

**CDM SMALL-SCALE PROJECT ACTIVITIES BUNDLING FORM (F-CDM-SSC-BUN)**  
**Version 03.0**

|  |  |
|--|--|
| <b>Title of the bundle</b>   | Bundled Charmadi Mini Hydel and Aniyur Hole Small Hydro Project at Karnataka, India.               |
| <b>Version number of the completed F-CDM-SSC-BUN</b>                                       | 1.0  |
| <b>Completion date of the F-CDM-SSC-BUN</b>  | 22/12/2014   |
| <b>Title of the project activities in the bundle</b>                                       | 1) Aniyur Hole Small Hydro Project (AHSHP) (6 MW)<br>2) Charmadi Mini Hydel Scheme (CMHS) (4.5 MW) |
| <b>Version number of the project design document(s) (PDD(s)) of the project activities</b> | 2.1  |
| <b>Completion date of the PDD(s)</b>   | 12/12/2014   |

**SECTION A. Description of bundle and subbundles****A.1. General description of project activities in bundle**

&gt;&gt;

The bundled project activity is implementation of 10.5 MW hydro power project in the Karnataka state of India. The purpose of the bundled project is to generate Hydro-electric power utilising naturally available potential energy in the water fall of Aniyur river in Dakshin Kannad District & water flows of Charmadi stream (tributary to the Nethravathi River) Dakshin Kannada district in Karnataka State, India. The project supplies electricity to Karnataka Power Transmission Corporation Limited (KPTCL) which falls under the Southern grid system of India.

The bundled project includes Aniyur Hole Small Hydro Project (AHSHP) (6 MW) and Charmadi Mini Hydel Scheme (CMHS) (4.5 MW) both of which were proposed by International Power Corporation Private Limited (IPCPL).

Both the projects AHSHP & CMHS were being managed under the name of Prasanna Power Limited (PPL) and Thrinethra Energy Conversions Limited (TECL) respectively until the time these companies were amalgamated (merged) into IPCPL on 04<sup>th</sup> April 2014. Through this amalgamation order, all the debts, assets, business licenses, permits, authorizations, approvals etc are transferred over to IPCPL.

Both PPL and TECL were Special Purpose Vehicles (SPV) for the managing the proposed projects and were 100% subsidiary of IPCPL.

AHSHP contemplates utilization of natural fall of the Aniyur river. The project is estimated to generate annual gross energy generation of 17.5 GWh. Net energy would be 16.97 GWh in a year. The Scheme utilizes seasonal monsoon discharges of the river mainly from southwest monsoon. The power generated will be stepped up to 11/33 KV level at the switchyard of the generating station for further evacuation of the same to the nearest switching station at Kakkinge.

CHMS is a small run of the river hydro project across Charmadi stream (tributary to the Nethravathi River) in Dakshin Kannada district of Karnataka. The estimated annual gross energy generation is 12.5 GWh. Net energy would be 12.43 GWh in a year. The power generated will be stepped up to 11/33 KV level at the switchyard of the generating station for further evacuation of the same to the nearest switching station at Kakkinge.

| <b>Project activity</b>                 | <b>Type<br/>(I, II or III)</b>     | <b>Methodology(ies)</b>  | <b>Technology(ies) / Measure(s)</b>  |
|---|------------------------------------|--|--|
| Aniyur Hole Small Hydro Project (AHSHP) | Type I – Renewable Energy Projects | AMS I.D (Grid Connected Renewable Electricity Generation), Version 17, EB 61 | The project activity is a Hydroelectric Power project. The technology employed is, converting the potential energy available in the water into mechanical energy using hydro turbines and then into electrical energy using alternators. |
| Charmadi Mini Hydel Scheme (CMHS)       | Type I – Renewable Energy Projects | AMS I.D (Grid Connected Renewable Electricity Generation), Version 17, EB 61 | The project activity is a Hydroelectric Power project. The technology employed is, converting the potential energy available in the water into mechanical energy using hydro turbines and then into electrical energy using alternators. |

The project activity involves setting up 10.5 MW Hydro Power Project for generation of electricity through a renewable source. The falls under “Type I: Renewable energy project activities with a maximum output capacity of 15 MW (or an appropriate equivalent)” under sectoral scope 1, Energy industries (renewable /non-renewable sources). The project activities are already commissioned and the capacity of each project will remain same throughout the crediting period of the project activity.

## A.2. Location of project activities in bundle

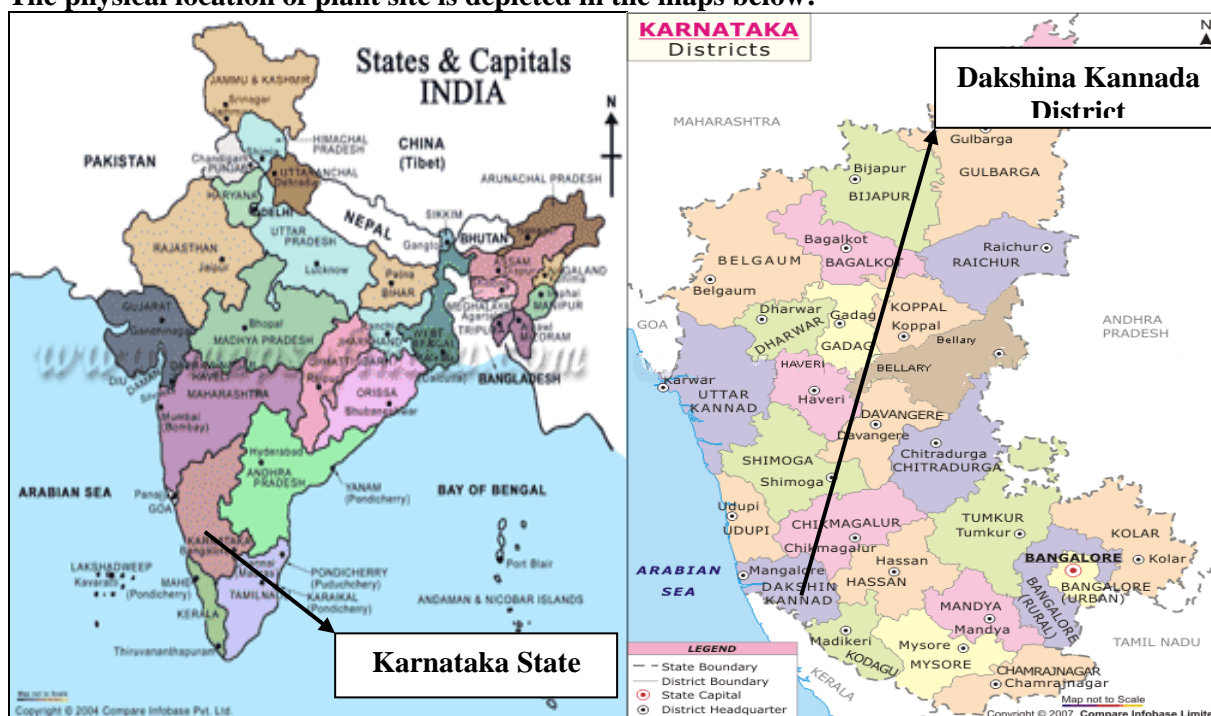
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Aniyur SHP is located in Dakshin Kannad District contemplates utilization of natural fall of the Aniyur river. Aniyur SHP is located at a distance of 22 Km from Dharmasthala.

Charmadi Mini Hydel Scheme contemplates utilization of flows and head available in the Charmadi stream (tributary to the Nethravathi River) for power generation. It is located about 2km from Mangalore Kottagehar Road near Charmadi Village.

Project site is a distance of about 370 km from Bangalore. Nearest Rail head can be reachable at a distance of 50 Km at Puthur.

The physical location of plant site is depicted in the maps below:



Geographical coordinates of Power House of AHSHP is Latitude - 13.07826 N and Longitude 75.43911 E.

Geographical coordinates of power House of CMHS project activity is Latitude -13.03581 N, and Longitude - 75.38811 E.



| Project activity                        | Host Party(ies) | Region/State/Province                       | City/Town/Community                    | Physical/Geographical location       |
|---|-----------------|---|--|--------------------------------------|
| Aniyur Hole Small Hydro Project (AHSHP) | India           | Dakshin Kannada district of Karnataka State | Aniyur village of Belthangadi Taluka   | Lat-13.07826 N<br>Long- 75.43911 E   |
| Charmadi Mini Hydel Scheme (CMHS)       | India           | Dakshin Kannada district of Karnataka State | Kakkanje village of Belthangadi Taluka | Lat- 13.03581 N<br>Long- 75.38811 E. |

### A.3. Parties and project participants

| Party involved (host) indicates a host Party | Private and/or public entity(ies) project participants (as applicable)       | Indicate if the Party involved wishes to be considered as project participant (Yes/No) |
|--|--|--|
| India (host)                                 | Private entity: International Power Corporation Private Limited <sup>1</sup> | No   |

## SECTION B. Application of selected approved baseline and monitoring methodology

### B.1. Summary of ex-ante estimates of emission reductions

#### Aniyur Hole Small Hydro Project (AHSHP) (6 MW): Estimation of Emission Reduction

| Year  | Baseline emissions (tCO <sub>2</sub> e) | Project emissions (tCO <sub>2</sub> e) | Leakage (tCO <sub>2</sub> e) | Emission reductions (tCO <sub>2</sub> e) |
|---|---|--|------------------------------|--|
| Year 1  | 15,359                                  | 0                                      | 0                            | 15,359                                   |
| Year 2  | 15,359                                  | 0                                      | 0                            | 15,359                                   |
| Year 3  | 15,359                                  | 0                                      | 0                            | 15,359                                   |
| Year 4  | 15,359                                  | 0                                      | 0                            | 15,359                                   |
| Year 5  | 15,359                                  | 0                                      | 0                            | 15,359                                   |
| Year 6  | 15,359                                  | 0                                      | 0                            | 15,359                                   |
| Year 7  | 15,359                                  | 0                                      | 0                            | 15,359                                   |
| <b>Total</b>                                    | <b>1,07,513</b>                         | <b>0</b>                               | <b>0</b>                     | <b>1,07,513</b>                          |
| <b>Total number of crediting years</b>          | <b>7</b>                                |  |                              |  |
| <b>Annual average over the crediting period</b> | <b>15,359</b>                           | <b>0</b>                               | <b>0</b>                     | <b>15,359</b>                            |

#### Charmadi Mini Hydel Scheme (CMHS) (4.5 MW): Estimation of Emission Reduction

<sup>1</sup> Both the project activities are promoted by only one project participant which is “International Power Corporation Private Limited”

| Year  | Baseline emissions (tCO <sub>2</sub> e) | Project emissions (tCO <sub>2</sub> e) | Leakage (tCO <sub>2</sub> e) | Emission reductions (tCO <sub>2</sub> e) |
|---|---|--|------------------------------|--|
| Year 1  | 11,194                                  | 0                                      | 0                            | 11,194                                   |
| Year 2  | 11,194                                  | 0                                      | 0                            | 11,194                                   |
| Year 3  | 11,194                                  | 0                                      | 0                            | 11,194                                   |
| Year 4  | 11,194                                  | 0                                      | 0                            | 11,194                                   |
| Year 5  | 11,194                                  | 0                                      | 0                            | 11,194                                   |
| Year 6  | 11,194                                  | 0                                      | 0                            | 11,194                                   |
| Year 7  | 11,194                                  | 0                                      | 0                            | 11,194                                   |
| <b>Total</b>                                    | <b>78,358</b>                           | <b>0</b>                               | <b>0</b>                     | <b>78,358</b>                            |
| <b>Total number of crediting years</b>          | <b>7</b>                                |  |                              |  |
| <b>Annual average over the crediting period</b> | <b>11,194</b>                           | <b>0</b>                               | <b>0</b>                     | <b>11,194</b>                            |

#### Aggregate of Ex-ante estimates of emission reductions for AHSHP & CMHS:

| Year  | Baseline emissions (tCO <sub>2</sub> e) | Project emissions (tCO <sub>2</sub> e) | Leakage (tCO <sub>2</sub> e) | Emission reductions (tCO <sub>2</sub> e) |
|---|---|--|------------------------------|--|
| Year 1  | 26,553                                  | 0                                      | 0                            | 26,553                                   |
| Year 2  | 26,553                                  | 0                                      | 0                            | 26,553                                   |
| Year 3  | 26,553                                  | 0                                      | 0                            | 26,553                                   |
| Year 4  | 26,553                                  | 0                                      | 0                            | 26,553                                   |
| Year 5  | 26,553                                  | 0                                      | 0                            | 26,553                                   |
| Year 6  | 26,553                                  | 0                                      | 0                            | 26,553                                   |
| Year 7  | 26,553                                  | 0                                      | 0                            | 26,553                                   |
| <b>Total</b>                                    | <b>185,871</b>                          | <b>0</b>                               | <b>0</b>                     | <b>185,871</b>                           |
| <b>Total number of crediting years</b>          | <b>7</b>                                |  |                              |  |
| <b>Annual average over the crediting period</b> | <b>26,553</b>                           | <b>0</b>                               | <b>0</b>                     | <b>26,553</b>                            |

## B.2. Monitoring plan

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The monitoring plan has been devised in accordance with the Modalities and Procedures for Small-Scale CDM project activities and General Principles of Bundling.

The monitoring plan sets parameters to be monitored for both the projects (AHSHP & CMHS) separately. It clearly describes about monitoring organization, monitoring practices, QA and QC procedures, data storage and archiving.

**SECTION C. Duration and crediting period****C.1. Duration of bundle****C.1.1. Start date of bundle**

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AHSHP 08.11.2006 (Date of Placement of Civil Work Order) and CMHS 16.11.2006 (Date of Placement of Civil Work Order).

**C.1.2. Expected operational lifetime of project activities**

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Both the project activities have same life time:

AHSHP: 35 years, 0 months. (CERC Regulations)<sup>2</sup>

CMHS: 35 years, 0 months. (CERC Regulations)

**C.2. Crediting period of bundle****C.2.1. Type of crediting period**

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The project proponent has chosen “Renewal crediting period”. This is the first renewable crediting period. The crediting period for the bundle is applicable to both the projects AHSHP & CMHS.

**C.2.2. Start date of crediting period**

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The start date of the crediting period for the bundle is applicable to both the projects AHSHP & CMHS. It is chosen to be 01/01/2015 or from the date of complete submission to the UNFCCC, whichever is later.

**C.2.3. Length of crediting period**

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The length of the crediting period is 07 Years 0 Months. The length of the crediting period for the bundle is applicable to both the projects AHSHP & CMHS.

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<sup>2</sup> [http://www.cercind.gov.in/131205/appendix\\_2.pdf](http://www.cercind.gov.in/131205/appendix_2.pdf)

**Appendix 1: Contact information of project participants in the bundle**

|                        |  |
|------------------------|--|
| <b>Organization</b>    | International Power Corporation Private Limited <sup>3</sup>             |
| <b>Street/P.O. Box</b> | #19, 3rd floor,  |
| <b>Building</b>        | Shivashankar Plaza, Lalbagh road   |
| <b>City</b>            | Bangalore  |
| <b>State/Region</b>    | Karnataka  |
| <b>Postcode</b>        | 560 027  |
| <b>Country</b>         | India  |
| <b>Telephone</b>       | +91 80 22100052  |
| <b>Fax</b>             | +91 80 22100052  |
| <b>E-mail</b>          | bpr@internationalpower.in  |
| <b>Website</b>         | www.internationalpower.in  |
| <b>Contact person</b>  | B P Ramesh   |
| <b>Title</b>           | Director   |
| <b>Salutation</b>      | Mr.  |
| <b>Last name</b>       | Ramesh   |
| <b>Middle name</b>     |  |
| <b>First name</b>      |  |
| <b>Department</b>      |  |
| <b>Mobile</b>          |  |
| <b>Direct fax</b>      | +91 80 22100052  |
| <b>Direct tel.</b>     | +91 80 22100052  |
| <b>Personal e-mail</b> | <a href="mailto:bpr@internationalpower.in">bpr@internationalpower.in</a> |

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**History of the document**

| <b>Version</b>  | <b>Date</b>                    | <b>Nature of revision</b>  |
|---|--------------------------------|--|
| 03.0  | EB 66<br>13 March 2012         | Revision required to ensure consistency with the “Guidelines for completing the CDM small-scale project activities bundling form” (EB 66, Annex 22). |
| 02  | EB 23, Annex 26<br>24 Feb 2006 | EB 23, Para 74.  |
| 01  |                                | Initial adoption.  |
| <b>Decision Class:</b> Regulatory<br><b>Document Type:</b> Form<br><b>Business Function:</b> Registration |                                |  |

<sup>3</sup> Both the project activities are promoted by only one project participant which is “International Power Corporation Private Limited”