HPCL Mittal Guru Gobind Singh Refinery
CFBs convert high sulfur pet coke into valuable power and steam

- Steam from CFBs used to produce both power and process steam needed by the refinery
- CFBs fire pet coke produced by refinery with sulfur levels above 8%
- CFBs designed to fire 100% pet coke or 100% import coals or any combination in between
- CFBs capture over 98% of sulfur for all fuels
- ISGEC provided EPC scope of boiler island from fuel bunker to stack inlet
- CFBs began commercial operation in 2018

Project summary
Location: Punjab, India
Customer: HPCL Mittal Energy Limited
Start-up: 2018
Scope: EPC of CFB boiler island

<table>
<thead>
<tr>
<th>CFB Plant Power Capacity</th>
<th>2 x 50 MWe</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFB Plant Steam Capacity</td>
<td>2 x 300 tph</td>
</tr>
<tr>
<td>CFB Plant Steam Pressure</td>
<td>110 barg</td>
</tr>
<tr>
<td>CFB Plant Steam Temperature</td>
<td>510 °C</td>
</tr>
<tr>
<td>Fuel</td>
<td>Petroleum coke, imported coal, Indian coal, refinery fuel gases and oils</td>
</tr>
</tbody>
</table>
Our vision is to provide sustainable energy solutions through decarbonization, decentralization and digitalization of the energy industry. Our capabilities cover customer needs in the fields of power generation utilizing circulating fluidized bed (CFB) technologies, long term energy storage, and related network services. We continuously broaden our portfolio of products and services by advancing our in-house technologies and developing further alliances with new partners.

**Our Values**

**Respect for people.**
Valuing and inviting differing views and ideas

**Committed to customers.**
Exceeding expectations and providing value

**Safety, integrity and teamwork.**
Incorporating ethics in everything we do

**Ownership of results.**
Personally ensuring that success is achieved

**Passion to innovate and grow.**
Setting challenging goals for growth

www.shi-fw.com