INTRODUCTION

The Sela Urthing Hydroelectric Project located in Pithoragarh district of Uttaranchal envisages utilization of the waters of the river Dhauliganga, a tributary of Kali (Sarda), for power generation on a run of river type development, harnessing a head of about 270 m.
The project with a proposed installation of 230 MW (2x115 MW) would afford an annual energy generation of 826.08 GWh in a 90% dependable year. The tariff from the project at present day cost would be Rs. 1.36/KWh (levellised).

The diversion site is located at Latitude 30^{o} 08' 29" N; Longitude 80^{o} 36' 23" E. The dam site is approachable from Tanakpur by road at a distance of 263 km upto Khela and 20 kms from Khela by Kuchha Road . The nearest rail head is located at Tanakpur and nearest airport is located at Delhi.

The Sela Urthing HE project envisages construction of:

- a 73 m high Concrete Gravity diversion dam across river Dhauliganga to provide a live storage of 1.71 M cum with FRL at 2470 m and MDDL at 2455 m;
- two nos. desilting chambers of length 284 m (L) and size 13m (W)x 16 m (H) to remove silt particles of size 0.2 mm and above;
- a 2.01 km long and 6.0 m dia head race tunnel terminating in a surge shaft
- a 70.4 m high 10 m dia surge shaft
- 410 m long, 4.6 m dia penstock
- a surface power house having an installation of 2 Francis driven generating units of 115 MW each operating under a rated head of 259.55 m; and
- 30 m long open tail race channel to carry the power house releases back to the river

The power generated from the project would be evacuated through 400 kV DC lines to a pooling station near Bareilly to feed power to the power grid.

The river Dhauliganga drains a catchment area of about 921 sq. km at the proposed dam site. The water availability for the project has been considered on the basis of 10 daily discharge series at Pancheswar dam site for the period 1962-92. The flow series for Sela Urthing HE Project were derived by carrying out runoff-runoff correlation between concurrent flows at Chirkila & Pancheswar and subsequent reduction in proportion to the catchment area. The computed inflow series worked out has been utilized for Power Potential Studies. The design flood has been assessed as 4603.03 cumec.

The revised proposal was put up to the NBWL committee in its 36th meeting held on 04th Nov 2015 for consideration. The NBWL committee recommended the proposal for the consideration of approval for carrying out survey and investigation works on the project.

SALIENT FEATURES

LOCATION

State	Uttarakhand
District	Pithoragarh
River	Dhauliganga (Sarda basin) Dam site 450 m D/s of confluence of Sela Yankti with Dhauliganga River
Nearest Airport	Delhi
Nearest rail head	Tanakpur
Location of Dam Site	
Latitude	30^{o} 08’ 29” N
Longitude	80^{o} 36’ 23” E

HYDROLOGY

Catchment area at dam site	921 sq km
Maximum average Discharge at dam site	64.84 cumec
Minimum average Discharge at dam site	42.77 cumec

RESERVOIR

Full reservoir level (FRL)	2470
Minimum drawdown level (MDDL)	2455
Gross storage at FRL	3.06 M cum
Live storage	1.705 M cum
Area under Submergence at FRL	15.723 ha

DIVERSION TUNNEL

Number	1
Size	7.5 m D-shaped
Length	300 m
Diversion discharge	255.32 cumec

DAM

Type	Concrete Gravity Dam
Top elevation of dam	2473 m
Height of dam above deepest foundation level	73 m
Length of dam at top	185 m
River bed level	2415 m

SPILLWAY

Design flood	4603.03 cumec
Type	Sluice spillway
Crest elevation	2440 m

Number	4
Length of spillway	56 m
Energy dissipation type	Stilling basin

INTAKE

Invert level	2440.9
Number	2
Size of gate opening	4m x 4m
Trash rack	5m x 14.1m x 8 no.

DESILTING CHAMBER

Number	2
Size	12.50m (W) x 18m(H)
Length	220 m
Design discharge	62.59
Particle size to be removed	0.2 mm and above

HEAD RACE TUNNEL

Number	1
Size	5.5 m dia
Shape	Horse shoe
Length	2.01 km

SURGE SHAFT

Number	1
Size	10 m dia
Height	70.4 m

PENSTOCK

Numbers	1 bifurcating to 2 nos.
Size	4.8 m dia bifurcated & reduced to 3.4 m
Length	410 m

POWER HOUSE

Type	Surface
Installed capacity	230 MW
Number of units	2
Power house size	20 m x 69 m
Type of turbine	Vertical Francis
C.L. of turbine	2194 m
Rated Head	255.5 m

TAIL RACE

Size	12.75 m – bed width
Type	Open channel
Length	30 m
Design Discharge	100.14cumec
River Bed Level	2198.0
Normal TWL	2203 m

SWITCHYARD

Size	200 m x 150 m

POWER GENERATION

Installed capacity	230 MW
Annual energy generation	
i) 90% dependable year	816.73 GWh

ii) Energy in 90% year	
on 95% availability	803.42 GWh

COST ESTIMATES & FINANCIAL ASPECT (Rs. Crores)

Civil Works	356.80
Electro Mechanical Works	213.72
Sub Total	570.60
Interest during construction	92.38
Total (Generation)	662.98
Transmission works	33.75
Grand Total	696.73
Tariff for first year	Rs. 1.40/KWh
Levellised Tariff	Rs. 1.22/KWh

CONSTRUCTION PERIOD	5 years and 6 months