Punjab Energy Efficiency Project
Standards & Labeling of Fans

Progress Update
September 2017

Background

The World Bank Group (WBG) is supporting the Government of Punjab on energy efficiency and conservation in the province based upon an IFC-Punjab Energy Department Cooperation Agreement signed on 17 July 2014

Initially, five appliances were being considered for energy labeling and standardization and fans were chosen as the first appliance for which an energy label was introduced in Pakistan. The other appliance initially considered was motors, but the market for motors was not considered sufficiently mature to introduce labels and standards. Other appliances on the shortlist were boilers, air conditioners and refrigerators.

The scheme has achieved substantial success till date as 23 models of fans from 13 manufacturers including SMEs have received Energy Label (EL) certification, and an estimated 83,000 fans have been installed in Punjab, mostly within government buildings.

Progress to date

This summary report records the key achievements and activities of the project conducted with the Punjab Energy Department including Punjab Energy Efficiency and Conservation Agency (PEECA).

The Project: WBG contracted CLASP an international non-profit specializing in standards & labeling for energy efficiency for this project from December 2015 to December 2017 with the objective to assist the newly established Punjab Energy Department (PED) and PEECA to promote standards & labeling in the province.

Energy Efficiency & Conservation 5-year Strategic Plan: With the assistance of WBG, a draft 5-Year Programme on Energy Efficiency & Conservation for the PED was developed. This is Pakistan's first sub-national EE&C strategy.

PEECA Institutional Requirements: In November 2015, the WBG commissioned Earnest & Young (EY) to develop an institutional framework in a report "Analysis of Institutional Requirements for Energy Efficiency in Punjab", to guide the formation and management of PEECA.

PC-1 preparation: The WBG helped draft a PC-1, on the basis of which a Rs. 1.2 billion 3-year project was approved for implementation by the newly established PEECA.

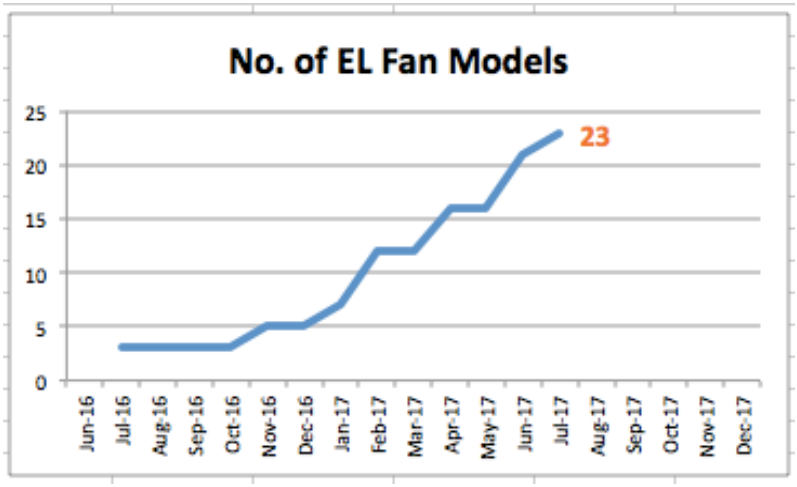
Knowledge exchange trip to Korea: The WBG arranged a visit for Punjab Energy Department officials to Korea in October 2015. Participation in the Eco-Industrial Park Conference

(EIP2015) was also arranged, along with visits to selected industries. A separate report of this Korea trip was issued. MD PEECA Mr.Muhammad Qasim Khokar, Ms Nameerah Hameed and Mr. Ashar Abbas participated in this visit. The Additional Chief Secretary Energy, Mr. Jehanzeb Khan was present for part of this visit.

Establishment of NEECA: With the promulgation of the new law at the federal level, the National Energy Efficiency and Conservation Act of July 2016, and the establishment of the National Energy Efficiency and Conservation Authority (NEECA), it was concluded that it would be helpful for the Punjab government to coordinate efforts with NEECA, rather than try and develop its own standards, thus the project assisted in strengthening interaction between NEECA and PEECA.

Pakistan Energy Labels: The Energy Labels (EL) was launched in June 2016 by NEECA. These EL were issued on the basis of performance tests conducted by the Pakistan Council for Scientific and Industrial Research (PCSIR). Of the 13 fan manufacturers that received certification, 6 represent the Small and Medium Enterprise (SME) sector. The project was able to encourage these SME manufacturers to apply for certification.

The trends of companies receiving certifications is illustrated in the graph below:



Data provided by NEECA

250,000 fan replacement in 20,000 schools: Based upon extensive discussions with the Secretary of the PED, the project had a series of meetings with representatives of the main donor, the Asian Development Bank (ADB) and relevant government professionals and convinced them to specify the PEL fans as part of the procurement strategy for replacing 250,000 fans in around 20,000 public schools in Punjab.

Media campaign: To enhance public awareness about the PEL, the project assisted PEECA in developing a media campaign, developing terms of reference for the government preselected

media companies and was able to convince the PED to enhance their media campaign budget from the earlier USD 50,000 to the USD 600,000 budget finally approved by the PEECA Project Steering Committee in January 2017. The project also assisted in developing synergy between the media campaign of PEECA and those of NEECA and the Pakistan Electric Fan Manufacturers Association (PEFMA). It is estimated that over USD 6 million were spent cumulatively by these three organizations for promoting EL fans in 2017.

Market research: In order to establish a baseline of public awareness about the EL and government efforts in standards and labeling, the project commissioned a market research before the media campaign. This research study also covered the existing capacity of fans and factors that lead a consumer to buy a particular fan. The project was able to convince the PEECA to allocate funds to conduct a follow-up market research to determine the change in public awareness as a result of the media campaign. The market research also covered key baseline aspects for small motors in general.

Monitoring Verification & Enforcement: The project has developed a detailed framework for monitoring, verification and enforcement of the energy label scheme in line with the legal and procedural framework. This draft framework has been discussed with PEECA, NEECA, fan manufacturers, Pakistan Standards and Quality Control Authority and the Consumer Protection Courts. It will be important to identify any non-compliance early so that these are addressed during the early stages of market availability of energy label products.

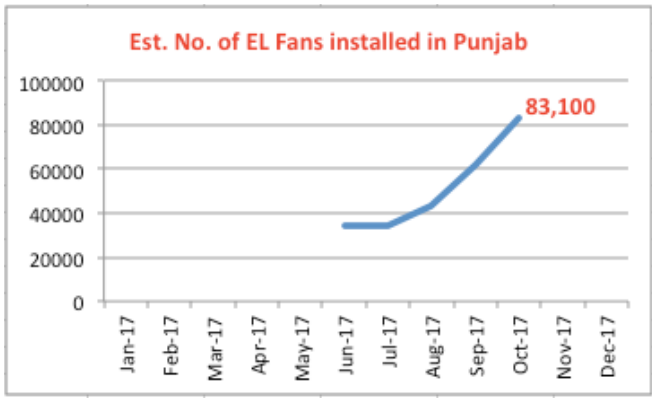
Documentary Film: The WBG has commissioned the production of a short documentary film of the project to enable greater dissemination of the important achievement of the successful launch of energy label appliances in Pakistan, recognize the contributions of key stakeholders, and enhance awareness for the continued success of S&L in Punjab and Pakistan.

Two stakeholder workshops held: To encourage coordination between the relevant federal and provincial government organizations and the fan manufacturers, two stakeholder workshops were organized. The first was held in Gujrat on 5th December 2016 and the second one on 16th March 2017 in Lahore. Significant improvements in achievement and inter-departmental coordination were witnessed by the second stakeholder workshop. In addition to these workshops, a number of additional meetings were facilitated between the fan manufacturers and government.

Coordination with PEFMA: The project has acted as facilitator between the PEFMA and federal and provincial government. Regular meetings have been held with PEFMA as well as the successful PEL fan manufacturers to encourage them to apply for the PEL and to determine if there are any bottlenecks in the process and how to resolve them.

Procurement of EL fans by Punjab Government: The project assisted PEECA in convincing the Punjab central procurement agency to require purchase of only EL fans by all government departments. It is encouraging to note that this conversion to EL fans successfully took place in 2017 as the fan manufacturers received large orders for EL fans. An estimation of the penetration of EL fans in Punjab till September 2017 was 83,100 as shown in the graph below. These assessments have been made on the basis of the number of security stickers issued by NEECA,

and the safe assumption that within a 3-month period the EL fans will end up installed at some facility.



Data provided by NEECA

An estimation of the benefits of converting to EL fans is summarized in the table below, assuming these 83,100 fans are in service in various installations in the Punjab:

No of EL fans installed: **83,100**
Electricity Demand Reduction: **3 MW**
Electricity consumption saved per year: **2.63 MW-hrs**
GHG emissions reduction per year: **1,425 tons of CO_2e**
Electricity cost savings for users per year: **Rs. 40 million**

Assumptions: *Avg fan runs 800 hrs/yr, 40 watts less energy, 90% fans running at a time, Grid factor .541 ton CO2/MW-hr and Electricity cost Rs. 15 per kwhr*

Next steps:

The existing phase of the project is coming to a close by 31 December 2017, thus during the last three months it is important to continue the positive momentum of the successful launch of the Energy Labels, with the electric fan being the only appliance thus far.

20,000-fan replacement project: We assisted in developing a project proposal for replacement of these fans in education and health facilities of Punjab to develop capacity and expertise to implement such projects. This demonstration of implementation capacity will be an important factor in convincing potential donors for funding the much larger "Million + Fan project" being envisaged.

Improvements to Energy Label fans: Low airflow complaints from EL fans need to be addressed, and the project facilitated engagement between the fan manufacturers, PEECA and

PCSIR. A consensus has been established that some simple steps both in the manufacturing of fans and improvements in the S&L standard specifications by NEECA can be made to improve the situation. It is expected that these improvements will take place before the next cooling season in 2018.

Million + Fan Project: Based upon a decision in a meeting chaired by the Secretary of the PED on 5th December 2016, the team started developing a project for the replacement of all fans in education and health facilities in Punjab. As part of this process actual measurements of the energy consumption of fans in a sampling of education and health facilities were conducted. In addition, practice fan replacement trials have also been conducted at some of these sites.

Meetings with donors: During September 2017, the project team has had a number of meetings with other donor agencies such as German Society for International Cooperation, Ltd (GIZ), Japan International Cooperation Agency (JICA), DfID (UK Government), ADB, UNIDO, UNDP, Australian Government (DfAT) and the French Government (AFD) to provide an update of project progress and explore potential for additional financial support. A substantial interest has been demonstrated by a few of these donor organizations, though they would like to receive evidence of project implementation capacity of the newly established PEECA.

Air Conditioners and Refrigerators/freezers as next priority for Energy Label: The project team had a session with PEECA on what should be the next most important appliance for certification under the Pakistan Energy Label. The conclusion was that the refrigerator/freezer seems to be the next priority after ceiling fans. This meeting was held at the request of PEECA, the diagram below represents the process for selecting the appropriate appliance for EL.