SUSTAINABILITY DATASHEET

HARCH ENERGY

Renewable Energy Datasheet

Harch Energy operates a 2GW+ renewable energy pipeline dedicated to powering Harch Corp infrastructure. Solar LCOE of $14/MWh, wind LCOE of $18/MWh, offsetting 3.2M tCO2/year. Vertically integrated, net carbon-negative operations.

2GW+ Pipeline | $0.03/kWh Delivered

3.2M tCO2/yr Offset | Net Carbon-Negative

2025

HARCH CORP

Harch Energy Platform Overview

Harch Energy is the renewable energy backbone of the Harch Corp conglomerate, operating a 2GW+ renewable energy pipeline that provides dedicated clean power to Harch Intelligence's AI data centers and the broader Harch Corp subsidiary network. Unlike conventional energy companies that sell to the grid, Harch Energy's primary mission is to ensure that every watt consumed by Harch Corp infrastructure comes from dedicated renewable installations under our direct ownership and control. This vertical integration eliminates the gap between renewable energy claims and actual energy sourcing, providing verifiable sustainability rather than market-based accounting mechanisms. With a Levelized Cost of Energy (LCOE) of $14/MWh for solar and $18/MWh for wind, Harch Energy delivers power at costs that are among the lowest globally, enabled by Morocco's exceptional solar irradiance and Atlantic wind resources.

2GW+	$14	3.2M	$0.03
Renewable Pipeline	MWh Solar LCOE	tCO2 Offset/Year	Per kWh Delivered

Generation Portfolio

Harch Energy's generation portfolio is designed to match the energy demand profile of AI data centers, which require continuous baseload power supplemented by burst capacity for peak compute periods. The portfolio combines solar photovoltaic for daytime generation, onshore wind for evening and nighttime generation, battery storage for smoothing intermittency, and green hydrogen for long-duration energy storage and backup power. This hybrid approach ensures that renewable energy is available around the clock, with battery systems providing seconds-to-hours of storage and green hydrogen providing days-to-weeks of storage for extended low-generation periods.

Asset Type	Capacity	LCOE	Annual Generation	Capacity Factor	CO2 Offset
Solar PV	1.2GW	$14/MWh	2,400 GWh	23%	1.44M tCO2/yr
Onshore Wind	800MW	$18/MWh	2,100 GWh	30%	1.26M tCO2/yr
Green H2	200MW	-	40 kT H2/yr	-	0.4M tCO2/yr
Battery Storage	400MWh	-	Grid services	-	0.1M tCO2/yr

Table 1: Harch Energy generation portfolio specifications

Solar Resources and Installations

Morocco's solar resources are among the best in the world, with a national average irradiance of 2,800 kWh/m2/year, which is 40% above Southern European averages and 80% above Northern European levels. The southern regions of Ouarzazate and the Sahara fringes receive over 3,000 hours of sunshine per year, making them ideal for large-scale solar PV installations. Harch Energy's solar installations use bifacial PERC and TOPCon modules with tracking systems that optimize energy yield throughout the day. The combination of high irradiance, low land costs, and dedicated transmission infrastructure enables LCOE of $14/MWh, which is competitive with the lowest solar costs achieved anywhere in the world.

Site	Capacity	Technology	Irradiance	Annual Yield	LCOE
Ouarzazate	500MW	Bifacial TOPCon + Tracker	3,100 kWh/m2/yr	1,100 GWh	$13/MWh
Benguerir	350MW	Bifacial PERC + Tracker	2,900 kWh/m2/yr	720 GWh	$14/MWh
Dakhla	200MW	Bifacial TOPCon + Fixed	2,800 kWh/m2/yr	420 GWh	$15/MWh
Tanger	150MW	Bifacial PERC + Tracker	2,400 kWh/m2/yr	280 GWh	$17/MWh

Table 2: Solar PV installation specifications by site

Wind Resources and Installations

Morocco's Atlantic coastline provides exceptional wind resources, particularly in the southern regions where the trade winds combine with local topographic effects to create consistent high-speed wind corridors. The Dakhla region records average wind speeds of 9.7 m/s at hub height, making it one of the best onshore wind sites in the world. Harch Energy's wind installations use next-generation turbines with rotor diameters of 160+ meters and hub heights of 140+ meters, maximizing energy capture from the available wind resource. The complementary nature of solar and wind generation in Morocco is a significant advantage: wind speeds typically peak in the evening and at night when solar generation is declining, providing a more consistent combined output profile than either technology alone.

Site	Capacity	Avg Wind Speed	Turbine Spec	Annual Yield	LCOE
Dakhla	400MW	9.7 m/s	6MW, 164m rotor	1,200 GWh	$16/MWh

Tanger	200MW	8.5 m/s	5.5MW, 158m rotor	520 GWh	$19/MWh
Essaouira	150MW	8.8 m/s	6MW, 164m rotor	380 GWh	$18/MWh

Table 3: Onshore wind installation specifications by site

Energy Storage and Grid Integration

The intermittency of renewable energy requires robust storage solutions to ensure continuous power delivery to data center operations. Harch Energy deploys a multi-layer storage strategy: lithium-ion battery systems with a total capacity of 400MWh provide short-duration storage (2-4 hours) for intraday balancing and frequency regulation, while green hydrogen produced by 200MW of electrolyzer capacity provides long-duration storage (days to weeks) for extended low-generation periods. The battery systems are co-located with data center facilities, providing immediate ride-through capability during generation transitions, while the hydrogen is stored in underground salt caverns and converted back to electricity via fuel cells when needed. This dual-storage approach ensures that Harch Intelligence data centers never experience power interruptions due to renewable intermittency, achieving the same or better reliability as grid-connected facilities while maintaining 100% renewable energy sourcing.

Storage Type	Capacity	Duration	Round-Trip Efficiency	Use Case
Li-ion Battery	400MWh	2-4 hours	92%	Intraday balancing, UPS
Green H2 (Electrolyzer)	200MW	Days-weeks	40%	Long-duration backup
H2 Fuel Cell	100MW	On-demand	-	Extended outage coverage
Thermal Storage	50MWh	8-12 hours	85%	Cooling system support

Table 4: Energy storage systems specifications

Economic Advantages

Harch Energy's cost structure provides significant competitive advantages for the Harch Corp conglomerate and its customers. The combination of Morocco's exceptional renewable resources, dedicated installations that eliminate grid transmission costs and losses, and the economies of scale from a 2GW+ portfolio result in delivered energy costs that are dramatically lower than European alternatives. At $0.03/kWh delivered to Harch Intelligence data centers (including generation, storage, and transmission), the cost is 54% below the European average of $0.065/kWh and 72% below the average for data center-grade power (which includes redundancy and quality premiums). This cost

advantage flows directly through to Harch Intelligence's GPU compute pricing, enabling us to offer AI infrastructure at significantly lower cost than European competitors while maintaining healthy margins.

Cost Component	Harch Energy	European Average	Advantage
Solar LCOE	$14/MWh	$35-50/MWh	60-72% lower
Wind LCOE	$18/MWh	$40-60/MWh	55-70% lower
Delivered to DC	$0.03/kWh	$0.065/kWh	54% lower
With storage	$0.035/kWh	$0.08/kWh	56% lower
10-Year PPA equiv.	$0.025/kWh	$0.055/kWh	55% lower

Table 5: Energy cost comparison with European benchmarks

Carbon Offset Impact

At full build-out, Harch Energy's renewable installations will offset 3.2 million tonnes of CO2 per year, calculated using the UNFCCC CDM methodology for displacement of grid electricity. This offset capacity exceeds the total carbon emissions of Harch Intelligence's data center operations by a factor of approximately 5x, meaning that Harch Corp is not merely carbon-neutral but net carbon-negative. The surplus offset capacity is available for monetization through verified carbon credits, providing an additional revenue stream that further improves the financial returns of the renewable energy investments. Harch Finance manages the carbon credit portfolio, ensuring that all credits are verified under internationally recognized standards such as the Gold Standard and Verra VCS.

> **Net Carbon-Negative:** Harch Energy's 3.2M tCO2/yr offset capacity exceeds Harch Intelligence's total emissions by 5x, making Harch Corp a net contributor to global decarbonization. This is not achieved through offset purchasing but through dedicated renewable generation that displaces fossil fuel electricity from the Moroccan grid.

Development Phases

Phase	Timeline	Solar	Wind	Storage	Total Capacity
Phase 1	Q3 2025-Q2 2027	300MW	200MW	100MWh	500MW
Phase 2	Q3 2027-Q4 2027	400MW	300MW	150MWh	1GW

Phase 3	Q1 2028-Q4 2028	500MW	300MW	150MWh	2GW+

Table 6: Harch Energy development phases and commissioning timeline