



NEPAL POWER INVESTMENT SUMMIT

27.01.2018



A SHOWCASE ON ARUN-3 PROJECT

BY

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HYDRO POTENTIAL OF NEPAL



Theoretical generation capacity	83000 MW
Economically feasible capacity	44000 MW from 66 feasible sites
Likely Annual Energy Potential (at 50% Load Factor)	190-195 Billion units
Present Hydro installed capacity	About 800 MW

ENERGY SCENARIO OF NEPAL



- ❖ As on date, installed capacity is only around 800 MW of electricity, despite the fact that demand is over 1,000 MW.
- ❖ Nepal remains one of the lowest energy consuming countries in the world.
- ❖ Demand for electricity is increasing at 7–9% per year, and according to the forecast from Nepal Electricity Authority (NEA), demand for electricity will reach 3,600 MW by 2027.

PROJECT BACKGROUND



➤ 1985 - 1988 :

- Initially conceived by JICA (Japan International Cooperation Agency) in master plan study.
- Pre-feasibility study (PFR) carried out by Nepal Electricity Authority (NEA).
- Feasibility report prepared by JICA.

1995 :

- The Project abandoned due to withdrawal of support by World Bank.

➤ 2006 :

- Expression of Interest (EOI) invited by Ministry of Energy (*then Ministry of Water Resources*), Deptt. of Electricity Development (DoED), GoN for execution of Arun-3 HEP on Build, Own, Operate & Transfer (BOOT) model.

PROJECT BACKGROUND



➤ 2007 :

- SJVN Limited (formerly: Satluj Jal Vidyut Nigam Limited) submitted its EOI on 30.01.2007.

➤ 2008 :

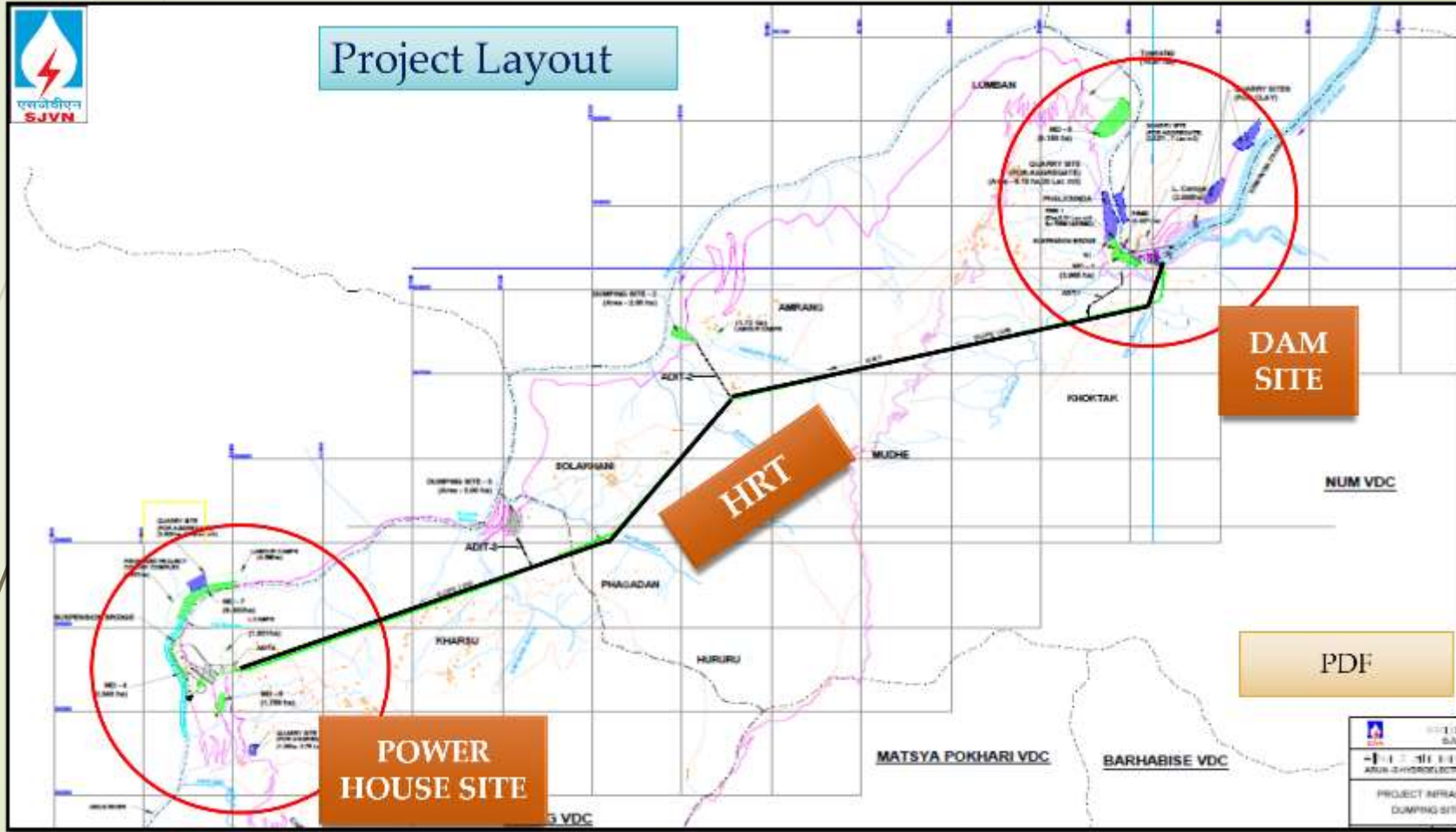
- SJVN Limited got selected & was invited for negotiation by GoN in Jan., 2008.
- MOU signed between GoN and SJVN for execution of Arun-3 HEP on 02nd Mar., 2008.
- SJVN after re-study revised the capacity to 900 MW.

LOCATION OF PROJECT



Nearest Railway Head	Jogbani, Bihar (B. Gauge) approx. 300 km from Project
Nearest Airport	Tumlingtar, Nepal, approx. 70 km from Project

PROJECT LAYOUT



SALIENT FEATURES GENERATION COMPONENT



Feature	Description
Dam Height	70 m
Type of Dam	Concrete Gravity dam
Head Race Tunnel	11.779 km, 9.5m dia, Circular
Pressure Shaft	2 Nos, Circular, 5.5 m dia
Power House	Underground, 179.5x22.5x53m
Transformer Hall	Underground, 146x16x23m
Tail Race Tunnel	1 No. Circular 10.00 m dia 192.00
Energy Benefits	4018.87 MU
Design Head	286.21 m
Design Discharge	344.68 m ³ / sec

SALIENT FEATURES TRANSMISSION LINE

Feature	Description
Total Line Length	217 km
Circuit	Double
Numbers of Angle Points	364
Total Numbers of Towers	501
Right of Way	23 m in each side of C.L of tower (46 m)
Powerhouse to Dhalkebar	168.56 km
Dhalkebar to Bathnaha (Int Border)	40.06 km
Construction Period	4 years

WHY SJVN ?



- ❖ SJVN – A CPSU under Govt. of India.
- ❖ Proven Track Record for Building, Operating and Maintaining the large Hydro Plants in India: Construction, Operation and Maintenance of India's Largest Nathpa Jhakri Hydro Power Station (1500 MW) and Rampur Hydro Power Station (412 MW).
- ❖ Planning for construction of more than 10 Hydro- Electric Projects in India
- ❖ In house Technical expertise in developing and designing Hydro Power Projects
- ❖ Diversified in Thermal, Wind, Solar projects and Transmission Line.

SJVN-Brief Overview



Constituted	24 May, 1988
Share Holding	64.222% - Gol
	25.504% - GoHP
	10.274% - Public
Paid up Capital	Rs. 4136.66 Cr.
Installed Capacity	1964.6 MW 400 kV, 86 km Transmission Line (CPTC- JV- 26%)
Subsidiaries	<ol style="list-style-type: none">1. SJVN Arun-3 Power Development Company Pvt. Ltd. (SAPDC), Nepal2. SJVN Thermal Private Limited (STPL), Bihar
Joint Ventures	<ol style="list-style-type: none">1. Cross Border Power Transmission Company Limited (26% equity).2. Kholongchhu Hydro Energy Limited (KHEL), Bhutan (50% equity).

SJVN-Journey



1988	Incorporated
2004	Commissioned 1500 MW Nathpa Jhakri Hydro Power Station (NJHPS)
2008	Accorded Miniratna and Schedule-A, Category-I status
2010	10.03% disinvested to Public
2014	Commissioned 412 MW Rampur Hydro Power Station (RHPS) Commissioned 47.6 MW Khirvire Wind Power Project
2016	Commissioned 86 km, 400 kV D/C through Joint Venture CPTC Ltd.
2017	Commissioned 5 MW Solar Power Plant at Charanaka, Gujarat

ABOUT SAPDC



- ❖ A separate company by the name “SJVN Arun-3 Power Development Company Pvt. Ltd. (SAPDC)”
- ❖ Incorporated & registered on 25.04.13 as a single shareholder Pvt. Ltd. Company under the Nepalese Companies Act 2063
- ❖ SJVN Ltd. is its sole shareholder
- ❖ Principal objective is to Plan, Promote, Organize and Execute Arun-3 Hydro-electric Project.
- ❖ PDA signed on 25.11.14 between IBN, GoN and SAPDC.

Incorporation of SAPDC, Signing of PDA



Signing of PDA b/w SAPDC & IBN, GoN on 25.11.2014

BENEFITS FOR NEPAL



Free Power to GoN	<ul style="list-style-type: none">○ 21.9 %
Capacity Royalty	<ul style="list-style-type: none">○ NRs. 400/kW /Year for first 15 years of generation.○ NRs. 1800/kW /Year for next 10 years
Energy Royalty	<ul style="list-style-type: none">○ 7.5% for first 15 years of operation○ 12% for next 10 years.
Non Refundable Fee	<ul style="list-style-type: none">○ NRs. 4.02 Crore (Already paid)
Local Shares	<ul style="list-style-type: none">○ Equity Share to Project Affected People for INR 100 crore in 2 tranches after COD.
Survey License Fee	<ul style="list-style-type: none">○ NRs. 2.50 Crore (Already paid)
Payment To NEA	<ul style="list-style-type: none">○ NRs. 45.14 Crore on a/c of documents, reports & acquired land (Already paid)

BENEFITS FOR NEPAL



Local Area Power	❖ To each Local PAFs 30 kWh per month
Employment Generation & Socio-Economic Upliftment	<ul style="list-style-type: none">❖ SAPDC to employ locals to the extent possible❖ Various development activities will uplift the socio-economic level of the people in project Area❖ Training to PAFs for employability
Development of Local Infrastructure	<ul style="list-style-type: none">❖ Development of new roads & bridges.❖ Chainkuty to Diding (PH) (28.69 km)❖ Phaksinda to Suntalae (16.5 Km)❖ Bridges on Khoktak Khola, Num Khola and Khagua Khola besides two bridges on Arun river
Environment & Ecology	❖ A provision of NRs. 160 Crores.
R&R Plan	❖ A provision of NRs. 137 Crores.

BENEFITS FOR NEPAL (MONITORY)

(*) As per IBN website



Description	Benefits	Equivalent monitory benefits
Free Power	21.90%	NPR 15,469 Cr*
Energy Royalty	<ul style="list-style-type: none">○ 7.5% for first 15 years of operation○ 12% for next 10 years.	NPR 10,685 Cr*
Capacity Royalty	<ul style="list-style-type: none">○ NRs. 400/kW /Year for first 15 years of generation.○ NRs. 1800/kW /Year for next 10 years	
Lifetime Income taxes		NPR 7,710 Cr*
Total Lifetime financial benefits to GoN		NPR 33,866 Cr*

BENEFITS FOR NEPAL



- ❖ **Development of the region:** Project will generate employment for the locals, boost local industries, and foster entrepreneurship.
- ❖ **Industrial Benefits:** Nepali suppliers will be given a fair opportunity to compete. Growth of local shops, traders, catering & hotel services, etc.

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BENEFITS FOR NEPAL



- **Rural Electrification & Local Shares:** Electrification of affected areas and option to purchase shares. SAPDC will construct Transmission Line for rural electrification in Project area.
- **Development of Infrastructure and Financial Support:** Construction of roads, bridges, healthcare and community centers, etc. to provide a robust community infrastructure. Skills training and other programs will provide great financial support to the affected communities.

PRESENT STATUS

GENERATION COMPONENT



- ❖ Detailed Project Report (DPR) stands cleared.
- ❖ Manpower mobilized.
- ❖ EIA approved.
- ❖ SEIA approved.
- ❖ Cabinet Committee of Economic Affairs, Govt approved Investment on 23rd March, 2017.
- ❖ Private land acquired – 48.87 ha.
- ❖ Forest Land: Total 123.218 ha.
 - Tri-partite agreement signed for 96.97 ha. on 23.08.2017.
 - The agreement for balance land 26.25 Ha is in process.

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PRESENT STATUS GENERATION COMPONENT



- ❖ Agreement with DoR for construction of access roads signed, DoR in turn awarded contracts for the construction of roads and more than 50% of work has been executed so far.
- ❖ Contract for infrastructure works (office & residential accommodation) awarded and work is in progress.

Contd.

PRESENT STATUS

GENERATION COMPONENT



❖ Package C-1

(Dam, Diversion tunnel & part HRT)

- ▶ Contract awarded on 22.09.17.
- ▶ Custom clearance for induction of equipment obtained from GoN.
- ▶ Company registration, PAN, VAT and EXIM Code obtained.
- ▶ Construction of labour camps/ sheds in progress.
- Explosive magazine design, location and license for importing 1000 MT stands cleared by Defense and Home Ministry, GoN.
- NOC in favour of M/s JAL for importing 500 MT explosive issued.

Contd.

PRESENT STATUS GENERATION COMPONENT



❖ Award of Package C-2

(Power House, Balance HRT, Surge Shaft etc)

- ❖ NIT issued on 10.11.2017
- ❖ Technical Bids opened on 22.12.2017 and is under evaluation.

❖ Award of Package C-3

(HM Works)

- ❖ NIT issued on 17.08.2017.
- ❖ Pre-bid meeting held on 04.10.2017.
- ❖ Technical bids opened on 28.11.2017 and is under evaluation.

Contd.

PRESENT STATUS GENERATION COMPONENT



❖ Award of Package C-4 (E&M Works)

- ❖ NIT issued on 07.09.2017.
- ❖ Last date of online bid submission is 08.02.2018.

❖ Financial Closure for Generation Portion:

- ❖ To be achieved by 30.03.18.
- ❖ In progress through e-bidding.
- ❖ Approx. 10% of total debt will be financed from Nepalese Banks.

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PRESENT STATUS TL COMPONENT



❖ Detailed Project Report

- ❖ Approved on 20.01.15 at Sept, 2014 price level.
- ❖ The DPR was updated at January, 2017 price level, submitted to CEA for appraisal on 29.05.17.
- ❖ CEA approved dt. 16.11.17.
- ❖ IEE report approved.

❖ Financial Closure:

- ❖ Debt portion funding amounting to INR 728.00 Crore has been arranged.
- ❖ PNB India- INR- 500.00 Crores and
- ❖ Everest Bank Nepal- INR 228.00 Crore.
- ❖ The process of signing of agreement & completing other formalities is in progress.

PRESENT STATUS TL COMPONENT



❖ Resettlement Action Plan (RAP):

- ❖ LoA issued on 07.03.17. RAP Plan submitted to IBN on 15.09.17.
- ❖ Land Acquisition application for Sankhuwasabha, Bhojpur and Kotang Distt. submitted to IBN on 20.09.17.
- ❖ Collection of land ownership details of 3 Districts completed and for one District is in progress.
- ❖ Process of tree enumeration completed in Mahottari district and in progress for Dhanusha and Udaypur districts.

ISSUES NEEDS ATTENTION OF GoN



1. **Adverse Road Conditions of Koshi Highway which is the lifeline of the project.**
2. **Complications in Remittance of Payment in Foreign Currency**
3. **Delays in issuance of various clearances, NOCs etc to the major contractors.**

Power saved is Power generated
SAVE POWER



Thank you