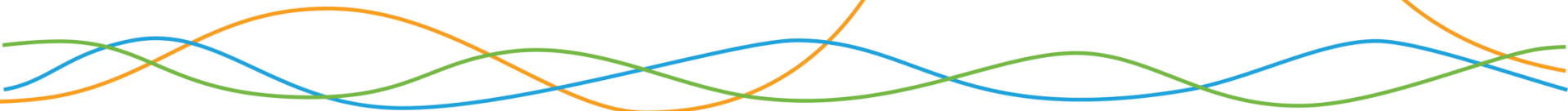




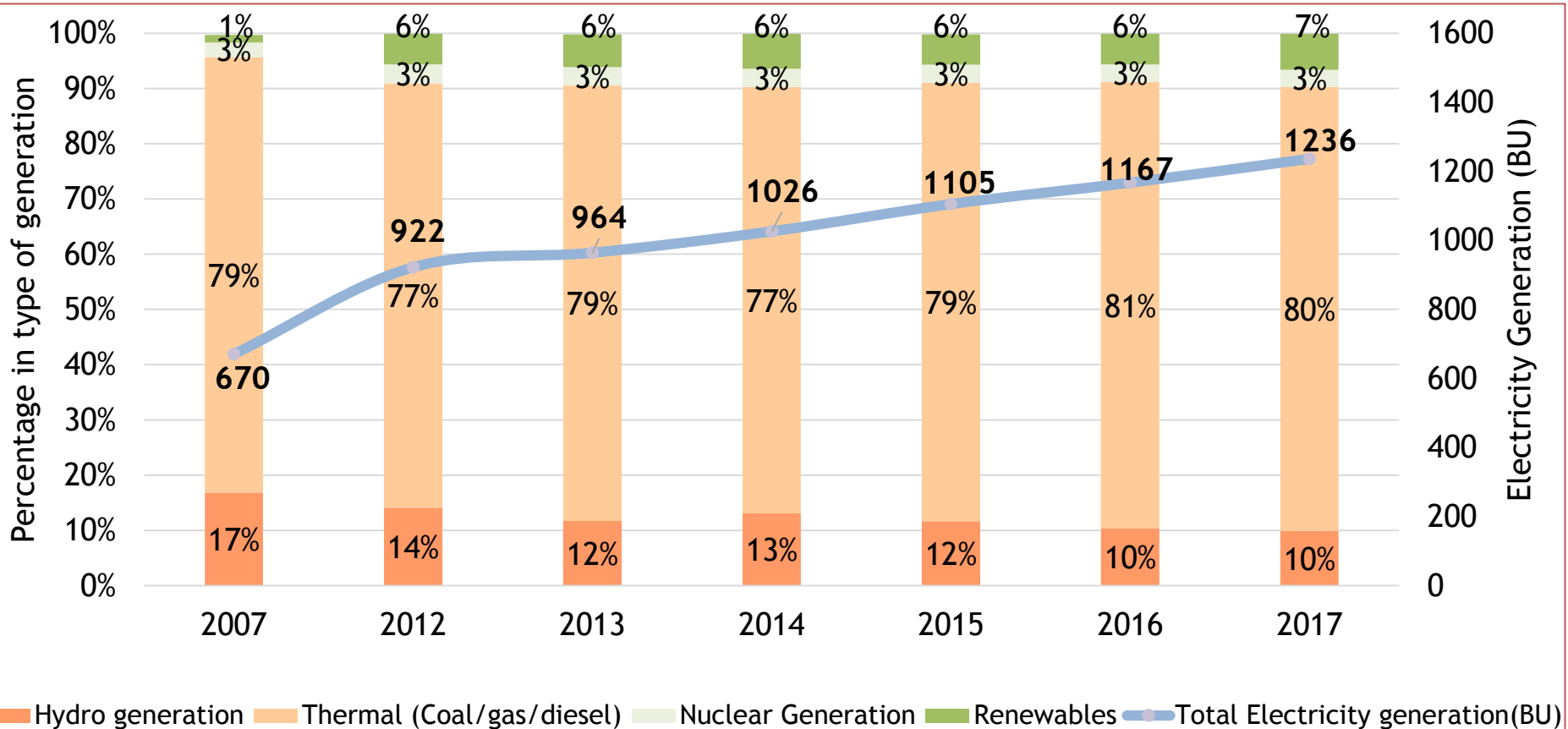
Roadmap for Transforming India's Energy Scenario through Appliance Energy Efficiency Program

Kishore kumar
Senior Associate
CLASP- India Program



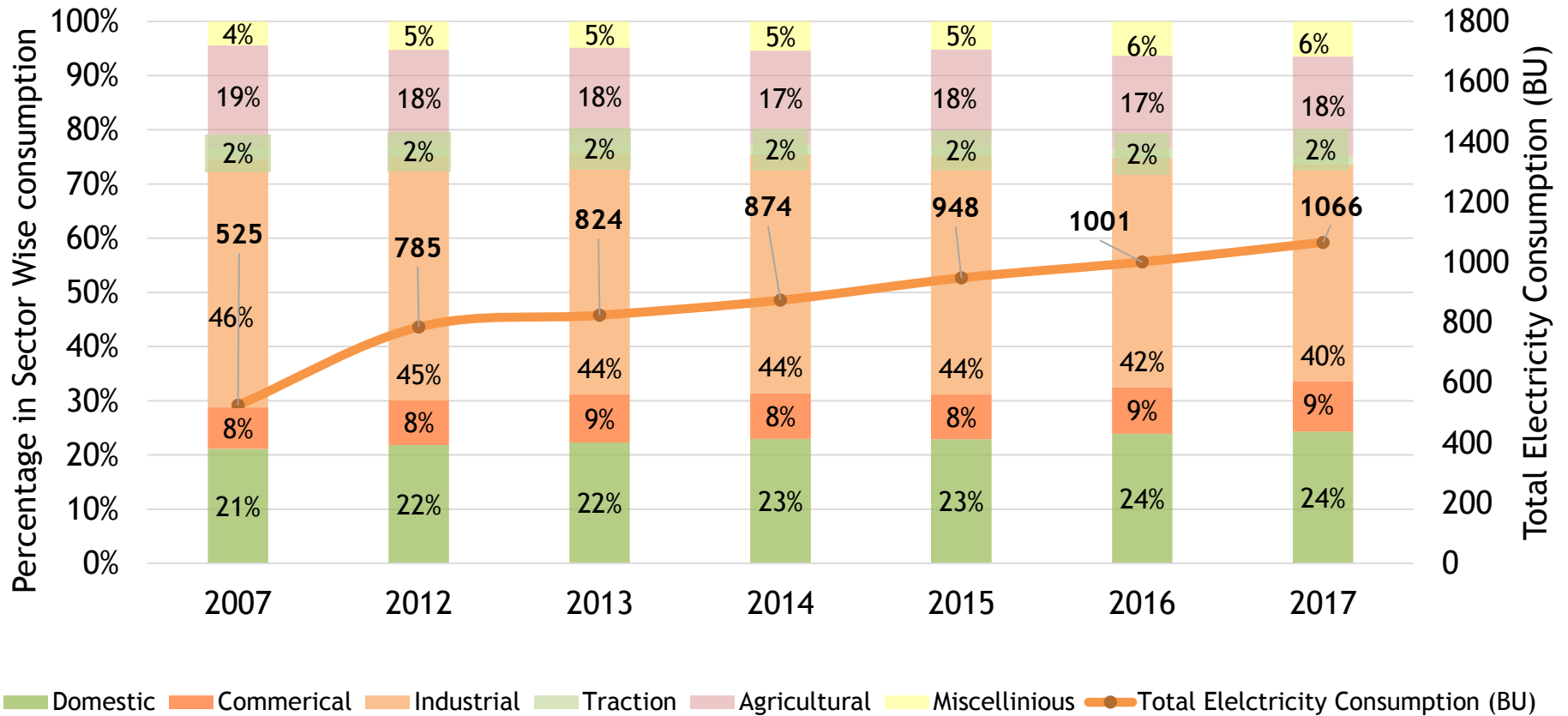
- ❑ India Electricity Generation & Consumption Pattern
 - ❑ Electricity Requirement in 2022
 - ❑ Standard & labelling (S&L) Program
- ❑ S&L Program-Product Policies
 - ❑ Key Indicators & Achievements
 - ❑ Existing Product Performance Improvement levels
 - ❑ Products performance projections till 2022
 - ❑ Products estimated Energy saving till 2022

India's Gross Electricity Generation (Billion Units) from 2007-2017



- ❑ India's gross electricity generation **1167 Billion Units** (March, 2016).
- ❑ In 2017, Renewable energy electricity generation share has been increased from **1% to 7%** compare to 2007.
- ❑ Thermal power plant electricity generation share has been consistent approx **79-80%** through out the entire period.

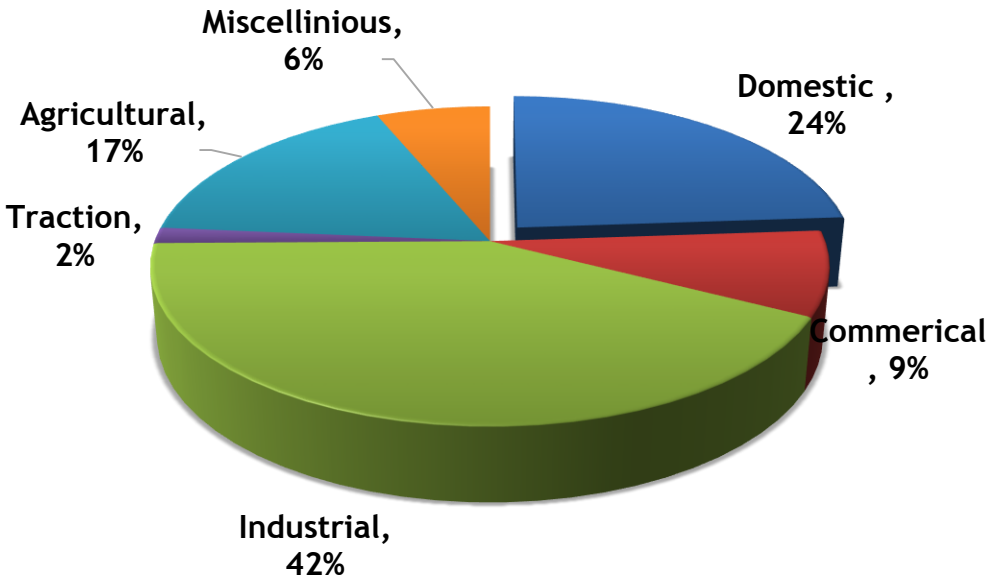
India's Electricity Consumption at Utilities (Billion Units) from 2007-2017



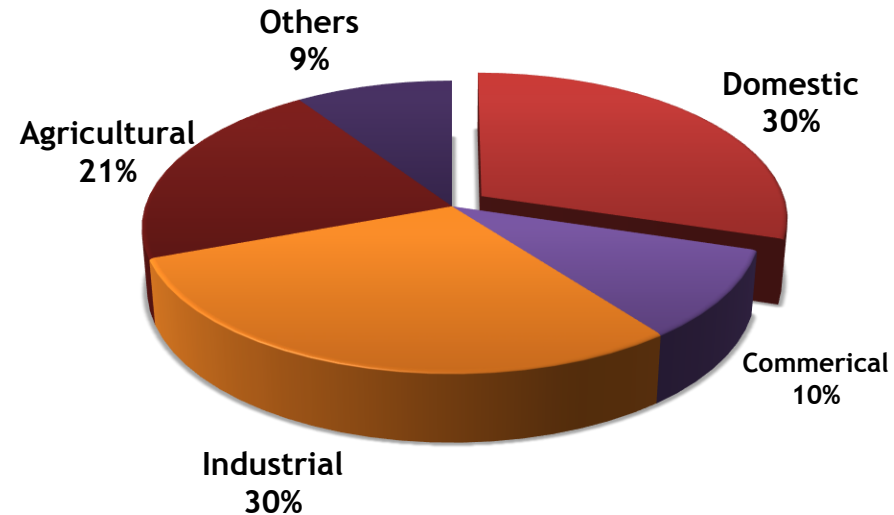
- ❑ India's Utility Electricity consumption was **1001 Billion Units** in 2016.
- ❑ Year on year Average Growth rate of total Electricity consumption is **6%** & Domestic Sector is **8%**.
- ❑ In 2017, share of Domestic sector has been increased from **21% (111 BU) to 24% (256 BU)** compared to 2007 consumption levels.

clasp India's Projected Electricity Requirement in 2022* (Sector wise)

Utilization Pattern of 1167 BU in 2016



Utilization Pattern of Projected 1566 BU in 2022



- India's projected electricity requirement in 2022 is **1566 Billion Units**.
- It is estimated that in 2022, share of Domestic sector will escalate from **24% to 30%** compared to the 2016 level.

* Source: Central Electricity Authority (CEA) Report on India Electricity Growth 2017

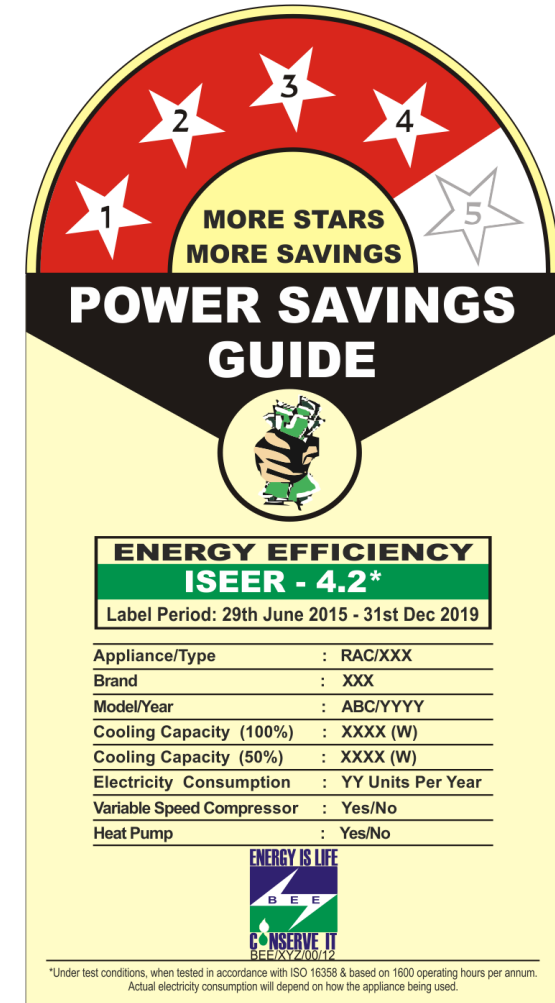
India's Standard & Labeling Program for Appliances

Scheme:

- ❑ The Bureau of Energy Efficiency, Ministry of Power launched Standard & Labeling (S&L) program for appliances/equipment under section 14 of the Energy Conservation Act, 2001.

Objective:

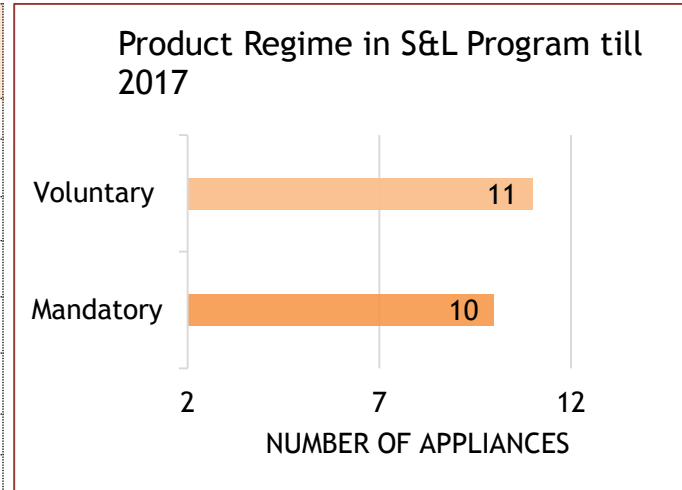
- ❑ To reduce the end use energy consumption of appliances/equipment without diminishing the service levels.
- ❑ Creating awareness amongst the consumers, to make informed decision considering the cost effectiveness & energy performance while purchasing appliances .
- ❑ Monitor and Verify energy savings that incur annually through sale of EE appliances.
- ❑ As a spinoff of the scheme ensures products quality.



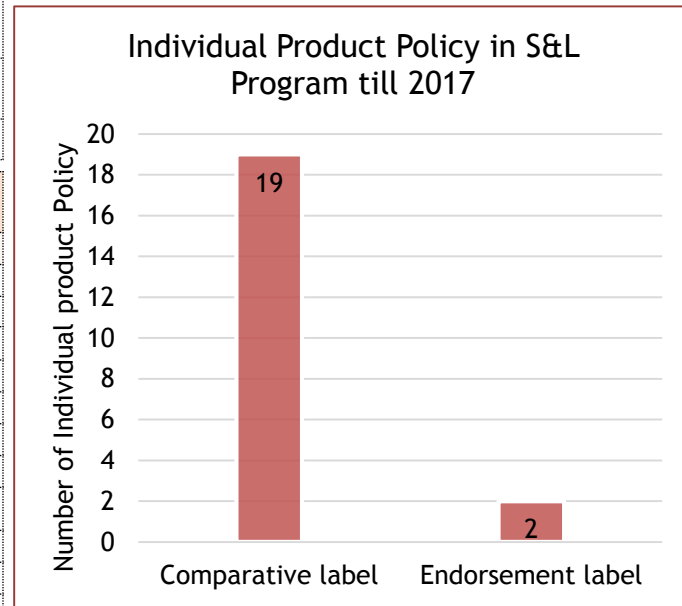


India's Standard & Labeling (S&L) Program- Products Launched, Revised & Mandatory

S.no	Appliances	Comparative (C) /Endorsement (E) Label	Year Introduced	Date of Mandatory (and Upgraded)
Mandatory Phase				
1	Frost Free Refrigerator	C	2006	12th January 2009 (2012, 2014, 2016)
2	Tubular Florescent Lamp	C	2006	16th January 2009 (2018)
3	Room Air Conditioners	C	2007	12th January 2009 (2012, 2014, 2018)
4	Direct Cool Refrigerator	C	2007	26th May 2016 (2015, 2017)
5	Distribution Transformer	C	2009	12th January 2009 (2017)
6	Color TV	C	2009	26th May 2016 (2014, 2016)
7	Electric Geysers	C	2009	07th September 2016 (2014, 2015)
8	RAC (Cassette, Floor Standing)	C	2011	29th December, 2015 (2012,2014,2016)
9	Inverter Air Conditioners	C	2015	8th August 2017
10	LED Lamps	C	2016	27th December 2017

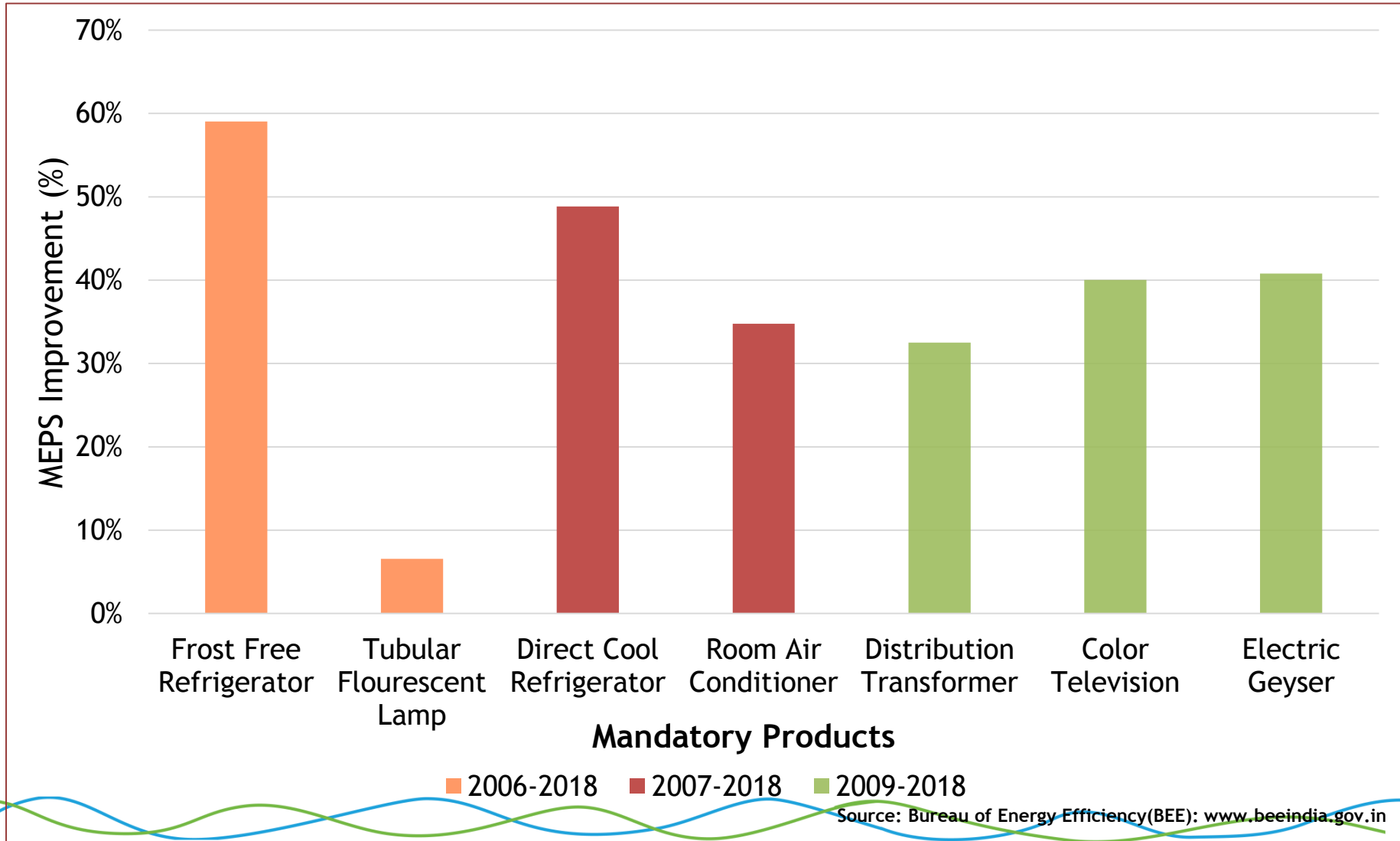


S.no	Appliances	Comparative (C) /Endorsement (E) Label	Year Introduced (and Upgraded)
Voluntary Phase			
11	Pump Sets	C	2008
12	Ceiling Fans	C	2009
13	Induction Motors	C	2010
14	Washing Machine	C	2011
15	Computer (Notebook/Laptops)	E	2011
16	Ballast (Electronic/Magnetic)	C	2013
17	Office Equipment's	E	2014
18	LPG-Stoves	C	2014
19	DG Sets	C	2014
20	Diesel Engine Mono-set Pumps	C	2015
21	Solid State Inverter	C	2016



Source: Bureau of Energy Efficiency(BEE): www.beeindia.gov.in

S&L Program- Minimum Energy Performance Standard (MEPS) Improvement

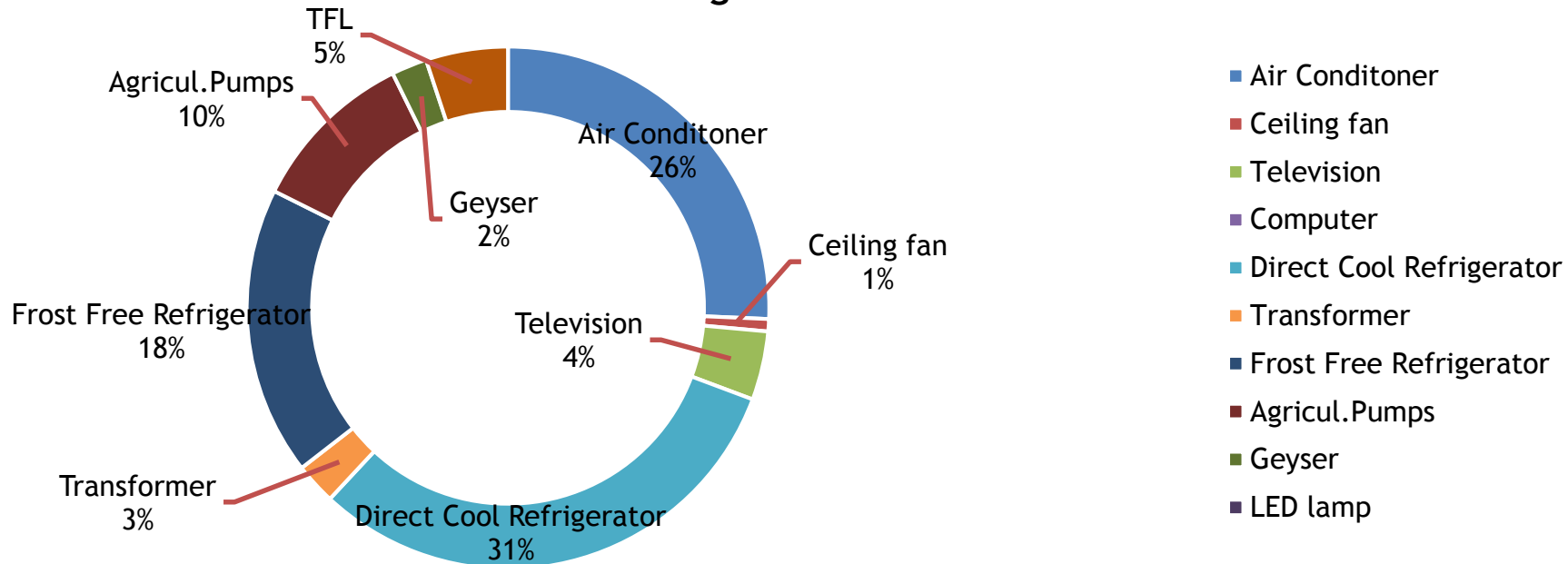


S&L Program-Key Indicators, Energy Saving & Achievements

Star Label- Key Program Indicators, 2010 and 2016

S.no	Key Indicators	2010	2016
1	Cumulative Certified/Registered Products	144 Million	1006 Million
2	Annual Certified/Registered Products	25 Million	126 million
3	Individual Certified/Registered Product Models	8502	14209
4	Product Categories Eligible for Star Label	10	21
5	Manufacturer Registered	476	975
6	Cumulative Energy Saving	14 BU	197 BU

S&L Program- Percentage of Appliances Energy Saving since beginning of Program

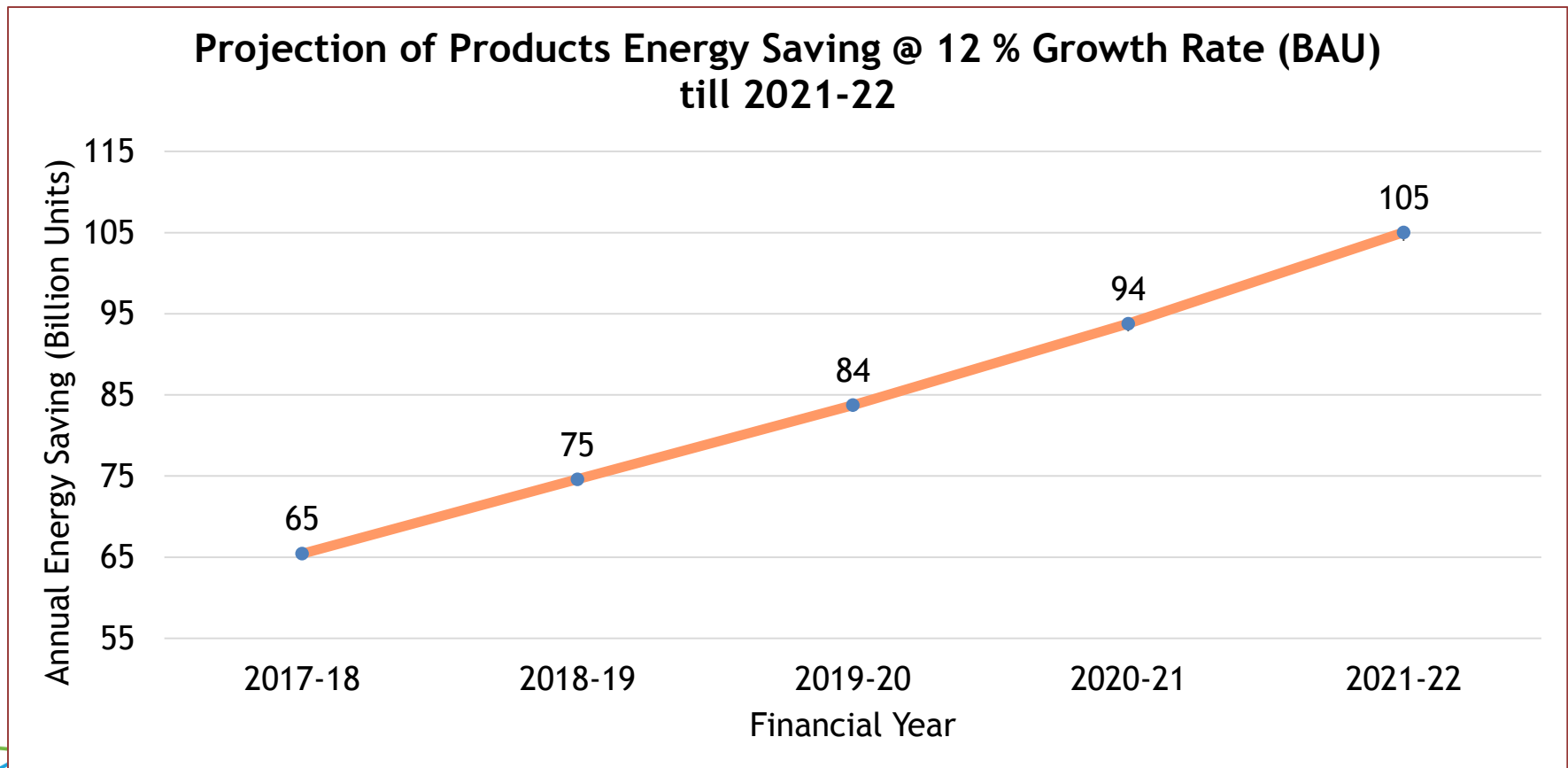




S&L Program- Projections of Annual Energy Saving of 21 Products

Future plans:

- ❑ Energy saving from the S&L program show a high average growth rate. Even with a conservative approach of 12% growth rate, S&L is expected to save 105 Billion Units of electricity by 2021-22

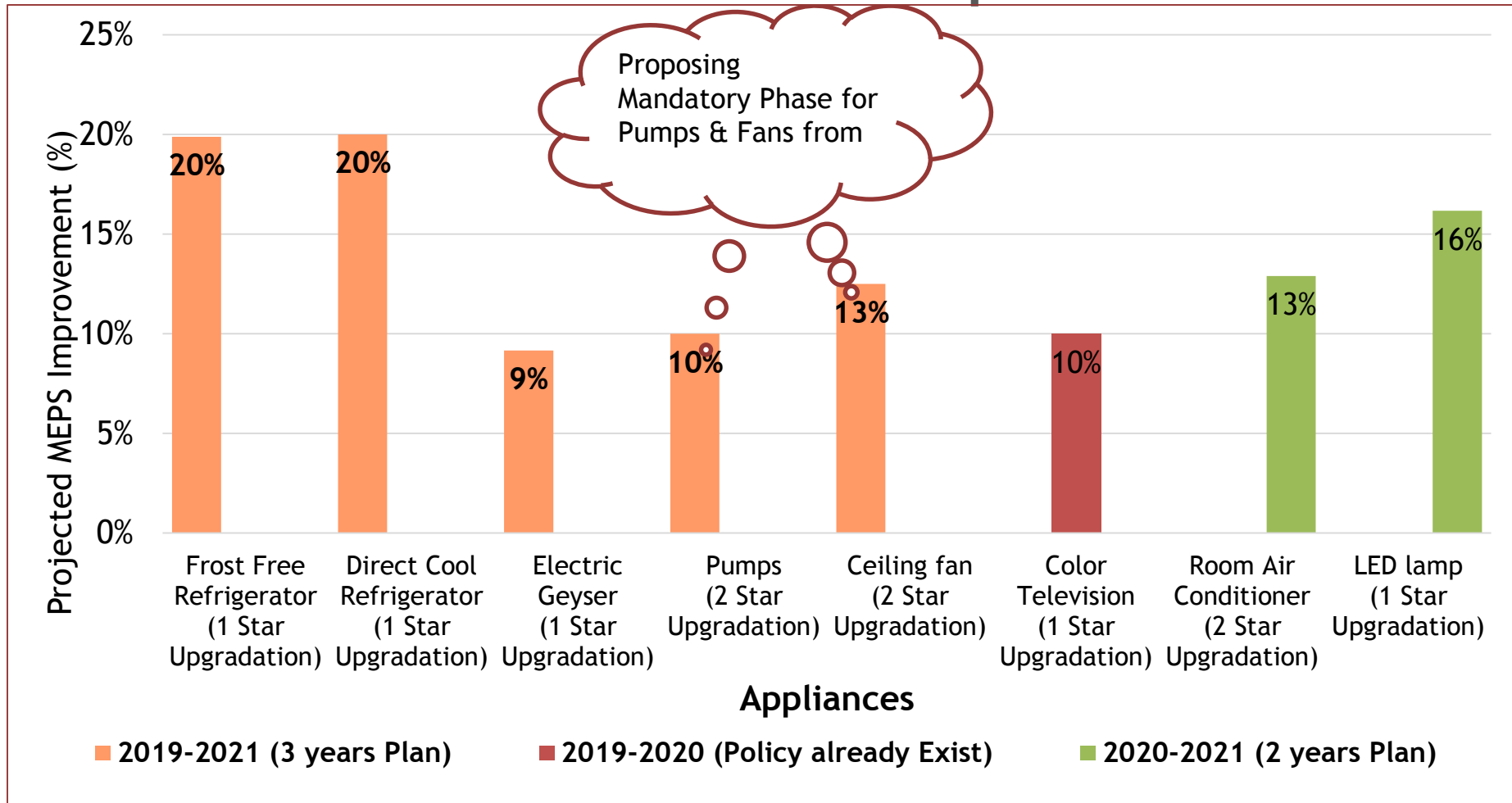


Projections & Approach for achieving higher Energy Saving by 2021

Future plans:

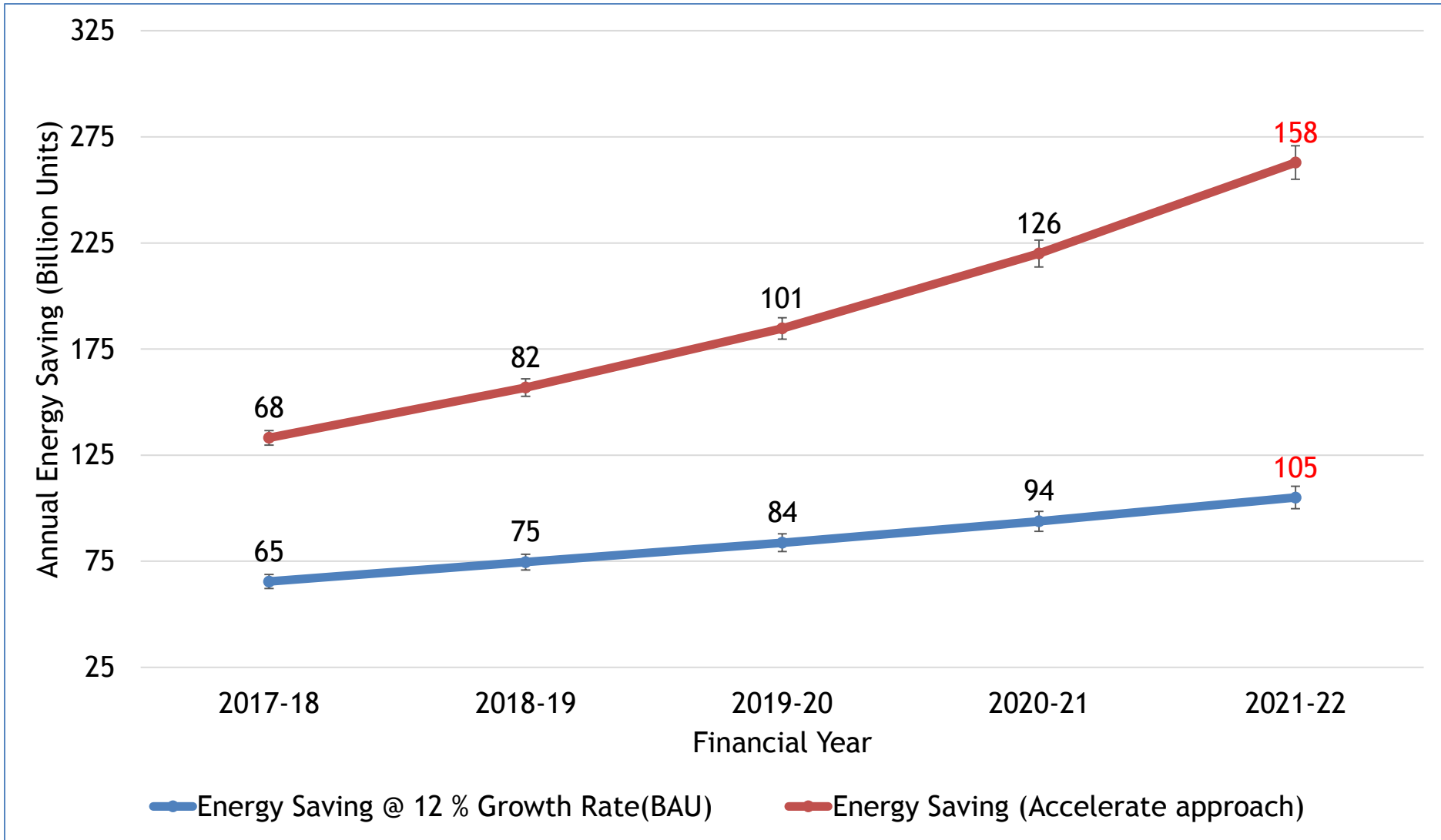
- ❑ Assuming policy revisions, the S&L program could potentially achieve higher energy saving by 2021-22,
 - Frost free & Direct Cool Refrigerators, Electric Geyser products to upgrade by 1 Star rating performance level from 2019
 - Ceiling fan & Agricultural Pumps to be upgraded by 2 Star Rating and Mandatory from 2019
 - Room Air Conditioner to upgrade by 2 Star Rating performance levels & LED lamps to upgrade by 1 Star rating in year 2020

S&L Program- Projection of MEPS Improvement till 2021



- Considering an annual sales growth of 12% year on year for all 21 products, combined with the revisions of policies mentioned above, would result in estimated savings of **158 Billion Units** of electricity by 2021-22

S&L Program- Projection of Annual Energy Saving in Accelerate Approach till 2021





Thank You

Kkumar@clasp.ngo

**Senior Associate
CLASP India office**

