

Sustainability action · Project Renewable Energy and Energy Efficiency

Zhongshan micro run-of-river hydro, China

18 micro-hydro power plants (divided in six bundles with three plants per bundle) provide China's rural and mountainous South with emissions-free energy. Without the need for a retaining dam, the micro hydro-plants use natural height differences to generate sustainable power.

Location and Project

Technically, the hydro plants operate without dam (with their known problems of dam construction, flooding, resettlement, environmental impacts on river flora, etc.). Instead, they convert the force of water flowing through a penstock over a natural height difference into electrical energy. The emission reductions result from the replacement of carbon intensive coal power – still common in China – with clean hydro power. Until recently, electricity and heat for rural populations came from burning wood, which lead to deforestation and soil erosion, or from dirty and inefficient diesel generators. Now, the use of locally produced renewable energy allows for sustainable development without emissions harmful to people and planet.

The 18 micro-hydro plants are located in the Zhongshan county of Guangxi Province, P.R. China.

Name	Location	Installed capacity in MW	Electricity generation in MWh	Commissioning Date
Bundle 1				
Zhoujianao HPP	Zhoujianao village, Hua township	1.5 MW	3'420	July 2007
Daping Stage II HPP	Zhoujianao village, Hua township	0.82 MW	1'900	April 2007
Caoduiyuan HPP	Caoduiyuan village	0.48 MW	1'140	April 2007
Bundle 2				
Baishijiao stage I HPP	Baishijiao village, Liang'an Township	0.72 MW	1'307	January 2008
Gongtan HPP	Ziran village, Wenyu township	1.2 MW	3'321	February 2009
Aohua stage I HPP	Tushan village, Liang'an township	0.65 MW	1'656	January 2010
Bundle 3				
Zhongshan Dahe HPP	Sancha village, Hua township	1.53 MW	3'138	April 2007
Liang'an Zhumei Stage II HPP	Zhoujianao village	0.82 MW	1'960	March 2007
Honghuali Beicao HPP	Beicao village, Honghuali township	0.57 MW	1'102	January 2007
Bundle 4				
Baishijiao Stage II HPP	Baishijiao Village, Liang'an township	0.80 MW	2'660	January 2007
Yinping HPP	Honghua Township	0.48 MW	1'368	March 2007
Qingtang Chetianping HPP	Qingtang township	0.84 MW	2'432	March 2007
Bundle 5				
Liang'an Pingjiang HPP	Pingjiang village, Liang'an township	0.65 MW	1'656	March 2007
Futian HPP	Wanggao town	0.96 MW	2'650	February 2007
Chuanyancao River HPP	Caoduiyuan village, Liang'an township	0.80 MW	1'945	January 2007
Bundle 6				
Danzhuchong HPP	Sanch village, Hua township	0.82 MW	1'900	January 2007
Baimiantian HPP	Bao'an river, Hua township	1.2 MW	2'660	March 2007
Liyueliu HPP	Dajiangbian village Hua township	0.82 MW	1'940	January 2008



Project achievements

Socio-economic impact

- **In the construction phase, jobs have been created for the local population** in operation and maintenance, with training on the job and salaries above Chinese standards.
- **Newly built or improved local roads and bridges** make the locals' daily lives easier and improve connections to the lowlands, particularly in the rainy season. Before the project owners' infrastructural engagement, some villages were cut off whenever rivers overflowed their banks.
- **The decrease of open fireplaces in households** thanks to the availability of safe and clean energy leads to less respiratory diseases.
- **Rural electrification in general offers** higher living standards to the local population.
- **Thanks to financial donations by the hydro plants**, a new primary school has been equipped with educational materials.
- **As confirmed by the local Water Resource Bureau, there is no negative impact** by the micro hydro plants on water consumption or irrigation.

Environmental impact

- The decrease of open fires for light and heating leads to less deforestation and soil erosion. The decrease of diesel generator use improves local air quality and mitigates air pollutants such as sulphur dioxide and nitrogen oxide.
- A strict disposal plan guaranteed the avoidance of dust emissions during construction, as well as the proper treatment of wastewater during construction and operation.
- Replanting was conducted after construction works to minimise any potential negative ecological impacts.



Checklist Project 300917

Commercial Operation Date

January 2007 to January 2010 depending on facility

Total capacity

between 0.48 MW and 1.53 MW depending on facility

Estimated Annual Electricity Generation

38'155 MWh (sum of 18 mini hydro-plants)

Quality Assurance and Verification

Annual audit by PWC

Annual verification provided by Gold Standard Foundation for micro-projects

Transparency

RECs listed in GoldPower Register (<http://goldpower.net/goldpowerregister>)

Underpinning carbon credits retired in Gold Standard Market Registry

Marketing material

High-resolution pictures available

Reportability

Meets GHG Protocol Scope 2 Guidance criteria

GoldPower credentials projects certified by



GoldPower credentials reportable under



thesouthpolegroup.com/renewable_energy

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