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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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Component 1: 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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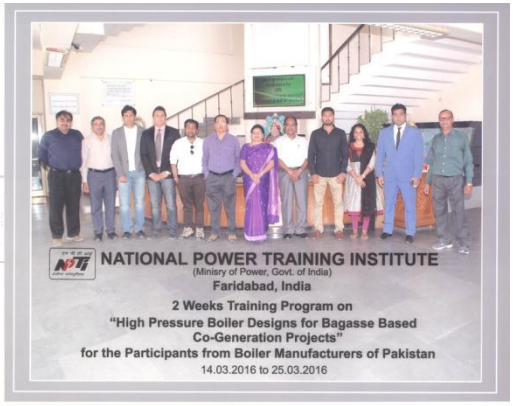
Two weeks Boiler Manufacturers Capacity building training for Pakistani Boiler Manufacturers was held in Faridabad, India. This training was conducted by National Power Training Institute (NPTI) with the collaboration of The Energy and Resources Institute (TERI) from 13th to 25th of March, 2016. The participants of the training were experts from Descon Engineering & The Industrial Enterprises.



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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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- 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 Metropoliton Bank, Karachi.

Meeting with Meezan Bank, Karachi

Meeting with Pak Brunei Investment, Karachi.

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Component 2: 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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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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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 Capacity Building Program 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.

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Workshops on Regulatory Framework and Upfront Tariff

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

Workshop at Lahore

Workshop at Karachi

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Working Paper for Accelerated Uptake of HPC

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Working Paper is prepared on Increased uptake of HPC Technology by the Sugar Sector in Pakistan.

All the stakeholders were consulted through meetings. On the basis of their feedback barriers are highlighted which are hindering uptake of HPC technology.

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Working Paper for Accelerated Uptake of HPC

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- Technical Barriers
  - High Upfront Cost
  - Grid Interconnectivity Studies
  - Capacity of local technology providers
  - Potential risks of technology
  - Safety RisksEconomics of Bagasse

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Working Paper for Accelerated Uptake of HPC

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- Regulatory barriers
  - EPC Cost in Upfront Tariff
  - Timeline in Legal Framework
  - Reimbursement of Taxes and other cost in Upfront Tariff
  - Environmental Guidelines

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Working Paper for Accelerated Uptake of HPC

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- Financial Barriers
  - Awareness of Banks and Funding Agencies on HPC
  - Credit Enhancement Instruments
  - Use of State Bank's Renewable Financing Facility
  - Risk Profile of Sugar Mills

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Way Forward

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- There is a need to revisit the foreign and local component in upfront tariff.
- NEPRA should consider the transportation cost in upfront tariff.
- There is need for adding more flexibility in the timelines of existing legal framework especially after acceptance of upfront tariff.
- NTDC should build the capacity of DISCO's to undertake grid interconnectivity studies. Furthermore, NTDC should publish standardized specifications and design for grid connection to be adopted by power exporter.
- Govt. should issue an SRO which provides exemption to sugar mills from payment of custom duties on import of High Pressure Cogeneration System and its allied equipment.

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Way Forward

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- State Bank of Pakistan should encourage local financial institutions on investing in renewable energy projects
- State Bank of Pakistan should increase the capacity limit of 20 MW for bagasse based power plants as the size of most of the plants exceeds this limit
- GoP should encourage the manufacturing of steam turbines in the country to build the indigenous capacity

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Thank You for Your Kind Attention

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