

# Hybrid Plant Simulation Report

Generated on: 2025-08-17 12:58:11

Mixed End-Use Hybrid Plant with Renewable Energy Integration

## Executive Summary

Total Renewable Capacity: 90,000 MW  
Total Storage Capacity: 20,000 MWh  
Total Capital Cost: 440,000 Rs./kW (39,600,000 Rs./kW)

## System Overview

Wind: 50,000 kW  
Pv: 40,000 kW  
Battery: 20,000 kW  
Electrolyzer: 25,000 kW  
Hydrogen Storage: 5,000 kW

## Load Profiles

electric\_load\_hybrid.csv: Peak Electricity Demand = 33,000 kW  
heat\_load\_hybrid.csv: Peak Heat Demand = 22,000 kW  
hydrogen\_demand\_hybrid.csv: Peak Hydrogen Demand = 1,700 kg/h

## Production Data Sources

Solar Data Sources: 2  
Wind Data Sources: 8  
SS01-KAT\_H1: Max=232.49 A/m<sup>2</sup>, Avg=52.22 A/m<sup>2</sup>  
SS01-KAT\_H2: Max=217.48 A/m<sup>2</sup>, Avg=42.12 A/m<sup>2</sup>  
WS01-OTT\_Q01: Max=3569.47 kW, Avg=1510.63 kW

## Technology Costs

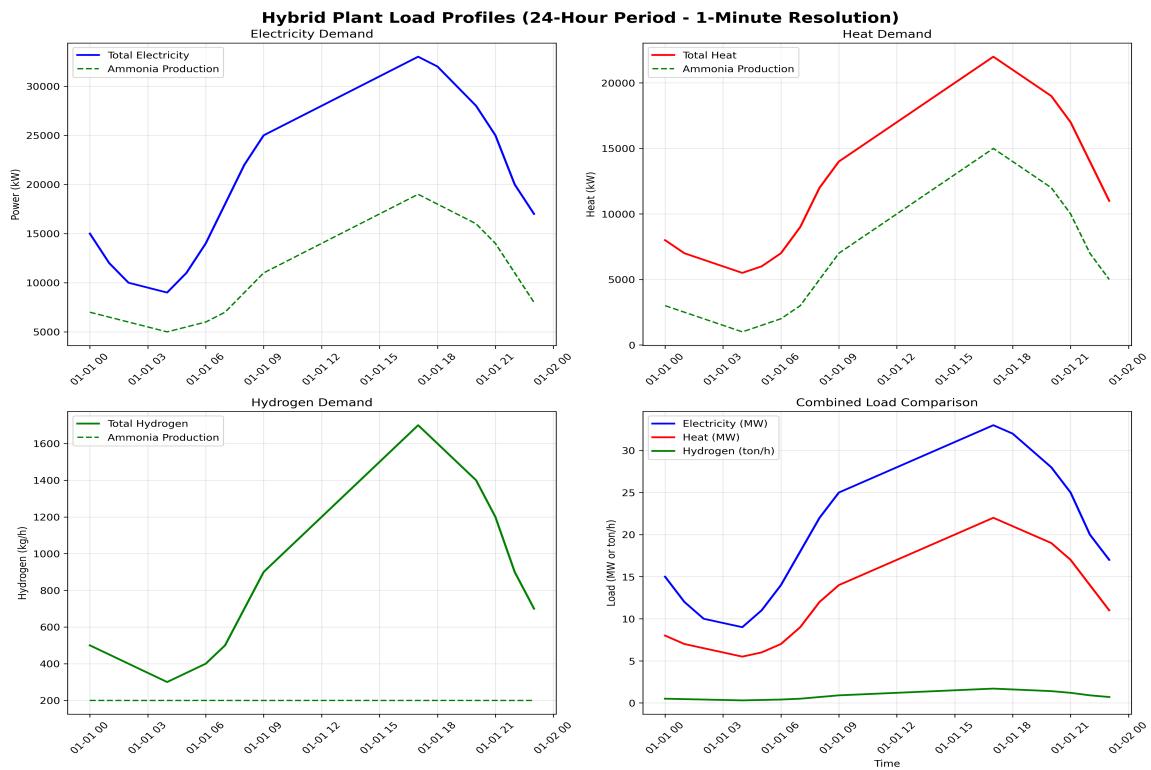
PV: 45,000 Rs./kW (4,050,000 Rs./kW)  
wind: 65,000 Rs./kW (5,850,000 Rs./kW)  
battery: 75,000 Rs./kW (6,750,000 Rs./kW)  
electrolyzer: 135,000 Rs./kW (12,150,000 Rs./kW)  
hydrogen\_compressor: 35,000 Rs./kW (3,150,000 Rs./kW)  
hydrogen\_storage: 60,000 Rs./kW (5,400,000 Rs./kW)  
ammonia\_production: 25,000 Rs./kW (2,250,000 Rs./kW)

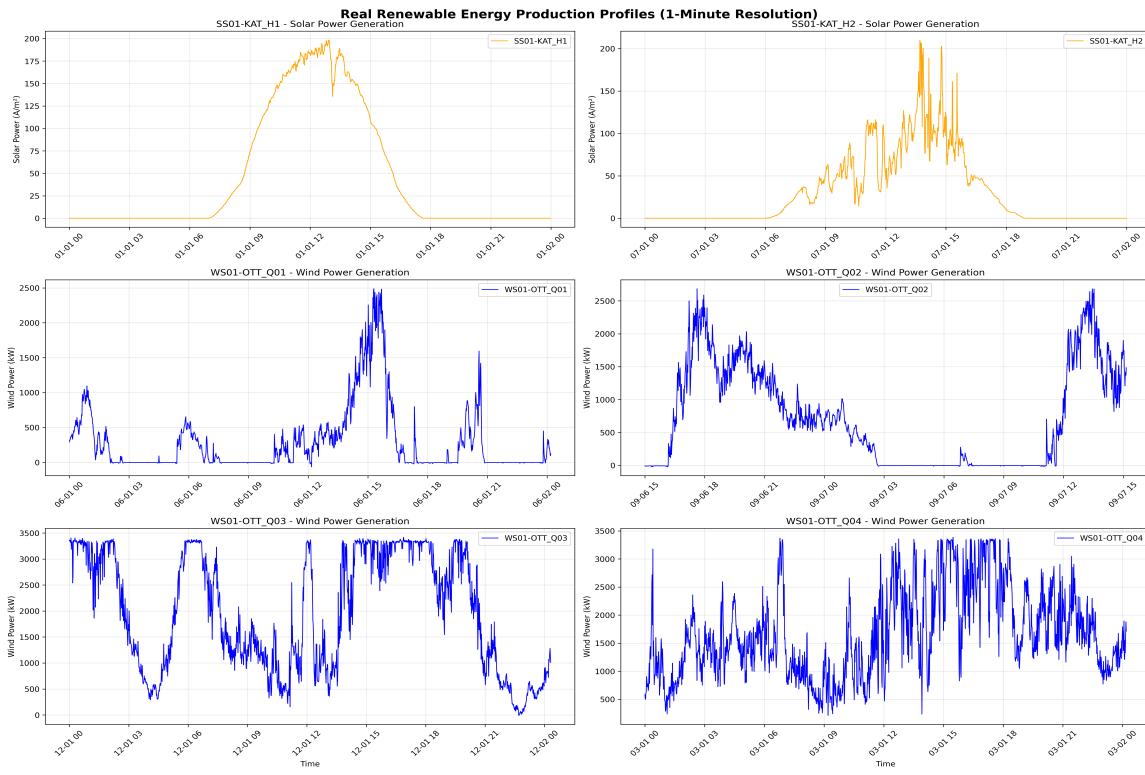
## Energy Market

Electricity Purchase Price: 0.12 Rs./kWh

Electricity Sale Price: 0.08 Rs./kWh  
 Hydrogen Purchase Price: 2.50 Rs./kg  
 Hydrogen Sale Price: 2.00 Rs./kg

## Generated Analysis Plots





**Hybrid Plant Energy Flow Diagram**

