

# *Efficiency Standards for Water Heaters in Pakistan*

## Consultative Meeting Proceedings

23<sup>rd</sup> September 2021

Avari Hotel, Lahore

Hosted by NEECA & CLASP



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## Background

Pakistan is one of the largest consumers of natural gas. Natural gas serves many sectors including captive power, transport, commercial and residential. Pakistan also has a wide distribution network run by two utility companies Sui Southern Gas Company Ltd (SSGC) and Sui Northern Gas Pipelines Limited (SNGPL). In 2021, a total of 4,084 MMCFD was consumed, and projections show that demand will be upwards of 5,500 MMCFD of natural gas in 2031. With dwindling indigenous gas supplies, the shortfall is covered by imported RLNG (Regasified Liquefied Natural Gas) and planned international pipelines. The residential or domestic sector was the second highest consumer requiring 888 MMCFD to match the demand. Natural gas is primarily used for space heating, cooking and water heating.

There are currently 3 types of water heaters being used in Pakistan: gas storage, gas instantaneous and electric storage water heaters. An approximate 6 million water heaters are estimated as the installed stock as of 2020 however interactions with retailers and manufacturers show that there is a significant shift in consumer preference from gas storage to gas instant type of water heaters since 2015. Modelling based on data collected show that stock is expected to reach 12 million units by 2030.

Pakistan's indigenous gas supply is on the decline and the country has experienced an acute shortage of natural gas since 2015. As one of the mitigating measures, NEECA engaged CLASP to help develop and update regulations for all water heating products. In addition, over the last few years Pakistan has increased its electrical capacity and there is surplus in the winter months. To discourage using gas for space heating, the CPPA (Central Power Purchase Authority) is planning to reduce electricity tariffs in the winter.

NEECA is conducting energy audits of Captive Power Plants (CPPs) through independent energy audit consulting firms across Pakistan. NEECA has been assigned this task by the CCoE and intimated to NEECA by the Petroleum Division, Ministry of Energy. The aim of these energy audits is to promote efficient use of fast declining indigenous natural gas resources and utilize the excess power in the national grid.

NEECA and CLASP are developing water heater regulations and standards to reduce residential gas consumption. In order to consult with all stakeholders, two workshops are planned (23rd September 2021 and 4th October 2021) to keep the manufacturers informed of the upcoming regulations and hear their concerns and suggestions on the data shared in the workshop

## Objective

The main objective of the meeting was to inform the key manufacturers of the government's desire to establish MEPS (Minimum Energy Performance Standards) and labelling for Water Heaters and to establish if there were any key barriers to such regulation prior to publicizing to a wider stakeholder group.

## Agenda

The following agenda was shared at the consultative meeting.

**Manager Technical - Unit II, NEECA cordially invites you to  
A meeting on Efficiency Standards for Water Heaters in Pakistan  
Hosted by: CLASP & NEECA**

**Venue:** Satluj Hall Avari, Lahore

**Time:** 11 am to 1.00 pm.

**Date:** 23<sup>rd</sup> September, 2021

TIME	AGENDA ITEM
11.00 – 11.10 am	Round of Introductions
11.10 – 11.35	<b>Welcome note</b> (Background, & briefing on planned actions by NEECA on efficiency of Water Heating Appliances)  <i>Manager Technical – Unit II, NEECA, Mr. Muhammad Umar</i>
11.20 – 11.40	Current Market Dynamics of Water Heaters in Pakistan <i>Muhammad Salman Zaffar, Technical Lead, CLASP</i>
11.40 – 12.00	Introduction to CLASP - Benefits of MEPS, using 'Labelling' <i>Stuart Jeffcott – Team Leader, CLASP</i>
12.00 – 12.20	Briefing about workshop planned for 1 <sup>st</sup> October in Islamabad <i>Muhammad Salman Zaffar, Technical Lead, CLASP</i>
12.20 – 12.45	Q and A session
12.45 – 1.15	LUNCH and informal chat

## Proceedings:

Following is a brief account of the presentations given by team members (CLASP / NEECA). Actual presentations are available at: [https://1drv.ms/u/s!AhmbfgZzPyWZg-V8ihAznFDIh\\_nVHA?e=6zw9C3](https://1drv.ms/u/s!AhmbfgZzPyWZg-V8ihAznFDIh_nVHA?e=6zw9C3)

The event was kicked off by M. Salman Zaffar at 11:15 am with a round of introductions. He welcomed all the water heater manufacturers and appreciated their presence.

### **Muhammad Umar – Manager Technical, NEECA**

M. Umar briefed the audience about NEECA and its mandate. In his presentation, he explained about the labelling regime and told that Fans, Motors, refrigerators, and air conditioner's MEPS have been developed, and now the process for water heater standards has been initiated

Due to the gas shortage in Pakistan, the government is keen to work on the efficiency of gas appliances to mitigate its shortage. Currently, the government has to import RLNG to meet its demand. He highlighted that gas water heaters consumed about 20% of domestic gas in 2020, and there is a huge potential for gas savings in the residential sector.

### **Muhammad Salman Zaffar – Technical Lead -CLASP/ GM - HIMA^Verte**

M. Salman Zaffar gave a presentation on the market overview of Water heaters in Pakistan. He spoke in detail about gas consumption by different sectors in Pakistan. He further explained the different types of water heaters available in Pakistan and their estimated market prevalence. He also highlighted the significant market migration from storage water heaters towards instant heaters in the past 5 years. Importantly, he provided an illustration of the energy consumed by water heaters available in a number of regulated international markets in comparison with the current PSQCA standards. The comparison illustrated the huge energy saving potential available to Pakistan through improved water heaters efficiency and the need for better regulation. However, clarifications were made that at this stage illustrations were provisional and suppliers were invited to give their input to the process to ensure that proposed improvements to the efficiency through regulation remain appropriate for the national water heater market.

### **Stuart Jeffcott – Team Lead, CLASP**

Stuart Jeffcott gave a brief presentation on Standard and labelling regimes across the world. He gave examples of USA, China, and other countries in which CLASP has been working on standardization and labelling. He told the audience about the benefits of the labelling regime and gave the example of a 3-star NEECA Pakistan Energy Label for fans.

### **Ali Habib – National Team Lead, CLASP/HIMA^Verte**

Ali Habib informed the participants of the follow-up workshop planned where a wider stakeholder group would be invited. The first outline of policy proposals and regulatory levels would be presented in the second workshop for discussion and acceptance with the participants. .

All presenters encouraged ongoing manufacturers engagement in the development process to ensure any ensuing regulation remains practical and appropriate to the market.

## Key Takeaways:

Broad agreement was reached on the following:

- Existing PSQCA standards (for gas storage and instants) are weak by current standards *and* are not effectively enforced.
- There is significant space to improve the efficiency of all types of water heaters in Pakistan. Some areas for improvement are:
  - Need to improve the burner efficiency
  - Storage tank's efficiency/ gauge
  - Subsidies to develop technologies (reduce custom duties on parts etc)
- Manufacturers were generally supportive of the idea of NEECA mandatory standards and labelling as a route to drive improvements in product efficiency, although the following caveats were raised:
  - The manufacturers cannot make any changes to this year's production as they already have the stock available for this year's sales. They will need 1-2 years lead time to make changes in the heaters.
  - Required product performance improvements should be phased in over time to allow manufacturers to develop the appropriate skills
 

*CLASP responded to both of the above points that all regulation takes a period to develop and implement. While the timelines will be decided by NEECA, it is unlikely regulations will be finalised before the end of Decemeber and will hence miss this water heating season. Further, if deemed appropriate, such regulations can include incremental steps to improved efficiency over time (e.g., efficiency improvements though simple actions on burner efficiency and insulation immediately, with broader basic design revisions in the future). Such a phased introduction have been used in the new NEECA regulations for motors.*
  - Careful consideration should be given on how to ensure the smaller (artisan) suppliers are included in any proposed compliance regime to ensure price differentials are not increased and that unintended migration to *less* efficient products does not occur.
 

*CLASP noted this was a very important point and future workshops would investigate how this may be possible. However, introduction of mandatory labelling will be needed to help identify non-compliant products and to differentiate the better-performing units hence justifying potential price differentials.*
  - Additional supporting government policy is likely to assist in any transition, for example, reduced duty on high-efficiency component parts/products
- There is a need for labs and test methodology to verify the efficiency of water heaters.
- Consideration should be given to the wider policy issues related to efficient gas use. For example, encouraging a shift in space heating to reverse cycle AC units. However, such promotion should be accompanied by actions to improve the efficiency of those products.

## Outcomes:

- Because of Covid-19 it has been difficult to conduct physical meetings with the manufactures. This consultative meeting was held on a small scale to establish a relationship with the manufacturers and to give them an overview of the plan for regulations.
- The manufactures were given a detailed account of the background work on water heater including what we know about the market so far and the assumptions that have been made. The workshop was able to engage t the manufacturers and to get their input on the data shared
- The manufacturers overall showed their support and interest to develop the efficiency standards and their labeling regime.

## Annex 1: List of participants

Sr No.	Organization	Name	Designation
1	Super Asia	Hammad Khalid	Business Development Head
2	Nasgas	Abdul Qayyum	Quality Manager
3	Nasgas	Mohsin Raza	General Manager
4	Tesla	Mr Waleed Bin Amir	Director
5	Tesla	Arsalan Zahid	Development Engineer
6	Canon	Tajamal Shahzad	Production Head
7	Waves/Singer	Muhammad Shahid	GM marketing
8	Waves Singer	M. Khan Shahzad	Head of QC
9	Waves Singer	Danish Munir	Assistant Manager R&D
10	Intec (InstaGas)	Muhammad Ashraf	Director Sales
11	Intec (InstaGas)	Hassan Mehmood	Managing Partner
12	Golden Fuji	Muneeb Ur Rehman	Manager Technical
13	NEECA	Muhammad Umer	Manager Technical
14	NEECA	Asad Mehmood	Manager Technical
15	CLASP	Stuart Jeffcott	Team Leader
16	CLASP/HIMA^Verte	Ali Hassan Habib	National Team leader
17	CLASP/HIMA^Verte	Salman Zaffar	Technical Lead
18	CLASP/HIMA^Verte	Amna Shahab	Consultant
19	CLASP/HIMA^Verte	Abdul Rehman	
20	CLASP/HIMA^Verte	Meekal Jamil	

CLASP Pakistan Programme

Stuart Jeffcott, Project Team Leader  
[Stuart.jeffcott@gmail.com](mailto:Stuart.jeffcott@gmail.com)

Ali Habib, National Team Leader:  
[a.habib@himaverte.com](mailto:a.habib@himaverte.com)

## Annex 2: Selected photos from event:







