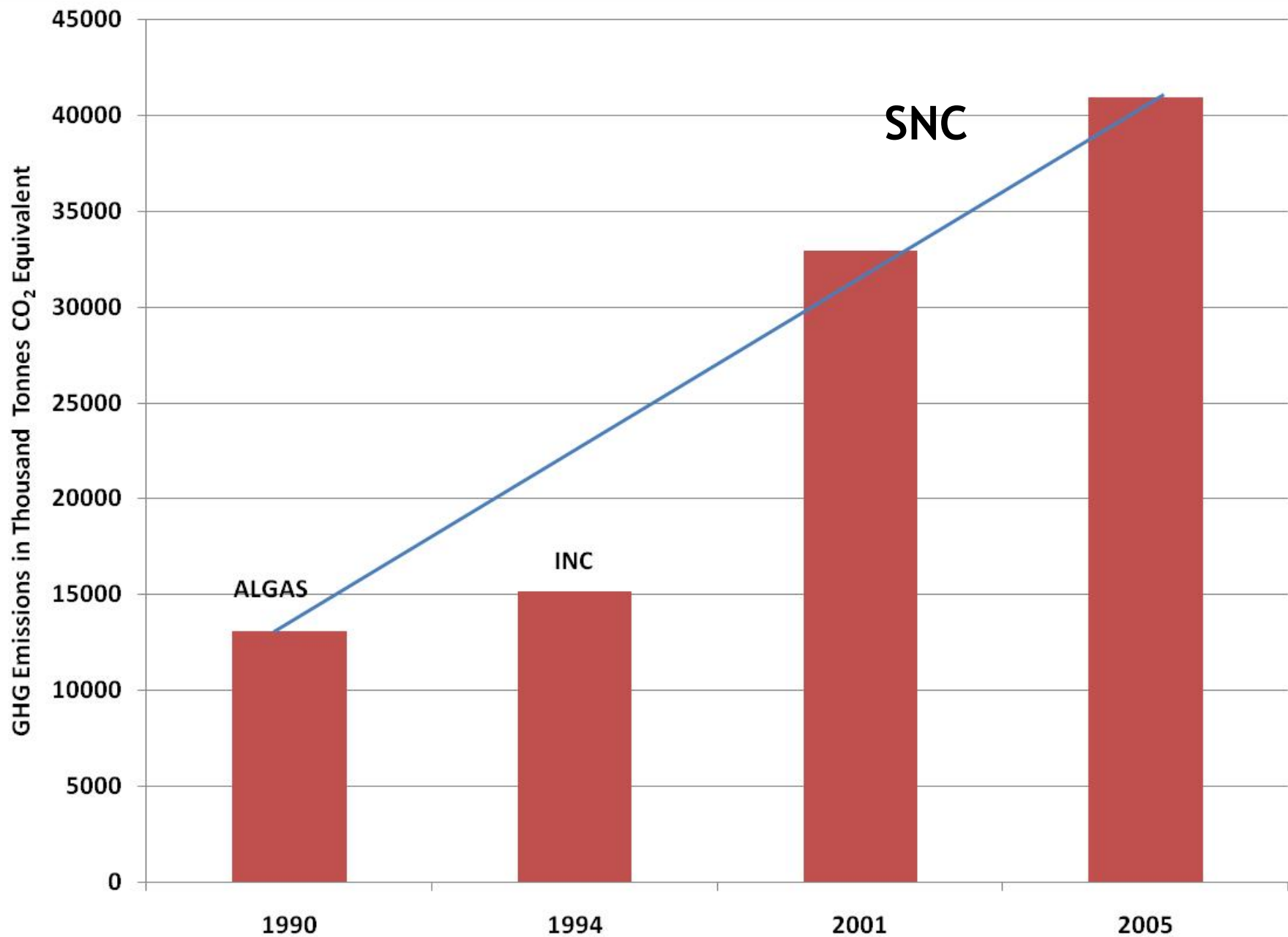


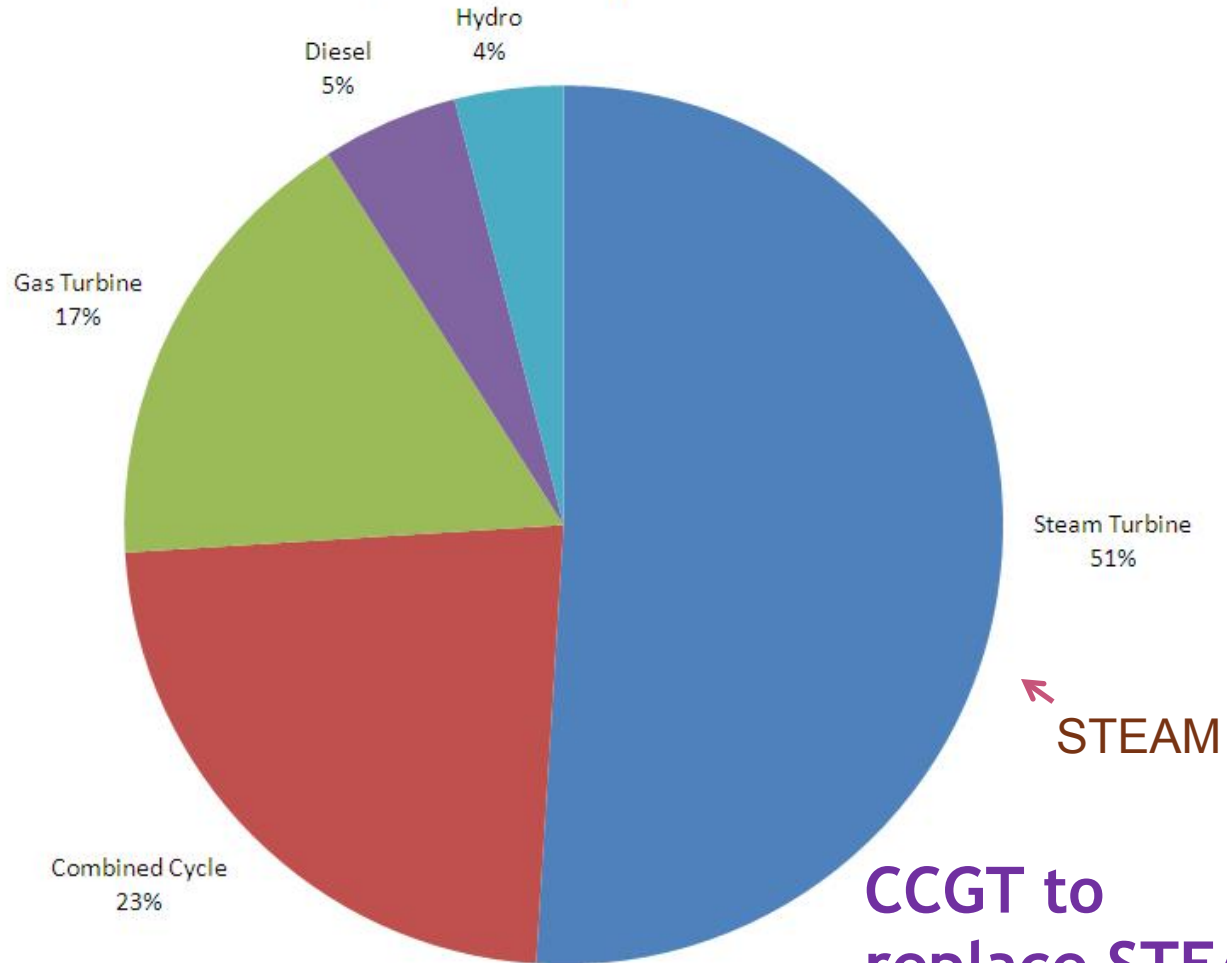
3E NEXUS INITIATIVE

Low Carbon Efforts in
Bangladesh

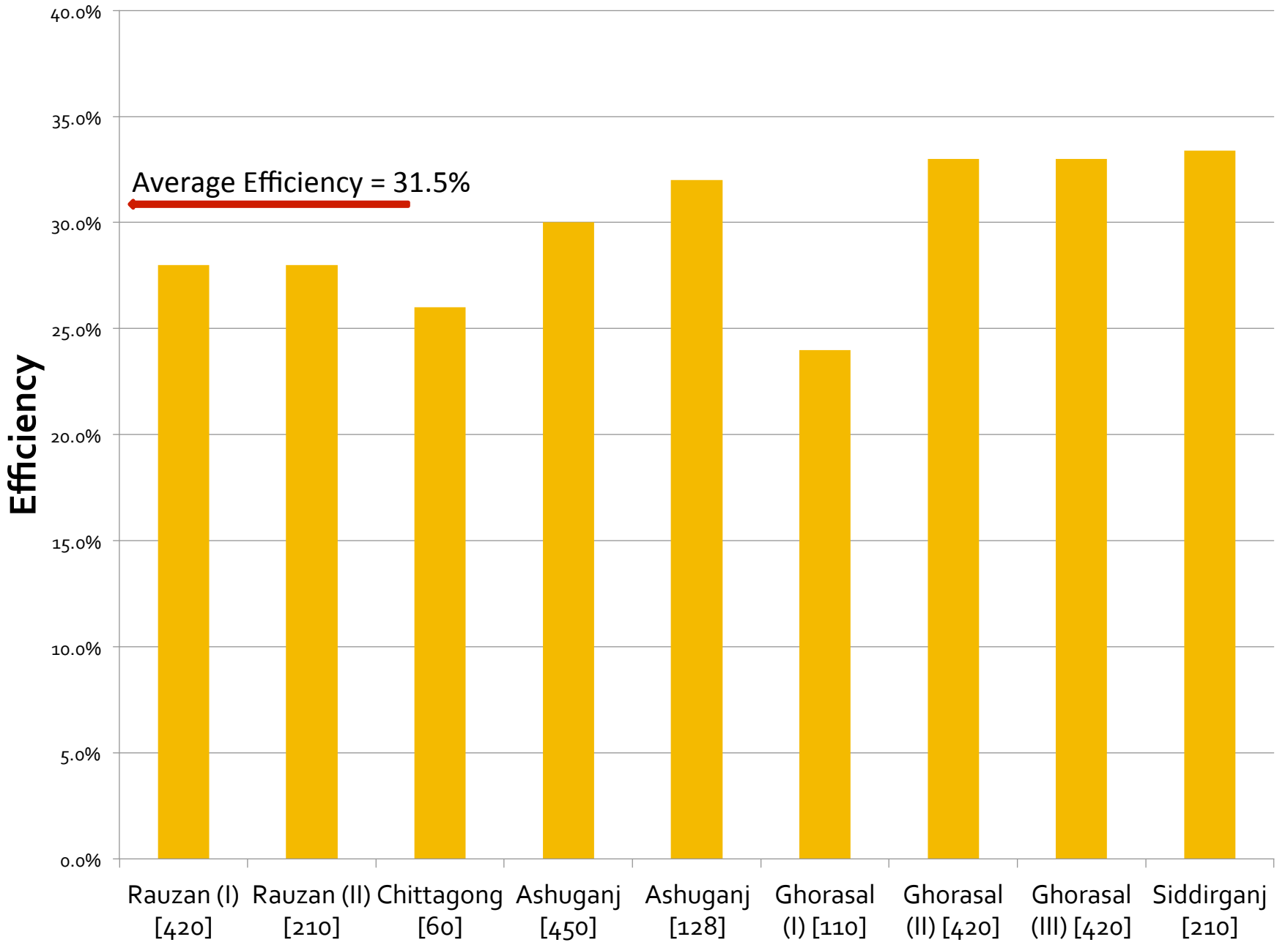


Electricity Generation

Electricity Generation: Type of Power Plant



CCGT to
replace STEAM



MOPEMR'S ENERGY EFFICIENCY PROGRAMS (SUPPLY SIDE)

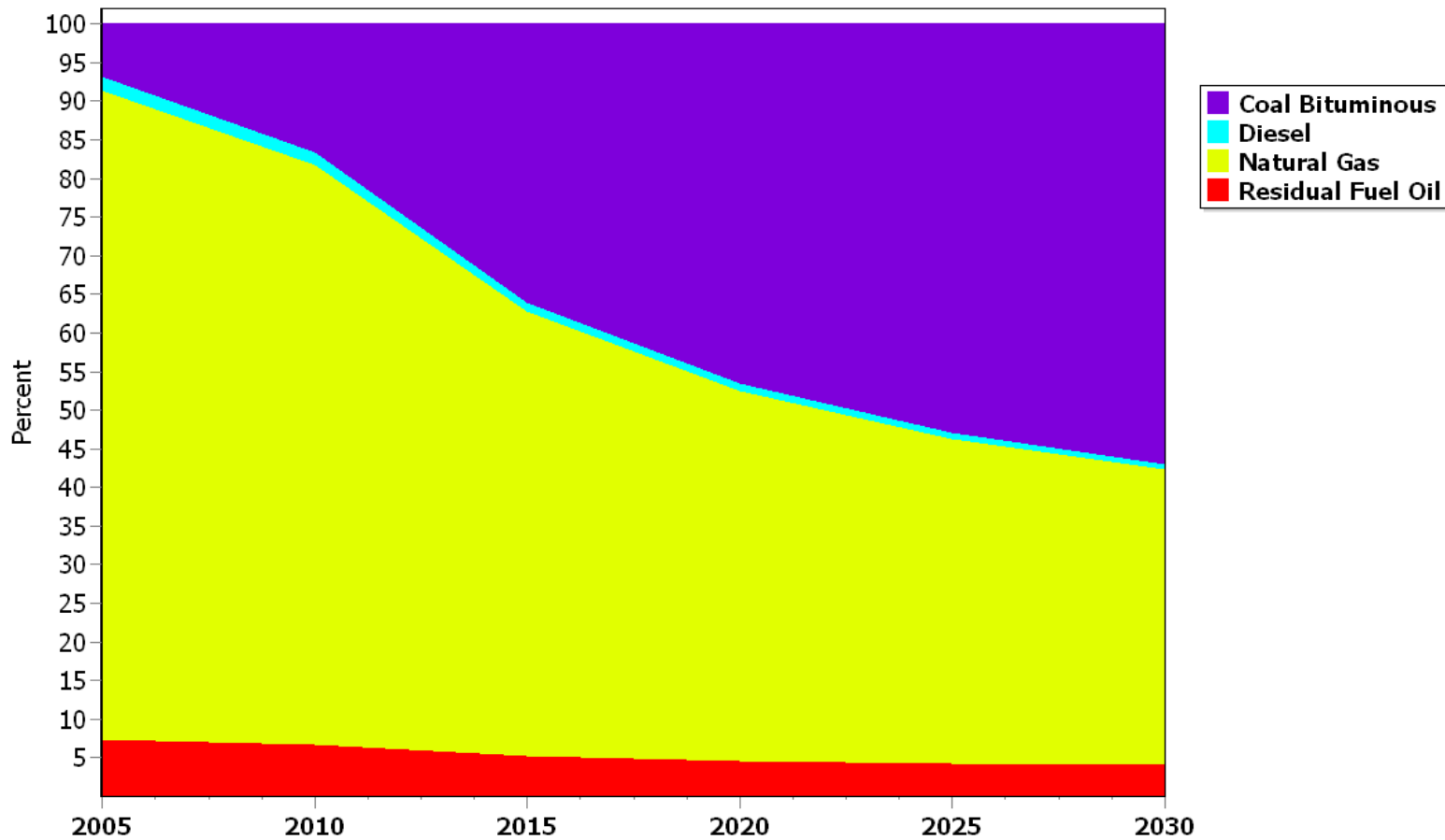
- ◉ Gas-fired power plants owned by BPDB are very old and are operating at extremely low efficiencies (> 2000 MW)
- ◉ T&D infrastructure is also old and losses are high

Following efficiency improvement measures being pursued:

- ◉ Combined Cycle Gas Turbine (CCGT) to replace Steam Turbine (From 31% to 55%)
- ◉ Rehabilitation of old gas turbine power plants
- ◉ T&D upgrading and rehabilitation

CO₂ EMISSIONS FROM POWER PLANTS GROUPED ACCORDING TO TYPE OF FUELS

Environment: Carbon Dioxide (Non-Biogenic)



POWER PLANT GOVERNMENT COMMITMENT



GAS

- Combined Cycle Gas Turbine (CCGT)
- LNG import to meet shortfall



COAL

- Ultra Supercritical Boiler
- Underground Coal Gasification (UGC)



NUCLEAR

- 2000 MW in first phase
- 4000 MW in second phase

MOPEMR PROGRAMS ON ENERGY EFFICIENCY AND SOLAR ENERGY - DEMAND SIDE

- ◉ Revision of the Building Code by inserting Energy Efficiency and Solar Energy issues
- ◉ Installation of Solar Panels in government organizations
- ◉ Dissemination of CFL bulbs in the residential sector and Discontinuation in phases of incandescent bulbs
- ◉ Street lights to be replaced first by LED lights and later by solar PV powered lights

MOPEMR PROGRAMS ON ENERGY EFFICIENCY AND SOLAR ENERGY - DEMAND SIDE

- ◎ Encouraging the business community to use solar energy
- ◎ Steps taken to introduce prepaid metering to reduce loss of electricity
- ◎ Cogeneration in Captive Generation industries
- ◎ Steel re-rolling and Boiler efficiency improvement through energy audit and enforcing minimum efficiency standard



Cookstoves (old and new types)



Solar Reflective Glass



Solar Irrigation

To give environmental conservation an emphasis, **Sustainable and Renewable Energy Development Authority (SREDA)** to promote renewables and energy efficiency has been set up

SREDA - ROLES AND FUNCTIONS

Masterplan being formulated

3 Main Elements

1. Energy Audit and Energy Efficiency and Conservation trainings
2. Energy managers and mandatory targets
3. Labeling program for energy consuming devices

BANGLADESH STANDARDS AND TESTING

BSTI has been working on Energy Standards and Labeling (ESL) and are in a position to provide **Star Labeling** of some devices

BRESL project funded by UNDP-GEF is providing support

BSTI has completed work on 6 consumer products

Fans

Refrigerators

Air Conditioners

Motors

CFLs

Ballasts

Companies are being encouraged to apply for grading and certification of their products

ENERGY EFFICIENT STAR LABELING



ENERGY RATING

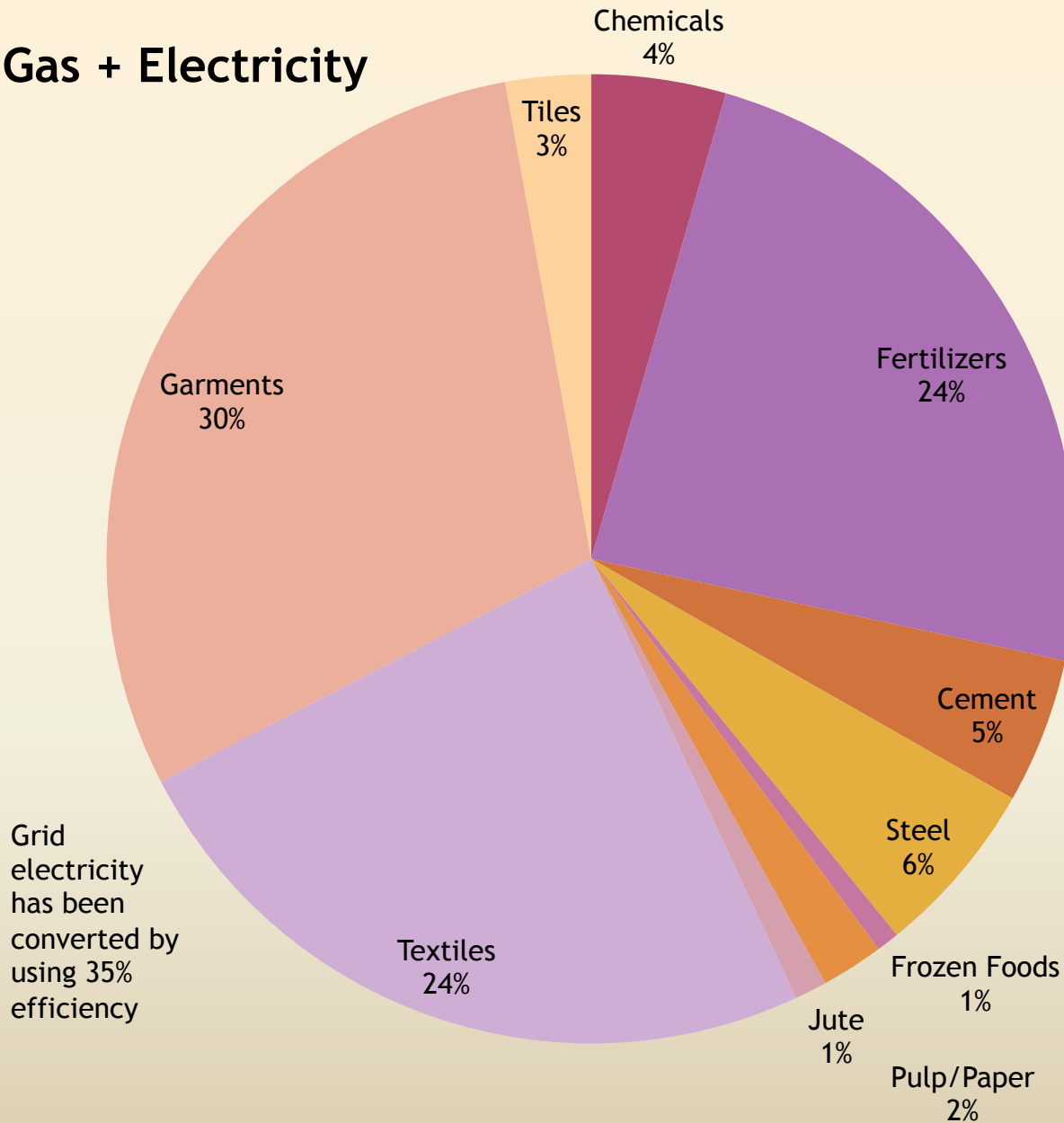
THREE STARS

Bangladesh Standards and Testing Institution (BSTI)
has permitted the use of this label on this
Fan of Brand _____ and size _____ mm
as per BDS. _____

More stars means more Energy Efficient

2013-14

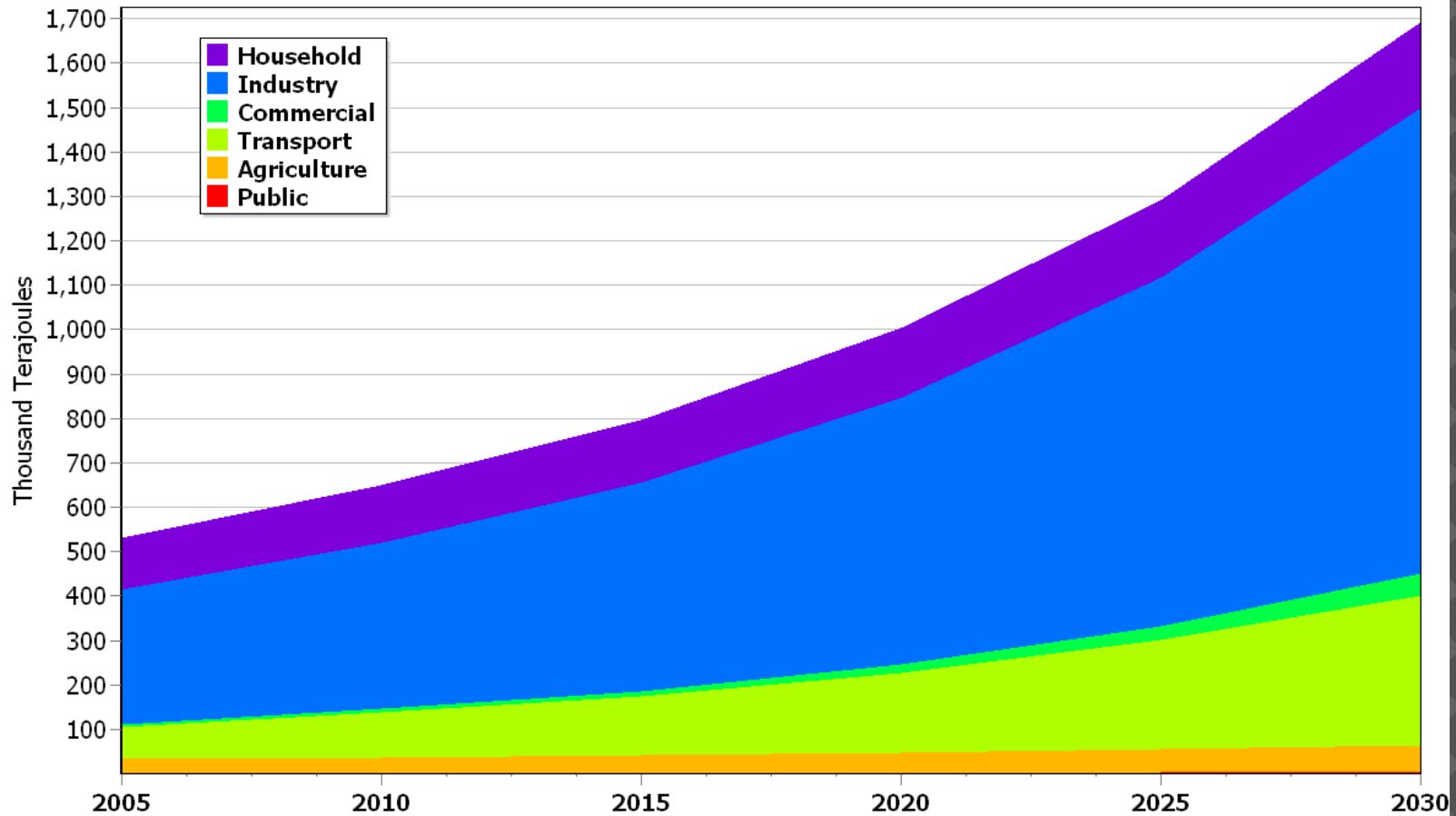
Gas + Electricity



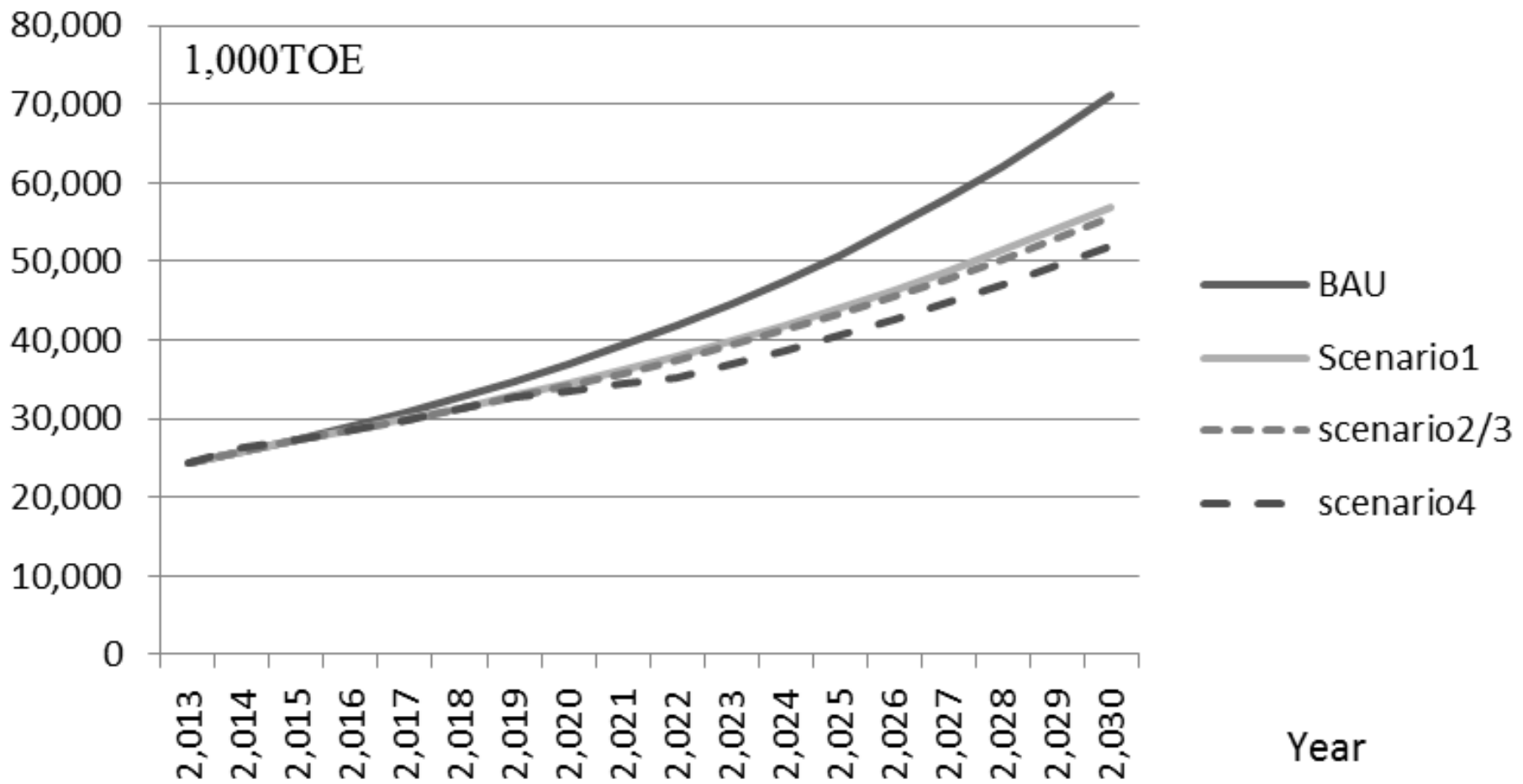
Grid electricity has been converted by using 35% efficiency

ENERGY PROJECTION OF THE DEMAND SECTORS FOR THE PERIOD 2005 TO 2030

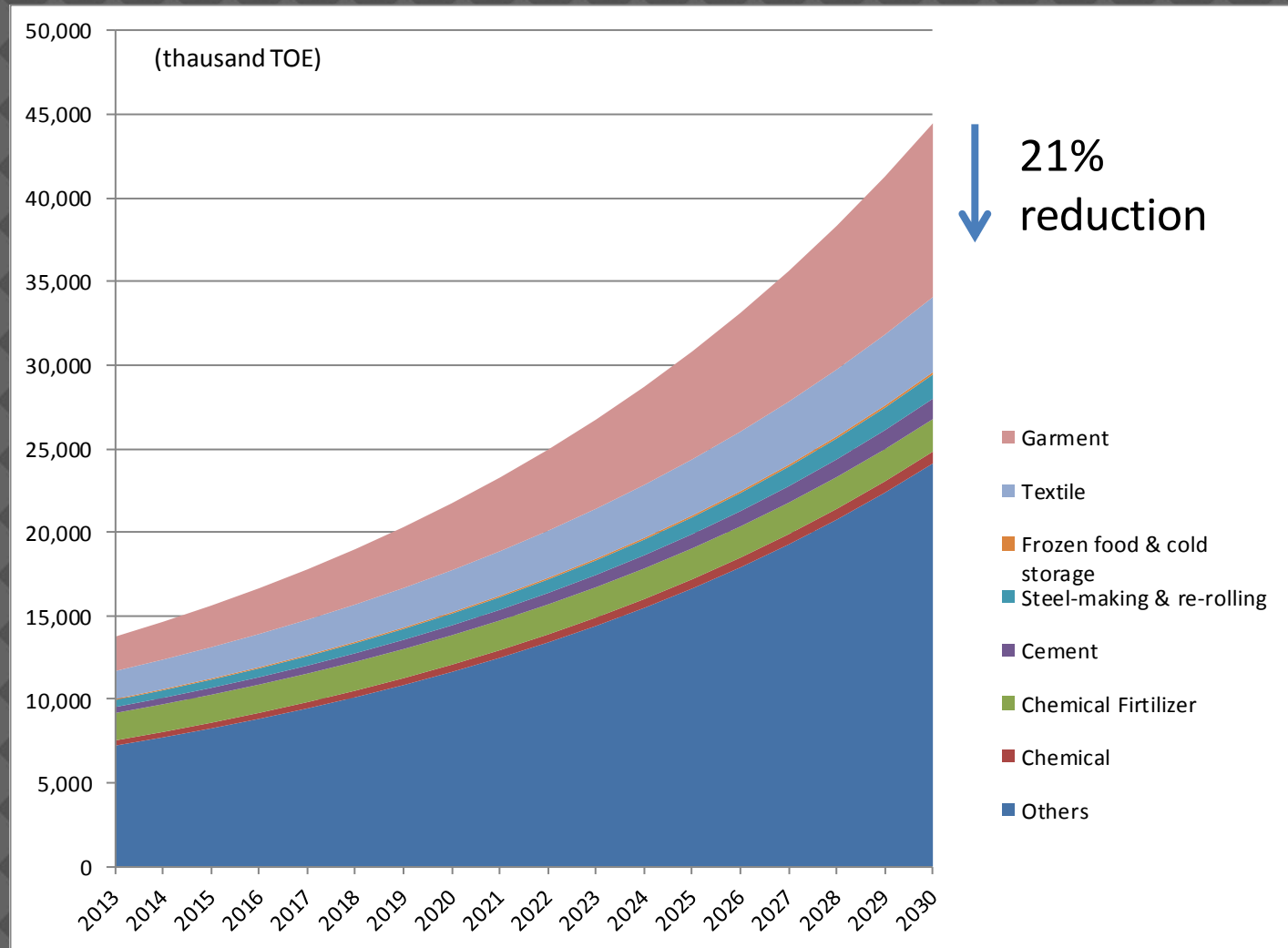
Demand: Energy Demand Final Units



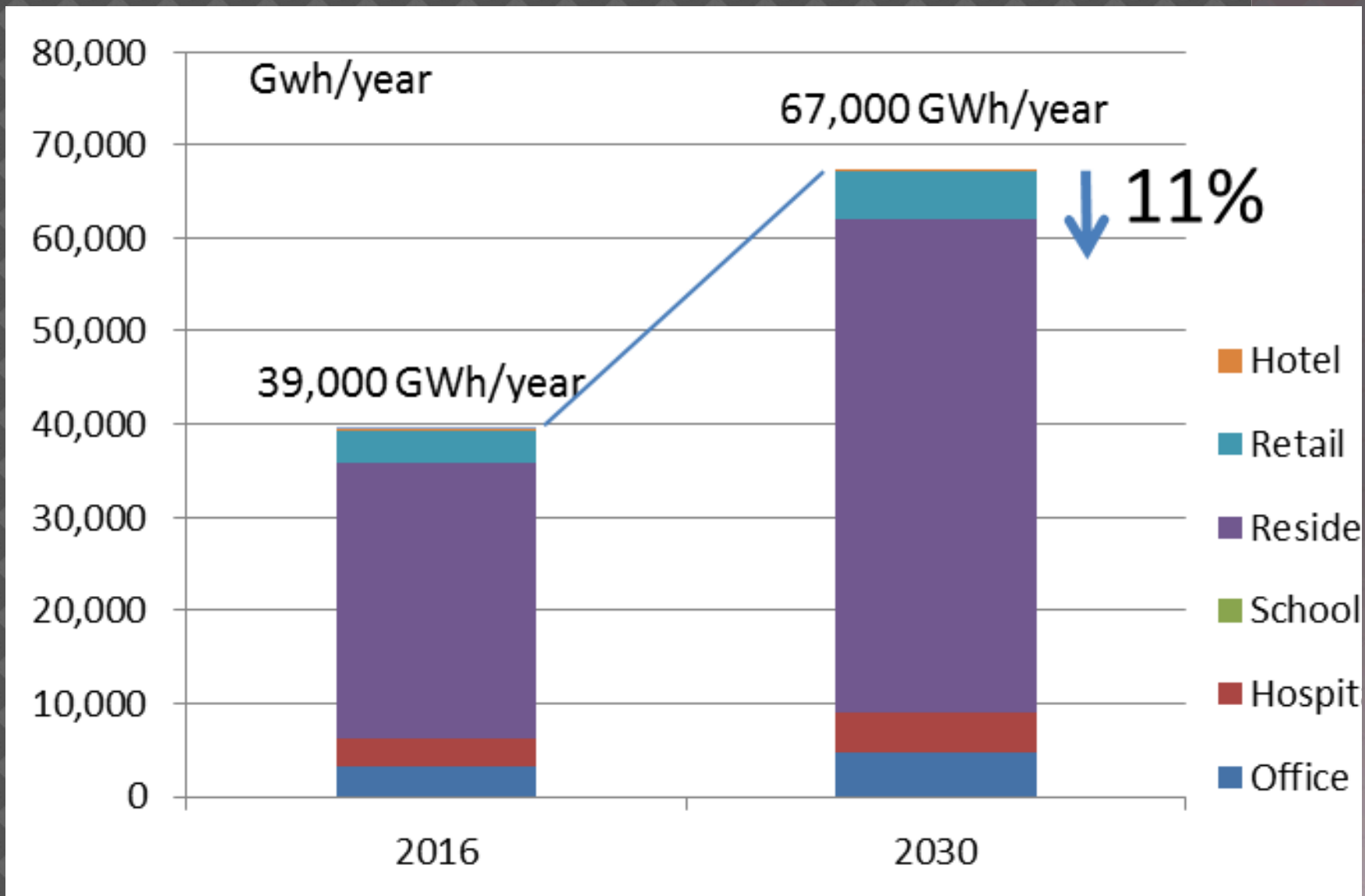
COMPARISON OF PRIMARY ENERGY CONSUMPTION SCENARIOS



ENERGY CONSUMPTION TREND (BAU CASE) AND EE PROSPECTS



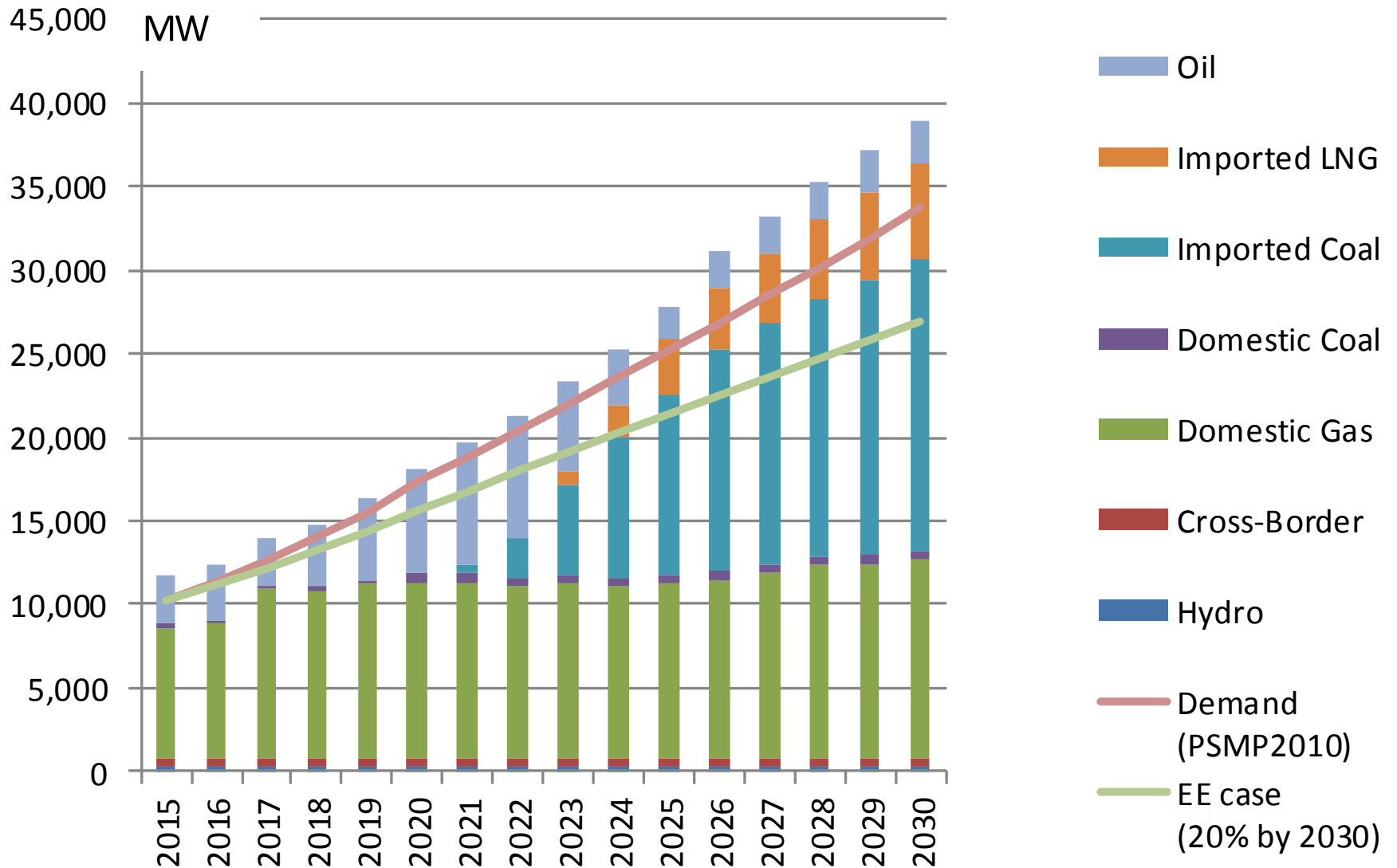
EXPECTED GROWTH IN TOTAL ENERGY CONSUMPTION AND EE POTENTIAL



STEEL MAKING AND RE-ROLLING

Reheating Furnace	Number	Investment	Energy Reduction by 2030
Re-generative burner	10	Tk. 700 million	38000 TOE
Combustion control unit	20	Tk. 30 million	15000 TOE
Waste heat recovery	20	Tk. 60 million	15000 TOE
Heat insulation with ceramic fiber	20	Tk. 120 million	23000 TOE
Melting Furnace			
Replacement of induction furnace with arc furnace	5	Tk. 5 billion	11000 TOE

PEAK POWER DEMAND EE POTENTIAL



RENEWABLE ENERGY POLICY

- The Renewable Energy Policy was adopted in 2008
- To achieve the objective government has set targets for developing renewable energy resources
- **5% of power by 2015 and 10% by 2020**
- The government has identified renewable energy, especially solar photovoltaic as one of the thrust areas for energy security and GHG mitigation

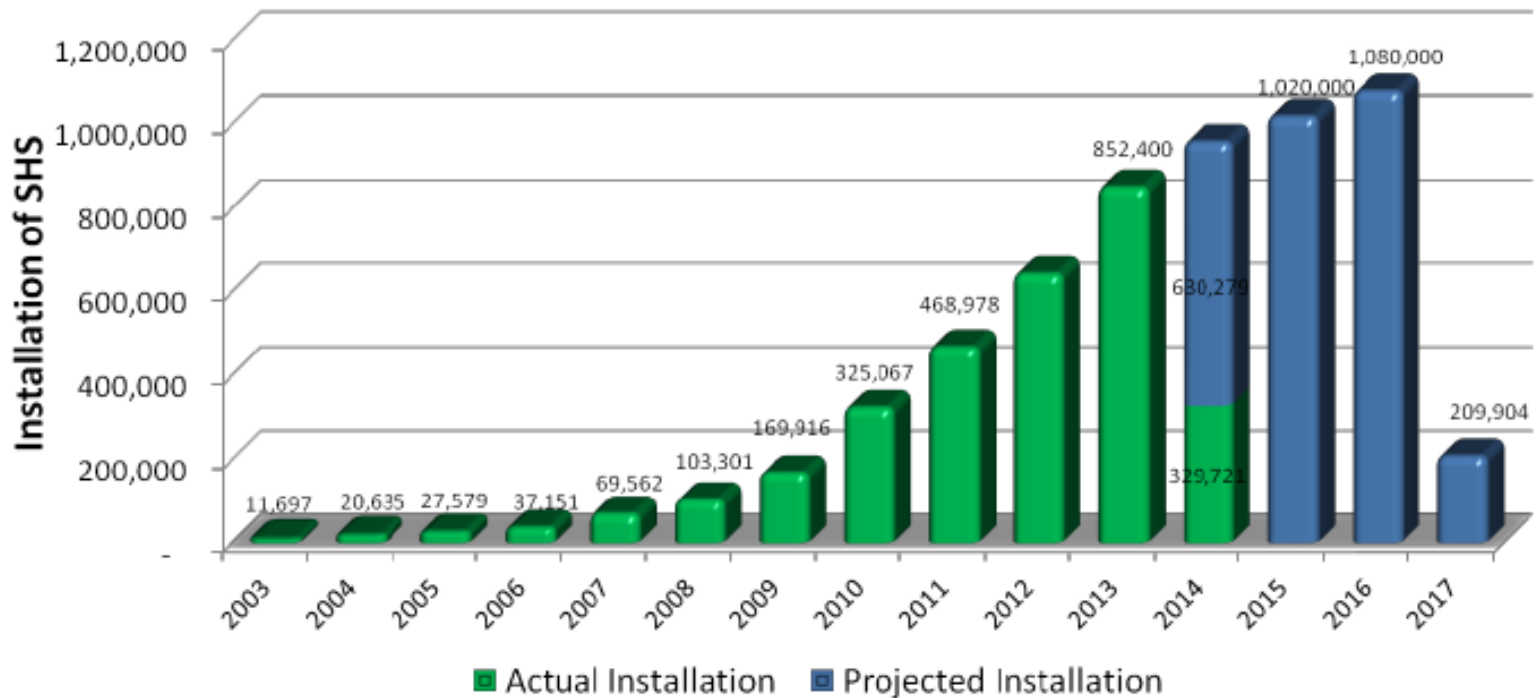
ONGOING EFFORTS ON RENEWABLE ENERGY

- ◎ **Mini-grid** based on solar-biomass-wind hybrid for markets and commercial centers
- ◎ **Solar irrigation** (more than 0.2 million diesel/electric pumps can be displaced)
- ◎ **Bids** have been invited to set up wind turbines in different locations
- ◎ **Biomass options** (cookstoves, **rice parboilers**, biogas for cooking and electricity)

Snapshot of IDCOL RE Initiatives

Project/Program	Target	Achievements as of May 2014
SHS Program	6 ml by 2017	3.1 ml
Domestic Biogas Program	100,000 by 2017	33,207
Solar Irrigation Program	1,550 by 2017	149
Solar Mini-grid	50 by 2017	6
Solar powered Telecom BTSs	As per demand	138
Biogas Based Electricity Project	130 by 2017	8
Improved Cook stove Program	1 ml by 2017	Recently Launched

Year-wise SHS Installation Status



📍 **Total installation: 3.1 ml**

📍 **Monthly average installation : 68,000**

Program Benefits

• Program Achievement	: 3.1 million SHS
• Number of Beneficiaries	: 14 million people
• Power Generation	: 140 MW (approx.)
• Fossil Fuel Saving	: 185,000 ton/yr
• CO ₂ reduction	: 538,000 ton/yr
• Job Creation	: 70,000 people

Bangladesh in Renewable Energy



145 MW
3.3 M SHSs
Disseminated

Solar Home System



2 MW

Wind Power



2 MW

Biogas & Biomass



1.20 MW
300+ Pumps
Installed

Solar pumping
solution



Solar Powered BTS

1.5 MW
500+ BTSs



11 MW

Solar Roof-top solution

Total Installed RE is only 163 MW

REGISTERED CDM PROJECTS

1	Landfill Gas Extraction and Utilization at the Matuail landfill site, Dhaka	3 - 5 MW from the extracted methane
2	Composting of Organic Waste in Dhaka	Kitchen market waste is
3	Installation of Solar Home Systems in Bangladesh by Grameen Shakti	805,892 SHS will be distributed. 566,899 tons
4	Installation of Solar Home Systems in Bangladesh by IDCOL	226,700 units SHS will be distributed 243,976 tons
5	Improved Cooking Stoves in Bangladesh	1 million to be replaced by improved cookstoves
6	Improving Kiln Efficiency in the Brick Making industry in Bangladesh; IIDFC	Programmatic CDM; 18 HHK 246,895 tons
7	Efficient Lighting Initiative of Bangladesh	12 million CFL have been distributed by utilities

	Approved CDM projects by CDM DNA	
1	Certified Emission Reduction (CER) of Chunati CDM Reforestation Project: Mitigation of GHG Emission through Co-Management of Chunati wildlife Sanctuary	In 42 years 7,58,450 tons of CER will be generated
2	Distribution of Solar Lantern under Australia Bangladesh Solar initiatives	13 million Solar Lanterns
3	Akij Particle Biomass Thermal Energy Project	3 MW Oil heater with a 16 MW biomass heater
4	Bundled Waste Heat Recovery (WHR) CDM Projects in Bangladesh	Waste Heat Recovery Boiler; CER 5,98,030 t
5	Energy Efficiency in Solid and Hollow Brick Making in Bangladesh	15 HHK; CER will be 457,327 t CO ₂ e
6	Programme for Promotion of Access to Domestic Biogas in Rural Bangladesh	100,000 biogas plants will be established
7	Programmatic CDM project Using Municipal Organic Waste of 64 Districts of Bangladesh	Waste Concern has submitted

EFFICIENT LIGHTING INITIATIVES IN BANGLADESH (ELIB)

ELIB, a project supported by the World Bank has achieved great success in promoting **CFL**

Phase-I - **CFLs** distributed free of cost

5.5 million were distributed to 1.5 million households through 5 utilities in one day

The project covered **27 districts through 1400 distribution** centres and reduced the power demand by **260-270 MW**

Phase-II - **17.5 million CFLs** to be deployed

THANK YOU