ENERGY EFFICIENCY STANDARDS FOR WATER HEATERS IN PAKISTAN

By

National Energy Efficiency and Conservation Authority

September-2021

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NEECA

INTRODUCTION: ENERCON TO NEECA JOURNEY

NEECA

1985 — Started as USAID Project

1986 — Autonomous Agency Established Under the Ministry of Planning & Development

1989 — First MD Appointed,

1993 — Transferred to the Ministry of Water and Power

1996 — Transferred to Ministry of Environment

1997 — Status Changed to Attached Department in Ministry of Environment

2011 — Transferred to Ministry of Water and Power (Power Division)

2016 — Approval of NEECA ACT

2017 — Notification of NEECA Board

2019 — Appointment of Full time MD

NEECA: THE AUTHORITY

- The National Energy Efficiency & Conservation Authority (NEECA) established under the Ministry of Energy (Power Division) on 1st July 2016.

- NEECA serves as a federal focal agency mandated for

    - Initiating,
    - Catalyzing and
    - Coordinating

all Energy Efficiency and Conservation activities in different sectors of economy.

NEECA'S FIVE SECTORAL PILLARS

Power Sector

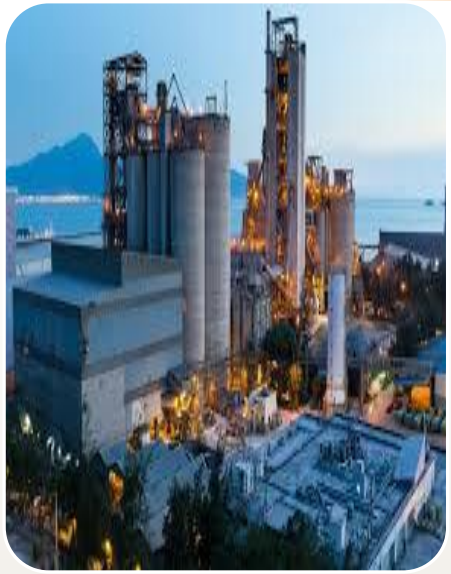
- Generation,
- Transmission &
- Distribution system of electricity.

Transport Sector

- Road transport,
- Railways
- Aviation &
- Any other means of transportation.

Buildings Sector

- Private,
- Domestic household,
- Commercial,
- Industrial,
- Public &
- community buildings.



Industrial Sector

- Small, medium and large industries

Agriculture Sector

- Agriculture irrigation,
- Livestock farming,
- Food processing,
- Post harvest output management.
- Forest Management

NEECA'S FUNCTIONS AS PER ACT

NEECA

POLICY FORMULATION

PREPARE & UPDATE NEEC POLICY

DEVELOP POLICY IMPLEMENTATION FRAMEWORK

LEGAL & FINANCIAL

PRESCRIBE PENALTIES FOR INEFFICIENT PRACTICES

ESTABLISH ENERGY CONSERVATION FUND

ESTABLISH ENERGY CONSERVATION TRIBUNAL

RECOMMEND FISCAL INCENTIVES

PROHIBIT MANUFACTURING , SALE/IMPORT OF INEFFICIENT PRODUCTS

ESTABLISH RULES & REGULATIONS

PROGRAM DEVELOPMENT

ENERGY STANDARDS & LABELLING REGIME

CARRYOUT ENERGY AUDITS

ENERGY SAVING CERTIFICATES SCHEMES

DEVELOP & IMPLEMENT BUILDING ENERGY CODE

DESIGNATED ENERGY AUDITORS & MANAGERS

DEMONSTRATI ON R&D

RECOMMEND NATIONAL EE STANDARDS

ESTABLISH SYSTEM OF DESIGNATED CONSUMERS

PROGRAM DEVELOPMENT FOR EE PROMOTION

AWARENESS CAMPAIGN

DISSEMINATE INFORMATION ON EE&C

CREATE AWARENESS ON ENERGY EFFICIENCY

STRATEGIC PLAN 2020-23 : SAVING 3 MTOE GOAL

NEECA

- Launching of mandatory Appliance labeling schemes
- Carrying out Building Energy Audits

0.5 MTOE

- Implementation of building codes
- Developing of Building Energy Management Systems

- Developing vehicles examination system and Regulations
- Regulating vehicle tune-up centers

0.5 MTOE

- Implementation of electric vehicle policy-2019
- Introducing fuel economy standards

- Implementation of Energy Management systems
- Introducing Energy Saving Certificates and EE Financing Mechanisms

1.3 MTOE

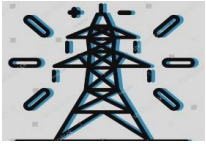
- Developing Thermal Utilities Optimization Program
- Improving EE in Electrical Systems

- Replacing inefficient Tube-wells
- Establishment of tractor tune up centers

0.3 MTOE

- Introducing new EE Technologies in Agri-food systems
- MEPS Irrigation Assistant Program

- Transformer and LT capacitor Program
- Peak Shaving Programs



0.4 MTOE

- Implementing Power Factor improvement programs
- Adoption of PBS Standardized Industrial Classification Codes

NEECA STANDARDS AND LABELLING REGIME

- NEECA initiated work on Energy Standards and Labelling through UNDP support under project titled;

"BARRIER REMOVAL TO THE COST EFFECTIVE DEVELOPMENT AND IMPLEMENTATION OF ENERGY EFFICIENCY STANDARDS & LABELING (BRESL)
(2013-2017)

- Project objective was focused on formulating policies and laws, building Institutional capacity, Manufacturer Support, Consumer awareness and **regional Cooperation on ES & L program.**

- The project successfully developed the drafts of the following target appliances in December 2014;
  - Air-Conditioners
  - Refrigerators
  - Motors
  - Fans
  - Ballasts
  - CFLs

NEECA TIMELINE : ELECTRICAL AND GAS APPLIANCES S & L REGIME IMPLEMENTATION

July 2016

Fans

- Minimum Energy Performance Standards Developed & Launched
- Voluntarily Labelling Regime Launched
- Mandatory Labelling Regime coming Soon

October 2020

Motors

- Minimum Energy Performance Standards Developed
- Voluntarily /mandatory Labelling Regime under formulation

January 2021

LED

- Minimum Energy Performance Standards developed & Launched
- Mandatory Labelling Regime under formulation

June 2021

Refrigerators

- Minimum Energy Performance Standards Developed
- Mandatory Labelling Regime under formulation

July 2021

Air Condition

- Minimum Energy Performance Standards Developed
- Mandatory Labelling Regime under formulation

December 2021

Water Heaters

- Minimum Energy Performance Standards under Development initiated

Pakistan Energy Labeled Fans – Success Story

Voluntary Labeling Regime

- Security Stickers Sold 5,00,000
- 18 fan manufacturers have registered their 32 models
- Energy Saved: 25-40 MW
- Revenue Generated: 1.7 Million (Approx.)

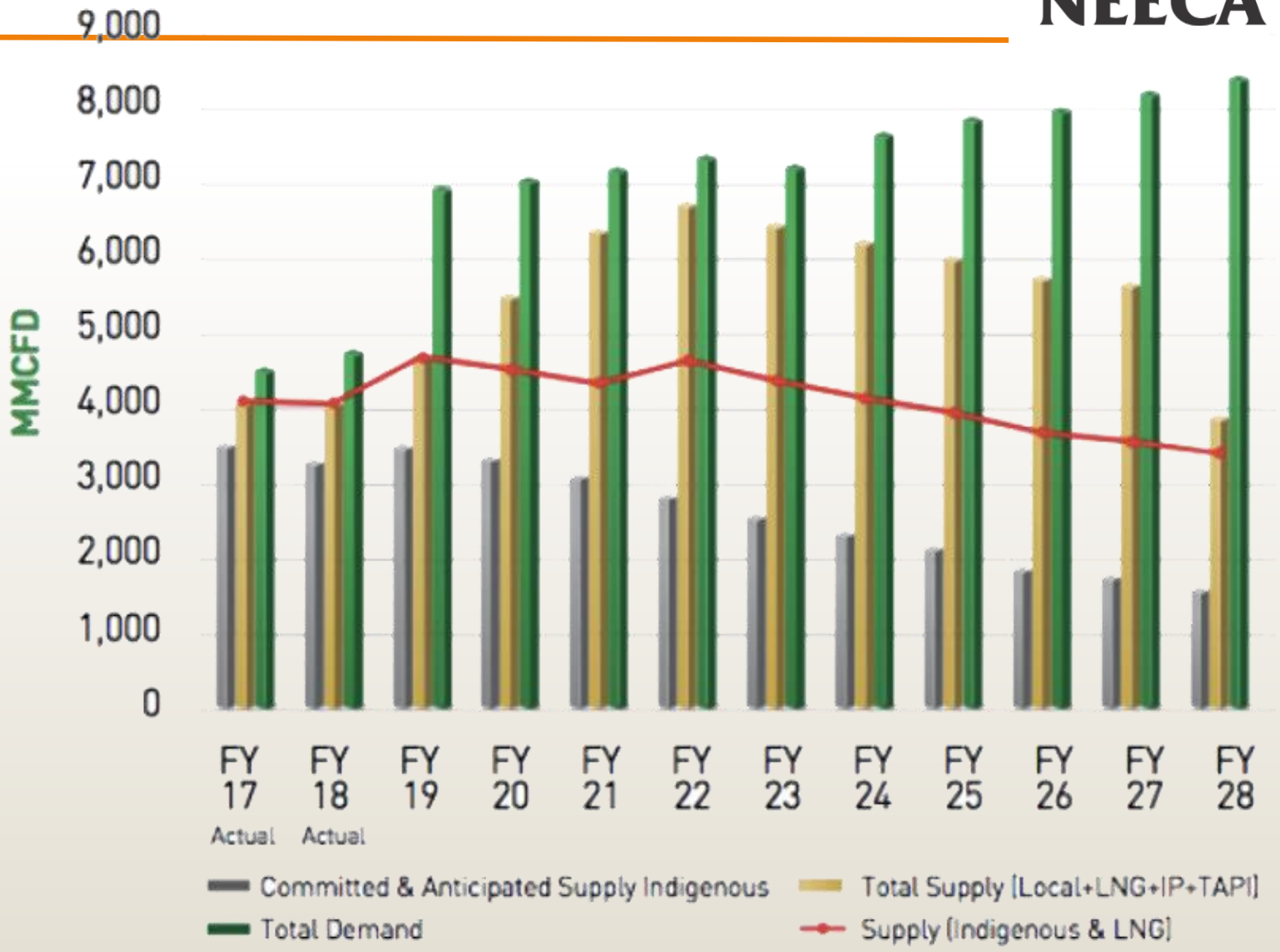
Gas Supply & Demand Analysis

GAS SUPPLY: 4000 MMCFD

GAS DEMAND: 6000 MMCFD

RLNG CAPACITY: 1200 MMCFD

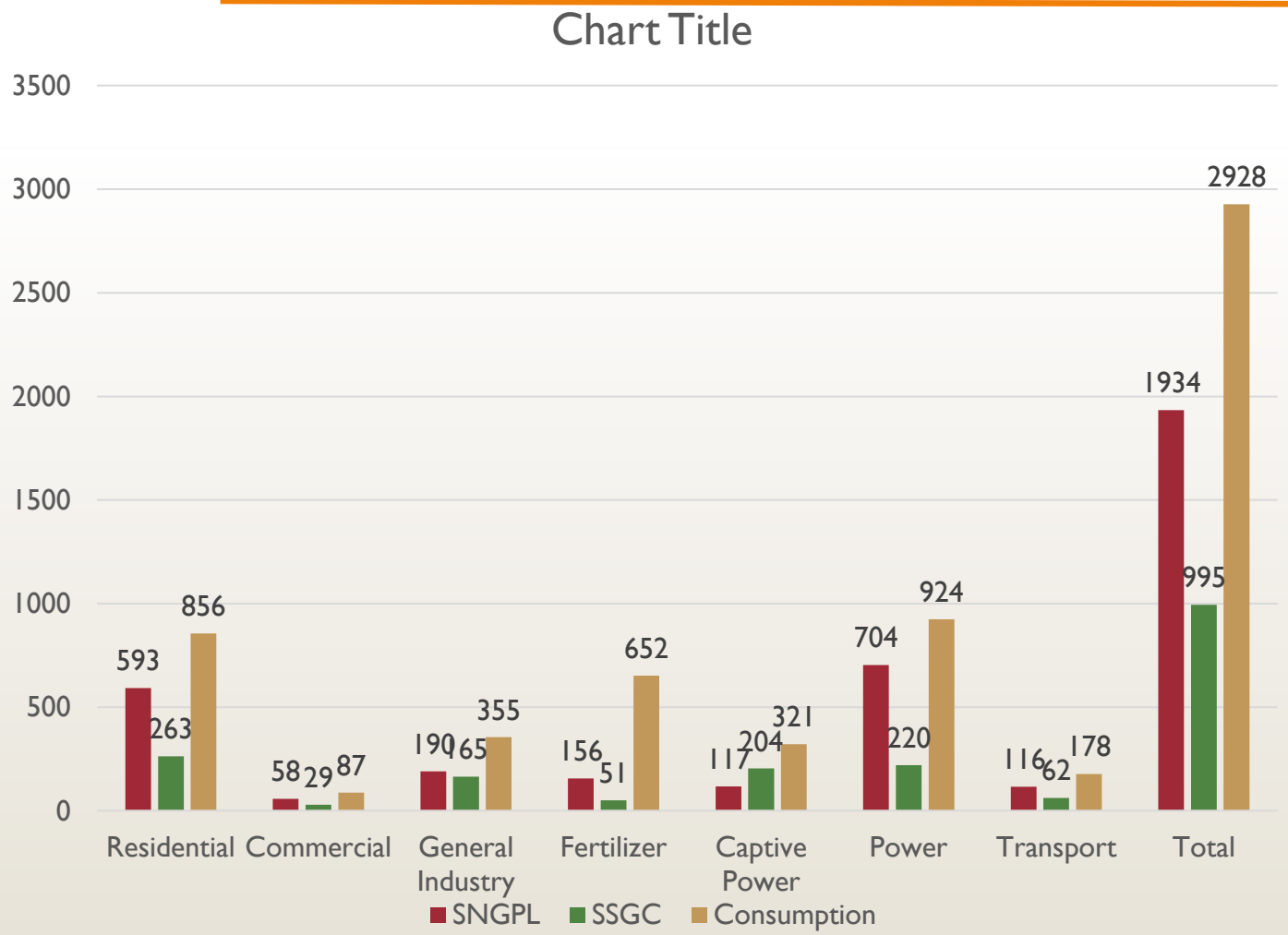
Accordingly RLNG is being imported to mitigate gas demand-supply shortfall.



Source: Pakistan Economic Survey 2019-2020

Source: Pakistan Industry Report 2018

Gas Consumption in Domestic Sector



Natural gas consumption in Million Cft (2012-2019)

Sector	SNGPL	SSGC	Consumption
Residential	593	263	856
Commercial	58	29	87
General Industry	190	165	355
Fertilizer	156	51	652
Captive Power	117	204	321
Power	704	220	924
Transport	116	62	178
Total	1934	995	2928

Natural gas consumption (July 2018- Feb 2019)

Source: Energy Year Book 2019

Source: Pakistan Economic Survey

Gas Saving Potential in Domestic Sector: Water Heaters

Gas water heaters consumed about 20% i.e. 177 MMCFD of domestic gas in 2020. 45-50 MMCFD can be saved per year

Geysers

Natural gas annual consumption estimations for single domestic water heater with most commonly installed storage capacity in Pakistan considering their use for 5-7 cooler months of the year by SNGPL

933 m^3

25-35 Gallon Storage Capacity

1554 m^3

35-45 Gallon Storage Capacity

NEECA

Think-Conservation . . .

Thank You!

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