

## BHAIRON GHATI HE PROJECT (2x32.5=65 MW) SALIENT FEATURES

### LOCATION

|          |             |
|----------|-------------|
| State    | Uttaranchal |
| District | Uttaranchal |
| River    | Bhagirathi  |

### Dam site

|                   |  |
|-------------------|--|
| Location          | D/S of confluence of Jadhganga with Bhagirathi river |
| Latitude          | 31° 01' 55" N  |
| Longitude         | 78° 51' 35" E  |
| Nearest Airport   | Dehradun   |
| Nearest rail head | Rishikesh  |

### HYDROLOGY

|                                       |              |
|---------------------------------------|--------------|
| Catchment area at dam site            | 2660.0 sq km |
| Maximum average discharge at dam      | 266.0 cumec  |
| Minimum average discharge at dam site | 17.8 cumec   |

### RESERVOIR

|                               |             |
|-------------------------------|-------------|
| Full Reservoir Level (FRL)    | 2642.0 m    |
| Minimum Drawdown level (MDDL) | 2630.0 m    |
| Gross storage at FRL          | 1.883 M cum |
| Live storage                  | 0.853 M cum |
| Area under submergence at FRL | 13.27 ha    |

### DIVERSION TUNNEL

|                     |                |
|---------------------|----------------|
| Number              | 1              |
| Size                | 4.5 m diameter |
| Length              | 500 m          |
| Diversion discharge | 80 cumec       |

### DAM

|      |             |
|------|-------------|
| Type | Gravity Dam |
|------|-------------|

|   |                       |
|---|-----------------------|
| Top elevation of dam                    | El 2644.0             |
| Height of dam above<br>River bed level  | 34.0 m                |
| Length of dam at top<br>River bed level | 88.0 m<br>El 2610.0 m |

### SPILLWAY

|                         |                        |
|-------------------------|------------------------|
| Design flood (PMF)      | 8495.0 cumecs          |
| Type                    | Ogee type              |
| Crest elevation         | El 2617.50 m           |
| Number of bays          | 3 of 13 m x 17.50 m    |
| Length of spillway      | 51.0 m                 |
| Energy dissipation type | Trajectory type bucket |

### INTAKE

|              |              |
|--------------|--------------|
| Invert level | El 2619.50 m |
| Number       | 1            |
| Size of gate | 5.3 m x 5.3m |

### DESILTING CHAMBER

|                             |                     |
|-----------------------------|---------------------|
| Number                      | 1                   |
| Size                        | 230 m x 12 m x 17 m |
| Design discharge            | 80.0 cumecs         |
| Particle size to be removed | 0.2 mm and above    |

### HEAD RACE TUNNEL

|                  |              |
|------------------|--------------|
| Number           | 1            |
| Size             | 4.5 m        |
| Shape            | Horse shoe   |
| Length           | 5.1 km       |
| Design Discharge | 66.40 cumecs |

### SURGE SHAFT

|        |               |
|--------|---------------|
| Number | 1             |
| Size   | 10 m diameter |
| Height | 80.0 m        |

## PRESSURE SHAFT

|         |        |
|---------|--------|
| Numbers | 1 No.  |
| Size    | 3.75 m |
| Length  | 230 m  |

## POWER HOUSE

|                         |                            |
|-------------------------|----------------------------|
| Type                    | Underground                |
| Installed capacity      | 2x32.5 MW                  |
| Number of units         | 2                          |
| Power house cavern size | 63.50 m x 21.5 m x 30 .0 m |
| Type of turbine         | Vertical Axis Francis      |
| C.L. of turbine         | El 2509.50 m               |
| Rated Head              | 108.90 m                   |

## TAIL RACE

|                  |             |
|------------------|-------------|
| Size             | 5.0 m       |
| Type             | D - shape   |
| Length           | 190.0m      |
| Design Discharge | 66.40 cumec |
| River Bed Level  | El 2510 m   |
| Maximum TWL      | El 2515.0 m |

## SWITCHYARD

|      |   |
|------|---|
| Size | Gas Insulated Switchyard (GIS) on the floor above the transformer/s in P/H cavern |
|------|---|

## POWER GENERATION

|  |            |
|--|------------|
| Installed capacity                         | 65 MW      |
| Annual energy generation                   |            |
| i) 90% dependable year                     | 293.18 GWh |
| ii) Energy in 90% year on 95% availability | 279.45 GWh |

**CONSTRUCTION PERIOD**

5 years