

The Impact of Renewable Energy Projects on the Fairness of Indigenous Communities—Taking Bulabul Project as an Example

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Abstract. Renewable energy has become a global trend to reduce global warming. However, many infrastructures have been built on indigenous land, which harms both indigenous people and their culture. Existing studies mainly focus on negative cases and discuss how such land exploitation takes place. Bulabul Battery Energy Storage System is a project which creates new cooperation mechanisms between indigenous communities and implementors. This research takes Bulabul project as an example, systematically analyzes the mechanism which renewable energy project use to realize energy justice in different dimensions. Using case analysis and literature review, this research finds that the Bulabul Battery Energy Storage System takes recognition justice as its basic principle and uses several institutions and clauses to ensure the rights of indigenous people. This project helps to set company for indigenous community, offers legal support and cooperate with syndications to reduce the risks taken by indigenous community and stabilize their profits. By doing so, the distributive justice and procedural justice also can be ensured. This research then gives positive and practical suggestions to promote publicizing experience to other nations and regions around the world.

Keywords: Energy Justice, Indigenous Communities, Renewable energy, Battery Energy Storage System

1. Introduction

Nowadays, global warming has become a worldwide problem. To reduce carbon emissions caused by traditional energy and to achieve carbon neutrality, several countries and regions have invested in the renewable energy field [1]. Under this trend, some infrastructures have inevitably been built on land where indigenous peoples live, and some projects have disturbed the daily lives of these communities. Torres has analyzed how a solar park in Yucatán, Mexico resulted in anger and resistance from indigenous peoples [2]. Some research also reveals that inequity in economic benefit distribution has occurred in some indigenous communities [3].

This research is mainly based on the energy justice framework, which generally includes three sections: distributive, procedural, and recognition justice [4]. Although energy justice framework has been commonly used to analyze renewable energy projects on indigenous lands, most of that

research paid more attention to negative cases [3]. This research uses case analysis and the literature analysis method to find out how Bulabul Battery Energy Storage System (BESS) has gained recognition on a global scale for its reciprocal cooperation between the local indigenous community and the project proponents [5]. This research expands the application scope of energy justice framework and offers a reference and some suggestions on how to establish renewable energy projects fairly.

2. Introduction of Bulabul Battery Energy Storage System

2.1. Project overview

Located in the mid-west of New South Wales near Wellington, the Bulabul Battery is one of the biggest utility-scale Battery Energy Storage Systems (BESS) constructed in the state in recent years. Implementation of this project was mainly divided into two stages and could totally provide 400MW of power and 1 GWh of storage capacity. After getting the development approval and grid connection approval in December 2023, the construction of the first stage started in August 2025, and was expected to energize in the third quarter of 2026, followed by full commercial operations in 2027. During the first stage, this project aims to provide 300 MW of power along with 600 MWh size of battery, which can power 52,200 homes during peak demand periods when renewables are not generating. Meanwhile in the third quarter of 2026, the second stage is expected to begin construction. It will be energized in 2027 and then put into full commercial operations in 2028, additionally providing 100MW of power and 400MWh size of battery.

2.2. Operating mechanism

Bulabul BESS, which is located near two solar power plants, will connect to the National Electricity Market (NEM) via a transformer substation nearby and therefore it will participate in electricity power market transactions.

The system charges during periods of low electricity demand and abundant solar generation. When power demand rises, the system discharges stored electricity to ease grid pressure. Through this dynamic response to different amount of electricity demand, Bulabul BESS can significantly balance the supply and demand of electricity and enhance the reliability of this project along with decrease in renewable energy waste.

2.3. Indigenous participation

"Bulabul", meaning "two acting together", was named by the Binjang Clan of the Wiradjuri people in August 2025 symbolizing cooperation between indigenous communities and project developers.

Wambal Bila, a company controlled by indigenous community, has obtained a 5% equity participation right of the first stage, and is expected to bring 20 to 30 million Australian dollars to indigenous communities. In addition, AMPYR, as the project's owner, developer and operator, provides up to AUD 300,000 to support Wambal Bila's early operation, covering board training, governance system building and financial mechanism establishment. Due to this partnership, Bulabul BESS has won the "Impact Deal of the Year" at the IJGlobal ESG Awards 2025 (APAC) [5].

3. Analysis of Bulabul BESS

3.1. Distributive justice

Distributive justice mainly focuses on how costs, risks, and profits have been distributed among participants, especially whether vulnerable groups have disproportionately borne costs but received less profits [6].

In terms of cost distribution, all the construction costs of the first stage, which amount to about 340 to 365 million Australian dollars, have been paid by AMPYR and financing syndicates. Wambal Bila does not need to pay for them. Besides, guides and precedent sets can be obtained freely by other indigenous communities, including call option deeds, unitholders agreements, and project holding trust deeds. By doing this, cost of information has decreased, which is beneficial to other indigenous communities to strive for similar cooperation. Regarding the costs on land, even though a community benefit fund has been set to make up for lost of land, the subsequent impacts still need continued observation.

In terms of risk allocation, an intermediary trust holds the indigenous group's 5% equity stake, protecting the community from financial liabilities if the project underperforms. This intermediary trust is required to repay the money as agreed, and the remaining profit will be given to Wambal Bila. This means that if the profit cannot cover the repayment, Wambal Bila still does not need to assume any direct liability. Additionally, Wambal Bila has up to 15 months to finalize finance, giving indigenous community chances to gain more information before making a final decision.

In terms of profit distribution, as mentioned in the introduction, the community holds a 5% equity stake. It guarantees priority fixed annual returns and access to residual profits, securing both basic and additional income for indigenous residents. Besides, both Wambal Bila, which represents the indigenous community, and AMPYR, on behalf of this project, have agreed to continue this cooperation mode in the second stage. According to Wambal Bila's board members, this model supports investment in indigenous cultural heritage, creates economic opportunities and improves community well-being. This phenomenon indicates an innovation in approach to ensure the distributive justice. Departing from the general method of providing one-off compensation, this project seeks a sustainable distribution structure.

To sum up, Bulabul BESS is obviously better than average projects in distributive justice section due to its special mode in several distribution.

3.2. Procedural justice

Procedural justice mainly focuses on the accounting for decisions and effectiveness of participation [7].

Wambal Bila is controlled by the Wiradjuri people and takes responsibility to its own members. Every indigenous person with a local postal code is qualified to be a member of this company. With assistance from law firms such as Corrs Chambers Westgarth and other institutions such as Yamagigu Consulting, Wambal Bila can get professional suggestions and strategic support for free. This support enables Wambal Bila to negotiate with AMPYR on an equal footing with shared information and guarantees indigenous residents' right and capacity to participate. There are several institutionalized legal documents to ensure the validity of that participation. According to the shareholder agreement, execution requires approval from every unit holder. Clauses concerning indigenous culture and heritage also grant the community veto power over decisions against public interests.

In conclusion, the operating model and legal protection of Bulabul BESS project not only consult opinions of indigenous community with respect but also put them into effect with procedural methods.

3.3. Recognition justice

Recognition justice emphasizes respecting and acknowledging indigenous identity, culture, values and knowledge systems in various forms [8].

The project name, the establishment of Wambal Bila, as well as its membership and rights, all reflect recognition of indigenous identity, language and traditional lifestyles. As the core and basic definition in energy justice framework [4], recognition justice provides the fundamental condition to develop distributive and procedural justice.

4. Discussion and suggestions

4.1. Referential value analysis

The referential value of a case can be assessed from several aspects, including multiple complex factors that jointly influence the outcome in both direct and indirect ways, the capacity and other resources required during operation, the varying degrees of emphasis that different operators place on certain elements, and how much trust other operators have in the case [9]. This research will continue to discuss the first two aspects of Bulabul BESS, as followed two aspects mainly depend on adopted region.

The Bulabul BESS project has initiated a method for developing renewable energy projects on indigenous land by cooperating with indigenous people who have almost no economic foundation and no indigenous ownership. Beyond that, fund guarantees from several financing syndicates, long-term stable income ensured by InCommodities through a long-term contract, technology cooperation with Fluence, and support from the government all make the design of this project feasible and practical. Even though the design is accomplished, there are still difficulties in virtual operating process. The initiative of different people, language barriers and difficulties in mutual understanding can influence the efficiency. The scale of project and the degree of resource enrichment can affect the profit. Meanwhile, this new investment mode is not credible to every people, promotion and improvement are still needed.

4.2. Suggestions on construction of renewable energy projects

According to main factors in this project, this research gives several suggestions on how to carry out renewable energy projects on indigenous land.

For project developers, it is essential to proactively understand indigenous history and community needs and establish equal cooperative relationships. AMPYR has started contact with Wiradjuri people before the beginning of this project, which leaves chances to adjust the plan based on the actual situation and ensures recognition justice at the same time.

In terms of institutional design, introducing trust mechanisms can effectively mitigate risks. Granting indigenous communities equity shares and priority fixed returns helps realize distributive justice. Standardized legal clauses ensure full consideration of indigenous opinions, while specialized cultural and heritage protection provisions safeguard procedural justice.

Governments should protect the legal rights of indigenous peoples as well. By setting legal document sharing system, experience can be referred by similar project to reduce the costs and promote energy justice.

5. Conclusion

Based on an energy justice framework analysis of the Bulabul BESS project, this study illustrates how the project builds a mutually beneficial cooperation model between indigenous communities and project developers across distributive, procedural, and recognition justice dimensions. Respect for vulnerable groups and protective provisions both ensure the rights of the indigenous community, while support from syndicates and governments helps the project to be truly implemented.

This research then summarizes some practical measures to different groups of people. Bulabul BESS project has proved that it is possible to set up a reciprocal renewable energy project with indigenous community which is lack of economic foundation and legal rights. This project can be used for reference in several other regions and countries around the world.

However, there are also many limitations to this research. The amount of case is small and tracking time is not so long, and the project has been set recently and still not finished, so it needs continuous attention to analyze how this project would perform when it has been put into full commercial operation. Besides, the traditional energy justice framework does not cover all components; other forms of justice, such as restorative justice, have not been considered in this research. Future studies can use cross-case comparison, long-term tracking and on-site visits to present a more comprehensive analysis.

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