



Baseline Determination, Market Surveillance & Compliance Monitoring

Energy Efficiency S & L Project Inception Workshop
Pretoria, South Africa
May 30, 2013



Michael McNeil, Lawrence Berkeley National Laboratory



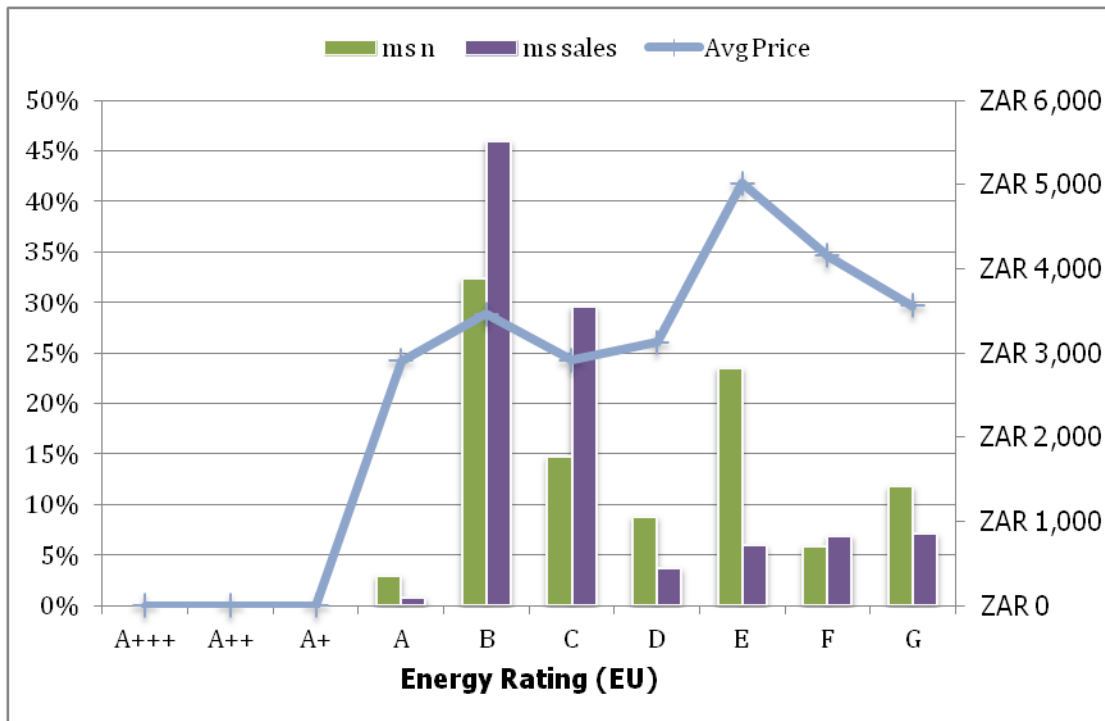

Three related but distinct components:

- Baseline Determination – Current status and trends of market size, structure and efficiency
 - Informs prioritization, target levels and program strategy
 - Requires data not always easily obtainable
- Market Surveillance – Monitoring of participation, trends, program impacts
 - Systematic tracking confirms impacts and provides feedback
 - Data becoming more readily available
- Compliance Monitoring – Evaluation of non-participation, mislabeling and illegal sales
 - Reduces loss of savings
 - Ensures integrity of program



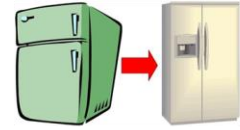
Baseline Determination

Baseline determination was the first step in Inception Study *Energy Performance and Labelling Requirements for specific Electrical Appliances and Equipment*. (FRIDGE March 2012)

TRADE AND INDUSTRY CHAMBER

Fund for Research into Industrial Development, Growth and Equity (FRIDGE)



Energy Performance and Labelling Requirements for specific Electrical Appliances and Equipment: Summary of Findings – 01 March, 2012

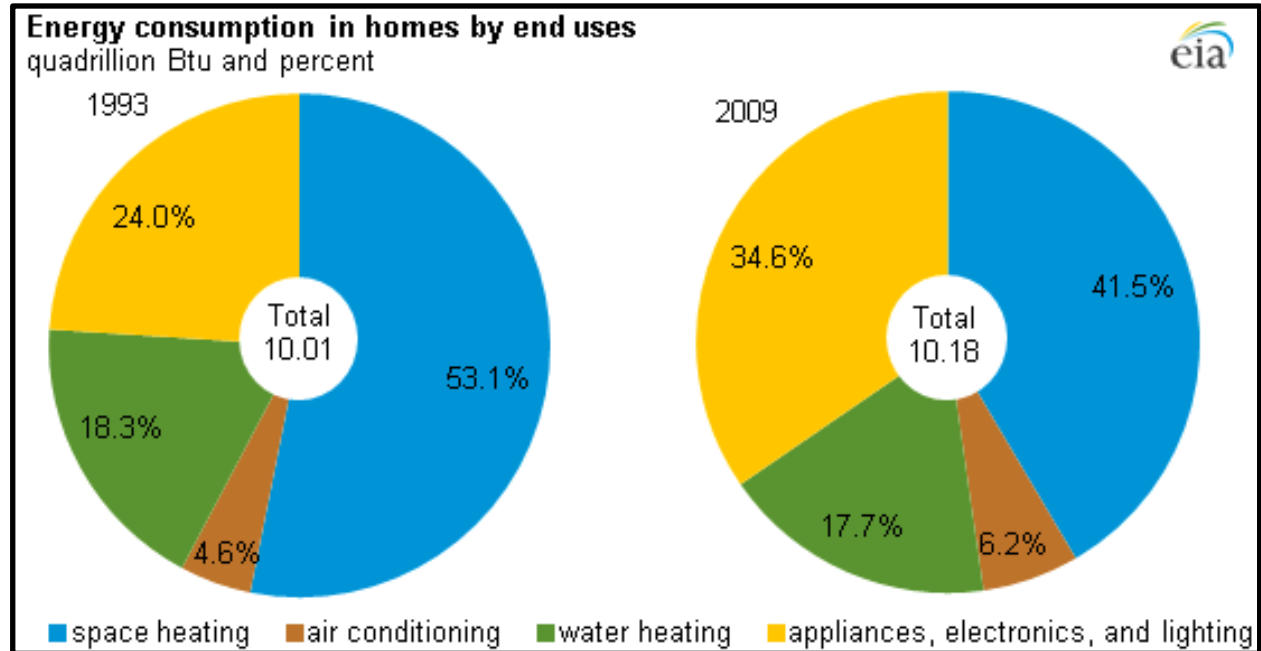
In the absence of a well-established labelling certification regime, study relied on manufacturer self-reporting to determine market shares of product class, efficiency and, in some cases prices.



Key Baseline Variables and Data Sources (1)

- End Use Footprint

- Most basic basis of prioritization
- Best source is often dedicated *energy consumption surveys*.



- Product Sales (Shipments)

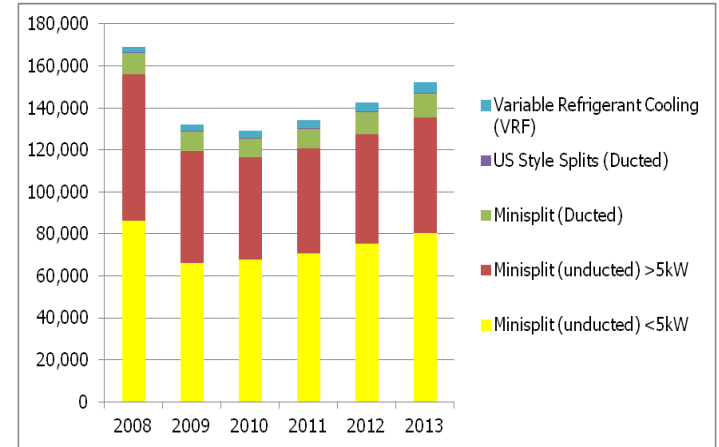
- Total number of products affected by regulations, which cover only new equipment
- Source of data is manufacturers, manufacturer associations, or imports



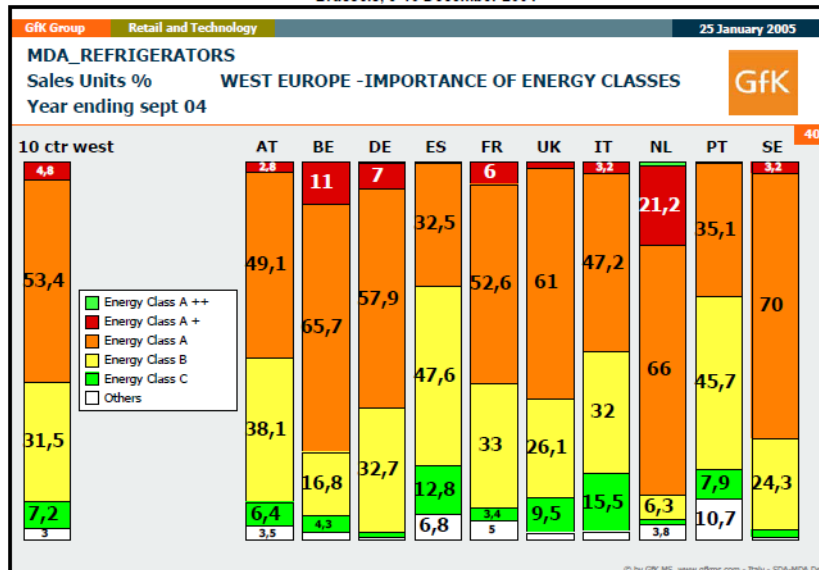
Key Baseline Variables and Data Sources (2)

- Product Class Market Shares and Trends
 - Standards vary according to product class
 - Market evolves and out-of-date product classes disappear
 - Source of sales data could be by same categories as standards, but not necessarily

Air conditioner sales by product class



Source: FRIDGE 2012



Source: GfK

- Efficiency Class Market Shares
 - Defines the efficiency baseline
 - Often a challenge to obtain, especially before labels are in place
 - Available by model or sales



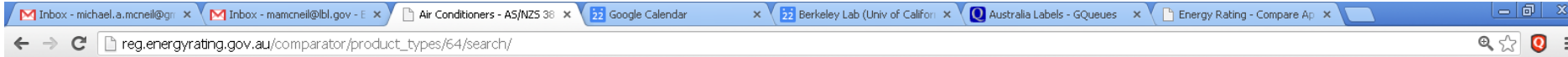
Market Surveillance

Two main instruments for documenting and tracking market status:

- Certification database
 - Snapshot of every model allowed for sale, including label information.
 - Can be populated by data from self-testing, private labs or government labs
 - Can be maintained by certification body, non-government institute or manufacturer associations
 - Integral part of certification and enforcement regime
- Market research data
 - Usually provided by for-profit companies
 - Includes sales by product class and efficiency level, sometimes prices
 - Variable time frame – over period of many years, or across weeks and months
 - Not automatically generated as part of certification.



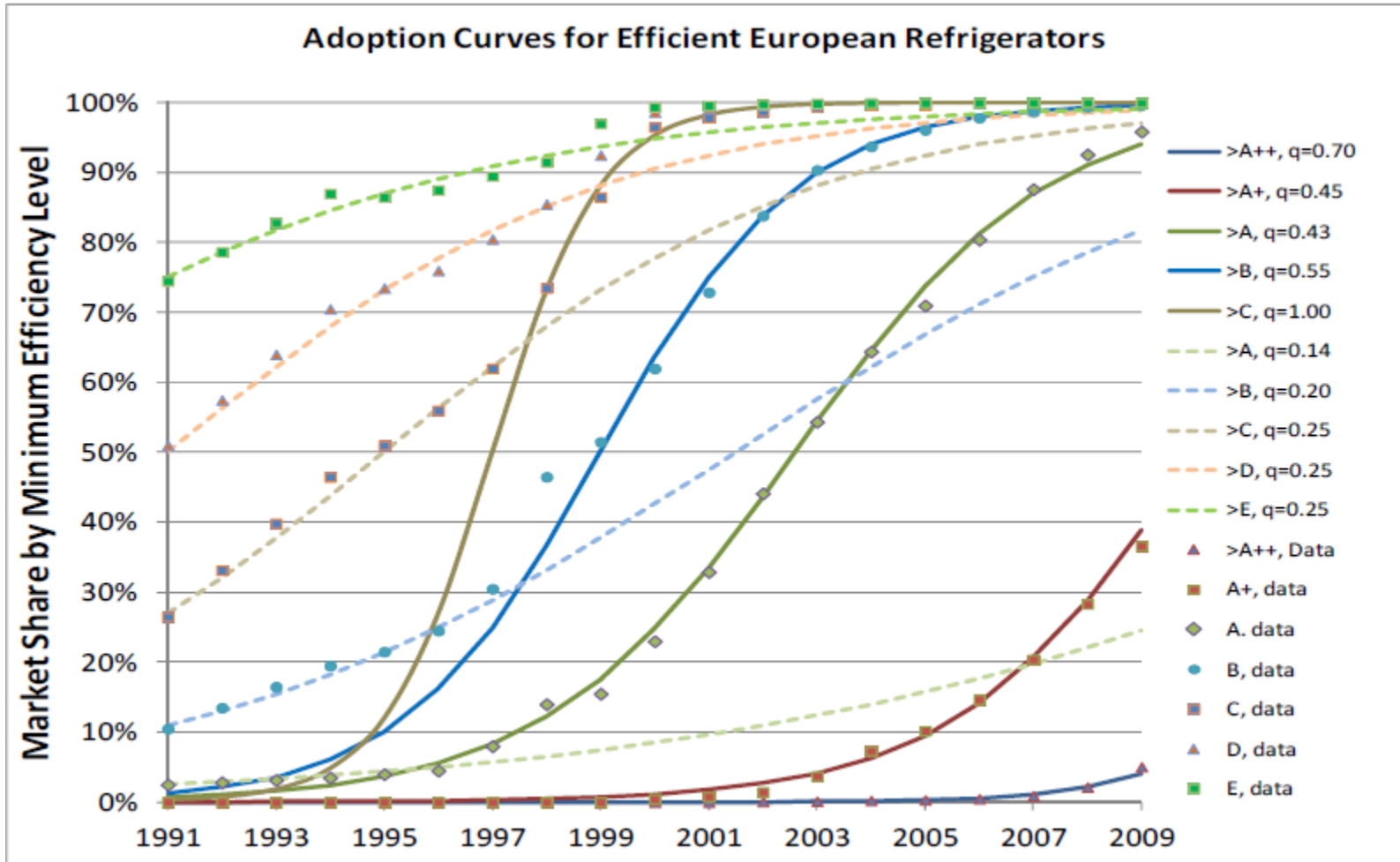
Product Registry Example



Calculator Result	Brand	Model	Installation Type	Indoor air distribution	Phase	Available	Country of Manufacture	Cooling		
								Star Rating	Output (kW)	Power Input (kW)
\$336	MITSUBISHI HEAVY INDUSTRIES LTD.	SRK20ZJX-S	Single Split System	Non Ducted	Single	Australia, Fiji, New Zealand	Thailand	6	2.00	0.35
\$441	LG	K09AWN-NM12/K09AWN-UM12	Single Split System	Non Ducted	Single	Australia, New Zealand	"Korea, Republic of"	6	2.52	0.46
\$441	LG	K09AWN-NM11/K09AWN-UM11	Single Split System	Non Ducted	Single	Australia, New Zealand	"Korea, Republic of"	5	2.50	0.46
\$449	SAMSUNG ELECTRONICS	AQV09KWAN/AQV09KWAX	Single Split System	Non Ducted	Single	Australia, Fiji, New Zealand	China	5	2.40	0.47
\$197	FUJITSU	ASTG07JECB/AOTG07JECB	Single Split System	Non Ducted	Single	Australia, New Zealand	China	4	2.10	0.47
\$470	Toshiba	RAS-10N3KVP-A + RAS-10N3AVP-A	Single Split System	Non Ducted	Single	Australia, New Zealand	Thailand	4	2.51	0.49
\$546	Panasonic	CS_CU-E9NKR	Single Split System	Non Ducted	Single	Australia, New Zealand	Malaysia	4	2.60	0.55
\$470	TOSHIBA	RAS-10SKVP2-A/RAS-10SAVP2-A	Single Split System	Non Ducted	Single	New Zealand	Thailand	4	2.51	0.49
\$479	SAIR	SGT-09	Single Split System	Non Ducted	Single	New Zealand	China	4	2.50	0.54



Effective Market Monitoring – Example 1



Source: GfK. LBNL Analysis



Recent Innovations in Market Monitoring

- Data Access Pilot – Standardization of appliance model variables and database architecture – near completion.
- Price Tracking – “Real time” collection of price by model using online retailer interfaces – on line in U.S. and Europe so far.
- Certification Pilot (Proposed) – Investigation of cross-referencing of certification database for small nations.



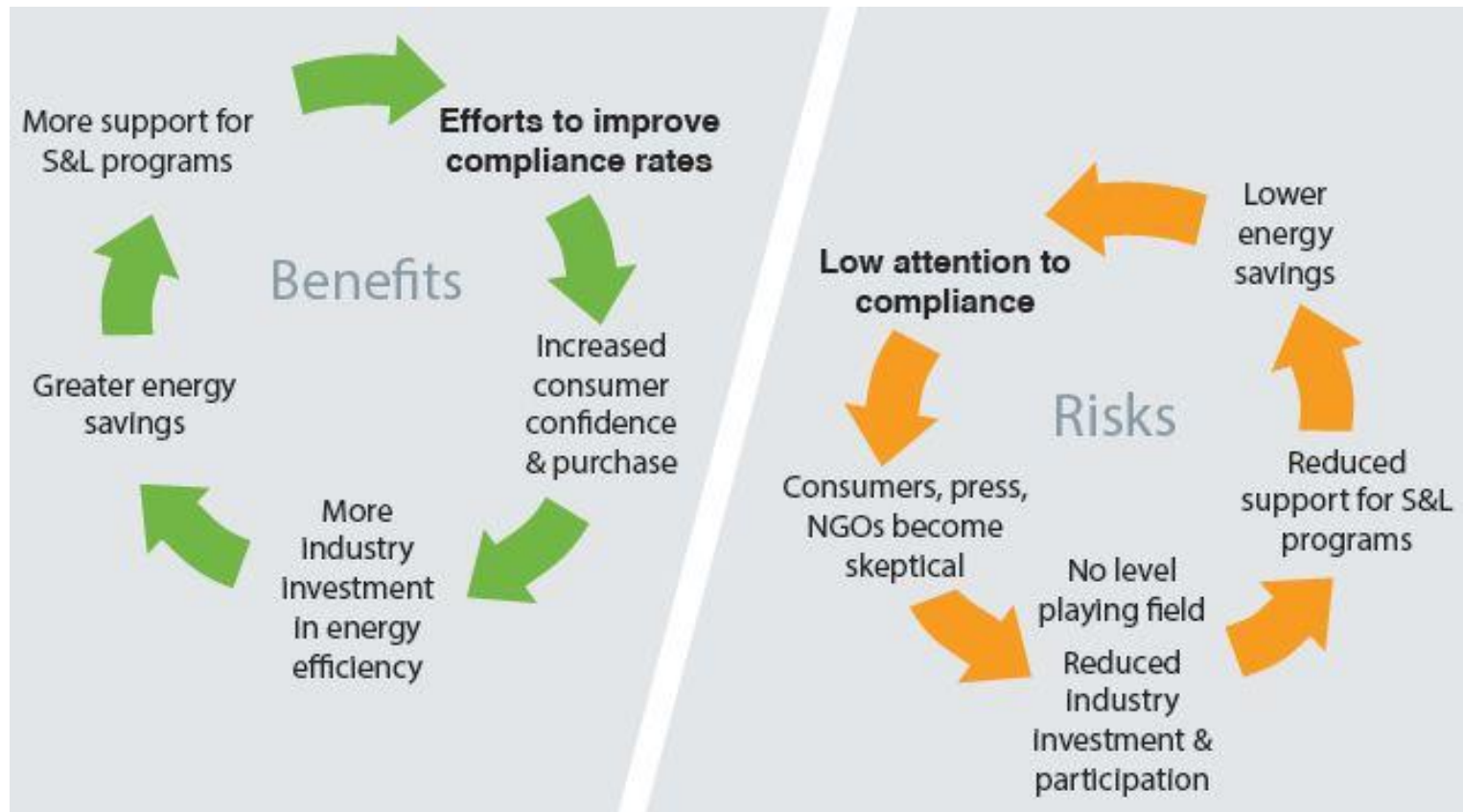
Compliance Monitoring

- Effort and resources spent on compliance monitoring is a trade-off between costs (usually to manufacturers) and corroboration.
- Compliance monitoring has traditionally been undervalued – new market conditions mean this is changing.
- Lack of compliance has two main impacts
 - A quantitative one on savings due to leakage
 - A qualitative one on program integrity



Monitoring, Verification & Enforcement

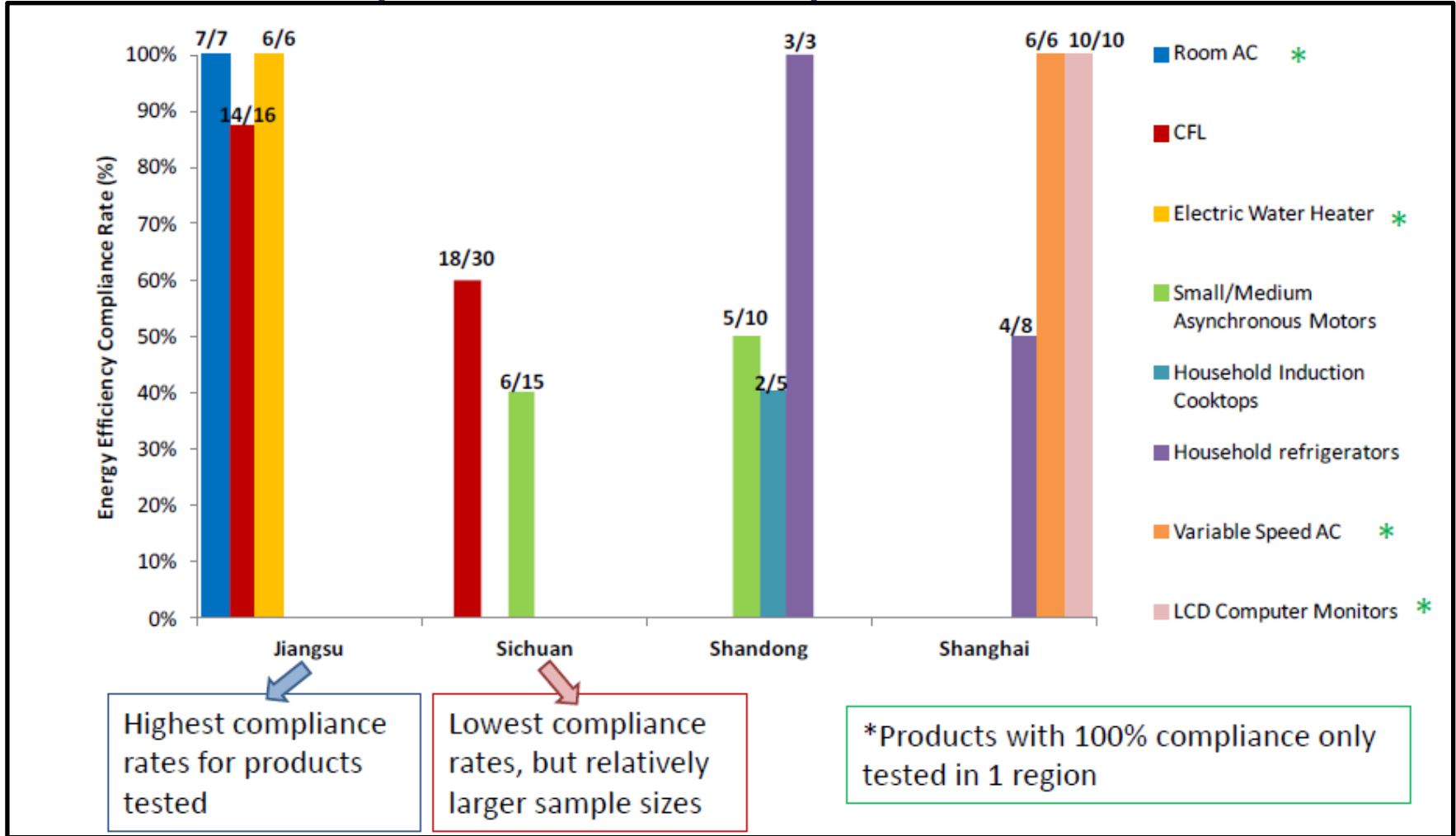
Monitoring, verification, and enforcement (MV&E) policies safeguard the energy savings of S&L programs by ensuring products meet S&L policy requirements and live up to their energy efficiency claims.



Source: CLASP MV&E Guidebook



Example –Local Compliance in China



Source: Nina Zheng Khanna, LBNL



Costs and Benefits in a Compliance Regime

Entry Condition	Distribution of Costs		
	Government/ Programme	Industry Participant	Consumers
In-house testing, calculation or self declaration allowed	High cost in market surveillance & verification testing	Low compliance costs	None
Independent tests required	Medium cost in market surveillance & verification testing	Medium initial compliance costs	May fund compliance costs in price of equipment
Third-party verification and/or certification required	Low cost in market surveillance & verification testing	High initial compliance costs	May fund compliance costs in price of equipment

Source: CLASP MV&E Guidebook




More Resources

The book cover features a light blue header with the title. Below the title is a collage of three images: a close-up of a meter with 'KILOWATT HOURS' and '40V 3W' labels; a glowing CFL bulb with a spiderweb overlay; and a standard incandescent bulb. The text 'PUBLISHED SEPTEMBER 2010' is centered below the images. The bottom section is white with author information and the CLASP logo, set against a green background on the right side.

**Compliance Counts:
A Practitioner's Guidebook on
Best Practice Monitoring,
Verification, and Enforcement for
Appliance Standards & Labeling**

PUBLISHED SEPTEMBER 2010

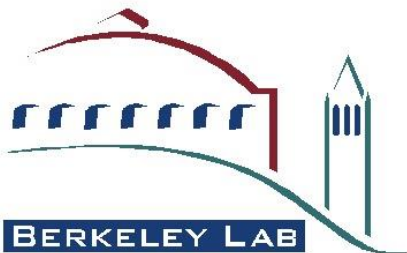
By
Mark Ellis & Associates
in Partnership with
the Collaborative Labeling & Appliance
Standards Program (CLASP)

 clasp



Thank You!

U.S. Department of Energy (DOE)
Lawrence Berkeley National Laboratory (LBNL)
Collaborative Labeling and Appliance Standards Program (CLASP)



U.S. DEPARTMENT OF
ENERGY

