



# KARNALI-CHISAPANI WIND POWER PROJECT 10 MW



## Background

Nepal's electricity sector has been mostly dominated by hydropower and only a fraction of its renewable energy potential has been realized, with the share of wind energy being minimal. In view of energy security, it is vital to adopt the appropriate energy mix in the national grid by utilizing renewable energy sources such as wind and solar. In addition, the Solar and Wind Energy Resource Assessment (SWERA) analysis reveals that 3000 MW of electricity could be generated from wind energy considering 10% of the area with more than 300W/m<sup>2</sup> wind power density. Given the context, AEPC together with the Ministry of Energy, Water Resources, and Irrigation (MoEWRI) aims to demonstrate a 10 MWac wind power project at Lamki Chuha Municipality. The analysis shows the wind speed at the proposed site averages approximately 6 m/s at 50 m height and is thus considered a feasible index to develop a commercial wind power project.

The initiative represents Nepal's first large-scale wind power project, highlighting its significance in exploring the potential of wind energy to augment the country's energy mix. By setting a precedent in the renewable energy sector, the project will serve as a pioneering example of sustainable energy development.

## Project Information

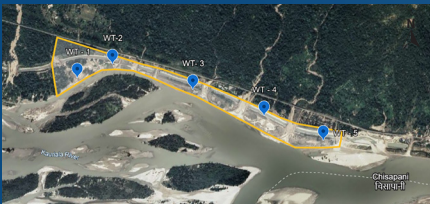


### Location

Lamki Chuha Municipality, ward number 3 of Kailali District, Sudurpaschim Province

### Project Site Access:

- Accessible from Kathmandu via a 500 km journey along the East-West highway.
- Alternatively reachable from Nepalgunj Airport (90 km away) or Dhangadi Airport (100 km away).



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### Sector/Sub-sector of the project

Renewable Energy – Wind Power,  
Project Capacity: 10MWac

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### Land area required

#### Project Area Dimensions:

Length: Approx. 3300 meters

Breadth: Approx. 100 meters (rotor diameter)

Total physical area  $\approx 3300 * 100 \text{ m}^2$

$\approx 330,000 \text{ m}^2$

$\approx 49 \text{ Bigha}$

**Note:** Only the foundation of the wind turbine and powerhouse occupies actual land; rotors will be positioned above the canal system and nearby riverbank.



#### Objectives for developing the project

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Demonstrating first utility scale wind power project of 10MWac.  
Showcasing the integration of wind power within Nepal's energy mix.



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#### Salient features of the project

- Nepal's first large-scale wind power project
- Capacity, 10MWac, 5 unit of 2MW Wind turbine generator, Transformer: 5 unit of 2.5MVA and Transmission Line: 12KM, 33 kV
- Site's average wind speed: ~6 m/s at 50 m height.
- Estimated Annual Energy Generation: 21,918 MWh at grid connection point
- Estimated Capacity Utilization Factor (CUF): 25.02% at grid connection point

## Relevant Agencies

- Ministry of Energy, Water Resources, and Irrigation (MoEWRI)
- Alternative Energy Promotion Center (AEPC)

## Project Benefits



### Renewable Energy Generation:

Harnesses abundant wind resources to generate clean and sustainable electricity.



### Energy Security

Diversifies Nepal's energy mix, reducing reliance on imported fuels and enhancing energy independence.



### Economic Development

Stimulates local economies through job creation, infrastructure development, and increased economic activity



### Technology Transfer

Facilitates knowledge and skill transfer in wind power development, contributing to local capacity building.



### Social and Environmental Benefits

Improves living standards, supports social development initiatives, and minimizes environmental impact.



### Climate Change Mitigation

Helps mitigate climate change by reducing greenhouse gas emissions and promoting low-carbon energy sources.

## Financial Indicators

Estimated Project Cost  
NPR 1,473.61 Million (\$ 11.09 Million)



Project IRR  
6.25 %



Economic IRR  
25.21 %



NPV  
191.32 Million  
NPR  
(\$ 1.44 Million)



Pay-back  
period (Y)  
9.90



Discounted Pay-  
back period (Y)  
16.50



Debt to Equity  
Ratio  
70:30



Benefit Cost  
Ratio  
1.43



Loan Interest  
Rate  
6.00%

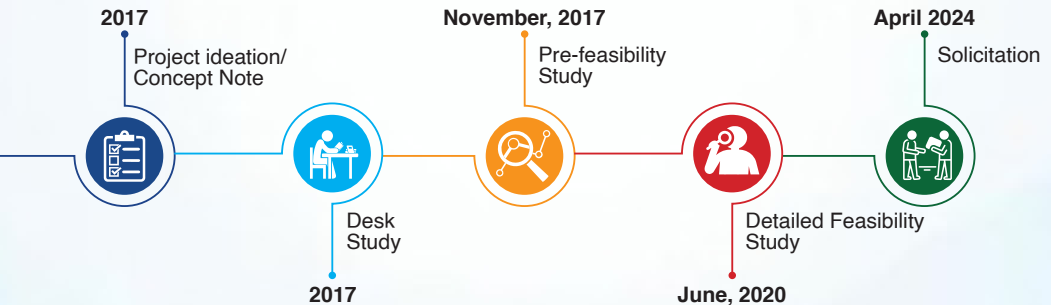
Note: 1 USD = NPR 132.9

## Project Implementation Modality



Public Private Partnership  
(PPP model)

## Project Implementation Timeline



## About the Agency

Alternative Energy Promotion Centre (AEPCC), founded on November 3, 1996 (18 Kartik 2053 B.S.) with the objective of developing and promoting renewable/alternative energy technologies in Nepal. The mission of AEPCC is to make renewable energy and energy efficiency mainstream resource through the energy accessibility, knowledge and adaptability contributing towards improved living conditions of people of Nepal and combatting climate change globally.

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10 MW

