resources if they are actioned; and their post-funding is equally crucial if they are to remain effective and sustainable. Also, institutions (private, public and international agencies) have performance metrics against which they are measured. To satisfy the requirements of, and maintain its status as a GEF implementing agency in our case for example, the UNDP provided operational support to the S&L project - namely oversight, dedicated project manager and assistant, procurement, accounting, payment access to GEF funding and international technical

expertise - for the duration of the project with contribution from the Clean Energy Ministerial SEAD[2] initiative and more recently USAID.

Indeed, the expectation usually is that the required skill transfer occurs during the prescribed project duration, (here a five-year period, extended to eight), thus allowing for a smooth transition on termination date. However, such an approach must be carefully managed from both sides if it is to succeed, as stakeholder priorities are not necessarily aligned. On the one hand, the implementing agency is under pressure to 'deliver' or spend the allocated available budget within the prescribed date, in donor parlance. Whilst on the other hand, the government's involvement may vary from fully engaged to arm's length. Regardless of the level of participation, government's primary objective is to ensure that project activities are appropriate and meet their requirements. This may be complicated further if the ProDoc, which is the de facto guideline on what activities should be undertaken for each outcome, becomes outdated due to technological advances or a change in government perspective due to political or market forces, or both. If not carefully managed, such competing objectives have a potential negative impact on the project, such as implementation delays or stagnation. A suitably experienced and competent project manager however, should be able to navigate such pressures, if all parties remain rational and flexible. But a project experiencing such issues as it approaches its closure date, will exert additional pressure on all parties, that are likely to be prioritized over the important and critical actions needed for a smooth transition, which themselves are delayed until it is too late. A counterfactual analysis of the South African S&L project is undertaken below, to demonstrate the steps taken by the project management team in, to the greatest extent possible, ensuring a smooth transition and sustainability of the S&L program.

Project Performance Considerations Leading up to Project Closure

Having received a sub-par MTR rating, the UNDP and national government were under pressure to ramp up delivery; with the result that multiple assignments were undertaken concurrently. Indeed, during certain periods, the project manager was overseeing more than ten service contracts. This placed significant demands on the project team (drafting ToR's, evaluation of proposals, project management); the UNDP administration who oversee procurement, payments and accounting; as well as state entities whose cooperation and participation is essential. Progress is reliant on unfettered access to government counterparts and their tacit support of proposed assignments, participation in proposal evaluation, deliverable and invoice sign-off, and shared understanding of the project's strategic direction. In this, an outcome of the constant interaction with government colleagues, who are not dedicated resources and have other duties, is that it leads to periods of deprioritization of the project implementation and / or fatigue; manifested by long turnaround and response times, unavailability for meetings on short notice, and in the extreme, a blunt request to slow down. Matters are further complicated by the fact that the project must engage with implementing partners in other government ministries or state-owned entities, which do not fall under the control of the DoE, namely the national test laboratories (SABS) and the Regulator (NRCS). Here, inter-ministerial collaboration becomes key; as priorities tend to differ, accountability can be blurred and funding of government apportioned activities, which has not materialized or been delayed, becomes a stumbling block, due to the knock-on effects on dependent activities funded by the project. By way of example, the training of national laboratory testing officials (donor funded activity) can only occur if the laboratory is functional (government obligation). If the government's effort to bring the test laboratory to a functional state occurs after the project termination date, the training cannot occur, with the likely implication that the donor funding is withdrawn, and the government either foregoing or paying for the training. Both outcomes implies delays and are therefore undesirable.

Funding Sources Post Project Closure

For transitions to be sustainable, they should at the very least include: 1) Updated policy objectives; 2) A business plan; 3) Formal agreement amongst implementing partners; 4) Handover; and 5) Revision and Expansion of the Program, all of which are listed below. As can be seen, a definition of the action is followed by a short description of the steps taken by the S&L project to meet the

[2] The Super-efficient Equipment and Appliance Deployment (SEAD) initiative provided technical support to the S&L program implementation through its main contractor Lawrence Berkeley National Laboratory (LBNL).

requirement. This is done for the first four; followed by a more detailed explanation for item 5 – Revision and Expansion.

1. *Update Policy Objectives:* With the termination of the GEF-funded S&L project and its objectives, the responsible ministry (DoE) would need to identify and formalize its future S&L policy objectives and targets.

   This is being dealt with in two steps. The first is to quantify the electricity savings achieved by the project up to its termination date. Data, collected from the Regulator's database, studies and industry reports, is to be modelled by the energy planning department within the Ministry. The results will then be compared to the 2011 projections. This effort is being supported by the Lawrence Berkeley National Laboratory and USAID. The second, will use the outputs to inform new and updated targets which align with the National Energy Efficiency Strategy, a Cabinet approved strategy mandating the DoE's Clean Energy Branch to meet its objectives and targets.

   Ultimately, although this has not been possible for the South African program yet, an energy efficiency law should institutionalize the S&L program - including a mandatory requirement to review standards within a specified time period, (ideally every 3 to 5 years, but not more than six) - constantly assessing the need to revise and upgrade existing tests and energy performance standards. By way of example, in the United States "*Beginning with the Energy Policy and Conservation Act of 1975 (EPCA), a series of congressional acts have directed the U.S. Department of Energy (DOE) to establish minimum energy conservation standards for a variety of consumer products and commercial and industrial equipment. The EPCA, as amended, requires the DOE to update or establish standards at levels that "achieve the maximum improvement in energy [or water] efficiency … which the Secretary determines is technologically feasible and economically justified." EPCA defines "economically justified" standards as those for which benefits exceed the costs, given a number of factors, including impacts on consumers and manufacturers and the nation's need to save energy or water."* **[9]**

2. *Business Plan:* An approved business plan for a dedicated S&L unit to implement the policy objectives and targets is needed. The plan would seek to institutionalize and 'operationalize' S&L, by providing it with the resources (human and financial) to build on what has been achieved during the project phase.

   Recognizing that the shift from project to program signifies a move to the next lifecycle stage - from introduction to growth - a five-year business plan has been developed by the project office and submitted to the DoE's Clean Energy Branch for inclusion in its 2019/20 internal funding allocation (outcome pending as at July 2019).

   Generally, the business plan should Identify internal (government) capacity to ensure general operation and expansion of the program, as well as external support (aid agency), to complement and integrate international best practice to the SA program.

3. *Formal Agreement:* A formalized working relationship outlining each implementing party's obligations is necessary, if not already in place. This measure ensures that momentum is not lost, as success relies heavily on one ministry's policy (DoE) being implemented by another ministry or its agencies; in the case of South Africa, the Department of Trade and Industry.

   A meeting was convened by senior representatives of all government ministries and agencies involved, and it was unanimously agreed for a Service Level Agreement (SLA) to be developed by an external lawyer, in collaboration with legal representatives from each institution, to govern the project going forward.

4. *Handover:* A transition period of three to six months is crucial; so as to allow for an orderly transition between the UNDP project manager and the newly formed S&L unit. Knowledge and project documentation transfer will increase their effectiveness.

5. *Revision and Expansion of the Program*: The project appointed a consultancy to undertake two reports. The first was to assess, through industry consultation, whether the appliances regulated

under VC 9006 and 9008 (Figure 1) could have their MEPS improved. The second, aimed to identify the next set of electrical equipment to be regulated.

Report 1: Review of Existing Appliance Energy Classes and Recommended Changes to Existing MEPS

The undertaken assessment of the existing energy classes, was to ascertain whether there is sufficient scope to improve (strengthen) the current standards and to identify the possible effects on existing testing capacities, national standards and the regulator. The research was informed by industry reports (specifically Euromonitor), local market research data, interviews with industry representatives and in-house desktop research, consisting of web-crawling, as well as product brochures and reports / data made available to the consultants by the S&L research team. The research findings were then presented to industry representatives at a public consultation meeting, to note their response and gather any additional information or feedback on the new standards and MEPS being proposed. Moreover, this data resource, complemented with additional data, was compiled in a bottom-up model developed by the DoE's energy planning unit, with assistance from LBNL, to assess the potential impacts of revising and expanding the program. The South Africa Energy Demand Resource (EDR) model is a bottom-up end-use model, specifically developed to assess the impact of the S&L program. The South Africa EDR projects energy demand in order to calculate the impact of proposed and/or possible additional policies; while energy consumption is projected by end use from 2015 (base year) to 2040. The strategy of the model is to first project end-use activity, which is represented by the sales of equipment, driven by increased ownership of household appliances. The total stock of appliances is modeled according to penetration of ownership in the base year and then per unit sales projections. Electricity consumption, or intensity of the appliance stock, is then calculated according to estimates of the baseline intensity of the prevailing technology in the local market. Finally, the total ultimate energy consumption of the stock is calculated by modeling the flow of products into the stock and the marginal intensity of purchased units, either as new additions or as replacements of old units according to equipment retirement rates.
More details about the model and detailed assumptions can be found in the South Africa EDR Report **[10].** Results for the residential sectors are summarized in Table 2.

Table 2. Residential End-use and Proposed Energy Efficiency Standards

Appliance	**Current MEPS**	**Proposed MEPS**	**Date**	**GWh/a Savings in 2030**
Audio Visual	Standby <1W	<0.5W	By 2020	40.1
Electric Ovens 1. Small & Medium 2. Large	 B None	 A B	By 2020	165.4
Washer Dryers	A	No change	-	-
Washing Machines	A	A+	By 2022	131.1
Tumble Dryers	D	C	By 2020	9.4
Dishwashers	A	No change	-	-
Refrigerators	B	A A+	By 2020 By 2026	667.0
Freezers	C	B A	By 2020 By 2026	266.6
Air Conditioners	B	A	By 2021	202.7
Electric Water Heaters	B	No change	-	-
Additional Electricity Savings (GWh) in 2030				**1 493.9**

As demonstrated by Table 2, large electricity savings remain in the residential sector, if standards reach efficiency levels that are already implemented in other economies, which are major trade partners with South Africa. For example, it is estimated that South Africa could save as much as 667 GWh/year in 2030 if government adopts in 2026 the refrigerator standard adopted by the EU in July 2014 (A+ level).

Table 3 provides more detail on the assumptions for the proposed standards as available in [8].

Table 3. Baseline and MEPS Scenarios used in the Residential Energy Demand Resource Model

	Product Sub-Type	UEC Stock (KWh)	UEC Baseline (kWh)	Rating	UEC Proposed (year: kWh)	Rating
Appliances	Refrigerator-Freezer	344	308	B	2021: 281 2027: 243	2021: A 2027: A+
	Refrigerator	280	250	B	2021: 228 2027: 197	2021: A 2027: A+
	Freezer	423	406	C	2021: 366 2027: 330	2021: B 2027: A
	Clothes Washers	190	185	A	2023: 162	2023: A+
	Dryers	294	275	D	2021: 271	2021: C
	Dishwashers	291	285	A	No change	No change
	Ovens	119	112	B	2021: 101	2021: A
Water Heating	Electric Water Heaters	1351	1042	B	No change	No change
Entertainment	TV	213	213	-	No change	No change
	Standby TV	5.08	5.08	0.58W	2021: 4.38	0.5W
	Other plug load	5.08	5.08	0.58W	2021: 4.38	0.5W
Space conditioning	Split cooling only	993	960	B	2021: 900	A
	Split Reversible	2056	1988	B	2021: 1864	A
	Evaporative air coolers	804	804	-	2021: 804	-

Source: South Africa EDR **[10]**

Additionally, the Department of Energy is also considering developing mandatory technology neutral technical specifications that will remove inefficient bulb. Lighting has so far been spared from the residential S&L program because of Eskom CFL distribution programs. However, the utility has now suspended its energy efficiency program leaving confusion in the market **[11]**. By targeting performance rather than a specific technology, all lamps type will need to comply the minimum lumens per watt energy efficiency requirement. Specifically, the proposed MEPS regulations specify that minimum energy-efficiency requirements are introduced in two phases. The first phase becomes effective in 2020 with a limit of 80 lm/W and the second phase will be 95 lm/W **[12]**. This approach makes the regulation non-discriminatory toward specific technologies and avoids the need to develop additional regulations should a new lamp technology enter the market. A report **[12]** has been commissioned to assess the cost benefits of implementing the standard for lighting and the data collected were used in the EDR to calculate the energy savings

Results from the bottom-up analysis show that the proposed set of new energy standards could limit growth of electricity demand to 2.3% instead of 2.7% **[10]**. Indeed, if international best practices standards are adopted sooner and across multiple end-uses in the residential sector, the bottom-up modeling shows that residential electricity growth could be limited to 1.9%. It is important to note that S&L impact will allow for reduction of energy consumption, but not the level of energy services made available, which stay the same in all scenarios. Energy efficiency means using less energy to provide the same service. For example, a LED bulb is more efficient than a traditional incandescent bulb, as it uses much less electrical energy to produce the same amount of light.

More than anything, it is abundantly clear that in a South African context, where electivity prices are increasing sharply for consumers, **(**electricity tariffs increased by 300% from 2007 to 2015, whilst inflation over this period was 45% **[13]**) and where power reliability is uncertain, energy efficiency represents a cheap and sustainable resource of energy that government needs to prioritize.

Report 2: Identification of the Next Set of Electrical Appliances for Inclusion in the National S&L Program

The objective of this study was to identify up to ten new items of electrical equipment, not limited to the residential sector, which would deliver meaningful savings if MEPS were introduced. A market and engineering analysis, underpinned by international practices and experience, was used to identify suitable equipment and to then eliminate the non-suitable, through the following screening process:

1. Identifying all possible options (long list)
2. Removing equipment which is out of scope e.g. non-electrical, covered by MEPS
3. Proceeding with equipment that is regulated in at least two countries, thus ensuring that international standards are available and new standards do not need to be developed
4. Ranking equipment according to estimated future electricity savings
5. Scanning for any potential adoption, implementation and operational issues
6. Ensuring that they are nationally appropriate – possible impact on local manufacturing, increased purchase costs, rate of market change and so forth

Following this approach, the initial long list comprised 96 possible candidates. The second, third and fourth screening criteria then reduced the number to 72, 24 and finally to eight, as shown in Table 3.

Table 3. Equipment Considered for Program Expansion

Equipment	**First Screen**	**Appliance Profiling**	**Decision**
Computers	Medium	High potential rates	Include
TV's	High	High potential – globally implemented	Include
Electronic Power Supplies	Medium	High potential and standard product	Include
Electric Motors	High	High potential and standard product	Include
Pool Pumps	Low	Limited international interest but straightforward	Include
Commercial Refrigerators	High	Complicated due to customized sizes & complex testing	Include, but specific types
Chillers	High	Large savings & low numbers but complex testing	Include
Transformers	High	National priority	Include
Cooktops / Hobs	High	Straightforward but limited savings	Exclude
Microwave Ovens	Medium	Limited savings	Exclude
Electric Irons	Low	Limited savings	Exclude
Electric Heaters	Low	Low savings	Exclude

Conclusion

Energy efficiency standards and labeling (EESL) programs are highly effective policy instruments with which to save energy and support growing markets for energy-efficient products. They are the cornerstone of energy efficiency programs worldwide and have been implemented in more than 80 **[1]** countries, covering more than 50 different types of energy-using products in the commercial, industrial and residential sectors. These programs encourage removal of inefficient technologies from the market; avoid dumping of older, less-efficient technologies from more advanced economies; and empower consumers to make informed purchasing choices. These programs are essential in transforming markets toward more advanced technologies and fostering innovation; thus contributing to the improvement of technology in a country. Indeed, energy efficiency standards should be regularly revised to more stringent levels, to reflect rapid changes in technology and markets.

If energy savings are to be maximized, significant and dedicated resources are required to ensure that development, enforcement and revision of standards is maintained. And this investment is truly dwarfed by its multiple national benefits, *inter alia* of avoided electricity generation, reduced electricity bills, reduction of GHG emissions and a more globally competitive economy.

Internationally, S&L programs which yield high energy savings, consist of a dedicated team of technical experts, who foster international collaboration to leverage the program's performance. This, for example, includes support and technical advice from experts who conduct analyses to upgrade or expand the program to new products, or who help develop specific tools and in-house capacity to evaluate and improve the program. Or even provide guidance on compliance approaches and the ongoing sharing of information.

Within this global context, South Africa's S&L program is nascent. As an intervention it is burgeoning, and its potential is proving to be vast. The program is now running and operating with well-established

tools and resources and has successfully communicated the value of energy efficiency standards and labels to consumers and industry stakeholders. Herein, the UNDP project has provided a solid foundation for the program to grow and improve. Now, S&L needs to transition from a GEF funded and UNDP implemented project, to a formalized Government program. And its sustainability and effectiveness can only be maximized if the responsible Ministry builds on this robust foundation; by placing a sizable value on the benefits that the program delivers to consumers and the economy. To do so, it must provide dedicated resources, human and financial, to institutionalize the program and allow for its expansion in the long term, while substantially increasing its visibility through political will and committed prioritization.

Finally, as an insight from a donor perspective, be it GEF or any other, it is equally crucial that the task of transitioning from donor project to government program is recognized and allocated sufficient time and financial resources from the outset, when designing the scope of work,

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