



Multi-capital accounting assessment of the Standard MW-level Off-grid Microgrid

In a nutshell:

Kuocang Mountain has 96.38% of forest coverage, a 1382-meter main peak. The reliability of power supply there is quite difficult to guarantee due to steep terrain inconvenient traffic, vulnerability to lightning, freezing and other extreme weather. Therefore, how to meet the requirements of transmission line laying cost, ecological management and regional development has become a big problem for power companies.

GoldenBee Consulting has conducted field research, organized seminars, invited experts and provided technical support the Company's first multi capital accounting within the State Grid. The accounting results enables the Company to have a clear understanding of its current company management, optimize resource allocation and risk management. and offer a more comprehensive perspective for the Company's future sustainable development planning.

Guided by the accounting results, the Company built a Standard MW-level Off-grid Microgrid in place, based on the advantages of natural endowment, making full use of wind, light and water energy to maximize the comprehensive value, and laying a good foundation for the sustainable operation of the project in the future. The Company will continue to actively respond to the United Nations Sustainable Development Goals (SDGs) in its role as a pioneer of the global energy revolution under the leadership of State Grid Corporation of China.

Project details:

Organisations involved: State Grid Zhejiang Linhai Power Supply Co., Ltd. (Linhai Power Supply Company, the Company), GoldenBee (Beijing) Management Consulting Co., Ltd. (GoldenBee Consulting)

Year: 2024

Location: Kuocang Mountain National Forest Park in Linhai, a county-level city in Taizhou, Zhejiang province, China

Read more about the project here:

English news report:

<https://www.chinadaily.com.cn/a/202408/29/WS66d01941a31060630b925a5a.html>

Chinese news report:

https://www.cnenergynews.cn/2024lgESG/2024/05/16/detail_20240516160920.html

Chinese news report:

https://zjnews.zjol.com.cn/gdwx2021/202105/t20210518_22543204.shtml



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Further Information

After selected as a national forest park, Kuocang Mountain witnessed the increase of tourist numbers. In order to meet the power needs of users, Linhai Power Supply Company proposed three power supply options.

Option 1: Open up line corridors in advance, erect pylons, poles and connect them through high-voltage wires. It is the most common type of power transmission system.

Option 2: Status quo, no additional power supply project.

Option 3: Construct Standard MW-level Off-grid Microgrid, make full use of wind, light, water resources in Kuocang Mountain to produce clean electricity, and reduce the laying density of power facilities through the development of standardized micro-grid equipment.

Under the guidance of the Natural Capital Protocol and the Social & Human Capital Protocol, the Company used multi-capital accounting methodology to comprehensively calculate the impact and dependence of the three power supply schemes on natural, human and social capital.

Capital type	Option 1 (thousand yuan)	Option 2 (thousand yuan)	Option 3 (thousand yuan)
Natural capital	-2481.4	-707.7	8753.5
Human capital	6918.5	4435.9	4447.0
Social capital	-8329.4	-3415.4	19514.2
Total	-4612.3	76.40	32714.7

Except from the indicators that cannot be calculated due to the low availability of data, the comprehensive value of option 3 is the largest, with an increment of 37.3 million yuan compared with Option 1 and 32.0 million yuan compared with Option 2. Finally, the Company overcame the technical problems and selected Option 3, which minimized the damage to the environment caused by extra construction, and also reduced the safety risk of staff maintenance of power facilities in the complex geographical environment. The project also facilitates local development and residents' lives, driving local employment and tourism development.

The Company's "three-step" objectives based on the accounting results:

By 2025, completing China's first MW-level off-grid microgrid and the validation of core terminals in typical scenarios that are high in altitude, on islands, uninhabited or near the border. By 2027, launching the "TO ZERO" green microgrid initiative to strengthen industry cooperation and build a sustainable ecosystem in the industry. By 2030, establishing about 200 projects nationwide and achieving 100% consumption of clean power in the demonstration area.

As the first exploration and application of the multi-capital accounting in the power industry in China, the project is confronted with challenges in methodological maturity and data availability, etc., which needs to be further improved. Guided by the multi capital accounting approach, the Company continues to improve its operational efficiency and environmental friendliness, so as to provide valuable practical experience for the power industry and drive the industry to pursue green, low-carbon, and sustainable development.