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REPORT

**Assess the Viability of Self-Declaration as a Suitable Mechanism  
for the Mandatory Registration of Electro-Technical Products  
with the National Regulator for Compulsory Specifications**

**Author(s)**  
**Theo Covary**

**Submitted to:**

European Commission  
Service for Foreign Policy Instruments  
EEAS Loi 02/306  
B-1049 Brussels  
Belgium

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**DISCLAIMER**

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## Table of Contents

<b>Abbreviations</b> .....	<b>5</b>
<b>International Confederation of Inspection and Certification Organizations</b> .....	<b>5</b>
<b>Executive summary</b> .....	<b>6</b>
<b>1 Market and regulatory overview for electro-technical products</b> .....	<b>9</b>
<b>2 Conformity Assessment</b> .....	<b>11</b>
2.1 Introduction.....	11
2.2 Conformity assessment approaches .....	12
2.2.1 First party.....	12
2.2.2 Second party .....	12
2.2.3 Third party .....	13
2.2.4 Assessing the merits of 1 <sup>st</sup> and 3 <sup>rd</sup> party approaches .....	13
<b>3 International case studies</b> .....	<b>16</b>
3.1 Overview.....	16
3.2 European Union.....	17
3.3 United States of America (Federal MEPS and Energy Star.....	20
3.4 Main findings from the Case Studies.....	22
<b>4 Conformity assessment of electro-technical apparatus in South Africa</b> .....	<b>26</b>
4.1 Regulator’s Mandate and Framework .....	26
4.2 Defining and understanding ‘risk’ .....	28
4.2.1 Components of risk.....	28
4.2.2 The three pillars of compliance under the NRCS Act .....	29
4.3 Assessment of the Regulator’s (NRCS) performance and identification of impacting factors.....	29
4.3.1 LoA approval time.....	29
4.3.2 Market surveillance.....	30
4.4 Industry proposal on the SDoC system and market surveillance at the NRCS ...	35
4.5 Industry input and comments .....	41
<b>5 Outcomes and recommendations</b> .....	<b>43</b>
<b>6 Annexes</b> .....	<b>45</b>
6.1 Annex A.....	45
6.2 Annex B.....	45

## List of Figures

Figure 1: Conformity Assessment Model.....	11
Figure 2: 3 <sup>rd</sup> Party Conformity Assessment Approach (NRCS).....	27
Figure 3: Components of an effective compliance approach.....	31
Figure 4: NRCS process flow.....	31
Figure 5: NRCS Electrotechnical approval trends (2010 to 2016).....	38

## List of Tables

Table 1: EU appliance companies in South Africa.....	9
Table 2: Summary of South African large appliance market (2017).....	10
Table 3: Cost Impacts to Stakeholders.....	14
Table 4: Advantages and disadvantages of a 1 <sup>st</sup> and 3 <sup>rd</sup> party approach.....	15
Table 5: EEPLIANT2 Findings.....	18
Table 6: Revision of qualification and verification processes for ENERGY STAR.....	20
Table 7: Examples of non-compliant manufacturers published on DOE website.....	21
Table 8: Settlement amounts agreed with US DOE for non-compliance (2019 to 2020).....	22
Table 9: Summary of major S&L Programmes.....	25
Table 10: Number of LoA's issued and average issued period (2017 – 2020).....	30
Table 11: Examples of EE related products impounded at the POEs in Durban.....	33
Table 12: Test laboratories in South Africa.....	33
Table 13: Interview List.....	45

## Abbreviations

AB	Accreditation Body/ies
CEOC	International Confederation of Inspection and Certification Organizations
CAB	Conformity Assessment Bodies
CB	Certification Body/ies
DMRE	Department of Mineral Resources and Energy <i>formerly Department of Energy (DoE)</i>
DOE	Department of Energy (USA)
DTIC	Department of Trade Industry and Competition <i>formerly Department of Trade and Industry (dti)</i>
EE	Energy Efficiency
EPA	Environmental Protection Agency
EU	European Union
H&S	Health and Safety
ISO	International Standards Organization
ICT	Information and Communications Technology
LoA	Letter of Authority
MEPS	Minimum Energy Performance Standards
MSA	Market Surveillance Authority
MVE	Monitoring Verification and Evaluation
NLF	New Legislation Framework
NRCS / Regulator	National Regulator for Compulsory Specifications. <i>The terms are used interchangeably in the report</i>
SDoC	Supplier Declaration of Conformity
S&L	Standards and Labelling
TIC	Testing, Inspection and Certification Council

## Executive summary

South Africa is an active member of the global domestic appliance market, with a well-established supply chain that comprises of locally manufactured and imported apparatus. As such, it recognises the benefits of global trade integration in reducing costs for both consumers and producers and in increasing trade between the countries involved in international agreements. It also believes that certain products must meet international standards for technical, health, safety and environmental performance, made mandatory through regulations. Naturally, regulations are applicable to both domestically manufactured and imported goods. To this end, market regulation is key; while also a being primary component of attaining national policy imperatives, which for South Africa centre on consumer protection; creating jobs; improving competitiveness to stimulate private sector investment; discouraging product dumping and (most recently) contributing towards international climate change obligations. Indeed, the electro-technical industry and government are both committed to a regulated market to protect business, consumers and the broader economy. To achieve this, conformity assessment is the processes used to demonstrate that a product, service, management system or body, meets specified requirements. And it involves testing to an established performance standard, as well as inspection, quality management, surveillance, accreditation and declaration of conformity.

Globally, three conformity assessment approaches exist – two of which are viable for South Africa: 1.) First Party, a.k.a. the Supplier's Declaration of Conformity (SDoC) where the supplier or manufacturer demonstrates that the apparatus fulfils the specified national requirements (used in the EU); and 2.) the Third (3<sup>rd</sup>) Party approach, where the technical performance of apparatus is ascertained by an impartial, accredited test laboratory to demonstrate that it fulfils specified requirements (the preferred approach in the US and the one used in South Africa).

In comparing the benefits of the two systems, SDoC simplifies the product registration process and shifts compliance costs to the Regulatory authority. As such, it has the advantage of being more flexible, reduces the time needed to place products in the market and has lower compliance costs for suppliers. Conversely, the 3<sup>rd</sup> party conformity approach is more comprehensive, and in theory allows for a greater sense of compliance to mitigate against any real or perceived risks of non-compliance. It is however a more onerous approval process, which invariably results in increased testing costs, and in South Africa's case, up to 120 days for a Letter of Authority (LoA) to be issued by the Regulator – without which no product may be sold in the South African market. This timeframe, which by international standards is exceedingly long, is having an inordinate economic impact on companies operating in the South African market.

In South Africa, the National Regulator for Compulsory Specifications Act (5 of 2008) empowers the National Regulator for Compulsory Specifications (NRCS), an agency of the Department of Trade Industry and Competition (the dtic), to administer and maintain mandatory specifications in the interest of public safety, health, and environmental protection. And it is the NRCS that issues compliant products a Letter of Authority (LoA) valid for a three-year period – required for regulated apparatus and covering every 'type and model' before 'offered for sale' in the country.

Adopting the 3<sup>rd</sup> party approach, the NRCS electro-technical department regulates 12 products types, from appliances, to lighting, power tools, voltage cables and plugs – all of which must meet national standards for health and safety (H&S) and some of which also certain minimum energy performance standards (MEPS) – adopting a two-step process to do so. The first step is pre-approval of a product prior to market entry, which involves product testing and an

application to the Regulator that is supported by a test report from an independent and accredited testing facility. The second is Monitoring, Verification and Enforcement (MVE), which involves monitoring to ensure product compliance, by sampling products for testing at an accredited laboratory, comparing test results to product application specifications and applying sanctions for non-compliance.

Currently, the NRCS is also in the process of implementing a risk-based approach (RBA) to: 1) Evaluate LoA applications; and 2) Drive market surveillance activities such as inspections and sampling (NRCS, 2015). This approach uses an integrated model to assign risk ratings to products and suppliers, which will mean that the lower the risk rating, the lower the processing time. In the alternate, the higher the risk rating, the longer the time to process the application due to the evaluation effort required (NRCS, 2016c). It means that eventually, fewer administrative checks will be done on low-risk applications, whereas high-risk applications will be subjected to a full technical and administrative evaluation; with this risk-based approach currently being piloted in certain sites such as popular ports of entry.

Regardless of which conformity assessment and risk-based approach is adopted however, international best practice has shown that compliance will be sub-optimal and embolden non-compliant businesses, without robust and adequately resourced market surveillance activities to monitor and enforce regulatory requirements. In this, numerous international studies have found that effective market regulation is only possible if pre-approval and MVE are present - and that without the latter, compliance levels average 40%, increasing to 80% when both are effectively in place.

Seen within this context, and as explored in detail in the report, the Regulator's performance to date, both in pre-approval and MVE, has been less than optimal. In the former, while waiting periods have improved, it still takes an inordinately long period of approximately 60+ days to issue LOAs; with industry seeking a timeframe of 14-days under the current ICT system, and less than a week once the long-awaited upgrades to the system have been made. Additional items raised, include an inconsistent or non-uniform approach to assessing applications, with needless delays resulting from the need for escalation and resubmission; a laborious and time-consuming communication system, largely (but not exclusively) due to the critically under-performing ICT system; and a perceived reluctance to provide concise and early decision-making by evaluators, leading to an overly consultative process with line managers.

Simultaneously, market surveillance activities that are critical to MVE - guarding against suppliers submitting "golden samples" for testing and assuring that low performing grey imports are not in the market - have also been less than ideal in the eyes of industry. And they have been hampered by insufficient accredited test facilities for market samples to be assessed (which the SABS is attempting to address) and an inability to apply fines as penalties for non-compliance, which the Act does not currently allow for. At the same time, site inspections at times appear to be haphazard, with no clear reporting on how many are undertaken specifically for electro-technical products. They are also often accused of focusing on "low hanging fruit" such as retailers in major centres and are compounded by a perceived unwillingness / inability / slowness to act on tip-offs about non-compliant products. Also, compliant products have sometimes been erroneously confiscated at ports of entry – with excessively long and arduous processes to assure their return.

Ultimately, it may be that the marked, but insufficient, improvement in LoA turnaround times, has come at the expense of market surveillance; with the latter's human capital focused on improving the former. Another concern is that like many regulators globally, the NRCS applies

a “user-pays” system to recover the costs; but has noted that companies underdeclared their annual sales to reduce the levies payable, which places its funding model under threat. Here it could be that given the perceived low market surveillance activity levels, levies charged to fund such activities are perceived to be little more than a revenue generation exercise. Of greater concern, however, is that frustration with the LoA application process, the lack of meaningful market surveillance action and local testing facilities, opportunity costs directly linked to delays and port seizures, and the high costs of compliance through 3<sup>rd</sup> party testing, in an environment where an organized and protected market is not a certainty, has led to mistrust of the conformity assessment process. Indeed, it has resulted in calls from industry to move from a 3<sup>rd</sup> party to a SDoC approach. This research was thus commissioned by the EU Partners for Growth Programme to ascertain the viability of a shift to SDoC. It represents in-depth desk-top research, which is augmented with over 25 interviews from experts and industry stakeholders in South Africa, the EU and the US, in evaluating the two approaches in detail. And it has also involved undertaking two relatively detailed case studies of the EU and the US markets, as well as a comprehensive interrogation of the veracity of industry concerns; before providing findings and recommendations. In summary, the research has found that industry associations and members do not share a common understanding of what SDoC entails, how it should be implemented or that its potential risks have been sufficiently considered. What is certain however, is that levels of frustration have reached fever pitch and that solutions are urgently required.

Transitioning to an SDoC approach, however, does not appear to be the answer; and this research finds that the opposite is true – particularly in a market like South Africa, where MSA and access to independent accredited test laboratories are limited and suppliers’ declarations of conformity cannot be easily verified. Here, at least the LoA procedure provides a ‘gate’ and pre-market entry filter, which albeit that it may be abused through “golden samples”, creates a screening process that reduces the incidence of intentional or non-intentional non-compliance. Thus, the existing 3<sup>rd</sup> party approach should be maintained; and a core priority for NRCS management and the dtic should be the intensification and prioritisation of rapidly implemented administrative and process improvements at the Regulator. Indeed, the recently developed online registration database for the energy efficiency component of conformity assessment, now has the potential to further reduce processing times when it replaces the current and largely manual CRM system from April 1<sup>st</sup> 2021. The NRCS has indicated that the system is performing well, and that modifying it to cater for H&S applications is now being considered. Various other recommendations detailed in the report can also be seamlessly implemented; and together, all these combined solutions have the potential to significantly bolster South Africa’s 3<sup>rd</sup> party approach, to the benefit of all concerned – without the need to reinvent the proverbial wheel in conformity assessment.



# 1 Market and regulatory overview for electro-technical products

Internationally as a sector, total global sales of major domestic appliances grew by 2.7% in 2019, with total sales estimated at €182 billion<sup>1</sup> - up from €166 billion in 2016<sup>2</sup>. Simultaneously, the suppliers of major home appliances continue to consolidate; and the top 10 companies, which accounted for 57% of global unit shipments in 2015, increased their share to 66%. Indeed, the top 15 global major home appliance companies accounted for nearly 75% of global shipments in 2017<sup>3</sup>; and even closer to home, South Africa's DEFY was purchased by Turkey's Arcelik for USD324 million as part of its plan to expand into emerging markets in Africa. Bucking the trend however, the country's other, and smaller, local manufacturer (KIC), which was acquired by Whirlpool in the 1990's, sold its KIC subsidiary in 2019 to the local management team.

Overall, South Africa (SA) has a well-established electronic appliance supply chain, which comprises of locally manufactured and imported apparatus, with local appliance consumers spoilt for choice, as most major international brands are present in the country. The primary EU brands (Table 1) compete for market share against two local manufacturers, Samsung, LG, Whirlpool, HiSense, Midea as well as other smaller and white (private) labelled appliances.

Here, the country's long historical ties with Europe are reflected by the high number of European brands in the market (Table 1), which until little more than a decade ago dominated imports. This was evidenced by the DMRE's (Department of Minerals and Energy) decision to adopt the EU energy efficiency label design in 2005. And while the global rise of Asian brands from 2000 has seen EU companies relinquish market share, they remain well represented and competitive (Table 2) - benefiting from long established brand recognition, market access, design and quality.

Table 1: EU appliance companies in South Africa

Category		Dishwashers	Laundry	Cooking	Refrigeration	Water Heating	Small Appliances
BSH (Bosch)		✓	✓	✓	✓		✓
Miele		✓	✓	✓	✓		✓
SMEG		✓	✓	✓	✓		✓
Electrolux / AEG		✓	✓	✓	✓		✓
Liebherr		✓					
Candy			✓	✓			
Ariston						✓	
Multiple (De'Longhi, Philips others)							✓

<sup>1</sup> GfK (2019) Three driving forces shaping the Major Domestic Appliances market. Available [here](#)

<sup>2</sup> GfK (2016) The Major Domestic Appliances market is growing – built-in appliances see record sales in Europe. Available [here](#)

<sup>3</sup> Omdia (2018) Available [here](#)

Table 2: Summary of South African large appliance market (2017)

Category	Household Penetration (%)	Annual Unit Sales (000)	Value (ZAR million)	EU Market Share (%)
Dishwashers	11	95	728	31
Tumble dryers	10	82	624	19
Washer dryers	3	21	404	21
Washing machines (incl semi-automatic)	60	585	3 205	24
Ovens	20	326	1 006	18
Stoves	74	413	2 775	30
Freezers	27	330	1 193	7
Fridge / Freezers <sup>4</sup>	70	1 303	9 700	32
Air Conditioners	19	295	1 481	NA
Small Appliances		19 934	11 689	

Source: Euromonitor (2017)

The benefits of international trade include *inter alia* increased economic activity, innovation, improved productivity, a competitive market, and job creation. In this, global trade integration serves to reduce costs for both consumers and producers; and to increase trade between the countries involved in international agreements. However, in as much as product supply chains are becoming increasingly global, industry must operate and comply with local markets, which can be distinctly different. Ultimately, whether attempting to sustain the viability of domestic production; achieve growth through exports; or rationalize manufacturing across the globe, product standards and certification processes are key. As such, a fundamental principle governing international trade, is that products must meet reasonable technical, health, safety and environmental regulatory requirements – which are set by the importing country and therefore apply to both domestically manufactured and imported goods<sup>5</sup>. Thus, market regulation is paramount; and its role is to develop a framework to achieve the above to the greatest extent possible, whilst protecting business, consumers and the environment. Attributes of effective market regulation include:

- Focused and unambiguous regulations that reference internationally benchmarked technical standards – crucial to providing a sound basis for market entry
- Promoting economies of scale, while supporting innovation and protecting local manufacturing and small business
- Strengthening competition by tackling information asymmetries, especially with complex products or concepts (such as energy labels) – giving consumers the tools to assess and compare individual product aspects
- Ensuring consumer protection from sub-standard products – ranging from their performance, to their health and safety (H&S) and environmental impact.
- Creating a level playing field (rules of the game) to facilitate equitable company participation and competitiveness.

In addition to the above drivers, market regulation is also a primary component of attaining national policy imperatives, which for South Africa centre on consumer protection; creating jobs; improving competitiveness to stimulate private sector investment; and achieving international climate change obligations. Thus, the question is not whether regulation is good or bad, but whether it is well or badly designed and implemented. Indeed, regulations can all too easily

<sup>4</sup> Includes standalone fridges

<sup>5</sup> World Trade Organization. Available [here](#)

become a trade barrier, by dissuading market entry due to unreasonably difficult, expensive and / or non-standard compliance requirements.

Industry representatives from electro-technical industry have raised concerns about the enforcement of regulatory standards on imports in South Africa. These standards are regulated by the National Regulator for Compulsory Specifications (NRCS).

This report, through evidence-based research, seeks to identify and interrogate the issues faced by the electro-technical industry in seeking compliance under the 3<sup>rd</sup> party conformity assessment approach used by the national regulator. This is done by:

- Assessing the two conformity assessment approaches used globally
- International case studies, focusing on the EU and US markets
- Reviewing South Africa's approach to identify the cause of the challenges
- Determining whether a shift to the self-declaration conformity approach is a viable option for South Africa
- Findings and recommendations

## **2 Conformity Assessment**

### **2.1 Introduction**

Conformity assessment is the name given to processes used to demonstrate that a product, service, management system or body, meets specified requirements. When applied to a product, it involves testing to an established performance standard, as well as inspection, quality management, surveillance, accreditation and declaration of conformity.

Assuring conformity to stipulated requirements, is critical to a well-functioning market<sup>6</sup>, as it:

- Protects health, safety and environment, by providing greater confidence that products are compliant with relevant rules and regulations
- Increases buyer confidence, by providing details on the characteristics and/or performance of a product and substantiating advertising and labelling claims

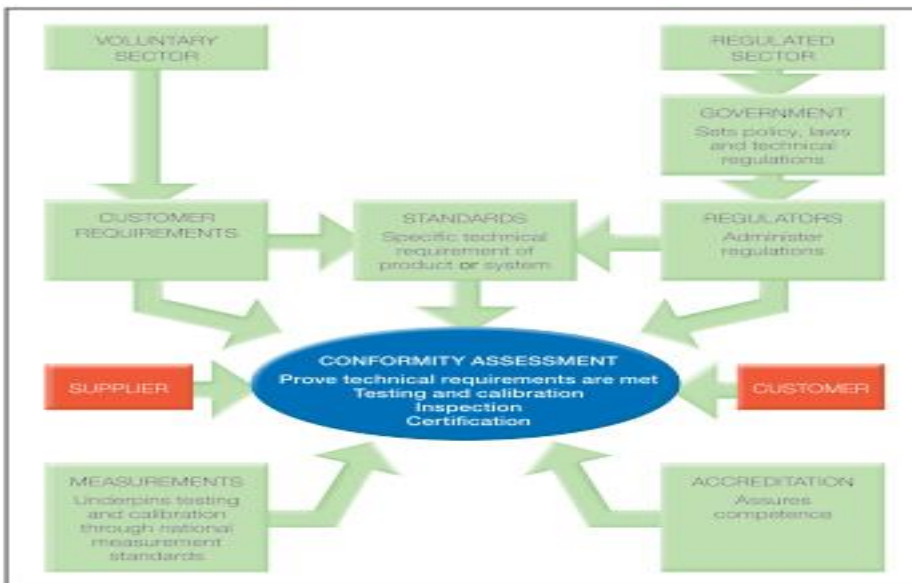
The NRCS' Conformity Assessment Policy (2018)<sup>7</sup> establishes the Regulator's general principles, which applicants must satisfy to demonstrate compliance against the mandatory standards and requirements specified in Compulsory Specifications and Technical Regulations. And although approaches may vary from country to country, the elements shown in Figure 1 represent the universally agreed elements of any comprehensive conformity system.

Figure 1: Conformity Assessment Model

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<sup>6</sup> Testing, Inspection and Certification (TIC) Council (2018) <https://www.tic-council.org/>

<sup>7</sup> [NRCS Conformity Assessment Policy](#)



Source: ISO (2010)

## 2.2 Conformity assessment approaches

The International Standards Organization (ISO) identifies three conformity assessment approaches, namely First (manufacturer), Second (purchaser or user), and Third-party (independent entity).

### 2.2.1 First party

The person or organization providing the apparatus or service being assessed - the supplier or manufacturer - demonstrates that it fulfils the specified national requirements. Under this approach, the resulting statement of conformity is commonly referred to as the Supplier's Declaration of Conformity (SDoC). Key success factors as detailed by the ISO<sup>8</sup> - and indeed minimum requirements in the view of many - include: Non-compliance and product risks being low; a reasonable level of confidence that manufacturers understand the technical, regulatory and market requirements, and have satisfactory control over their supply chain; that appropriate and adequate penalty mechanisms are in place, such as civil and criminal penalties, product recalls and bans; and that there is support from an adequately resourced and active market surveillance system.

### 2.2.2 Second party

*"Performed by a person or organization that has a user interest in the object"*<sup>9</sup>, that is, an end user or entity acting in the interests of other end users, or an individual or group whose primary interest is the fulfilment of assessments that demonstrate specified requirements have been met. Testing carried out by a second party often serves as the basis for other forms of 3<sup>rd</sup> party conformity assessment, including product certification and inspection.

Second parties may not always have business models that allow them to maintain the infrastructure, processes and technical competence to cost-effectively take advantage of this approach. Also, costs of goods and services can increase if suppliers face a high number of

<sup>88</sup> <https://www.iso.org/standard/29316.html>

<sup>9</sup> ISO/IEC 17000:2004

demands from individual second parties, each carrying out their own conformity assessment. Therefore, second parties often rely on third-party conformity assessment to fulfil their needs and to assure product confidence in a cost-effective manner.

In the context of South Africa, the second party approach is not feasible, as there is no organization at this time, NGO or other, to play this role. Moreover, the national test laboratory's (SABS) policy precludes it from testing apparatus on behalf of a third party i.e. it will only accept apparatus from the manufacturer or its approved agent. Moreover, as this approach is designed to service the procurer directly after the manufacturing process, this research has not identified any regulatory body in the world that has adopted this approach and as such it is excluded as a viable option from hereon in this report.

### **2.2.3 Third party**

Performed *“by a person or body whose interests in the product are independent from those of first parties and whose interests in fulfilment of requirements are independent from those of second parties.”*<sup>10</sup>

Independent third-party conformity assessment bodies (CABs) are typically accredited and regularly assessed to international standards (e.g. ISO) by accreditation bodies, as proof of qualification (competence) to provide services.

The accreditation bodies may be either government bodies, recognized accreditation bodies operating under international guides or a combination of both. Third-party is preferred in markets where<sup>11</sup>:

- There may be a higher risk associated with general non-compliance.
- There may be a higher risk from particular product types.
- There is need for an independent demonstration to the supply and demand chain (such as consumers, manufacturers and regulators) that products fulfil specified requirements.
- There is need for higher levels of confidence and assurance of compliance with safety, health or environmental requirements.
- Manufacturers either seek to reduce in-house compliance costs or apply to the third-party as an added value to their own quality and conformity assessment procedures, to gain global market access and protect their brands and reputation.
- There are limited government resources to fully fund market surveillance systems.

### **2.2.4 Assessing the merits of 1<sup>st</sup> and 3<sup>rd</sup> party approaches**

The overview of the three approaches demonstrates how each can be used to manage market and product risk. And whereas the 3<sup>rd</sup> party approach is significantly more comprehensive than SDoC, and in theory allows for a greater sense of compliance to mitigate against any real or perceived risks of non-compliance and / or the product itself, it is a more onerous approval process. This invariably results in increased testing costs, and in South Africa's case, up to 120 days for a Letter of Authority (LoA) to be issued.

Regardless of approach however, without robust and adequately resourced market surveillance activities to monitor and enforce regulatory requirements, compliance will be sub-optimal

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<sup>10</sup> <https://www.iso.org/standard/29316.htm>

<sup>11</sup> American Council of Independent Laboratories

at best and embolden non-compliant businesses. This inevitably jeopardizes the credibility of the regulator, compromises national objectives, and harms consumers and / or the environment, as the quantum of non-compliant products increases over time. In this, numerous international studies<sup>12</sup> have found that effective market regulation is only possible if pre-approval and monitoring, verification and evaluation (MVE) are present - and that without the latter, compliance levels average 40%, increasing to 80% when both are effectively in place. Indeed, the national benefits of effective enforcement are sizable, as confirmed by a 2015 study<sup>13</sup> that concluded that *one euro invested in market surveillance led to €13 saved because of improved energy efficiency*.

It is worth exploring this cost benefit ratio in more detail. The “€13” return is an *energy efficiency benefit* which includes: environmental advantages (reduced GHG emissions and other pollutants); economic gains (lower individual utility bills, job creation, assists with stabilizing electricity prices and volatility); utility system benefits (lowering overall demand thus curtailing new investment); and improved risk management (diversify utility resource portfolios)<sup>14</sup>. Most (not all) of these energy efficiency benefits are non-rivalrous<sup>15</sup> and non-excludable<sup>16</sup> - the two defining characteristics of a public good. The “€1” investment however, is a cost and a necessary pre-condition, which must be shared by government ministries and agencies implementing the programme (awareness campaigns, compliance, market surveillance, testing laboratories etc), and by industry so as to comply. How this cost is distributed between the two is determined by the conformity approach used by the regulatory authority overseeing the compliance. According to a guidebook developed to assist regulatory authorities<sup>17</sup>, both approaches (SDoC and 3<sup>rd</sup> party) can provide equivalently high levels of confidence, if they are well implemented and adequately resourced (pg. 58).

Table 3 illustrates the cost distribution between an SDoC (programme 1) and 3<sup>rd</sup> party certification (programme 2). Compliance costs to industry participants are smaller for programme 1 as they may declare test results obtained from an in-house (non-accredited) test laboratory or with a declaration of performance report. In turn, to ensure a satisfactory level of compliance, the Regulator must increase the level of verification testing and enforcement. By requiring manufacturers to submit an independent test report with their market entry application (programme 2) industry contributes a larger proportion of costs, which may ultimately be passed on to consumers. This does not negate the need for robust market surveillance, due to the risk of only ‘golden samples<sup>18</sup>’ being used for initial testing, but can reduce the effort.

Table 3: Cost Impacts to Stakeholders

Stakeholder	Programme 1 (SDoC) Manufacturer declaration or in-house test report to gain market entry	Programme 2 (3 <sup>rd</sup> Party) Test report from independently accredited test lab to gain market entry
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<sup>12</sup> (i) Zhou, N. et al (2012) International Comparison of Product Certification and Verification Methods for Appliances. China Energy Group Environmental Energy Technologies Division LBNL (ii) Final report on the 4<sup>th</sup> joint cross border EMC market surveillance campaign (2011); LED lighting products. EMC Administrative Cooperation Working Group.

<sup>13</sup> Nordic Ecodesign Effect Project (2015): Estimating benefits of Nordic market surveillance of ecodesign and energy labelling

<sup>14</sup> USA Environmental Protection Agency

<sup>15</sup> when one person uses the good, it does not prevent others from using it

<sup>16</sup> you cannot exclude anyone from using the good

<sup>17</sup> Mark Ellis (2010) Compliance Counts

<sup>18</sup> A product submitted by the manufacturer which meets the regulatory performance standards

Programme management (Government)	High cost of verification testing	Low cost of verification testing
Industry (manufacturer / distributor)	Lower initial compliance costs	High initial compliance costs
End consumer	None	Compliance cost may be passed on to consumer

Source: Mark Ellis (2010)

Table 4 considers the advantages and disadvantages of the two ‘programme’ approaches listed above, the key success factors and the consequences of the absence or limited functioning of thereof.

Table 4: Advantages and disadvantages of a 1<sup>st</sup> and 3<sup>rd</sup> party approach

	<b>Programme 1 (SDoC)</b> <b>Manufacturer declaration or in-house test report for LoA issue</b>	<b>Programme 2 (3<sup>rd</sup> Party)</b> <b>Test report from independently accredited test lab for LoA issue</b>
Advantages	<ul style="list-style-type: none"> <li>- Quicker to place products</li> <li>- More flexible for suppliers</li> <li>- Significantly lower compliance costs for suppliers</li> </ul>	<ul style="list-style-type: none"> <li>- Provides greater confidence &amp; trust</li> <li>- Cost and time savings for regulators</li> <li>- Quicker to place products on multiple markets</li> </ul>
Key success factors (KSF)	<ul style="list-style-type: none"> <li>- Adequately resourced market surveillance regime</li> <li>- Supportive legislative framework</li> <li>- Availability of test laboratories</li> </ul>	<ul style="list-style-type: none"> <li>- Sufficient market surveillance to mitigate ‘golden sample’ ploy</li> <li>- Supportive legislative framework</li> </ul>
Disadvantages (if KSF not present)	<ul style="list-style-type: none"> <li>- Low levels of compliance</li> <li>- Consumers’ distrust of S&amp;L programme</li> <li>- Limited energy savings &amp; GHG reductions</li> </ul>	<ul style="list-style-type: none"> <li>- Suppliers pay for a regulatory service they do not receive</li> <li>- Supplier action to frustrate / halt programme expansion &amp; new legislation</li> <li>- Non-declaration of products. Illicit products placed on market</li> </ul>

In conclusion, the research literature is unequivocal in its findings: A key success factor to maximizing the intended benefits of regulations, is selecting a compliance approach that is most appropriate to the country context. This however, is a necessary but not sufficient condition. A regulatory framework which leans on infrastructure or competencies that are either not present or adequately functional, will undermine programme outcomes, such as: loss of consumer credibility; reduced manufacturer and retailer participation; loss of revenue; increased levels of non-compliant products in the market; and industry opposition to expanded or additional compliance. Moreover, a fractious relationship with industry is unhelpful, especially given

the financial cost-sharing arrangements inherent in the two compliance approaches (1<sup>st</sup> and 3<sup>rd</sup> party).

Now, before assessing and pronouncing on an appropriate approach for South Africa, the research considers the experiences of other countries.

### 3 International case studies

**Note:** In almost all countries selected electrical apparatuses are required by law to meet specific health and safety requirement (H&S) before they can be placed on the market. The introduction of energy efficiency performance standards in the US from the 1970's and the EU in the 1990's has grown in popularity, with over 80 countries now legislating various electrical apparatus and lighting. These two functions are distinctly different and, in most countries, regulated by separate agencies. South Africa has opted for a model whereby H&S and energy performance is managed by the same regulator, and although not common it is not unique as China has adopted the same approach. The case studies below focus almost exclusively on energy performance regulatory activities.

#### 3.1 Overview

The US and the EU, the world's second and third largest markets for large appliances respectively, have opted for different conformity assessment approaches. The former applies the 3<sup>rd</sup> Party approach and the latter the SDoC (1<sup>st</sup> party) method. Both territories have a well-established manufacturing base, which includes common household brands – as detailed in Table 1 for the EU; and Whirlpool, Maytag and Indesit<sup>19</sup> from the US. The EU and US have high GDP per capita levels, equating to a high penetration rate of appliances; and both sets of consumers benefit from mature mandatory S&L programmes, which have delivered significant energy savings over the decades. California adopted appliance efficiency regulations in 1978, whereas the EU commenced in 1992. Since then, the energy performance standards of regulated products have been strengthened on multiple occasions in both territories.

With regards to determining policy goals to fulfil national (and state) objectives to protect health and safety and the environment, the objectives of the two territories are largely aligned, as is indeed the case with all countries who subscribe to the ISO and IEC. However, as detailed in the previous section, the selection of the conformity assessment approach requires careful consideration. Here, the level of rigor is guided by the risks which are likely to arise from non-conformity, and the consequences thereof to the above-mentioned objectives. An acceptable level of confidence is based on the risk of non-compliance and what market-driven mechanisms exist as mitigation tools against it; while part of a full analysis would include the pre-market and post-market structure that would be required. Ultimately, the choice of that structure has implications for costs of related government infrastructure, as well as socio-economic costs, costs of establishing and sustaining technical competency levels, and ensuring the capacity of those providing the service.<sup>20 21</sup>

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<sup>19</sup> Hotpoint was a British manufacturer of domestic appliances acquired by Italian company Indesit, who were subsequently bought by the USA Whirlpool Corporation in 2014.

<sup>20</sup> TIC Federations Consumer Products Market Survey (2018)

<sup>21</sup> Building Trust. The Conformity Assessment Toolbox (2010) UNIDO and ISO



## 3.2 European Union

Technical harmonisation and standards were a core component of the development of a European Single Market, and specifically, in reducing barriers to trade. In 2006 however, the European Commission determined that the process used to create harmonised product standards needed an overhaul to improve its effectiveness. The “New Legislative Framework” (NLF) was introduced in 2008, which reinforces the application and enforcement of internal market legislation<sup>22</sup>, by:

- Improving market surveillance rules to better protect both consumers and professionals from unsafe products, focusing on danger to health or the environment.
- Setting clear and transparent rules for the accreditation of conformity assessment bodies.
- Boosting the quality of, and confidence in, the conformity assessment of products, through stronger and clearer requirement rules.

By relying on 1<sup>st</sup> party conformity assessment (SDoC), the compliance onus is placed on the manufacturers. To mitigate resultant non-compliance risks, a fully funded national market surveillance authority (MSA) is needed, as outlined in the Framework Directive for Ecodesign (2009/125/EC). The MSA of each member country is compelled to undertake check-testing, request relevant testing information from manufacturers, and ensure that non-compliant products are removed from the market. The MSAs must submit their market surveillance findings to the European Commission (EC), which may be distributed to all other member states; and specific test reports must be available for inspection for at least five years from the date on which that appliance was last manufactured.

The EU legal framework delegates the application of EU Directives to the individual member states; and the extent of countries’ MSA enforcement efforts vary markedly across the Union, as reflected by levels of non-compliance. A 2012 review<sup>23</sup> of global compliance approaches confirmed this discrepancy. For example, in the UK, the Department for Environment, Food, and Rural Affairs (DEFRA), which is responsible for enforcement, estimated that 10-15% of appliances did not meet the claimed energy level and that 20% of products without a correct label were non-compliant. Overall, enforcement activities across 15 EU member states found that *“three out of nine original member states did not test appliances and only Denmark and the Netherlands performed many tests and reported the results centrally for enforcement action. Of all the E.U. member countries, only 17 countries have accredited test labs and of those, only seven countries have laboratories capable of conducting verification testing for more than one product.”* As a result, the EU has focused and prioritised compliance through several initiatives.

### **Administrative Cooperation Groups (AdCos)**

In 2009, the Ecodesign AdCo group on market surveillance (ADCO) was established to bring together all MSA’s on an informal basis, to improve cooperation in the implementation and enforcement of appliance S&L programs across the EU.

### **Appliance Testing for Energy Label Evaluation (ATLETE)**

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<sup>22</sup> EU New Legislative Framework [Available here](#)

<sup>23</sup> Zhou, N. et al (2012) *International Comparison of Product Certification and Verification Methods for Appliances*. LBNL

In its first iteration (2009 to 2011) 80 randomly selected refrigerators were tested; where it was concluded that “*many member states simply do not prioritize the monitoring and enforcement of the Ecodesign framework*”. ATLETE II shifted to washing machines (2012 to 2014) and tested 50 models of 29 manufacturers<sup>24</sup>, to find:

- 100% compliance on the EE class and energy consumption declarations on the label
- 92% compliance for functional performance class and parameters
- 84% compliance of the product fiche
- 64% compliance in indicating the standard programme on the machine, as required
- 38% compliance in providing the requested Ecodesign information in the booklet of instructions

The study highlighted the vastly different compliance approaches undertaken by the various MSAs. Of the 26 countries surveyed:

- 7 had more than five inspectors; 13 had less than five inspectors; and 5 would not disclose or did not have the information available.
- 14 member states did not undertake any product testing activities; and 12 tested (Denmark 60 annual tests; Hungary 200; Netherlands 70-100; Sweden 100 and UK >20)

## **EEPLIANT1&2**

EEPLIANT is an EU funded pan-European concerted market surveillance initiative, which aims to help deliver the intended economic and environment benefits of the EU Ecodesign Directives, by increasing rates of compliance.

The inaugural EEPLIANT (2015 to 2017) observed the monitoring, verification and enforcement activities of fifteen MSAs within the EU; and the project was a highly visible demonstration to all stakeholders that the marketplace is being policed. As noted in its report<sup>25</sup>: “*Without some form of centralised coordination, the resulting effectiveness of MSAs is, inevitably, limited. This lack of effectiveness is well known to stakeholders such as consumer bodies and supplier trade bodies, who have repeatedly called for improved market surveillance in the EU.*”

The EEPLIANT2 *Joint Market Surveillance Action on ecodesign and energy labelling* initiative was launched in 2017<sup>26</sup> and reported in February 2020, with 17 market surveillance authorities (MSA) from the EU participating. Here, over a period of 30 months, they reviewed the technical documentation and tested the energy performance of household refrigeration appliances, professional refrigeration products, and the energy consumption resulting from appliances on network standby. In all cases, economic operators were given the opportunity for clarifications and voluntary actions. A summary of the results is presented in Table 5

Table 5: EEPLIANT2 Findings

<b>Appliance</b>	<b>Energy Labels</b>	<b>Technical Documentation</b>	<b>Product Testing</b>
Household refrigerator	80% non-compliance in online shops (n=89)	17% found to be non-compliant (n=172)	40% of targeted models non-compliant (n=43)
Commercial refrigerator	50% non-compliance (n=64)	40% required changes to documents (n=64)	52% understated energy consumption (n=29)

<sup>24</sup> ATLETE II (2014) *Appliance Testing for Washing Machines Energy Label & Ecodesign Evaluation* [here](#)

<sup>25</sup> Energy Efficiency Compliant Products (2014) *EEPLIANT*. Prosafe [Available here](#)

<sup>26</sup> Energy Efficiency Compliant Products (2020) *EEPLIANT2* [Available here](#)

Standby power	59% had some compliance issue (n=59)	36% failed power management requirements (n=59)	29% failed standby power requirements (n=59)
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### **EEPLIANT3**

The third instalment of this initiative commenced in June 2019 and is scheduled to end in May 2023. The 48-month project's goal is to: "*Continue the transformation of the effectiveness and efficiency of the market surveillance work undertaken across the EU for Energy Labelling and Eco-design.*" 20 EU members states and Turkey are participating, while the project has a budget of €6.58 million and 12 work packages. These include enhancing ICT tools to support market surveillance, improved product testing, inspecting over 350 documents and testing 278 products. (More information can be sourced [here](#)).

### **Third Party Certification**

The Ecodesign Directive does not set minimum requirements but is implemented through product-specific regulations which are applicable in all member states. Products affected by this measure must meet the following criteria: 1) Sales must exceed 200 000 units per annum within the EU market; 2) be deemed to have significant environmental impact; and 3) present sizable potential to improve the product's environmental impact, without incurring excessive costs. Solid fuel space heaters and boilers met these criteria, with a combined estimated energy savings potential of 59 PJ (petajoules) / year by 2030; and the 2015 regulations come into effect in 2020 (boilers) and 2022 (space heaters).

Third party conformity assessment was suggested as a potential tool to support compliance, since the products are complex and market surveillance is expensive and not straightforward; with the Danish Technical Institute and Wuppertal being commissioned by the EU to determine the viability of this approach<sup>27</sup>. The report evaluates, on the one hand the environmental benefits and on the other hand the risk vs burden to industry ratio as per decision 768/2008/EC, which states that overly onerous legislation should be avoided. Considerations included:

#### *Environmental and health risks*

- CO<sub>2</sub> - Climate change acceleration
- Particle matter pollution – Respiratory problems: asthma, lung cancer, decreased lung function
- Organic gaseous compounds - Irritating eyes, breathing and cardiovascular issues, cancer
- Carbon monoxide – Resulting in nausea and vomiting, and in high doses, death; with long-term exposure leading to heart disease
- Nitrogen Oxides - Inflaming airways and having other negative health impacts

#### *Risk related to public interest*

These risks relate directly to having 3<sup>rd</sup> party assessment (or not), and indirectly determine the perceived scale of the above-mentioned environmental and health risks, as impacted by compliance rates. Here, public interest risks include:

- Creating an uneven playing field – disproportionately affecting SMEs
- Increased compliance costs – again disproportionately affecting SMEs

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<sup>27</sup> Danish Technical Institute and Wuppertal (2019) Special review study: Assessment of appropriateness of a third party conformity assessment procedure for solid fuel boilers and solid fuel local space heaters [here](#)

- Test lab capacity and its effect on time to market – resulting in lost sales
- Low compliance rates – negatively impacting companies whose products meet the standard

The EU commission ruled that mandatory 3<sup>rd</sup> party certification as a conformity assessment procedure is not possible under the existing legislative framework. For Ecodesign products to be tested by a 3<sup>rd</sup> party, it would require a fundamental revision of EU Directive 2009/125/EC – which is an unlikely development<sup>28</sup>.

The implication of the Commission’s decision above, is that the EU S&L programme will retain the SDoC approach for conformity assessment, at least for the foreseeable future – with various initiatives already discussed in this section, consistently seeking to significantly strengthen and improve this approach’s efficacy across the EU.

### 3.3 United States of America (Federal MEPS and Energy Star)

The US (although not exclusively due to complexities related of various federal, state and local regulation) makes use of a 3<sup>rd</sup> party conformity assessment approach for products which are deemed to be high risk. Other differentiating features of the US market include product liability and retailer / utility programmes for mandated energy efficiency improvements – with several states requiring investor-owned utilities to collect a surcharge from ratepayers. The surcharge is then used to fund energy efficiency programmes, many of which target electronic apparatus<sup>29</sup>. In addition to its federal programme, the ENERGY STAR initiative was started in 1992 by the U.S. Environmental Protection Agency (EPA) as a voluntary programme to save consumers and businesses money and reduce GHG emissions. The programme has saved more than 4 trillion kWh of electricity and achieved over 3.5 billion metric tons of GHG reductions<sup>30</sup> from 1992 to 2019 - equivalent to the annual emissions of 750 million cars. And while the programme was very well received and grew at a rapid rate, this ultimately contributed to lapses in its verification processes. These were starkly highlighted when the Government Accountability Office in 2010 identified 15 products which did not meet the programme’s criteria – concluding that products received certification too easily and quickly. Embarrassingly, it identified an alarm clock that was the size of a small generator powered by petrol – an asinine and impossible inclusion which demonstrated very limited quality control; this and other similar findings prompted an immediate review and revision of the verification and certification processes, summarised in Table 6

Table 6: Revision of qualification and verification processes for ENERGY STAR

Previous qualification process (pre-2010)	Qualification and verification process (post-2010)
EPA enters into partnership agreement with manufacturer	EPA enters into partnership agreement with manufacturer
Manufacturer partner submits test data to EPA; lab accreditation required for certain products	All products must be tested in an accredited laboratory and qualifying product information submitted to EPA via a certification body

<sup>28</sup> Minutes of the 2nd stakeholder meeting for review study for 3rd party conformity assessment. Available from author on request

<sup>29</sup> See: US Environmental Protection Agency [here](#) and [enervee](#)

<sup>30</sup> ENERGY STAR [here](#)

EPA reviews test data and adds products to ENERGY STAR list	EPA reviews test data and adds products to ENERGY STAR list
EPA verifies energy performance through its compliance audit programme	Verification: "Off the shelf" product testing will be instituted across all ENERGY STAR products

Source: Zhou et al (2012)

Under the new processes, accreditation bodies (AB) provide official accreditation for laboratories and certification bodies (CB). Testing laboratories must apply for accreditation from an AB in accordance with ISO/IEC 17025 to conduct testing for products seeking ENERGY STAR certification and verification. Manufacturers' laboratories may also be used, as long as all testing is witnessed by a CB. All certification testing services are paid for by the manufacturer seeking certification, whereas DOE pays all verification costs for obtaining and testing products that have a federal minimum energy performance standards (MEPS) and are covered by the ENERGY STAR programme. The EPA has the right to revoke licences of AB, CB or test laboratories if it feels they are in violation. Moreover, in the interests of transparency and public interest, the EPA publishes all available information, including non-compliance.<sup>31</sup>

In 2010 the DOE launched a *Pilot Program* to verify the energy efficiency and water-use characteristics of selected ENERGY STAR products through laboratory testing, as part of DOE verification. The testing results in 2010 and 2011 varied for lighting and appliance products. In lighting, 151 products were disqualified in 2010, increasing to 164 products in 2011; while in appliances, 29 products were disqualified in 2010, decreasing to only six products in 2011<sup>32</sup>.

In 2019<sup>33</sup>, the EPA tested 2 012 ENERGY STAR labelled models, made up of residential appliances, and, commercial equipment (food, office, HVAC, building materials, lighting and fans). 126 unique models were disqualified, representing a 6.3% failure rate. Significantly, no residential appliances were found to be non-compliant. Most failures were from lighting products (99 or 79%) followed by commercial electronic equipment (13 or 10%). The 2010 and 2019 summary results are compared in Table 7

Table 7: Examples of non-compliant manufacturers published on DOE website

	2010		2019	
	Units Tested	Further Action	Units Tested	Disqualified
Washing machines	39	6 (15%)	16	0
Tumble dryers			13	0
Dishwashers	10	2 (20%)	22	0
Refrigerators & freezers	94	16 (17%)	83	0
AC	77	20 (26%)	24	0
Storage water heaters	8		38	0
<b>Overall compliance rate</b>	<b>82%</b>		<b>100%</b>	

Source: US EPA (2012; 2019)

The EPA uses a unique combination of techniques for verification, selecting some products at random and others based on failure or sales volume indicators; and it requires every CB to test at least 10% of all ENERGY STAR qualified models that the CB has certified or for which it has received qualified product data. Approximately half of that 10% should be randomly selected, while the remaining half should have one of the following indicators:

- Previous product failures

<sup>31</sup> Zhou, N. et al (2012) International comparison of product certification and verification methods for Appliances [here](#)

<sup>32</sup> DOE (2012) ENERGY STAR Appliance verification testing. Pilot program summary report. [here](#)

<sup>33</sup> US EPA (2019) [here](#)

- Referrals from third parties regarding accuracy
- High sales volumes, if that data is available to CB

DOE enforcement activities fall within three categories.

- Conservation standards relating to products that do not meet the energy standards.
- Manufacturers’ compliance with certification requirements
- ENERGY STAR compliance – with the DOE referring products’ tests that do not meet their specification to the EPA

The DOE posts compliance findings on its website, which can be accessed [here](#). Table 8 lists the settlement amount for non-compliance for each category. *Note: the date used is the settlement date and not the date of the transgression, which is typically one to two years before (or longer depending on the circumstances).*

Table 8: Settlement amounts agreed with US DOE for non-compliance (2019 to 2020)

	Conservation Standards	Compliance Standards	ENERGY STAR
2020	Imbera comm refrigerator. Fine: \$89k Smith water heater. Fine: \$2 189k Nortek AC. Fine \$6k Rheem central AC. Fine \$8k Nortek AC. Fine \$41k Rheem central AC. Fine \$687k Eaton transformer: Fine \$2k Bradford water heater. Fine \$81k Whirlpool res refrigerator. Fine \$1 901k Rheem central AC. Fine \$108k	None	None
2019	Tempsec AC. Fine \$13k Republic motors. Notice issued TECO motors. Fine \$8k Amana freezer. Fine \$10k Carrier AC: Fine \$639k WEG motors. Notice Beverage freezer \$7k	Three Square Market paid \$8k fine for not adequately certifying AC products	None

Source: US DOE

Overall, the US has achieved significant energy savings and GHG reductions from equipment targeted by its energy efficiency programme. The ENERGY STAR savings and the credibility of the programme came under threat in 2010, but the identified weaknesses were addressed with a more robust MSA. This resulted in compliance rates for the residential equipment covered in Table 7 improving from 84% to 100%, with general compliance in 2019 now at 94%. Discussions with industry experts and media reports also point to other important factors which collectively contribute to this improved and highly satisfactory compliance rate. These include: ‘name and shame’ through the publishing of transgressors on a government website; self-policing, with manufacturers routinely testing competitors’ products to check their efficiency and performance claims and report non-compliance; the threat of legal lawsuits; and reputational risk<sup>34</sup>.

### 3.4 Main findings from the Case Studies

Somewhat unsurprisingly the American Council of Independent Laboratories (ACIL) staunchly advocates for 3<sup>rd</sup> party certification<sup>35</sup>. Their position is articulated as follows:

<sup>34</sup> Interview with LBNL laboratory; media report [here](#)

<sup>35</sup> ACIL (2002) The value of 3<sup>rd</sup> party certification [Available here](#)

*Of all conformity assessment procedures that give assurance that a product, process or service conforms to specified requirements (safety, health and the environment), third party certification provides the greatest value. Third party certification:*

- *Is independent*
- *Is cost effective*
- *Results in safer and more reliable products*
- *Has immediate acceptance in the marketplace*
- *Instils consumer confidence*
- *Distinguishes manufacturers making compliant products*
- *Can aid in defence of a product liability action*

**Note:** *Although this statement was issued in 2002 it remains on the ACIL website in 2021 as a position paper.*

The ACIL's standpoint is supported by a 2018 market survey undertaken by TIC (Testing, Inspection and Certification Council) and CEOC (International Confederation of Inspection and Certification Organizations) <sup>36</sup>, which compared the compliance rates of certain categories of consumer products available on the EU and US market i.e. SDoC versus 3<sup>rd</sup> party accredited products. And although it focused on safety standards rather than energy performance, the survey is deemed relevant for the purposes of this research, from the viewpoint that manufacturers are more inclined to ensure H&S compliance (over energy performance). Eight products were selected (luminaires, hair dryers, toasters, room heaters, small power tools, fans, adapters and irons) and from 2014 to 2016, 537 samples were randomly purchased from stores in the EU (360) and US (177), of which 10% of the EU and 95% of the US products were certified by a 3<sup>rd</sup> party. The overall results were that of all the products tested, 17% of the self-declared products showed dangerous faults, compared to less than 1% for products that were third-party certified.

These findings are corroborated by the inaugural EEPLIANT report of 2014<sup>37</sup>: *“Without some form of centralised coordination, the resulting effectiveness of MSAs is, inevitably, limited. This lack of effectiveness is well known to stakeholders such as consumer bodies and supplier trade bodies who have repeatedly called for improved market surveillance in the EU.”* And they are strongly supported by just how quickly the ENERGY STAR programme self-corrected by changing its compliance approach.

Seemingly, the additional requirements of a 3<sup>rd</sup> party approach are far outweighed by the results. However, an analysis of the research findings, augmented by interviews with EU experts<sup>38</sup>, has delivered a more practical outlook. Recognising the higher levels of compliance of a 3<sup>rd</sup> party approach, as well as industry's business motives, which may lead to expediency (willful non-compliance) they point to the following: Firstly, although not fully compliant, the SDoC has delivered an average compliance rate of >80%, which may be much lower in some member states. Secondly, and linked to the first point, its efficacy is a function of an effective MSA plan. Thus, regardless of approach, check testing remains the key; and it is crucial that any MSA has access to accredited test laboratories, sufficient and adequately trained test inspectors, and an appropriate budget. This is demonstrated by the improved compliance levels

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<sup>36</sup> TIC Federations Consumer Products Market Survey (2018)

<sup>37</sup> Energy Efficiency Compliant Products (2014) *EEPLIANT*. Prosafe [Available here](#)

<sup>38</sup> Antoine Durand (Fraunhofer); Thomas Götz (Wuppertal) and Charles Michaelis (Strategy Development Solutions)

now being achieved from more concerted EU action under the EEPliant initiative. Thirdly, SDoC reduces administrative and financial burdens, which in the highly competitive market of appliances, benefits the consumer.

Ultimately, these findings align with the upfront desktop research that emphasized “*the selection of a compliance approach which is most appropriate to the country context*” – as can be seen in Table 9, which provides an overview of some of the major global S&L programmes. Seen in this light, the section of the report after Table 9, then considers the country context of South Africa.



Table 9: Summary of major S&L Programmes

Country	Programme	Certification (market entry)	Verification (post entry)	Accreditation Requirements	Product Information Database
EU	Ecodesign, MEPS & Labelling	Ecodesign has requirements. SDoC is sufficient for market entry	Member states responsible for check testing	Not all member states have accredited laboratories and those that do not necessarily for all regulated products	Non-compliant products must be reported to EU database. Database of compliant products vary across member states
US	Federal MEPS	Manufacturer to submit one certification report a year for all products in distribution	DOE conducts verification testing at its own discretion	3 <sup>rd</sup> party preferred. Manufacturer testing witnessed by DOE allowed in certain cases	Certification reports submitted online via DOE certification compliance management system
	ENERGY STAR	Product testing certified by certification body & sent to EPA before ENERGY STAR label may be affixed	Certification body to test minimum of 10% of all qualified models it has certified	Testing labs & certification bodies must be accredited by recognized accreditation bodies. Manufacturer testing labs witnessed by certification body also allowed	ENERGY STAR product list available online
Australia	MEPS & Labelling	Products must be registered with state regulators before market entry (SDoC)	Check testing done based on pre-determined criteria (budget & surveillance intelligence)	Accredited lab required for check testing but not for product registration	Online searchable database for all registered products
Canada	MEPS & Labelling	Verification mark from required before import. Certification bodies verify the mark and performance of all regulated products	No	All test labs must be accredited. Accredited labs or witness manufacturer testing permissible	Online searchable database for all registered products, including ENERGY STAR
China	MEPS & Labelling	Product approval for market issued automatically on application with SDoC certificate	Check testing	Round robin testing	Online searchable database for all registered products
South Africa	MEPS & Labelling	Accredited third party test report submitted with application	Check testing	Limited test laboratories & not for all products being regulated	Online database developed & being implemented in 2021. Intention is for all registered products to be publicly available

Source: Updated from Zhou et al (2012)

## 4 Conformity assessment of electro-technical apparatus in South Africa

The South African electro-technical industry and government are both committed to a regulated market to protect business, consumers and the broader economy. How this is best achieved does at times lead to friction. Indeed, regulatory oversight is challenging, because by its very nature it seeks to identify non-compliant practices, which by design or error, compromise the objectives of national policies, regulations and voluntarily adopted standards.

The level of compliance in any territory is influenced in varying degrees by *inter alia* cultural norms; government resources (technical and financial); the legislative framework; access to technical facilities (test laboratories, research and innovation); targeted and effective communication and awareness. Thus, although it is useful and necessary (given the increasingly globalized nature of trade) to consider approaches adopted by other territories, the most effective approach is one that is anchored on international experience but tailored to address local conditions<sup>39</sup>. Notwithstanding the importance of a customized approach, universally the key success factor is a MSA which is adequately funded and resourced.

### 4.1 Regulator's Mandate and Framework

The National Regulator for Compulsory Specifications Act (5 of 2008) empowers the National Regulator for Compulsory Specifications (NRCS), an agency of the Department of Trade Industry and Competition (the dtic), to administer and maintain mandatory specifications in the interest of public safety and health, or for environmental protection. The NRCS issues compliant products a Letter of Authority (LoA) which is valid for a three-year period; without which products may not be sold in the South African market. An LoA is required for every 'type and model' before 'offered for sale' in the country<sup>40</sup>.

The NRCS' Conformity Assessment Policy, approved by its CEO on 13 April 2018<sup>41</sup>, selects the 3<sup>rd</sup> Party approach to regulate any material, commodity, product, installation, process, system, person or body under its mandate – as per **Error! Reference source not found.** The NRCS defines 3<sup>rd</sup> Party conformity assessment as follows: "*performed by a person or body that is independent of the person or organization that provides the object and of user interest in that object*". Here, the applicant's LoA proposal must include a test report undertaken by an independent test laboratory which is accredited by the International Laboratory Accreditation Cooperation (ILAC). Test reports from SABS, which is ILAC accredited, are acceptable. For instance where there are no locally independent accredited test laboratories available, such as AC, the applicant has to send it to an international laboratory - refer to Table 12 below.

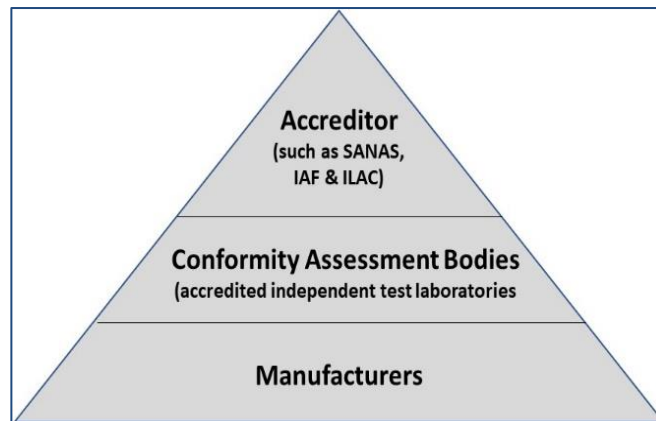
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<sup>39</sup> See CLASP MVE Guidebook (2010); ISO Conformity Assessment Toolbox

<sup>40</sup> ET/SCF018 ISSUE 11 REVISED 08 Jan 2018

<sup>41</sup> [NRCS Conformity Assessment Policy](#)

Figure 2: 3<sup>rd</sup> Party Conformity Assessment Approach (NRCS)



Source: NRCS

The NRCS electro-technical department regulates ~642 products types for both safety and energy efficiency, which range from appliances, lighting, power tools, voltage cables and plugs – all of which must meet national standards for health and safety (H&S). To effectively regulate products, and in alignment with international practice, the NRCS has adopted a two-step process; namely:

1. **Pre-approval:** approving a product prior to market entry.
  - Product testing
  - Application to Regulator to distribute product, supported by a test report from an independent and accredited testing facility
  - Regulatory approval
2. **Monitoring, Verification and Enforcement (MVE):** Monitoring the market to identify and penalize non-compliant products.
  - Sample products from market, for testing at an accredited laboratory
  - Compare test results to product application specifications
  - Compliance (no action) / Non-compliance (sanctions including product confiscation, sampling and / or fine)

Aligned to global best practice and in the interest of reducing energy and carbon intensity and consumer protection, South Africa has committed to pursue improved efficiency of household appliances. This commitment has been well established in relevant legislation and frameworks; and the National Energy Act (34 of 2008) empowers the Minister of Mineral Resources and Energy (DMRE) to regulate the sale of appliances that consume wasteful amounts of electricity. Under the country's S&L program, which seeks to remove inefficient electrical apparatus from the market, VC's 9006 9008 8043 and 9091 require that domestic appliances (ovens, laundry, dishwashers, geysers, refrigeration & AC) and lighting (incandescent and single capped fluorescent lamps) must meet MEPS.

As custodian of the program, the DMRE, is expanding it to include General Service Lamps, so as to incorporate technological advances of high usage apparatus, namely LED (light emitting diode) lighting, electric motors, computers, pool pumps, distribution transformers, televisions, external power supplies, commercial refrigerators and chillers. And the NRCS, at the request

of the DMRE, regulates the MEPS and the energy label (S&L) for selected appliances, in addition to health and safety requirements.

## **4.2 Defining and understanding ‘risk’**

The analysis undertaken in the previous section on the three conformity assessment approaches, identified risk as the dominant criterion in selecting the most appropriate approach to regulate a market. When “*the risk of non-compliance and of the product is low*” we are advised that first party conformity assessment (SDoC) is most appropriate. However, for the converse “*where there may be a higher risk associated with non-compliance and a higher risk from products*” the literature points us towards 3<sup>rd</sup> party certification.

Unfortunately, absolutes are not always present, perspectives vary (can mean different things to different people), markets are complex, and combinations of criteria exist. It is therefore necessary to interrogate what is meant by risk in general, and more specifically by the policy owners who have appointed the NRCS to regulate these apparatuses on their behalf; as well as how this has been interpreted and processed by the former, to align with their regulatory and operational framework.

### **4.2.1 Components of risk**

Regulators are increasingly adopting a risk-based approach to manage the risks associated with non-compliance with legal rules, rather than the legal rules themselves. The sheer volume of products that must be dealt with; limited financial and technical resources; and the vastly varying potential hazards or dangers that each product may pose, means that it is simply not effective or efficient to afford each one the same effort.

A regulator could target the biggest hazards / risks on a “worst-first” principle, which maximizes efficiency by targeting a mix of risks to capitalise net benefits; but is not the only approach available. Under this approach, a multitude of smaller hazards would be included if their risk management costs were deemed to be correspondingly small, but it might well exclude some larger hazards if they have extremely low probabilities or are impossible or disproportionately costly to manage. In this way, a portfolio that is balanced across low, medium, and high-risk activities can be created; and from an efficiency standpoint, the key is to balance the benefit-to-cost returns of regulating these, so as to optimise the overall net benefits across the full suite of the regulator’s actions. The precise balance that will be efficient for any given regulator will vary, based on the actual costs and benefits, due to the types of problems and economic circumstances the regulator confronts <sup>42</sup>.

Notwithstanding the above, the introduction of any new legislation comes with the inherent risk of non-compliance due to factors such as lack of awareness and / or understanding; the targeted market not being sufficiently prepared; unwillingness to bear the costs, time or effort required etc. This is a global phenomenon; and in response it has become common practise for regulators to mitigate such risk by categorising and managing all new regulation on a high-risk basis (typically two years) - after which it is assessed and re-categorised, based on the assessment’s findings.

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<sup>42</sup> Professor Coglianese (2019) [Access here](#)

## **4.2.2 The three pillars of compliance under the NRCS Act**

Paragraph 40 of Act 5 of 2008, describes the purpose of the NRCS Act as follows:

**2. The purpose of the Act is—**

- (a) to provide a legal framework for the administration and maintenance of compulsory specifications in the interests of public safety and health or for 40 environmental protection in the Republic; and**
- (b) to establish the National Regulator to administer compulsory specifications.**

Accordingly, the NRCS Act views public safety, health and environmental protection with the same lens that the Constitution (1996) considers the three spheres of government “*distinctive, interdependent and interrelated.*” They have equal importance, and given this understanding, environment is not a function or sub-set of H&S – it is equal.

On this basis, and as confirmed by the NRCS<sup>43</sup>, it is fallacious for any party to have the perception that products regulated for conformity, which do not present the risk of death or injury, cannot be treated in the same manner as products or services that do. What truly drives the level of risk allocated to a product or service, is the mandate received from the policy owner.

Currently, the NRCS is in the process of implementing a risk-based approach (RBA) to: 1) Evaluate LoA applications; and 2) Drive market surveillance activities such as inspections and sampling (NRCS, 2015); and pilot projects on the RBA are currently running in various areas (i.e. approvals, market surveillance, port of entry inspections). According to the NRCS, the full implementation of the RBA will be feasible following the roll-out of an appropriate ICT system; and based on this RBA, applications are categorised into high, medium, and low risk categories<sup>44</sup>. These are determined by the risk assessment of the product, supplier compliance behaviour, country of origin, and season<sup>45</sup>.

In light of the above, the lower the risk rating, the lower the processing time; while the higher the risk rating, the longer the time to process the application due to the evaluation effort (NRCS, 2016c) - with fewer administrative checks being done on low-risk applications, whereas high-risk applications will be subjected to a full technical and administrative evaluation.

## **4.3 Assessment of the Regulator’s (NRCS) performance and identification of impacting factors**

### **4.3.1 LoA approval time**

When the NRCS was established (2008), LoA’s were issued within a 30-day period. This period has steadily increased over time, with the present procedural cap making allowance for a maximum of 120 days<sup>46</sup>, and has sometimes taken even longer. The long turnaround times led industry to approach the dtic Minister, Parliament and even the President; and indeed, at the South African Investment Conference in September 2018 an EU Delegation specifically raised the inefficiencies of the LoA process as one of three “*main constraints to potential FDI*”

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<sup>43</sup> Discussion with Mr Riyano 22 January 2021

<sup>44</sup> NRCS. (2016). Presentation on the NRCS Letters of Authority. Portfolio Committee on Trade and Industry

<sup>45</sup> NRCS. (2016). Mechanisms to Protect the Local Manufacturing Sector from Illegal and Substandard Products. Portfolio Committee on Trade and Industry

<sup>46</sup> Electrotechnical Letter of Authority administrative procedure, ET/SCF018 Issue 11 Revised 08 Jan 2018

(and trade) that would benefit from the government's urgent attention". The delegation emphasized the importance of certification procedures being "proportional to the risk at stake and efficient enough so as not to inhibit existing business operations as well as new investment"<sup>47</sup>. The NRCS has been summoned to Parliament on several occasions to brief them on the reasons for the delays and to present a turnaround plan<sup>48 49</sup>; and on the 7<sup>th</sup> of October 2020, the NRCS CEO updated Parliament on the status of its plan and the improved application processing time of electro-technical LoAs:

*"90% of the applications were approved within 120 days, compared to 93% achieved in 2019/20. However, the total number of approvals were marginally higher than the same period in the previous financial year"<sup>50</sup>*

The NRCS reported that its average processing time for energy efficiency LoAs in Q4 of 2020 is 70 to 78 days<sup>51</sup> and 65 days in October 2020<sup>52</sup>. Here, a summary of progress is provided by the NRCS in Table 10, which according to the NRCS has seen the LoA processing period halved over the last three years.

Table 10: Number of LoA's issued and average issued period (2017 – 2020)

	2020/21 Q3 YTD	2019/20	2018/19	2017/18
EE LoA's issued	1 080	1 373	1 503	1 129
Processing period (days)	63	78	>100	>120

Source: NRCS

The NRCS issues the H&S and EE LoA's simultaneously and apparatus regulated under VC 9006 & 9008 may not be sold without both. H&S evaluations, typically require a shorter processing period. It is expected that the recently developed online registration database for the energy efficiency component, has the potential to further reduce processing times when it replaces the current and largely manual CRM system from April 1<sup>st</sup> 2021. The NRCS has indicated that should the system perform well, it could be modified to cater for H&S applications.

Industry has also confirmed that processing times have improved significantly and that the entire process is more streamlined. However, they note that 63 days is still too long and that 30 days should be the absolute maximum; with the South African Domestic Appliance Association (SADA) pushing for 14 days under the manual processing currently used by officials due to ICT deficiencies – dropping to 24 hours once these have been resolved.

#### 4.3.2 Market surveillance

Common logic, confirmed by the literature review and primary research, unequivocally dictates that the intensity and robustness of market surveillance will ultimately determine the levels of compliance. In the apt, and regularly quoted, words of Zaelke (2005)<sup>53</sup>:

<sup>47</sup> [Available here](#)

<sup>48</sup> [Available here](#)

<sup>49</sup> [Available here](#)

<sup>50</sup> [Available here](#)

<sup>51</sup> Discussion with Lancerlot Riyano (NRCS)

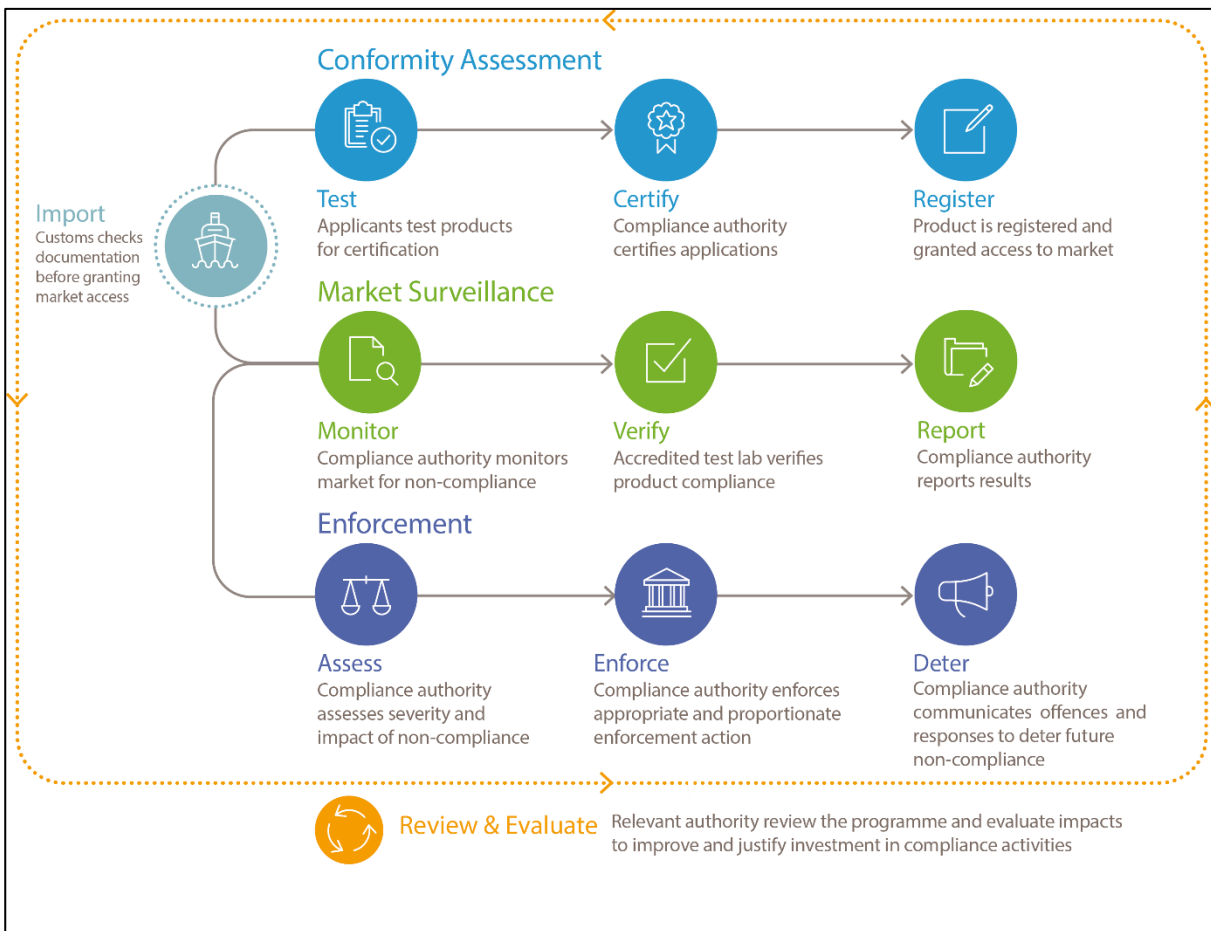
<sup>52</sup> Update from Lancerlot Riyano (NRCS)

<sup>53</sup> Zaelke, D. et al., 2005, "What Reason Demands: Making Law Work for Sustainable Development in Compliance, Rule of Law and Good Governance"

“20 percent of the regulated population will automatically comply with any regulation, 5 percent will attempt to evade it, and the remaining 75 percent will comply as long as they think that the 5 percent will be caught and punished.”

An effective and holistic approach to compliance, thus consists of three components – conformity assessment, market surveillance and enforcement – each of which have unique and repeated activities to minimize voluntary and non-voluntary non-compliance (Figure 3).

Figure 3: Components of an effective compliance approach



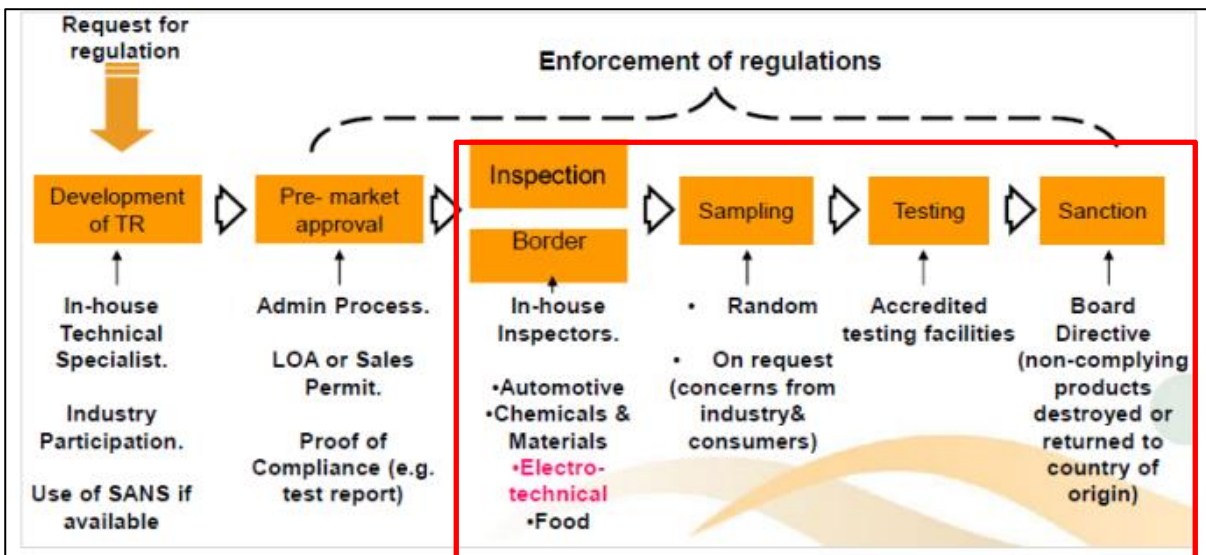
Source: CLASP

Having detailed the NRCS’ 3<sup>rd</sup> party conformity approach, the report now considers the Regulator’s market surveillance and enforcement approach and the performance thereof.

### Market Surveillance

As previously detailed, the NRCS does not differentiate between health, safety and environment and thus uses the same approach for each – red box in Figure 4.

Figure 4: NRCS process flow



Source: NRCS

The NRCS' market surveillance inspections, or spot checks, target ports of entry (POE), manufacturer and importer premises, and retail outlets.

Site inspections are conducted by qualified inspectors; and for electro-technical products, the inspection efforts are split 60:40 (POE vs retail / manufacturers). This signifies "a shift from the past practice where we predominantly conducted inspections at retail outlets"<sup>54</sup> with POE inspections now prioritised, because this is most likely to immediately lock out non-compliant products from the local South African retail market (ibid pg. 22). This approach was confirmed in the 2020 Strategic Plan<sup>55</sup> as more efficient and effective, whilst "some effort will be directed at retailers and distributors" – with these inspections targeting intelligence gathering on regulated products and the removal of any non-compliant products from the market, which may not have been detected at source.

The Regulator has opted for a risk-based approach (RBA) to improve its effectiveness (manual for now, until its ICT modernization programme has been completed), where the:

**Risk Rating = Product risk rating + Company risk rating**

Under this approach, a low-risk product in the hands of a high-risk company, could give a high or medium risk rating for the combination of company and product. Golden samples remain a reality and do present problems, as the Regulator will issue an LoA based on a test report which meets the regulatory requirements. Thus, the Regulator attempts to monitor the market closely to identify non-compliance (golden samples) - through market inspections or any reports (tip-offs) to market surveillance inspectors.

The Regulator sets annual targets for market surveillance inspections, with the 2020/21 annual plan setting a target of 19 915 inspections for all regulated products. However, only global targets are provided, with no individual figures found for the electro-technical division. In 2016, discussions with the electro-technical unit determined that MEPS applications constituted 8-15% of total LoA applications, which on a pro-rata basis would equate to 350 to 600 inspections

<sup>54</sup> NRCS Annual performance plan 2016/17 to 2018/19

<sup>55</sup> NRCS Annual performance plan 2020 [here](#)



per year; a target which was not achieved during that period. The NRCS responded<sup>56</sup> as follows to a request for recent market surveillance activities:

*“Market surveillance at the POE has continued, in Q1 2020/21, during Level 5 Lockdown, there were very few inspections conducted, i.e. 37. However, after Covid-19 risk assessments were conducted, in Q2 and Q3 market surveillance inspectors returned to the POE. The main EE non-compliant products included CFLs, incandescent lamps, and solar water heaters (Table 11)*

Table 11: Examples of EE related products impounded at the POEs in Durban

Date issued	Location (Stored)	Products	Quantity	ZAR Value
15/07/2020	Importer	Solar water heaters	35	700 000
24/07/2020	Importer	Solar water heaters	262	3226 000
19/08/2020	Client	Lights	12	1 470 000
16/11/2020	Client	CFL	235 000	2 300 000
26/11/2020	Customs	Incandescent lamps	271 100	2 711 000

Source: NRCS

*Market surveillance: there was no market surveillance in Q1 of 2020/21, we explored online inspections. In Q3 the BU conceived a sampling plan for EE products. Audio visual products were sampled in Eastern Cape, while white appliances which can be tested at SABS will be sampled in February 2021.01.28. In Q3 one inspector ran a market check on air conditioners in Mpumalanga and North West.*

*While product inspections on EE are being conducted, it is the reporting that is a drawback. Before the end of the year 2020, meetings to standardise reporting on EE inspections were conceived, but could not be concluded due to the early leave of critical participants. It is anticipated that this exercise will be concluded by 31 March 2021, for implementation in the new financial year starting 1 April 2021.*

*Specialisation Teams based on products have been established, each product team assigned a Principal Inspector as Team Leader. Once the reporting protocols are agreed, it is expected that it will be easier to report on market surveillance.”*

The Regulator’s market surveillance activities are further complicated by the limited availability of accredited test laboratories. Table 12 lists the local test laboratories for electro-technical products regulated under VC9006 and 9008, and their testing capabilities.

Table 12: Test laboratories in South Africa

Apparatus	SABS	Test Africa	Other
Electric water heater	Functional	Functional	No
Refrigerator / freezer	Functional	No	Local manufacturer*
Ovens	Functional	Functional	Local manufacturer
Washing machine & dryer	Not functioning	No	Local manufacturer
Tumble dryer	Not functioning	No	Local manufacturer
Dishwasher	Not functioning	No	Local manufacturer
General service lamps	Not functioning	No	TAC Labs and IESSA Local manufacturer
Air Conditioners	No	No	No
Audio visual (standby)	Functional	Functional	No

<sup>56</sup> Written correspondence with Mr Riyano (February 2021)

\*Local manufacturers do have in-house testing capacity; it is not known whether these are currently accredited

In December 2020, SABS announced that it would upgrade its laundry and dishwasher test laboratories to attain SANAS accreditation; and as of February 2021, the terms of reference were being finalised. It is unclear how long the process may take for these test laboratories to be operational; and an optimistic projection would be 12 months. In principle, access to functional test laboratories will strengthen the Regulator's verification efforts and also provide much needed local testing capacity to industry and local manufacturers.

Moreover, the Regulator's challenges to access accredited test laboratories are exacerbated further by complex and inflexible national procurement procedures; exceedingly long testing times needed by the SABS (for the apparatus which they can test); and testing officials, who although technically competent, are largely inexperienced with these apparatuses. Additionally, importers of products can experience (often lengthy) delays at POE, due to erroneous classification by customs clearance officials.

## **Enforcement**

A strong legal and regulatory framework with clear and relevant stipulations, is the basis of ensuring products meet mandated health, safety and environmental requirements<sup>57</sup>. Sanctions allowed under the NRCS Act include product recalls, returning the product to its country of origin, or confiscating and destroying such non-compliant products; but the Act does not provide for the use of financial penalties without involving the courts. This limits the effectiveness of the Regulator, as approaching the courts is lengthy and expensive, and seen as a last resort. It can therefore be argued, quite strongly, that the Act does not sufficiently deter non-compliance, as evidenced by the extremely low rate of compliance (13.9%) that was noted during an inspection of 1 317 items of electro-technical equipment (NRCS market 'blitz' programme in 2017). To date, the Regulator has not repeated such an extensive market inspection, so it is not known if the 'blitz' led to improved market compliance.

As the NRCS only publishes global inspection targets in its annual strategy plan, and does not publish or communicate enforcement strategies with targets per sector, it is not possible to ascertain levels of market compliance, or that indeed any check-testing will materialise. This has the potential to embolden non-compliant practises; while an official and publicly announced testing schedule, with stated outcomes, will strengthen market confidence. For example, the Australian regulator undertakes five inspections / month across a range of suppliers and products, with 86 check tests undertaken in 2017<sup>58</sup>; The Netherlands inspects 600-700 retail stores and tests 70 to 100 products / year; and for the 71 products regulated in China, 10 products / product category are tested every year.

Finally, the Regulator has to date avoided the 'name and shame' tactic, largely due the limited independent testing (as detailed above) and the perceived threat of legal action from industry.

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<sup>57</sup> World Resources Institute. (2013). Robust, Recognizable, and Legitimate. Strengthening India's Appliance Efficiency Standards and Labels Through Greater Civil Society Involvement .

<sup>58</sup> GEMS Regulator. (2017a). GEMS Check Testing Results July 2016 to June 2017.

When approached regarding all the issues above, the Regulator responded as follows<sup>59</sup>:

1. **The Act:** *“It definitely needs to be upgraded, especially concerning fines and penalties. However, the way the Act is written, specifically its expansive scope is good especially when dealing with new technology. The inspectors do have almost unlimited powers, but they need the power to issue fines and penalties, especially to deal with repeat offenders. The NRCS sent inputs to the DTIC, but this process is paced and managed by the DTIC (suggesting these processes take an inordinately long period of time or are not being prioritised – author’s input)”*
2. **Tip offs:** *‘Yes, we do act on tip offs, but naturally we would avoid regulatory capture and approach the tip off independently. For example, we would take our own independent samples instead of relying on test results from the person who tipped us off. For example, in May 2020, lockdown period, we received a tip off on second hand/reconditioned geysers, where we sent an inspector to investigate. In the end we issued directives and confiscated the geysers.’ See [page 13](#)*
3. On SABS only accepting a product for testing from its manufacturer or agent. i.e. not allowing a competitor, NGO or other to test a product: *“My view is that anybody who legally acquires a product should be allowed to conduct tests on the product. Competition rivalry should enhance compliance landscape.”*

#### **4.4 Industry proposal on the SDoC system and market surveillance at the NRCS**

In early February 2021, Business Unity South Africa (BUSA) presented a proposal at a Nedlac workshop, for the dtic and the NRCS to consider shifting from 3<sup>rd</sup> party to SDoC, with suggestions on how compliance could be improved. The presentation is attached as Annex A. The sectors lobbying for a shift to SDoC included lighting, automotive, set top box, the manufacturing circle and freight forwarders association. Somewhat surprisingly, the appliance and electrical equipment industry associations were not involved, even though they have also formally lobbied for this. The list of issues raised in their presentation, largely mirror those identified in the previous section, namely: high volumes of LoA’s and the Regulator’s inability to process them timeously; type test reports being inadequate to determine widespread conformity i.e. the ‘golden sample’ dilemma; limited local testing capacity; the annual levies; and poor / inadequate testing methods that fail to identify non-compliance.

BUSA touts SDoC as a viable solution for both the Regulator and industry. For the latter, the compliance burden and associated costs will decrease; while for the former, who would continue regulating the market, administrative efforts will decrease - freeing up resources for much needed market surveillance. Moreover, the LoA application fee would be replaced with a product registration fee, ensuring the Regulator did not lose its funding stream. Finally, industry highlighted the inadequate ‘all or nothing’ approach of the NRCS Act, which hampers the inspector’s ability to issue appropriate penalties, such as fines. Working more closely with the National Consumer [Council-Commission](#) could provide a viable and effective alternative.

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<sup>59</sup> Written answers supplied by Mr Lancerlot Riyano

Over 25 industry stakeholders and experts were invited [by this study](#) for interviews to gain a better understanding of the challenges and concerns faced by national government, the regulator, industry and consumers (see Annex B); and the following provides a summary:

**Progress to date:** There was universal agreement that the LoA application process has improved over the past 6 to 12 months, and that industry's experience aligns with the figures provided by the NRCS in Table 10. Notwithstanding this significant improvement, the consensus from industry - when benchmarked with other countries, including those which make use of a 3<sup>rd</sup> party approach - was that the LoA processing times need to be reduced further. As stated earlier, the SADA industry association believes that turnaround should be 14 days under the current system, which is constrained by an outdated ICT system; dropping to 24 hours once it has been upgraded (see below). Additional items raised that would improve processing times and should be relatively easy to address through training and a review of existing business processes, include: 1) An inconsistent or non-uniform approach to assessing applications, which in the view of applicants is due to the individual evaluator's interpretation of the standards, technical specifications, level of experience and general approach. LoA application decisions, as an outcome of fact checking, should be uniform and straightforward. And it is important to note that industry's concern is not that the correct outcome will not ultimately be reached, but that needless delays result from the need for escalation and resubmission; 2) A laborious and time-consuming communication system, largely (but not exclusively) due to the under-performing ICT system; and 3) A perceived reluctance to provide concise and early decision-making by evaluators, leading to an overly consultative process with line and general managers.

The recently installed online registration system has the potential to, although not exclusively, resolve many of the concerns raised, as it was designed with these issues in mind; and delivers the following:

- Stand-alone system (separate from the current CRM system) to avoid unnecessary complications of integration – providing a first step towards the NRCS extricating the system from its operations
- Eliminates paper-based forms i.e. a wholly on-line product registration process that captures all registration data automatically in a central database
- Delivers all the datasets required to facilitate a robust S&L programme in South Africa; which the current CRM system is incapable of delivering
- Captures all the necessary key technical data needed to support the applicant's claim of compliance, at the time of application (via applicant input). This data is only captured in the uploaded (pdf) test report under the existing CRM

Furthermore, the online registration system:

- Targets a maximum 30-day turn-around timeframe for EE LoA applications, which is to be achieved by:
  - Allowing the applicant to directly key all data into the database; thereby eliminating the need for re-keying of application data by the regulator
  - Validating input data at time of input, to ensure it is complete, within the expected range and that the product does in fact meet the regulatory requirements
  - Simplifying the data input process
- Publishes the register of approved products (consumer portal) - including basic attributes such as brand, model, country of manufacture, capacity and energy performance claims.

This facilitates both consumer information programmes and a capacity for industry to self-monitor compliance

- Includes a facility for the public to download copies of the associated LOAs, as part of the public register

The online registration database is live; and the CRM system for energy efficiency LoA applications only, is set to be withdrawn on 1<sup>st</sup> April 2021.

**Outdated & low functioning ICT system:** The NRCS CRM (Customer relationship management) system is inefficient and deficient - resulting in long turnaround times of LoA applications, while hampering market surveillance activities and general reporting. The state of the Regulator's ICT system has long been a source of concern for industry, the dtic and the NRCS itself, which is well documented in public reports. Indeed, the 2016 strategic plan<sup>60</sup> notes that it is "*working towards developing a dynamic digital environment by investing in an updated IT platform*". In a 2019 parliamentary committee meeting<sup>61</sup> it was noted that the NRCS had received six consecutive qualified audits, and one of the key challenges faced by the organization was an inadequate ICT system. The 2021 strategic plan<sup>62</sup> states (pg. 41) "*the implementation of an IT infrastructure capable of meeting the NRCS IT needs is crucial in achieving the strategic goals of the organization*" and goes on to state that "*the NRCS has embarked on a process to review the business needs in a holistic manner.*" These public documents corroborate the experiences of industry, which is also evidenced by the inability of the organization to appoint and maintain a Chief Information Officer. Here, the author's understanding is that the position has had a high turnover since 2017 - with four different (acting or permanent) appointments - and is characterised by periods of the position being vacant whilst a replacement is found. This stalls progress, as time is needed for new appointments to familiarise themselves with the environment and to customise the long-term strategy with their preferred approach.

**Perceived lack of urgency:** Responsiveness has improved, as evidenced by the declining time taken to process an LoA. However, a common gripe amongst industry is that findings are inconsistent; and that should a query be raised by the NRCS official, the responses sent to address the query by industry result in: 1) unpredictable communication, with some officials confirming receipt of the email and others not; creating unnecessary anxiety; 2) officials appearing to be reluctant to make decisions that are seemingly within their level of authority – tending to opt for internal consultation processes with colleagues and managers, which delay the decision making process; and 3) Findings for identical application queries yielding different responses, depending on the official. Industry believes that this is largely because some (not all) of the officers' expertise is limited to administration and that they do not have the requisite technical training to process an LoA application.

Many of these challenges are likely to be addressed by the aforementioned online registration system.

**Limited / no market surveillance:** Industry is unanimous in its views that the Regulator is not sufficiently active.

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<sup>60</sup> NRCS strategic plan 2016 [here](#) page 16

<sup>61</sup> PMG 2019 [here](#)

<sup>62</sup> NRCS strategic plan 2021 [here](#) page 41

*“The NRCS is an administrator and not a regulator. The overwhelming majority of their work is done in the office and not in the market.”*

*“The NRCS only targets low hanging fruit, visiting the major retail stores in the major cities. These stores are well managed and their products compliant (have LoA’s) – they will only identify minor transgressions at such locations. The NRCS don’t visit small towns where independents operate.”*

*“The market is unregulated. In our estimation there are over 500 000 products (electro-technical) of which only 50 000 have LoA”*

*“The LoA is a type test report which does not guarantee that the products in the market meet the same specifications”*

*“LoA system is being abused by the industry. NRCS inspectors are not able to enforce effectively against an LoA due to insufficient information on the certificate”*

Although not linked directly to MSA, the two industry associations that were consulted, raised concerns that LoA’s issued cover multiple product variants with very different technical specifications, yet are grouped under a single ‘family’. Once again, the view from the industry associations is that the system is being abused.

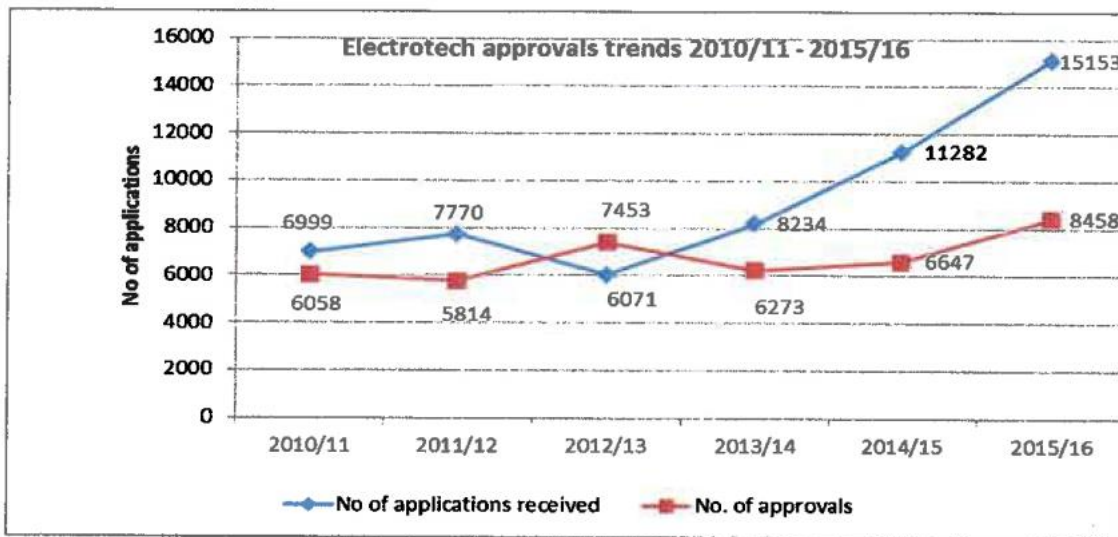
It may also be that the Regulator’s priorities have unintentionally transformed over the years. In December 2016, the NRCS CEO presented the LoA performance turnaround plan<sup>63</sup>, and Figure 5 shows the increase in volumes, with the number of applications doubling in just two years; while expected growth for the coming year was estimated by the NRCS at 5%. In response, management implemented the following actions (page 8):

- *Surveillance inspectors, whose main responsibilities are to conduct inspections, will start assisting with the evaluation of LoA applications for a period of two weeks every month*
- *Management to incentivise inspectors to process more applications than the set targets and to defer taking leave during the festive period*
- *Management has introduced pre-screening of applications before registration and assigning to evaluators. This is done to minimise the number of incomplete applications assigned to evaluators*

Figure 5: NRCS Electrotechnical approval trends (2010 to 2016)

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<sup>63</sup>NRCS LoA Turnaround Plan 2016 [here](#)



It may be that the above short-term actions to address the backlog have come to an end and that roles have reverted to their original functions. However, this may not be the case, thus providing a reasonable explanation as to why NRCS officials are focusing on in house functions (LoA's) at the expense of market surveillance. The 2019 Financial Report attributes the improvement in the number of approvals to (amongst others): *"The additional capacity harnessed from market surveillance inspectors in the first quarter"*<sup>64</sup>. This statement adds credence to the explanation of redirected resources away from market surveillance being a contributing factor to the lack of inspections.

The 2019 annual report then states that for electrotechnical (pg. 30) *'4 833 inspections were conducted against a planned target of 4 440'* with 164 samples taken for testing. Inspections were limited to four provinces (Gauteng, EC, WC and KZN) largely confirming industry's concerns that outlying areas are not attended to. Conversely, it is appropriate that the focus of the Regulator's efforts is in the most economically active areas, but not exclusively so. Under challenges, the Regulator notes: Testing constraints – *"In certain instances local test facilities are not accredited to test or have no capacity or capability to test"* The electrotechnical division spent R1 185 000 on testing and sampling in the 2019 financial year (pg. 146). On the face of it, this seems low given the number of products regulated and that it covers H&S, and environment. The 2015 NRCS financial statements, under material variances disclosed states: *"Underspending with regards to testing is mainly due to lower-than-expected samples submitted for testing."*

Ultimately, the research presented in the earlier chapters has unequivocally determined that without an active MSA, both SDoC and 3<sup>rd</sup> party approaches will lead to non-compliance. It therefore follows that shifting from SDoC to 3<sup>rd</sup> party conformity assessment without market surveillance, or vice versa, is unlikely to improve market compliance. However, an upfront LoA process does provide a first level of definite defence. And while it certainly can be manipulated through 'golden samples' or products being sold without an LoA, both can be managed and deterred through MSA activities.

Finally, the rise of online sales has created new challenges in the EU for consumers buying discounted branded electrical apparatus directly from international websites only to discover

<sup>64</sup> NRCS Annual Financial Report 2019 [here](#)

that they are counterfeit. This practise is growing and is most prevalent in small appliances (toasters, blenders etc). To address this issue, ironically EU companies are mobilising towards a market driven 3<sup>rd</sup> party conformity approach for the products most at risk.

**One size fits all:** A key priority for national government is to support local manufacturing, so as to improve local skills; encourage investment; support SME's; improve South Africa's competitiveness and create jobs. Notwithstanding the confines that standards impose in the interests of H&S and environment, they should not add unnecessary complexity; be clear and concise; and align (to the greatest extent possible) with international standards, so as not to place insurmountable burdens and barriers to local industry and imported products.

It is also imperative for South Africa to tackle the triple challenge of unemployment, inequality and poverty, which requires sustained industrialisation. However, the converse is the current reality, with the manufacturing sector's contribution to GDP, as per the World Bank, declining. In 2018 it was 13.5%, down from 15.7% in 1994.

Here, SME's can offer customised solutions to local consumers through niche products of limited quantities, which are low volume but of higher value, and serve a unique purpose. The problem is that local producers are often not able to test their products or receive an LoA, because a deviation (exception) from the regulator is required. However, mechanisms could be identified to accommodate and promote local manufacturing, without compromising national policies or regulations. And while it is recognised that this has the potential to create leakage, may subject institutions to accusations of a non-level playing field and could create perceptions of favouritism or corruption, it can be managed. For example, copper geysers cost significantly more than their mild steel counterparts, but they serve a small section of the market (~1%) as they have unique features such as being custom built (i.e. non-standard sizes) and do not rust. And while they cannot meet the current MEPS for geysers, a deviation could be considered, because they are locally manufactured; with the price differential ensuring that their market share remains capped. In this way bespoke (non-standardised) locally manufactured products which do not threaten the integrity of the policy objectives could be accommodated – they would still need to be tested and demonstrate why compliance is not possible. Recognising that an 'exception' list could create problems for the Regulator.

**Review of NRCS Act:** A review of the NRCS Act was considered as far back as 2017 and possibly earlier, with the rationale explained above (refer Chapter 4.4 Enforcement). It has been ascertained that the Act is being reviewed at the time of writing this report, however the review is focusing on the mandates of the four agencies under the dtic (NRCS, NMISA, SABS and SANAS) and does not concern itself with revising and expanding the powers of the Regulator to allow for more effective regulation through fines and penalties. It is unclear if the political will within the dtic exists for such an amendment, with no action taken in four years.

**Levies:** Similar to many regulators globally, the NRCS applies a "user-pays" system to recover the costs. In 2015<sup>65</sup>, levies (51% of the revenue), LoA's (6%), and government grants (34%) were the three primary costs recovery means for the NRCS. In 2019 levies accounted for 52%; LoA's 7%; and government grants 35% of total revenue. The Audit General and the NRCS have both noted that companies underdeclared their annual sales to reduce the levies payable. This places the NRCS funding model under strain; and it will continue, as long as companies believe that the NRCS is unlikely to detect underdeclarations and/or take action. Companies -

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<sup>65</sup> NRNS Annual Financial Statements 2015 [here](#)



without openly admitting to the practise - have however noted in multiple workshops and discussions with the author (not linked to this study) that the levies are charged to fund market surveillance activities, and that given the low activity levels, this is little more than revenue generation exercise. It is thus paramount that the NRCS addresses this perception.

**Limited test facilities:** The lack of testing capacity has been addressed throughout the report and will therefore not be repeated here. It is however important to state that this is not a recent development and that national government (and the entities it manages) must consider the Regulator's ability to test the products they are regulating in the design of these regulations. However, this situation is not unique to South Africa, as the research has identified several member countries in the EU who do no or very little market surveillance. This was confirmed in the interview held with the EU Commission, who are addressing it through awareness programmes such as ATLETE and EEPLIANT, as they do not have direct jurisdiction over the implementation of regulations by member countries.

South Africa also has the added disadvantage of being geographically isolated; so, using test facilities in Asia, EU or US comes at a high cost. In South America, which faces similar challenges, certification is issued through mutual recognition agreements, an approach which the NRCS could consider.

**Is RBA real? Or just picking the proverbial 'low hanging fruit'** As stated by the NRCS the RBA is being managed "*manually, using spreadsheets and a fixed risk rating over a period of time*" and this undoubtedly impacts effectiveness. Industry is of the unanimous view that the Regulator, overall, follows an MSA approach of least resistance – limiting its store visits to large retailers where transgressions are likely to be minimal; targeting ports and impounding products erroneously for long periods; and not following up sufficiently on tip-offs that require robust investigation. Again, regardless of the veracity of these perceptions, it is in the Regulator's interest to educate industry (its client) through awareness and communication.

## 4.5 Industry input and comments

Discussions held with industry, confirmed that they all experience and share the same challenges when seeking regulatory approval to place their products in the South African market – namely: frustration with the LoA application process, the lack of meaningful MSA and local testing facilities, opportunity costs directly linked to delays and port seizures, and the costs of compliance. For example, a company stated that an independent dishwasher test costs them EUR8 000 - or EUR320 000 (ZAR6 000 000) for the 40 models that they currently have for this appliance category. If their entire product range is considered (refrigerators, laundry, ovens and other appliances) then 3<sup>rd</sup> party product testing can cost the company tens of millions of Rands, and this excludes application fees, annual levies and internal staff costs to manage the process<sup>66</sup>. These requirements and costs create a high barrier to entry; and in return, industry (correctly) has expectations that its products will compete in an organized and protected market. Whilst there are varying levels of dissatisfaction from individual companies, the challenges are not new. Industry's biggest frustration, however, is that they persist, with little evidence to suggest that meaningful corrective action, or political will, exists to implement a strategy to address the underlying causes and go beyond mere short-term fixes. Here, industry

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<sup>66</sup> Under the EU SDoC approach, the performance specifications of each model (in-house testing) are declared to the Regulator. Should the Regulator decide to test the model this will be done at an independent accredited laboratory and the test results will be compared to the declared specifications

recognises and appreciates the much-improved LoA processing times, but there is scepticism as to whether this will be maintained in a post-pandemic business as usual environment. Furthermore, industry's direct engagement with the Regulator and the Ministry to assist in resolving these challenges, has (from their perspective) yielded little. For example, offers of financial and technical assistance were not considered, in order to avoid the potential for, or association with, conflicts of interest and capture. Here the NRCS' response is understandable and appropriate; but an alternate solution which was urgent, appropriate and effective, did not materialise.

The culmination of the above has ultimately led industry to propose and lobby for a radical solution – changing the conformity approach from 3<sup>rd</sup> party to SDoC. However, discussions held with industry to gain a better understanding of the practical implementation and benefits of SDoC, has yielded disparate views. The research has found that industry associations and members do not share a common understanding of what SDoC entails, how it should be implemented or that the potential risks have been sufficiently considered. The levels of frustration have reached fever pitch and there is a real risk that some industry members are now prioritising short-term expediency over long-term market stability. For example, the SA National Consumers Union proposed a 'halfway' model for consideration. Under this approach, participating companies would become a signatory of a voluntary accord with the Regulator and subscribe to a code of conduct or rules of participation. SANCU envisages maintaining the existing application process, which retains the existing processing fee, but the independent test report would be replaced by an applicant's declaration and an LoA issued immediately or within a short period (~5 days). Under the accord, the applicant would be required to keep up-to-date and complete documentation linked to every submission, which must be made available on demand. The Regulator would undertake surveillance activities; and any company found to be non-compliant (subject to the severity of the transgression) would lose their SDoC privileges and be sanctioned and / or relegated to the 3<sup>rd</sup> party conformity approach, which would require a 3<sup>rd</sup> party independent test report with every application. This, SANCU believes, is a sufficiently large incentive for companies, and thus delivers a more efficient and compliant market.

Although feasible, this approach is likely to be contentious, as Regulator decisions may not be accepted or could be challenged, which would then require arbitration and the risk of defending legal action. And what would happen to LoA's already issued etc? This approach may also provide opportunities to influence decision-making, as the stakes are high. Moreover, the time and effort needed to design and implement such an approach, could be better spent on addressing the current administrative shortcomings of the NRCS. On the other hand, SADA recognises that MSA is a pre-requisite for SDoC to be viable, which they would want implemented to reduce the financial and administrative burdens on industry. And the automotive and set top box industries believe that the existing product registration and testing process is onerous, inflexible and expensive – thus presenting a big barrier for SME's, which they are trying to support as per national localisation policy and regulations. Finally, SAFEHOUSE advocates strongly that the type test report is inadequate to determine widespread conformity and believes that the original SABS Mark approach was more effective.

In conclusion, should the Regulator's level of performance persist, notwithstanding some improvements to date, industry will continue and intensify actions, *inter alia*:

- Lobby government for change (as recently demonstrated by the proposal put forward at NEDLAC – see Annex A). This creates tensions and detracts from what needs to be done, as parties defend their positions
- Frustrate and delay legitimate and necessary attempts to introduce new regulations (as witnessed by the lighting industry stonewalling proposed technical and H&S specifications for general service lamps – even though they are motivated by a detailed cost benefit analysis that presented overwhelming empirical evidence of the benefits to the consumer, the national economy and the environment)
- Under declarations used to calculate annual levies; abuse and manipulation of the existing system; and increases in the sale of non-compliant products

## 5 Outcomes and recommendations to the RBA

The literature review and interviews with international experts have unequivocally confirmed that SDoC and 3<sup>rd</sup> party approaches provide an effective mechanism to maximise market compliance; if they are supported by an appropriately funded and resourced MSA, which undertakes regular and targeted testing. And any perception that SDoC necessarily offers greater advantages, is erroneous. Indeed, the opposite is true in a market such as South Africa, where the MSA and access to independent accredited test laboratories is limited. Indeed, at the very least, the LoA procedure is a ‘gate’ and provides a pre-market entry filter, which notwithstanding that it may be abused through golden samples, is nonetheless a screening process reducing the incidence of intentional or non-intentional non-compliance. Furthermore, there appears to be a misguided belief that by simplifying the registration process, it will free up internal resources and the NRCS will intensify its compliance activities. Put simply, the one action will not automatically result in the other. Indeed, the opposite is more probable. Removing the first line of defence is likely to result in the market becoming less regulated; with non-compliance increasing. This view was expressed by the TIC Council<sup>67</sup> “*South Africa has developed a good model to regulate the market. This should not be discarded or changed when the problem is administration.*”

Agreeing with the final statement above, this research finds that the existing 3<sup>rd</sup> party approach should be maintained; and that the NRCS management and the dtic must intensify and prioritise administrative and process improvements at the Regulator, or face the consequences of a less cooperative, increasingly combative and non-compliant industry - which serves nobody’s long-term interests. Transitioning to SDoC should only be considered, if and when an effective market surveillance and enforcement regime has been implemented; with sufficient evidence to demonstrate that it is embedded. Therefore, the following recommendations, many of which are not new, should be prioritised by the Regulator and dtic; with the list having been kept as focused as possible, so that it is not overwhelming or overly ambitious.

1. **ICT system and business processes:** The need to modernize the Regulator’s ICT infrastructure is well documented, both here and in several NRCS strategic work plans going back to 2016, but with little tangible evidence of meaningful progress. Business processes are also outdated and inefficient; and a thorough review which encompasses new ICT

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<sup>67</sup> Meeting held 9 March and attended by TIC, Intertek, Utility Laboratories, Applus+

systems is recommended. A key outcome would be to assure NRCS staff that efficiency will not put their jobs at risk, but will improve their effectiveness and performance. In this, the NRCS has the opportunity to build on the online registration database - built with GEF funding and due to go live on April 1<sup>st</sup>, 2021. This has the potential to transform the LoA application process; and if successful, can be extended to incorporate H&S. However, its success is at risk by the failure of the IT department to either outsource the support function or develop inhouse capabilities. At the time of finalising this report feedback received from the NRCS approvals team was that the new system is exceeding expectations and has dramatically reduced the EE LoA processing times. The team has approached NRCS management to expand the system to H&S.

2. **MSA and testing capabilities:** There are varying accounts of the robustness and effectiveness of the Regulator's market surveillance activities, and the real issue in their words is that "*while product inspections on EE are being conducted, it is the reporting that is a drawback.*" This is undoubtedly the case; and it would serve them well to be more structured - namely communicating their activities to industry and the public consistently and transparently. However, the low levels of, and for some categories no, market check testing, is undeniable and a major shortcoming. It opens the door for golden samples and illegally placed products. And although it is true that local test laboratories for certain products are not available, this is not new, and innovative solutions need to be found which build partnerships between the Regulator and industry without compromising the integrity and independence of the NRCS. For example, if feasible and accepted by industry witness testing at accredited manufacturing test laboratories could be considered. Universities may also have a role to play. Another option would be to lobby the SABS and the private sector to invest – and here a strong signal would be to announce the minimum number of tests that the NRCS would conduct per product per year. Indeed, this research has revealed that many companies would prefer to test locally, as it would reduce costs, efforts and time, and would provide the benefit of familiarity with the test report and easy access to the laboratory. Certainly, an initial business opportunity investigation is warranted. Another option would be to enter into medium to long term agreement with international test laboratories. Alternatively, the NRCS could consider approaches from other territories, such as South American countries, which use mutual recognition agreements for certification, which is conditional on regular site visits to the manufacturing plants by the Regulator. The TIC council has offered their support and willingness to engage directly with the NRCS on MSA and on certification processes to address some of the challenges faced by the Regulator in SA; as well ICT and business processes. This is an offer that should be urgently explored.
3. **Review of the NRCS Act:** Inspectors have the necessary powers but need the ability to issue fines and penalties. If possible, the dtic should extend the current review of the Act, to consider the available sanctions. If this is feasible, a separate review should be initiated as a matter of urgency.
4. **Communication and awareness:** The Regulator should be more vocal and visible in communicating non-compliance to industry and society. Done in a measured and responsible manner, it is a cost-effective tool that should form part of the Regulator's armoury and which industry is likely to support. Annual testing targets should be published, as well as the outcomes of the tests, in sufficient detail to make the information meaningful. Moreover, transgressors should be publicly listed in a manner not motivated by retribution, but as a matter of public record.

5. **LoA's and product variants:** Industry's concerns regarding a single LoA covering multiple products variants, must be addressed. If it is a misunderstanding, then it should be explained. If, however, it is a shortcoming leading to leakage and an entry point for non-compliant apparatus being sold legally, the NRCS should act.  
Given that different industries are either supportive or against this practise suggests there is a lack of understanding of the intent or that different sectors have different risks. Either way it does warrant attention.
6. **Role of industry:** Inefficient and complex market regulation does constrain much needed economic activity. However, the research has found that industry can act in their own interests to gain market share and maximise profits, while purporting to be committed to consumer H&S and environmental imperatives. Stonewalling legislation and regulations that are reasonable and align with international obligations and practices, will ultimately result in an unregulated market where low-grade products are dumped. Industry associations and their members have an obligation to participate constructively in public participation processes, which currently is not always the case in practice,
7. **Public participation:** The NRCS and SABS should consider developing stronger links with academia and civil society agencies / public interest groups within their public participation process. This would provide a counterbalance to dealing with industry, by introducing further technical expertise and alternate public benefit priorities, such as reducing CFL's from the market because of their mercury content.

Ultimately, the solutions required to bolster the Regulator's efficacy and efficiency do not require the reinvention of the wheel. What is urgently needed however, is strong focus and serious effort to strongly bolster the model currently in place, through the mindful participation, and to the collective benefit, of all concerned – from the NRCS, to industry, testing facilities and the public whose interests they all purport to serve.

Finally, and of great importance, reverting to SDoC (for whatever reason) is akin to letting the genie out of the bottle. It is an action that will be very difficult and, in all likelihood, not possible to reverse, as per the EU experience; and a view shared by several interviewees who understand the EU market. Thus, any decision to shift to SDoC must be carefully considered and should only be actioned when all the supporting instruments are in place AND functional.

## 6 Annexes

### 6.1 Annex A

### 6.2 Annex B

Table 13: Interview List

Organization	Description
NRCS	Regulator
dtic	Government Ministry
SMEG	Importer of residential appliances
Bosch	Importer of residential appliances
Multichoice	Decoders for satellite TV
TIPS	Research Institution (TIPS)
Wuppertal Institute	Research institution (Germany)
Fraunhofer	Research institution (Germany)
Lawrence Berkeley National Laboratories	Research institution (USA)
Independent Consultant	S&L Expert United Kingdom

European Commission	Deputy Director General – Clean Energy
TIC Council (Brussels)	Independent Testing Association
Intertek	Independent Test Laboratory
Utility Labs	Independent Test Laboratory
Applus	Independent Test Laboratory
CLASP	International NGO
National Defense Resource Council	NGO (USA)
South African Domestic Appliance	Industry Association
Business Unity South Africa	Industry Association
SAFEHOUSE	Industry Association
SA National Consumers Union	Consumer Association
Independent Consultant	Automotive Industry
Freight Forwarders Association	Industry Association – did not respond
Manufacturing Circle	Industry Association - did not respond
National Automobile Association (NAAMSA)	Industry Association – did not respond
Defy	Local Appliance Manufacturer – did not respond