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HP Cogen-Pak

High Pressure Cogeneration for Sugar Sector in Pakistan

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EU SWITCH-Asia Programme

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switchasia PROGRAMME

Background

- Initiated by the European Union and in line with the Regional Strategy for Asia 2007-2013, managed by EuropeAid
- Promote sustainable consumption and production practices in Asia by mobilizing the private and public sector

Priority Focus

- Move SCP efforts from demonstration to replication
- Catalyze a shift in policy making towards sustainability

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Project Objective

- Promote sustainable production of energy, for export of surplus electrical power to the national grid, through replication of existing high pressure cogeneration technologies in the sugar sector
- Promote sustainable consumption of bagasse by supporting sugar mills in the adoption of high pressure cogeneration technology through
  - Technology standardization
  - Enabling access to finance
  - mobilization of relevant public sector authorities for the formulation of a conducive regulatory regime for bagasse based power projects.

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Project Partners

1. IHT Pakistan
2. The Energy and Resource Institute India
3. Sequa Germany
4. Pakistan Sugar Mills Association

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Project Components

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Component	Output	Result
Regulatory Component Orientation of Power Sector Player and stakeholders on best practices power purchase policy	Revised Power Purchase Policy	Conducive regulatory regime which will attract Sugar Mills to invest in HPC technology
Financial Component Awareness raising of FIs regarding financial viability of HPC technology	Improved capacity of FIs to assess financial viability of HPC projects	5 FIs offering financing for HPC Technology, Financial Closure of 10 HPC Project
Technology Component Development of standardized technology specifications & capacity building of Sugar Mills and local Technology Providers	Sugar Mills confidence in HPC technology Switch and Local Availability of HPC Technology	70 Pre-Feasibility Studies, 10 Feasibility Studies, 3-5 Local Technology Providers of HPC Technology

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Component 1: Training and Capacity Building of the Sugar Sector and Technology Providers

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Activities

- Establishment of a National Bagasse Power Support Cell at the PSMA, to offer technical, financial and regulatory assistance to its members,
- Development of standardized technical specifications based on regional best practices for high pressure equipment design and operation, and preparation of project implementation tender documents based on consultation among technology providers and sugar mills,
- In-house trainings and capacity building of Technology Providers to develop standardized HPC technology solutions

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Training and Capacity Building of the Sugar Sector and Technology Providers

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Activities

- Training of technical staff of sugar mills on standardized design and technology selection
- Development of business cases of technology switch to HPC for 70 sugar mills
- B2B linkages between local and Indian technology providers of HPC systems

Outputs

- 3-5 local technology providers offering technology solutions for HP Cogeneration
- Sugar sector trained on HP technology selection and project management
- 70 pre-feasibilities for HP cogeneration systems developed, resulting in feasible business and investment plans

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Training and Capacity Building of the Technology Providers Like HMC, KSEW & Fabcon

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HP Cogen-Pak conducted three Phases In-house training for technology provider HMC, KSEW & Fabcon to enhance their indigenous capacity in thermal and mechanical design of HP boilers and design accessories of HP boiler etc.

Training at HMC, Taxila

Training at KSEW, Karachi

Training at Fabcon, Lahore

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Training of Boiler Manufacturers at NPTI, India

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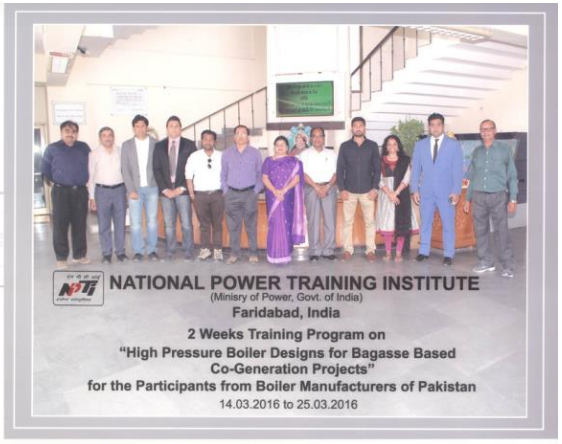
Two weeks Boiler Manufacturers Capacity building training for Pakistani Boiler Manufacturers was held in Faridabad, India. This training was conducted by National Power Training Institute (NPTI) with the collaboration of The Energy and Resources Institute (TERI) from 13th to 25th of March, 2016. The participants of the training were experts from DESCON Engineering & The Industrial Enterprises.

Training of Boiler Manufacturers at NPTI, India

Training of Boiler Manufacturers at NPTI, India



Group photo at NPTI, India

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Development of Detailed Feasibility Studies for Sugar Industries

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Sugar Mills Name	Sugar Mills Name
1. Shahtaj Sugar Mills Ltd.	2. Bandhi Sugar Mills (Pvt.) Ltd.
3. Safina Sugar Mills Ltd.	4. Faran Sugar Mills Ltd.
5. TYA Sugar Mills (Pvt.) Ltd.	6. Ansari Sugar Mills (Pvt.) Ltd.
7. Shakarganj Mills Ltd.-I	8. Shakarganj Mills Ltd.-II
9. Mirpurkhas Sugar Mills Ltd.	10. Mehran Sugar Mills Ltd.

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Development of Pre Feasibility Studies for Sugar Industries

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Sugar Mills Name	Sugar Mills Name
1. Noon Sugar Mill Ltd.	2. Ashraf Sugar Mill Ltd.
3. Adam Sugar Mill Ltd.	4. Digri Sugar Mills Ltd.
5. Ittefaq Sugar Mills Ltd.	6. Kashmir Sugar Mills Ltd.
7. Habib Sugar Mills Ltd.	8. Husein Sugar Mills Ltd.
9. Khairpur Sugar Mills Ltd.	10. Rasool Nawaz Sugar Mills (Pvt.) Ltd.
11. Indus Sugar Mills Ltd	12. Jauhrabad Sugar Mills Ltd.
13. Sheikhoo Sugar Mills Ltd.	14. Dewan Sugar Mills Ltd.
15. Popular Sugar Mills Ltd	

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Component 2: Improving Access to Finance

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Activities

- Financial risk assessment of bagasse based power projects
- Development of toolkits for SBP's Schemes for Financing Power Plants Using Renewable Power, and the Credit Guarantee
- Trainings of the 5 major FIs in Pakistan on bagasse based co-generation projects and developed toolkits
- Training of sugar mill financial departments on toolkits and CDM

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Improving Access to Finance

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- Ensuring financial closure for 10 HPC projects,
- Development of project design document for CDM financing for 10 projects

Outputs

- 5 FIs offering services to finance sugar sector HP cogeneration projects
- Capacity building of the sugar sector to avail financial opportunities

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Improving Access to Finance

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- HP Cogen-Pak project team including international expert held a series of meeting with the commercial banks of Pakistan & financial institute to ascertain their existing lending practices and documented their concerns in financing HPC projects.

Meeting with Habib Metropolitan Bank, Karachi.

Meeting with Meezan Bank, Karachi

Meeting with Pak Brunei Investment, Karachi.

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GAP Analysis

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- HP Cogen-Pak project team conducted a GAP Analysis to see the existing impediments in the Access to Finance for the majority of Sugar Mills in Pakistan. The main issues Identified in the GAP Analysis are;
  - High project sponsor risk
  - Significant power sector circular debt
  - Lack of effectiveness of State Bank of Pakistan (SBP) renewable energy facility
  - No credit enhancement facility and
  - Lack of transparency of information.

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Revision of Financing Scheme for RE by SBP

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- HPC and EY worked closely with the SBP and relevant Financial Institutions to review and revise existing financial instruments for promotion of financing to Renewable Energy projects.

The activities comprised of:

- Research into funding vehicles and financing structures being used for funding renewable energy projects regionally and internationally.
- Research into barriers and impediments faced by sugar mills in terms of access to finance for their HPC projects.
- Comparative analysis of the policies and procedures adopted by regional (China, Malaysia, Thailand and other neighbouring countries) lending institutions and regulators for providing financial assistance for renewables based power projects.
- Identification and review of third party credit enhancements which may be utilized to spur RE based lending.
- Discussions with local banks, DFIs and multilateral agencies on the pros and cons of various credit enhancement options which can be employed to facilitate lending.
- Recommendations and suggestions for amendment of the Renewable Energy Financing Instrument.

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Revision of Financing Scheme for RE by SBP

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- SBP has extended the utmost cooperation to the HP Cogen-Pak project, and been extremely receptive to the feedback provided by Financial Institutions and Sugar Mills
- This enabling environment lead to the SBP revising the Financing Scheme for RE for accelerated uptake of Renewable Energy in Pakistan which has special relevance to the country's sugar sector.
- Various seminars are being arranged to disseminate the salient features of the Revised RE Policy for the RE investor.

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Revision of Financing Scheme for RE by SBP Status

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- Policy launched at 20 June, 2016
- 12 applications received by State Bank of Pakistan for opting Revised RE Financing scheme with 2-3 months with comparison just only one application received by SBP in last six years on previous RE Financing scheme.

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Component 3: Development of a Conducive Regulatory Regime

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Activities

- Establishment of Multi-stakeholder platform for bagasse based power systems
- Orientation of NEPRA on regional Best Practices of tariff determination for bagasse power projects, especially India, through regional stakeholder consultations
- Development of toolkit for swift tariff determination and approval for bagasse based projects
- Conducting Multi-stakeholder consultations on the adoption of a New Power Purchase Policy (i.e. Upfront Tariff)

Outputs

- Improved process for tariff determinations
- Improved policy environment for bagasse based cogeneration projects

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Development of a Conducive Regulatory Regime

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- HP Cogen-Pak Project organized the 1st Phase of Capacity Building Program related to Tariff Models and Determination for NEPRA official from 7th September 2015 to 11th September 2015 in NEPRA Tower Islamabad. Training was provided by the experienced consultants from TERI, India.

Training of NEPRA Professionals

NEPRA Officials during Training

Certificate Distribution to NEPRA Officials

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Workshops on Regulatory Framework and Upfront Tariff

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- HP Cogen-Pak organized two workshops, one on Regulatory Framework and another on Up-front Tariff for Bagasse based HP Cogeneration Plants in Sugar Mills in Pakistan.
- The first Workshop was arranged on 5th January 2016 in Lahore and 2nd workshop was conducted on 12th January 2016 in Karachi.

Workshop at Lahore

Project Team Lead

Workshop at Karachi

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Working Paper for Accelerated Uptake of HPC

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- Working Paper has been prepared on Increased uptake of HPC Technology by the Sugar Sector in Pakistan.
- Working paper highlights barriers in the uptake of HPC Technology. Barriers determined through consultation meetings carried out with key stakeholders.
- The Working Paper paper was shared with the Stakeholders in a round table conference at Serena Hotel, Islamabad on 3rd May 2016.

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Development of a Conducive Regulatory Regime

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- HP Cogen-Pak Project organized the 2nd Phase of Capacity Building Program on Power Generation, Transmission and Regulatory Issues for NEPRA official from 25th July 2016 to 5th August 2016 at Marriott Hotel, Islamabad. Training was provided by the experienced consultants from TERI, India.

Certificate Distribution to NEPRA Officials

Group Photo of NEPRA Training Phase II

Training of NEPRA Officials Phase II

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Thank You for Your Kind Attention

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