

## **FUTURE ROADMAP FOR BHILAI STEEL PLANT :** **MODERNISATION & EXPANSION PLAN FOR 7 MT CRUDE STEEL**

As an integral part of SAIL's growth plan that envisages capacity augmentation to around 23 MT of crude steel by the year 2010, the Board of Steel Authority of India Ltd (SAIL) has given in-principle approval to a proposal for modernisation and capacity expansion of Bhilai Steel Plant to 7.5 million tonnes (MT) of Hot Metal and 7 MT of crude steel per annum at an indicative cost of Rs. 11,262 crore. Bhilai's Composite Project Feasibility Report for modernisation & expansion has been prepared by MECON.

### **BSP's modernisation & expansion plan includes :**

- Installation of a **new blast furnace** that will be among the biggest in the country
- A new 7-metre tall **coke oven battery** and a **new sinter machine**.
- Under modernisation, the ingot route will be phased out and BSP will become a 100% continuous casting plant with addition of a brand **new steel melting shop of 4 MT capacity**.
- BSP is a major producer of long steel products, including rails. To enhance its core strength in long products, the approved expansion plan envisages installation of a **universal beam mill** of 1 MT capacity to produce beams up to 1.1-metre depth, which will be the only one of its kind in India.
- A new **bar & rod mill** of 0.9 MT capacity will also be added.
- Moreover, to meet the growing demand of the Indian Railways, a **new universal rail mill** of 1.2 MT capacity with state-of-art technology will be installed.
- BSP also has unique strength in production of wider plates, and its dominance in this product category will be maintained by capacity **expansion of its Plate Mill** to 1.42 MT under the plan.

The above schemes have been broadly divided into 71 packages which are detailed below. The projects/packages will be executed on global & turnkey, global & semi-turnkey, indigenous & turnkey and non-turnkey basis. Tendering for these packages will be gradually done by Bhilai Steel Plant. The same

will be published as open advertisements in leading national newspapers and also uploaded onto the SAIL website.

**BHILAI STEEL PLANT, BHILAI**  
**LIST OF MAIN PACKAGES**

<b>Area code</b>	<b>PACKAGE NO.</b>	<b>DESCRIPTION</b>	<b>REMARKS</b>
<b>01</b>	<b>-</b>	<b>Coke oven and by-product plant</b>	
01	01-001	7 m tall coke oven battery No. 11 with 67 ovens	Non -turnkey
01	01-002	Coke dry quenching facilities with coke shorting plant	Global and turnkey
01	01-003	By-product plant for COB-11 with H <sub>2</sub> S recovery unit	Global and turnkey
<b>Total</b>	<b>3</b>		
<b>02</b>		<b>Blast Furnace</b>	
02	02-001	<b>4060 m<sup>3</sup> Blast Furnace</b> Main Technological BF package <ul style="list-style-type: none"> <li>• BF proper</li> <li>• Cast house</li> <li>• Stock house</li> <li>• Hot blast system</li> <li>• Dust catcher</li> <li>• Slag granulation plant</li> <li>• Gas cleaning plant</li> <li>• Pulverized coal injection</li> <li>• Refractory work</li> <li>• Electrics</li> <li>• Instrumentation</li> <li>• Automation level – I &amp; II</li> <li>• Dedusting system</li> <li>• In shop utilities &amp; water system</li> <li>• Ventilation and air conditioning</li> <li>• Rly. track within the shop</li> <li>• Fire detection and protection system</li> <li>• Civil and structural work</li> <li>• Area repair shop</li> <li>• Top recovery turbine and auxiliaries</li> </ul>	Global and turnkey
02	02-002	Boilers including additional boiler in existing power & blowing station, and balance of plant	Global and turnkey (can be indigenous also)

Area code	PACKAGE NO.	DESCRIPTION	REMARKS
		(DM water Plant, circulating water system and Electrical)	
02	02-003	Turbo blowers, Steam turbo generators and auxiliaries	Global and turnkey
02	02-004	Package –I Modernisation of BF-6: BF proper & CH	Global Turnkey(CET )
		Package –II Modernisation of BF-6: GCP	Global Turnkey(CET )
		Package –III Modernisation of BF-6: TB-9 revamping	OEM Package (CET )
		Package –IV Modernisation of BF-6: INBA SGP	Non turnkey (CET )
<b>Total</b>	<b>7</b>		
<b>03</b>		<b>Sinter Plant</b>	
03	03-001	2 <sup>nd</sup> Sinter machine (320 m <sup>2</sup> ) in SP-3	Global and turnkey
03	03-002	Modification of SP-2	Indigenous non turnkey
<b>Total</b>	<b>2</b>		
<b>04</b>		<b>Steel Making &amp; Continuous Casting</b>	
04	04-001	<b>BOF shop – Technological package</b> <ul style="list-style-type: none"> <li>• BOF shop equipment, GCP &amp; GRP</li> <li>• Ladle furnaces ( 3 nos.)</li> <li>• RH degassing (1 No.)</li> <li>• Argon rinsing unit</li> <li>• Bulk material handling system</li> <li>• Ferro alloy system for BOFs and secondary refining units</li> <li>• Refractory work</li> <li>• Electrics</li> <li>• Instrumentation</li> <li>• Automation level – II</li> <li>• Dedusting system for BOF Dog house</li> <li>• Secondary emission control</li> <li>• In shop utilities &amp; water system</li> <li>• Ventilation and air conditioning</li> <li>• Rly. track within the shop</li> <li>• Fire detection and protection system</li> <li>• Container laboratory</li> <li>• Area repair shop</li> </ul>	Global & Semi-turnkey
04	04-002	Continuous casting shop – technological package <ul style="list-style-type: none"> <li>• 2 x 6 strand billet casters</li> <li>• 1x6 strand bloom caster</li> </ul>	Global & Semi-turnkey

		<ul style="list-style-type: none"> <li>• 1x4 strand beam – cum-bloom caster</li> <li>• Refractory work</li> <li>• Electrics</li> <li>• Instrumentation</li> <li>• Automation level – II</li> <li>• In shop utilities &amp; water system</li> <li>• Ventilation &amp; air conditioning system</li> <li>• Shop illumination</li> <li>• Fire detection and protection system</li> <li>• Mould and segment repair shop</li> </ul>	
04	04-003	Hot metal desulphurisation ( 2 Nos.)	Global & Semi-turnkey
04	04-004	Lime calcinations plant	Global & turnkey
04	04-005	Main cranes for BOF and CCP	Global & turnkey
04	04-006	Auxiliary cranes for BOF and CCP	Indigenous & turnkey
04	04-007	Hot metal handling system (Torpedo system) <ul style="list-style-type: none"> <li>• Torpedo ladle car</li> <li>• Torpedo heating, drying and cooling</li> <li>• Torpedo repair shop equipment</li> <li>• Torpedo re-railing equipment</li> </ul>	Global & turnkey
04	04-008	LPG storage and distribution system	Indigenous & turnkey
04	04-009	Civil and structural works for BOF, CCP shop	-do-
04	04-010	Miscellaneous civil works	-do-
04	04-011	Area lighting illumination and earthing system for SMS-3, Bar and Rod Mill and Universal Beam Mill	-do-
04	04-012	Mobile equipment	Indigenous & non-turnkey
04	04-013	Centralised telecommunication system for full expansion	Indigenous & turnkey
04	04-014	Augmentation of facilities in SMS-2	Semi turnkey
04	04-015	Replacement of combicaster by Bloom – cum – Beam Blank caster	Global Turnkey (CET)
<b>Total</b>	<b>15</b>		
<b>05</b>		<b>Rolling Mills</b>	
05	05-001	<b>Universal Bean Mill</b> <ul style="list-style-type: none"> <li>- Mill Technological Equipment Including Lub &amp; Hyd System</li> <li>- Roll &amp; Repair Shop Equipment</li> <li>- Electrics, Automation &amp; Telecommunication</li> <li>- Handling &amp; Hoisting Equipment</li> <li>- Water system inside battery limit</li> </ul>	Global & semi turnkey

		<ul style="list-style-type: none"> <li>- Pollution Control &amp; Waste Management</li> <li>- Air Conditioning &amp; Ventilation System</li> <li>- Fire Fighting System</li> </ul>	
05	05-002	<b>Bar &amp; Rod Mill</b> <ul style="list-style-type: none"> <li>- Mill Technological Equipment Including Lub &amp; Hyd System</li> <li>- Roll &amp; Repair Shop Equipment</li> <li>- Electrics, Automation &amp; telecommunication</li> <li>- Handling &amp; Hoisting Equipment</li> <li>- Pollution Control &amp; Waste Management</li> <li>- Water system inside battery limit</li> <li>- Air Conditioning &amp; Ventilation System</li> <li>- Fire Fighting System</li> </ul>	Global & semi turnkey
05	05-003	<b>Universal Rail Mill</b> <ul style="list-style-type: none"> <li>- Mill Technological Equipment Including Lub &amp; Hyd System</li> <li>- Roll &amp; Repair Shop Equipment</li> <li>- Electrics, Automation &amp; Telecommunication</li> <li>- Handling &amp; Hoisting Equipment</li> <li>- Gas Supply Facilities</li> <li>- Water System including water for reheating furnace (only make up water at battery limit)</li> <li>- Pollution Control &amp; Waste Management</li> <li>- Air Conditioning &amp; Ventilation System</li> <li>- Fire Fighting System</li> </ul>	Global & semi turnkey
05	05-004	<b>Augmentation of Plate Mill capacity</b> Package –I :WB Furnace Package	Global turnkey (CET)
		Package –II :Civil works	Non-turnkey (CET)
		Package –III : Cooling beds, Pilers etc	Global turnkey (CET)
		Package –IV : Marking Machine	Global turnkey (CET)
		Package –V :Cranes	Ind. turnkey (CET)
		Package –VI :CNC roll grinding machine	Global turnkey (CET)
		Package –VII : Guillotine Shear	Global turnkey (CET)
05	05-005	<b>Reheating Furnace for Universal Beam Mill, Bar &amp; Rod Mill and Universal Rail Mill</b> <ul style="list-style-type: none"> <li>- Technological Equipment</li> <li>- Refractory</li> <li>- Power Distribution, Electrics &amp; Automation</li> <li>- Instrumentation &amp; Control</li> <li>- Material Handling Facilities</li> <li>- Environmental Control</li> </ul>	Global & semi turnkey

		<ul style="list-style-type: none"> <li>- Air Conditioning &amp; Ventilation System</li> <li>- Fire Fighting System</li> </ul>	
05	05-006	<b>New Normalising furnace in Plate Mill</b> <ul style="list-style-type: none"> <li>- Technological Equipment</li> <li>- Refractory</li> <li>- Power Distribution, Electrics &amp; Automation</li> <li>- Instrumentation &amp; Control</li> <li>- Material Handling Facilities</li> <li>- Environmental Control</li> <li>- Air Conditioning &amp; Ventilation System</li> </ul>	Global & semi turnkey
05	05-007	Civil & Structural For Universal Beam Mill, Bar & Rod Mill	Indigenous
05	05-008	Civil & Structural Universal Rail Mill	Indigenous
<b>Total</b>	<b>8 (+6)</b>		
<b>06</b>		<b>Material Handling facilities</b>	
06	06-001	Augmentation of Ore Handling Plant Part-A	Indigenous and turnkey
06	06-002	<ul style="list-style-type: none"> <li>• New Ore Handling Plant Part-B</li> <li>• Base blending facility for SP-3</li> </ul>	Indigenous and turnkey
06	06-003	New Coal Handling Plant	Indigenous and turnkey
<b>Total</b>	<b>3</b>		
<b>07</b>		<b>Power distribution system</b>	
07	07-001	Augmentation of MSDS-I, III, IV, V and VI along with associated HT net work, 11 KV switch boards linked in MSDS buildings and the new transformer repair shop	Indigenous and turnkey
07	07-002	All distributed HT sub-stations located near the main technological packages	Indigenous and turnkey
<b>Total</b>	<b>2</b>		
<b>08</b>		<b>Fuel gas, industrial gas and water supply system</b>	
08	08-001	Interplant fuel gas & industrial gases piping for all units	Indigenous and turnkey
08	08-002	Gas mixing and boosting stations	Do
08	08-003	Water supply system for BOF, CCP, Bar and Rod Mill and Universal Beam Mill including reheating furnaces (beyond battery limit) <ul style="list-style-type: none"> <li>• Water treatment plants</li> <li>• Scale water</li> <li>• Scale disposal facilities</li> <li>• Pump house building, electrics, instrumentation &amp; automation</li> </ul>	Indigenous & turnkey

		<ul style="list-style-type: none"> <li>• Cranes and hoist</li> <li>• Interplant piping</li> <li>• Drinking water system</li> </ul>	
08	08-004	Make water supply system augmentation	Indigenous and turnkey
<b>Total</b>	<b>4</b>		
<b>09</b>		<b>Compressed air system</b>	
09	09-001	<ul style="list-style-type: none"> <li>• New centralized compressed air station (CAS-4, Part B) for New BF-8 and new Power &amp; Blowing station</li> </ul>	Indigenous and turnkey
09	09-002	<ul style="list-style-type: none"> <li>• Compressed air station for SMS, Bar &amp; Rod Mill and Universal Beam Mill</li> <li>• Compressed air station for Universal Rail Mill</li> </ul>	Indigenous and turnkey
09	09-003	Compressed air stations-5, 6 and 8 at material handling area Additional compressor in SP-3	Indigenous and turnkey
<b>Total</b>	<b>3</b>		
<b>10</b>		<b>Quality control facilities</b>	
10	10-001	Imported laboratory equipment <ul style="list-style-type: none"> <li>• Coke oven laboratory</li> <li>• Augmentation of existing sinter plant laboratory</li> <li>• Iron making laboratory for BF-8</li> <li>• Steel making and continuous casting plant laboratory</li> <li>• Rolling Mill laboratories</li> <li>• RMP laboratory</li> </ul>	Non turnkey
10	10-002	Indigenous laboratory equipment <ul style="list-style-type: none"> <li>• Coke oven laboratory</li> <li>• Augmentation of existing sinter plant laboratory</li> <li>• Iron making laboratory for BF-8</li> <li>• Steel making and continuous casting plant laboratory</li> <li>• Rolling Mill laboratories</li> <li>• RMP laboratory</li> </ul>	Non turnkey
<b>Total</b>	<b>2</b>		
<b>11</b>		<b>Rail &amp; Road network and fire fighting</b>	
11	11-001	Earthwork and Cross drainage works including construction of tunnels, procurement of permanent way materials & laying/linking of railway tracks at peripheral yard, works stations, rolling mill posts, plate mill yard, MGR system from Maroda	Non Turnkey/Turnkey

		station, BF-8 to SMS-III, SGP yard, billet dispatch yard	
11	11-002	Route Relay Interlocking or Solid State Interlocking system including construction of signal buildings at peripheral yard, BF-8 to SMS-III, Works station no. 2 and rolling mill post no. 2	Indigenous and turnkey
11	11-003	Overhead Traction on existing as well as new railway lines at peripheral yard	Indigenous and turnkey
11	11-004	a) Procurement of WDS6 Diesel Electric Locomotives b) Procurement of Mobile Road Transport Equipment (Truck, Dumper cement tanker etc.) c) Procurement of Fire tender d) Procurement of fire extinguishers for service building beyond respective packages	Non Turnkey
11	11-005	<ul style="list-style-type: none"> <li>Supply, erection and testing/commissioning of 60T Road Weigh Bridge including construction of control room</li> <li>Supply, erection and testing/commissioning of 1500T Rail Weigh Bridge including construction of control room</li> </ul>	Indigenous and turnkey
11	11-006	<ul style="list-style-type: none"> <li>Construction In-plant road network outside battery limits of respective packages</li> </ul>	Indigenous and Non Turnkey
<b>Total</b>	<b>6</b>		
<b>12</b>		<b>Oxygen plant</b>	
12	12-001	1 x 700 t/d oxygen plant	Global and turnkey
12	12-002	2 x 1250 t/d oxygen plant/ BOO	
<b>Total</b>	<b>2</b>		
<b>00</b>		<b>Enabling works</b>	<b>MECON/ BEDB</b>
00	00-001	Survey of new sites and soil testing	Indigenous and turnkey
00	00-002	Installation of flyovers and necessary road network	do
00	00-003	Modification of railway lines as necessary	do
00	00-004	Relocation of TSS and construction power	do
00	00-005	Centralised compressed air station – Part-A (for relocation of compressed air station No.-2)	do
00	00-006	Construction water	do

00	00-007	Dismantling and relocation of existing other facilities	do
00	00-008	Project building and other site offices and stores	do
<b>Total</b>	<b>8</b>		
	<b>71</b>	<b>Grand Total</b>	