



Investors' Meet for Development of Small Hydro Projects

13-DEC-2012

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Making Infrastructure Happen

- ≡ **Background**
- ≡ **Objective for Investors' Meet**
- ≡ **Project Offered for Development under First Round**
- ≡ **Modal of Development**
- ≡ **Bidding Process**

JREDA is presently pursuing micro, mini and small hydro projects up to 25 MW in 68 potential sites

- ≡ Jharkhand Renewable Energy Development Agency (JREDA) is the state nodal agency for augmentation and development of renewable energy generation formed in 2001.
- ≡ JREDA has installed over 1500 solar street lighting systems in 5 districts; over 500 Biogas plants; remote village electrification scheme in over 400 villages.
- ≡ Developed energy park having 20.9 kW building integrated solar power plant. Park also showcases educative aspects of various renewable energy sources.
- ≡ Implemented ~ 800 kW off grid solar plant including 312 kW solar generation at police stations. Another 16 MW grid connected generation presently operational
- ≡ Pursuing development of solar roof top generation at various Government buildings
- ≡ Shifting focus towards hydro, JREDA is presently pursuing hydro power generation up to 25 MW in 68 potential sites in the state.
- ≡ Feedback Infrastructure Services Pvt. Ltd. have been appointed as consultants to monitor the development of these small hydro projects.

Objective for Investors' Conference

- ≡ Communicate brief of various projects to be offered for bidding
- ≡ Create awareness among the investors for participation
- ≡ Dissipate information pertaining to the bidding process
- ≡ Provide platform for investors' queries

List of Projects for Bidding in First Round

Sl. No.	Name of the Project	District	Source	Estimated Capacity (MW)	Tentative Estimated Cost (Rs. Crore)
1	Torpa	Ranchi	River Karo	15	105
2	Dasham Fall HEP	Ranchi	River Kanchi	5	32
3	Sitafall HEP	Ranchi	Sitafall	1	8
4	Kuju HEP	East Singhbhum	Kharkai	2	20
5	Manoharpur HEP	West Singhbhum	River Koel & Karo	3	31.5
6	Malay HEP	Palamu	Malay Dam Toe	0.85	6
7	Auranga HEP	Palamu	Auranga	2	24
8	Basia HEP	Gumla	River Koel	6	45
9	Chandil HEP	East Singhbhum	River Subarnarekha	4	27
Total				38.85	

- ≡ 9 projects out of 68 will be offered for bidding under first round
- ≡ Preliminary Assessment of capacity of these 9 projects ~ 38.85 MW

PROJECT 1: TORPA HEP - 15 MW



Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good.
Evacuation	Low	15 kms dedicated line to be constructed to existing sub station at Torpa.
Habitat	Low	Non significant habitation. Only few hamlets near PH

Name	TORPA
Type	RoR (River – Karo)
Nearest Town	Torpa (site is 20 km from here)
District	Ranchi
Capacity (MW)	15 MW
PLF (%)	41
Annual Generation (MU)	48
Catchment Area (km ²)	1559
Design Discharge (m ³ /s)	18.1
Gross Head (mt)	102
Trans. Line (km)	15
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSERC.
Project Hard Cost (INR)	105 crore (Approx)

PROJECT 2: DASHAMFALL HEP - 5 MW



Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good.
Evacuation	Low	10 kms dedicated line to be constructed to existing sub station at Bundu.
Habitat	Low	No habitation.

Name	DASHAMFALL
Type	RoR (River Kanchi)
Nearest Town	Bundu (Site is at 10 km from here)
District	Ranchi
Capacity (MW)	5 MW
PLF (%)	38
Annual Generation (MU)	16.6
Catchment Area (km ²)	474.4
Design Discharge (m ³ /s)	9.2
Gross Head (mt)	68
Trans. Lime (km)	10
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSERC
Project Hard Cost (INR)	32 crore (Approx)

PROJECT 3: SITAFALL HEP - 1 MW

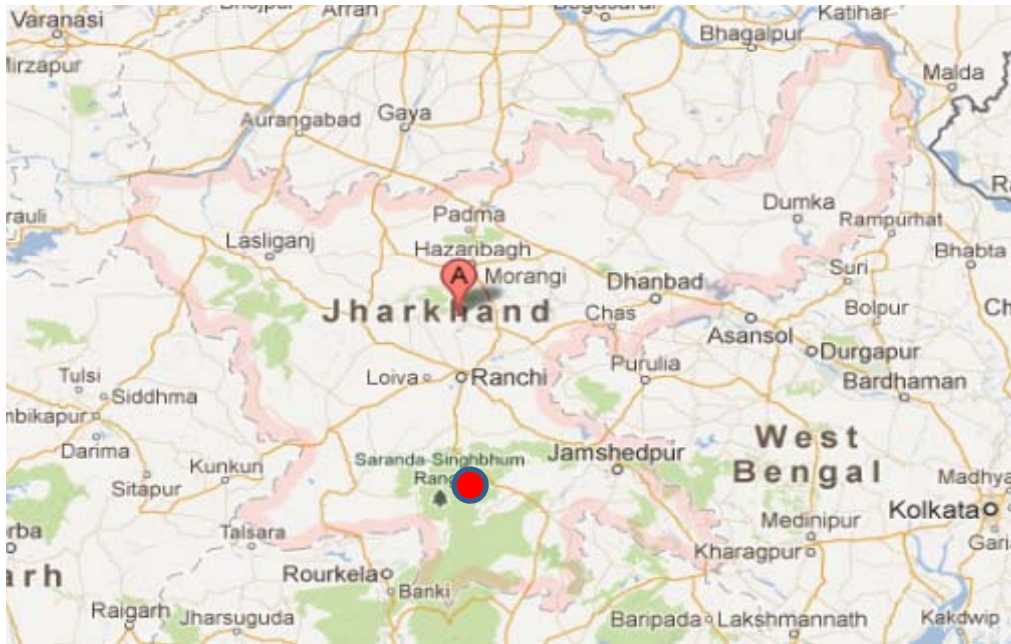


Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good. Forest Cover
Evacuation	Low	14 kms dedicated line to be constructed to existing sub station at Angara.
Habitat	Low	Non habitation.

Name	SITAFALL
Type	RoR (Sitafall)
Nearest Town	Angara
District	Ranchi
Capacity (MW)	1 MW
PLF (%)	35
Annual Generation (MU)	3.1
Catchment Area (km ²)	33.5
Design Discharge (m ³ /s)	2.75
Gross Head (mt)	46.5
Trans. Lime (km)	14
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSERC
Project Hard Cost (INR)	8 crore (Approx)

PROJECT 4: KUJU HEP - 2 MW

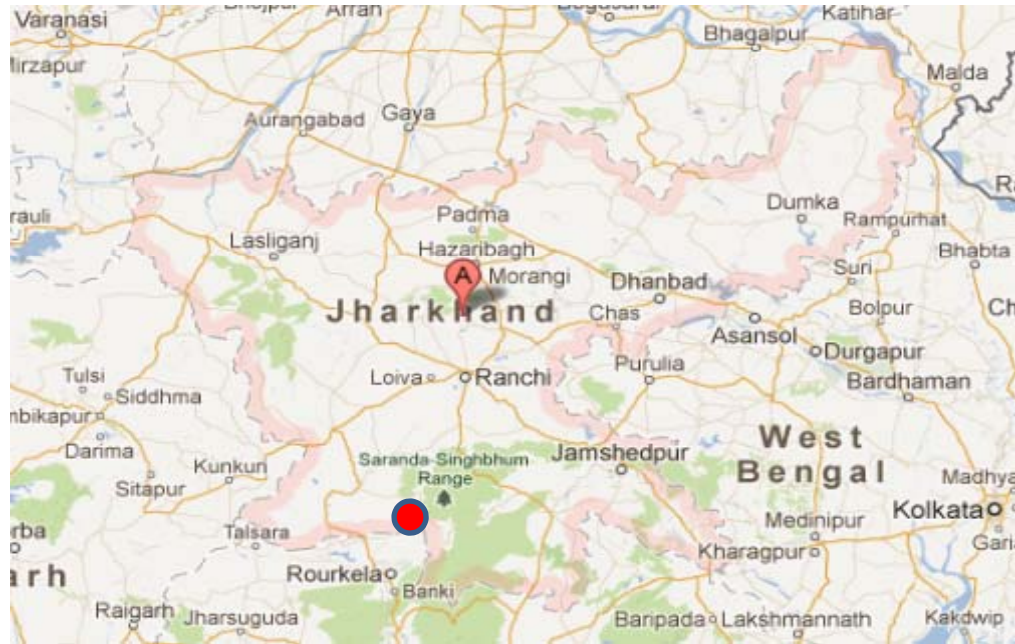


Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good.
Evacuation	Low	8 kms dedicated line to be constructed to existing sub station at Chaibasa.
Habitat	Low	Non habitation.

Name	KUJU
Type	RoR (Kharkai)
Nearest Town	Chaibasa
District	East Sighbhum
Capacity (MW)	2 MW
PLF (%)	35
Annual Generation (MU)	6.5
Catchment Area (km ²)	610
Design Discharge (m ³ /s)	15
Annual Average Flow (m ³ /s)	
Gross Head (mt)	16
Trans. Lime (km)	8
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSERC
Project Hard Cost (INR)	20 crore (Approx)

PROJECT 5: MANOHARPUR HEP - 3 MW



Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good.
Evacuation	Low	10 kms dedicated line to be constructed to existing sub station at Manoharpur.
Habitat	Low	Non significant habitation.

Name	MANOHARPUR
Type	RoR (Koel and Karo)
Nearest Town	Manoharpur
District	West Singhbhum
Capacity (MW)	3 MW
PLF (%)	54
Annual Generation (MU)	14.65
Catchment Area (km ²)	9335.5
Design Discharge (m ³ /s)	58
Gross Head (mt)	7
Trans. Lime (km)	10
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSEB
Project Hard Cost (INR)	31.5 crore (Approx)

PROJECT 6: MALAY HEP - 0.85 MW



Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good.
Evacuation	Low	3 kms dedicated line to be constructed to existing sub station at Tumbagarh.
Habitat	Low	Non significant habitation.

Name	MALAY
Type	Dam Toe
Nearest Town	Satbarwa
District	Palamu
Capacity (MW)	0.85 MW
PLF (%)	38%
Annual Generation (MU)	3.32
Catchment Area (km ²)	106
Design Discharge (m ³ /s)	8
Trans. Lime (km)	10
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSERC
Project Hard Cost (INR)	6 crore (Approx)

PROJECT 7: AURANGA HEP - 2 MW

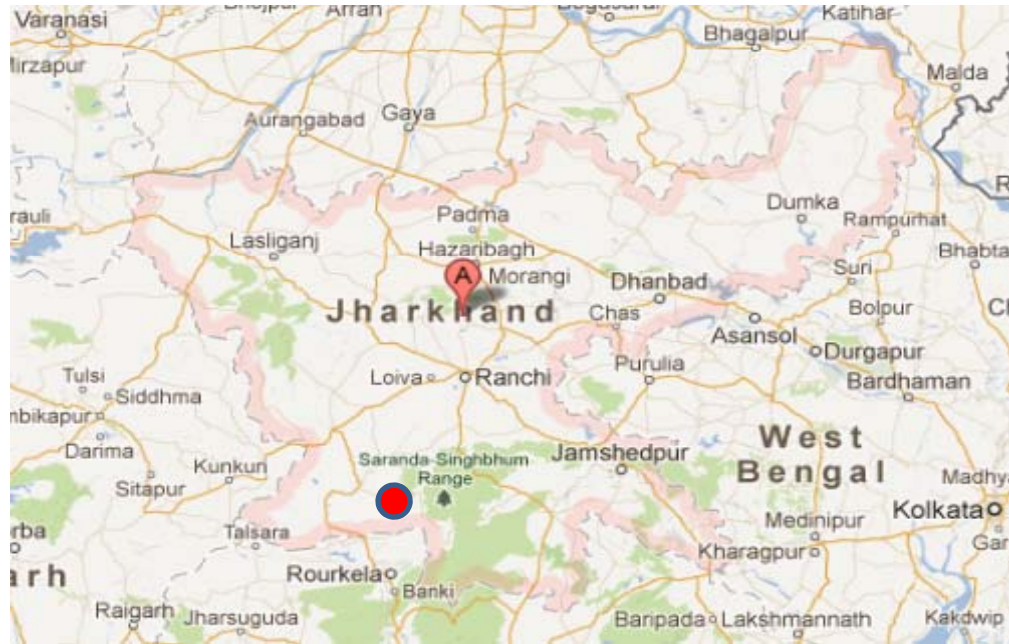


Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good.
Evacuation	Low	10 kms dedicated line to be constructed to existing sub station at Tumbagars.
Habitat	Low	Non habitation.

Name	AURANGA
Type	RoR (Auranga)
Nearest Town	Daltonganj
District	Palamu
Capacity (MW)	2 MW
PLF (%)	34
Annual Generation (MU)	6.2
Catchment Area (km ²)	1506.2
Design Discharge (m ³ /s)	28
Gross Head (mt)	8
Trans. Lime (km)	16
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSERC.
Project Hard Cost (INR)	36 crore (Approx)

PROJECT 8: BASIA HEP - 6 MW

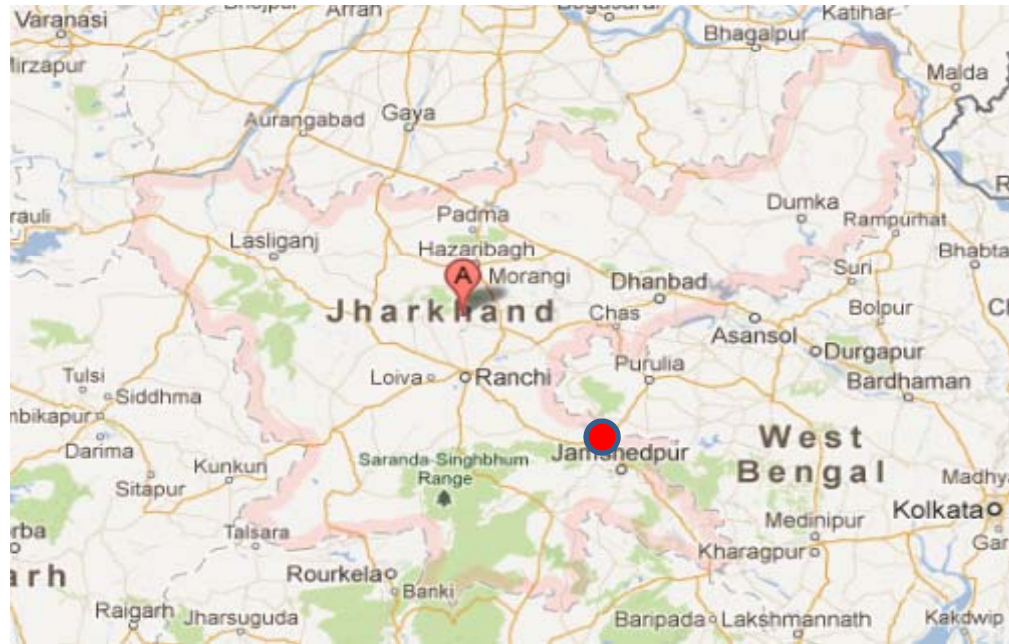


Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good.
Evacuation	Low	3 kms dedicated line to be constructed to existing sub station at Dochutoli.
Habitat	Low	No habitation. Some private land may be involved.

Name	BASIA
Type	RoR (Koel)
Nearest Town	Dochutoli
District	Gumla
Capacity (MW)	6 MW
PLF (%)	35.9
Annual Generation (MU)	19.63
Catchment Area (km ²)	3188
Design Discharge (m ³ /s)	52
Gross Head (mt)	15
Trans. Lime (km)	3
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSERC
Project Hard Cost (INR)	45 crore (Approx)

PROJECT 9: CHANDIL HEP - 4 MW



Preliminary Risk Assessment

Risk type	Level of risk	Details
Accessibility	Low	The Project is accessible by Road however internal project roads will be required to access various components.
Geological	Low	In general good.
Evacuation	Low	7 kms dedicated line to be constructed to existing sub station at Chandil.
Habitat	Low	No habitation.

Name	CHANDIL
Type	RoR (Subernarekha)
Nearest Town	Chandil
District	East Singhbhum
Capacity (MW)	4 MW
PLF (%)	40%
Annual Generation (MU)	14
Catchment Area (km2)	5646
Design Discharge (m3/s)	40
Gross Head (mt)	12
Trans. Lime (km)	7
Access Road	0
Status	DPR under Process
Sale of Power	To JSEB at a derived tariff by JSERC
Project Hard Cost (INR)	27 crore (Approx)

JREDA has envisaged PPP as modal of development for these hydro projects

- ≡ The projects will be offered on B-O-O-T (Built Own Operate Transfer) basis for 40 years . Ownership will be transferred to JREDA after the end of BOOT period.
- ≡ Land requirement will be leased out by JREDA wherever it owns such land. Any other land requirement shall be purchased by IPP in the name of JREDA which will then be leased out.
- ≡ All investments including land acquisition, project infrastructure will be done by the selected developer.
- ≡ Onus of statutory and non-statutory clearances will lie with the IPP. JREDA will only facilitate and support such clearances in bound manner.
- ≡ The developer will be able to sell power to any utility. However, JSEB would have the first right of refusal for purchase of power.
- ≡ The bidders shall be required to pay a premium per MW upfront to JREDA.
- ≡ IPPs shall be entitled to REC benefits as per CERC guidelines & regulations.
- ≡ Proceeds of carbon credit under CDM will be shared between JREDA & IPP :
 - » 100% CDM benefits to be retained by IPP in first year
 - » From second year JREDA shall receive 10% share of CDM benefits which shall progressive increase by 10% each year thereafter upto a maximum of 50%.

Bidding Process

- ≡ A two stage bidding process will be adopted comprising of Request for Quotes (RfQs) followed by Request for Proposals (RfPs)
- ≡ Qualified bidders under the evaluation of RfQ will be eligible for participation in RfP.
- ≡ Bidders will be allowed to bid independently as well as via consortium. However, bidding through consortium should meet certain ownership provisions as will be detailed in RfQ.
- ≡ Technical Qualification: Bidder must have experience of developing or executing through EPC contracts any Infrastructure projects such as Power, Ports, Airports, Roads, Rails, Refineries, Steel Plants, Gas Pipelines, Canals, Dams, Bridges, Telecommunications, Shipping etc. whose
 - aggregate Capital Costs in the last 10 years must not be less than Rs. 0.75 crore of equivalent US \$ per MW
 - out of the above, minimum Rs. 0.25 crore or equivalent US\$ per MW should be from hydro project related activities
 - capital cost of at least one project should be more than or equal to Rs. 0.125 crore or equivalent US\$ per MW

Note: The US\$-Indian Rupee Exchange rate shall be considered as the corresponding TT buying rate specified by the State Bank of India seven days before the last date of submission of Bid as stated in the RfQ document

- ≡ Financial Qualification: The minimum net worth of bidder from any of the past 3 years audited annual accounts should be Rs.1 crore or equivalent US\$
- ≡ Annual turnover of bidder should be at least Rs. 0.5 crore or equivalent US\$ from any of past 3 years audited annual accounts.

Note: 1.The US\$-Indian Rupee Exchange rate shall be considered as the corresponding TT buying rate specified by the State Bank of India as on the last day of accounting year for which the audited accounts have been submitted

2. Net Worth = Eq. Share Capital + Reserve – Revaluation reserves – Intangible Assets – Misc Expense not written off

Bidding Process

- ≡ Bidders may bid for single project or cluster of projects depending on their qualification
- ≡ Bid evaluation will comprise of 2 steps
 - » Responsiveness check – Adherence to all the procedural formalities like data completeness, use of formats, disclosures, etc will be evaluated
 - » Bid Evaluation – Evaluation of the technical & financial qualification criteria shall be undertaken
- ≡ At the RFP stage, the bidders shall be required to quote for a premium per MW payable upfront to JREDA. The minimum threshold premium shall be ____ per MW
- ≡ Bidder quoting the highest premium per MW shall be considered for allotment of projects.
- ≡ IPPs may surrender the allotment upon establishment of sufficient grounds that the projects is techno-economically unviable provided that such grounds are put forth before land acquisition process by JREDA.

Thank You