

adani

# GREEN PRINT

LEADING  
THE GREAT  
ENERGY  
MIGRATION





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**A country of more than 1.4 billion cannot depend on energy imports to power its future. We must build energy systems that are sustainable, resilient, and globally competitive. And we must lead-not just in adopting clean energy but in exporting it to the world.**

**Shri Gautam Adani**  
Chairman, Adani Group

This fundamental belief underpins The Adani Greenprint—a strategic, large-scale roadmap designed to accelerate India's energy transition while ensuring economic resilience and social equity. As one of the most ambitious decarbonisation initiatives, The Adani Greenprint is built to address the scale and complexity of transforming an energy ecosystem that powers a rapidly growing, vast and diverse nation like India.

By integrating clean energy, industrial innovation, and infrastructure readiness, The Adani Greenprint is conceived to prove that a large-scale transition can be both pragmatic and pioneering. Its impact will extend beyond India, serving as a replicable model for emerging economies and demonstrating that energy security, economic growth, and climate action are not competing priorities but interconnected imperatives for a sustainable future.

At its core, The Adani Greenprint is a multi-pronged decarbonisation strategy that targets 10 key sectors, integrating solutions across Scope 1, Scope 2, and Scope 3 emissions. For hard-to-abate sectors, green hydrogen and its derivatives are emerging as alternative fuels, and the Adani Portfolio is backing this shift with significant investments in production, pilot projects and feasibility studies. Additionally, the Portfolio is pioneering circular carbon solutions—repurposing captured CO<sub>2</sub> into high-value products like synthetic fuels and sustainable building materials.

The Adani Greenprint is not merely about emissions reductions. It embraces a holistic view of climate justice, acknowledging that the poorest communities often bear the brunt of climate change. Energy and water are the twin pillars of climate resilience, and their accessibility, availability, and affordability are key to climate justice. The Adani Greenprint recognises this interdependence and is driving initiatives to enhance water sufficiency and safeguard vulnerable communities.

Moreover, the plan recognises that an abrupt shift from coal - currently India's most reliable energy source - could disrupt industries and livelihoods. Instead, the Adani Greenprint positions coal as a vital energy bridge, ensuring stability in the near term, while enabling a just and measured transition to cleaner alternatives. The founding principle is non-negotiable—India's economically marginalised and energy-deficient communities must remain at the forefront, with reliable and affordable energy access as a fundamental priority.

An integral constituent of the Adani Greenprint is to ensure that high-voltage transmission networks are being developed ahead of generation capacity, guaranteeing that every unit of clean energy is efficiently utilised from day one.



**The transition is not just about replacing fossil fuels with renewables—it is about rethinking how industries, supply chains, and economies function in a low-carbon world. India has the potential to redefine this transition on its own terms, proving that growth and sustainability can go hand in hand.**

**Dr. Arun Sharma**  
Group Head ESG, Adani Group

Few organisations are better placed than Adani to take on a challenge of this scale. With a track record of delivering some of India's largest infrastructure projects - including one of the fastest renewables build-outs globally - Adani combines vision and enterprise with proven on-ground execution capabilities at scale.

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**The Adani Greenprint is not just about investing in a greener future but architecting one. It is not just about transforming India into an energy-independent nation but about realising its ambition to be a global exporter of clean energy.**

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# Decarbonisation



## The Heart of Climate Action

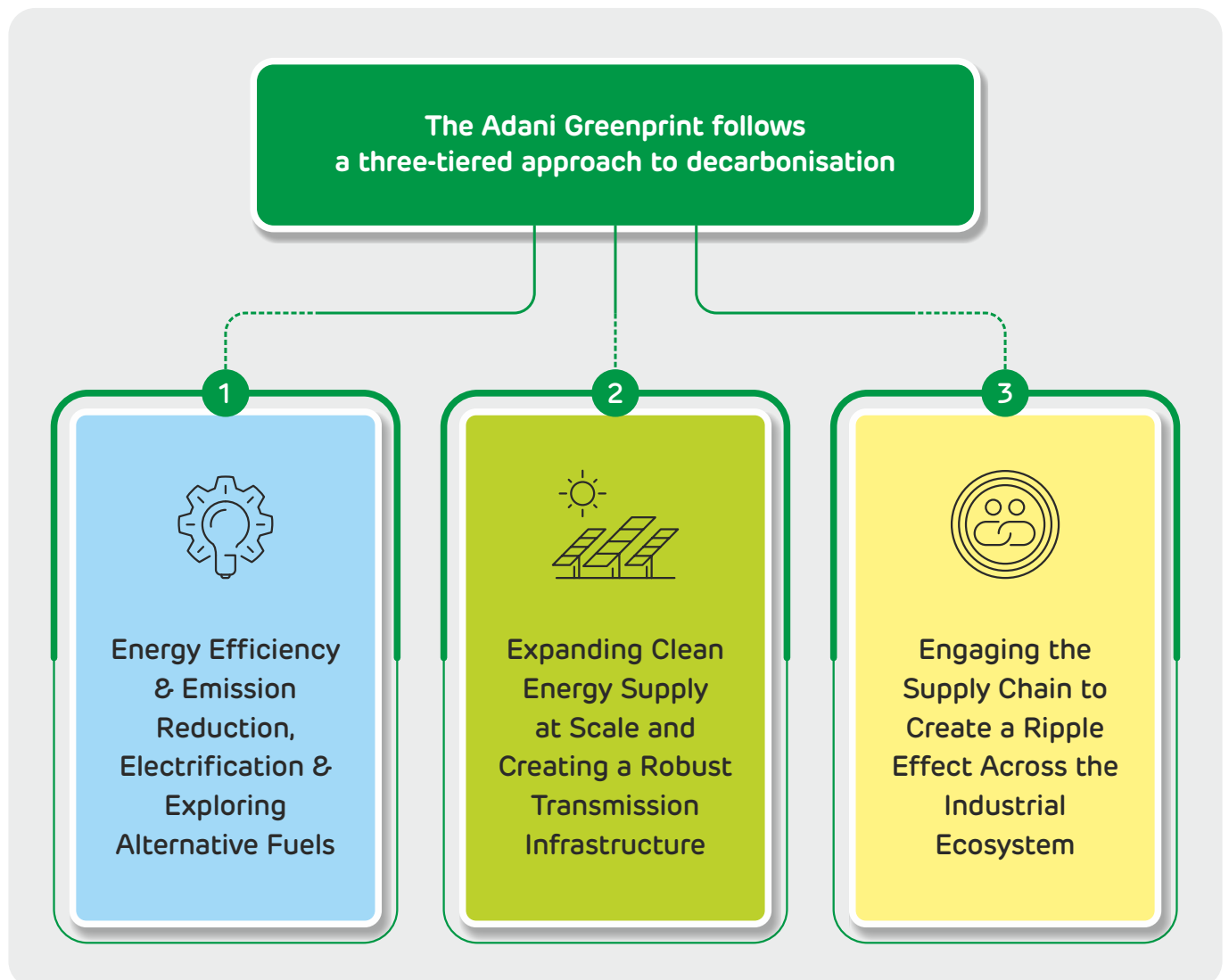
Decarbonisation is not just a pillar of Adani's sustainability strategy - it is the spearhead. Our decarbonisation strategy is pragmatic yet ambitious and designed to balance India's developmental imperatives with an aggressive transition to a low-carbon economy.

**Decarbonisation is the first, non-negotiable step in tackling climate change. Without it, every other solution is just a mitigative measure.**

## The Principle: No Transition Without Economic Rationale

The world's energy transition will only succeed when renewables are not just viable to adopt, but also too valuable to ignore. Large-scale shifts in energy sources occur when the economic rationale overtakes all other considerations. This is why our decarbonisation strategy hinges on achieving price points where sustainable alternatives become the default choice-removing economic barriers, not just emissions.

It is not a patchwork of incremental initiatives but a structured, systematic transformation which is not merely a decarbonisation strategy for the Portfolio's existing sectors, but a comprehensive and, more importantly, practical framework that can be applied to any industry.



## B What is the last mile?

### CCU using GH<sub>2</sub>

- Non-Scalability of CCS in India due to limited sequestration reserves.
- Captured carbon can be utilised to make long-lived products (CCU), storing the carbon, which will require low-cost green hydrogen.

### Adani Portfolio: Sector specific last-mile

- Battery - Electric vehicles with renewable energy
- GH<sub>2</sub> ICE or fuel cells for heavy duty vehicles
- Green ammonia and SAF made from GH<sub>2</sub> / Green Methanol for shipping and aviation
- Progressive blending of GH<sub>2</sub> with natural gas
- Captured CO<sub>2</sub> + Green H<sub>2</sub> → Methanol (Building block of long-lived chemicals)
- Operational efficiency / Green Ammonia Co-firing / Transition to Small Modular Reactors

## Bridging the gap from A to B

### A global leader in renewables

- 19+ GW of operational renewable capacity (solar + wind): committed to 50 GW by 2030
- 10 GW+ pumped hydro storage capacity by 2030

### The green hydrogen pivot

- 10 GW solar manufacturing capacity with supporting ancillaries
- 5 GW wind turbine manufacturing capacity
- 5 GW electrolyzer manufacturing capacity

### Innovative pilot projects

- Piloting Fuel cell mining trucks using hydrogen fuel cell at Adani Natural Resources
- Feasibility study for Co-firing green ammonia with coal at Adani Power
- Blending green hydrogen into the city gas distribution network by ATGL
- Exploring the feasibility of green ammonia in cement kilns and carbon capture for use with GH<sub>2</sub> to produce long-lived chemicals

# Adani's Road to Net Zero

## A What are we doing now?

### Scope 1

- Improve operational efficiency
- Electrify operations & mobility
- Transition to clean fuels
- Pilot use-cases for GH<sub>2</sub>

### Scope 2

- Source renewable energy
- Invest in group captive and captive RE facilities and energy storage solutions

### Scope 3

- Adopt circular economy measures
- Engage with suppliers and customers to reduce their emissions

# Three Scopes, One Goal - Decarbonisation

## Scope 1: The Foundation-Operational Efficiency and Electrification

Efficiency is the first frontier. Adani Portfolio is optimising operations through digitalisation, automation and process efficiency measures to drive down energy intensity, ensuring that every watt counts.

With demand streamlined, the next step is full-scale electrification.

Where electrification is not feasible, alternative fuels-including biofuels and eventually, green hydrogen and derivatives serve as transitional solutions.

Hydrogen fuel-cell-powered mining trucks, the supply of Green Hydrogen to AWL Agri Business Limited for vegetable oil production, and the feasibility study on green ammonia co-firing in thermal power plants are early pilots of a technology that could play a decisive role with policy enablers.

## Greenprint in Action at Adani Portfolio Companies

As part of the Adani Portfolio's broader decarbonisation strategy, our companies have made time-bound Net-Zero Commitments to support the transition to a low-carbon economy. These goals are aligned with India's national commitments under the Paris Agreement and its vision of achieving Net Zero by 2070.



## Laying the Groundwork for Decarbonisation

### Creating a Sustainable Logistics Ecosystem



Adani Ports and Special Economic Zone (APSEZ)

At APSEZ's Mundra Port, the decarbonisation journey is well underway, with the deployment of electrified cranes and internal transport vehicles (ITVs) across container terminals. The transition to electric-powered operations is further reinforced by a significant capital investment to replace diesel-run fleets with 217 electric battery-operated trucks. **This large-scale shift is enhancing efficiency, reducing costs and advancing the port's ambition to operate as a green logistics hub.**

### Ground Fleet Going Green



Adani Airports

With around 96% of vehicles across airport operations now electric, Adani Airports is actively transitioning towards a zero-emission ground fleet.

### Where Digital Efficiency Powers Decarbonisation



Adani Total Gas Ltd. (ATGL)

ATGL's digital transformation programme, SOUL, is designed to reimagine how utilities operate with sustainability at its core. The integrated platform spans asset lifecycle management, service delivery, and cloud-based operations, helping the company make smarter, data-driven decisions. **By automating processes and reducing inefficiencies, SOUL enhances productivity while cutting energy intensity, enabling a business model where growth and decarbonisation move in tandem.**

## Cleaner Grids, Brighter Cities

Adani Electricity Mumbai Ltd. (AEML)



AEML is changing the dynamics of clean energy adoption by shifting to renewable energy at the supply level. In November 2023, it powered over three million Mumbai households entirely on renewable energy for four hours - a visible signal of transition. In 2023, renewables accounted for 38% of AEML's energy mix, with a target of 60% by FY27. The company has also installed 3.36 MWp of solar power for auxiliary use at its substations, reinforcing its commitment to greening urban energy at every level.

## Scope 2: The Renewable Edge

Electrification alone cannot drive net-zero ambitions if the power supply remains carbon-intensive. A core pillar of The Adani Greenprint is to ensure that clean energy is abundant, reliable, accessible, and cost-competitive - laying the foundation for widespread adoption.

As one of the world's largest renewable energy players, Adani is rapidly expanding its portfolio. The 30 GW renewable energy park in Khavda, Gujarat, is set to be among the world's largest, designed to deliver industrial-scale clean power. Of this, 9.4 GW of solar and wind energy is already operational. This once desolate region is transforming into a hub for clean power and green jobs, becoming an emblem of India's sustainable progress.

To ensure the availability of reliable power during periods when solar and wind resources are intermittent, Adani has entered the large scale energy storage sector through both Pumped Storage Projects (PSP) and advanced Battery Energy Storage Systems (BESS). The company is developing over 10 GW of PSP capacity across multiple states and is advancing the development of one of the world's largest single site BESS projects at Khavda.

**Collectively, these energy storage initiatives underscore Adani's commitment to scale, technological innovation, and energy security, strengthening its ability to deliver consistent and dependable green power over the long term.**

Beyond solar, wind and energy storage, Adani is exploring nuclear energy as a viable alternative to thermal capacity. As the existing thermal power plants come to an end of their regulated life, the focus is on replacing them with Small Modular Reactors, ensuring a stable and clean

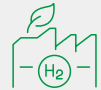
energy transition, while also using the existing infrastructure. This aligns with the Indian Government's Nuclear Energy Mission, which targets an increase in the country's nuclear capacity from 8 GW to 22 GW by 2032 and 100 GW by 2047.

Simultaneously, the Adani Mundra Cluster is emerging as the world's largest green hydrogen hub, demonstrating how industrial regions can achieve decarbonisation at scale.

**Through initiatives like the World Economic Forum's Transitioning Industrial Clusters, we are positioning Indian industry at the forefront of global decarbonisation efforts.**

## Powering the Green Hydrogen Frontier

Adani New Industries Limited (ANIL)



ANIL, the clean energy arm of Adani Enterprises Ltd., has commissioned a state-of-the-art 5 MW green hydrogen plant, marking a pivotal step in advancing India's National Green Hydrogen Mission. Fully powered by solar energy and integrated with a Battery Energy Storage System (BESS), the plant operates entirely off-grid, showcasing the technological maturity of decentralised, renewable-powered hydrogen production.

More than a proof of concept, this facility sets a new industry benchmark for deploying green hydrogen and its derivatives in hard-to-abate sectors. **By demonstrating both technical and economic viability, the project strengthens India's clean energy credentials and positions the Adani Portfolio at the forefront of scalable, low-carbon industrial solutions.**

## Transmission First: Ensuring No Electron Is Lost

Increasing green energy supply is only part of the equation. Transmission infrastructure must be in place first to ensure that every unit of clean power generated is utilised from day one. With Greenprint, Adani Portfolio prioritises high-voltage transmission networks ahead of generation, preventing energy losses and enabling immediate productivity. Through large-scale investments in grid infrastructure enabled by proactive bidding, Adani is ensuring that clean power reaches where and when it is needed most.

## Strengthening India's Green Energy Backbone

Adani Energy Solutions Ltd. (AESL)



AESL, one of India's leading private transmission and distribution companies, has secured a critical power transmission project in Gujarat through the Tariff-Based Competitive Bidding (TBCB) route.

The project is strategically designed to enable the flow of green energy for the production of Green Hydrogen and Green Ammonia at Mundra, thereby reinforcing AESL's role in advancing India's clean energy ambitions.

The scope includes a major upgrade of the existing Navinal (Mundra) substation with high-capacity transformers, along with the construction of a robust double-circuit transmission line connecting Navinal to Bhuj. Timely execution of this project will significantly expand AESL's transmission footprint, enhancing both line coverage and transformation capacity.

## Fast-Tracking India's Renewable Future

Adani Green Energy Limited



AGEL, India's largest and one of the leading renewable energy companies in the world has commissioned around 9.4 GW of renewable power at the Khavda renewable energy park in Gujarat - marking the fastest greenfield renewable capacity addition in India's renewable sector.

This milestone is part of AGEL's 30 GW development plan for Khavda over the next five years. The site will eventually be covered with waterless robotic module cleaning systems to maximise efficiency in an arid zone. Once completed, the project will generate around 81 billion units of clean energy annually - enough to power over 16 million Indian homes, equivalent to the number of households in countries like Poland or Canada.

AGEL's rapid execution - 5 GW installed within 12 months during FY 2025-26 - demonstrates its operational agility and firm commitment to India's national target of 500 GW non-fossil fuel capacity by 2030. With this latest addition, AGEL's total operational capacity stands at 19.3 GW, keeping it on track to meet its 2030 ambition of 50 GW.

## Scope 3: Redefining the Supply Chain

Even the most ambitious corporate decarbonisation strategy will have a limited impact unless it extends beyond direct operations. The Adani Greenprint recognises that engaging and influencing the supply chain is crucial to driving systemic change.

The first step is knowledge transfer-engaging upstream and downstream stakeholders through ESG workshops, best-practice sharing, and structured audits. But awareness alone is not enough.

### The Adani Greenprint posits incentive-based mechanisms that reward suppliers for emissions reductions.

Premiums for the procurement of lower-carbon raw materials and discounts for reductions in emissions by downstream stakeholders are part of a long-term strategy to reshape industrial value chains.

This approach leans on the carrot rather than the stick, encouraging businesses to decarbonise not through penalties but through economic motivation, making emissions reduction not just another compliance requirement but a competitive advantage.

## Green Hydrogen: The Last Mile in India's Decarbonisation Journey

Unlike nations with large carbon sequestration reserves, India's Net Zero journey will be enabled significantly by green hydrogen. In mobility, for instance, battery electric vehicles dominate the passenger segment, but for heavy-duty transport, use of green hydrogen - first as ICE fuel, then in fuel cells - will gain traction. As per current estimates, as hydrogen production costs approach USD 2 per kg, fossil fuel will cede ground. In shipping, green ammonia (a derivative of green hydrogen) could see adoption at around USD 700-USD 800 per ton, incentivised by a regulatory landscape driven by the International Maritime Organization.

Similarly, Sustainable Aviation Fuel (SAF) will become viable as green methanol scales up through renewable hydrogen, initially with biogenic carbon and eventually by Direct Air Capture (DAC) as the latter's cost comes down. Industrially sourced CO<sub>2</sub> from cement or steel could provide an intermediate bridge. These are not distant aspirations - they are clear trajectories unfolding now and the Adani Greenprint not only takes cognisance of the same but is a prime mover.

For more on how we are leveraging Green Hydrogen to go from energy dependence to leadership please see the 'Green Hydrogen' section of this report.

## Thermal Power and Cement: Cracking the Hardest Codes

Thermal power plants, while a challenging decarbonisation frontier, are not beyond reinvention. As green hydrogen costs approach USD 1 per kg - potentially by 2040 - India will witness an economic transition from coal without undue carbon penalties. Our cement business, already among the lowest carbon-intensive globally, leverages fly ash and blast furnace slag, ensuring we remain ahead of regulatory and market-driven shifts.

For more on how we are powering a billion aspiration through energy security, please see the 'Coal - the vital energy bridge' section of this report.

## Circular Carbon Solutions: A New Paradigm

Decarbonisation must extend beyond energy, into materials and industrial processes. We are exploring the use of low-cost green hydrogen in combination with carbon dioxide captured from cement plants to produce methanol, a building block for long-lived chemicals and locking carbon into sustainable building materials. These innovations redefine what zero emissions can mean in practice.

For more on how we are deploying carbon capture & utilisation that effectively sequesters the CO<sub>2</sub>, please see the 'Circular Carbon Solutions' section of this report.

## Investing in the Future

Adani's decarbonisation strategy is underpinned by significant R&D initiatives. Beyond technological breakthroughs, our primary focus is on achieving inflection price points-ensuring clean energy is not just an alternative but the preferred economic choice.

On-ground pilots like green hydrogen-natural gas blending at Shantigram and green hydrogen-powered transport are translating this vision into reality.

## Beyond Carbon: Nature as an Ally

Our commitment to sustainability extends to biodiversity. The Adani initiative to grow 100 million trees is not just reforestation-it is an active carbon sink that contributes meaningfully to the broader decarbonisation agenda.

## The Adani Greenprint: A Bold, Uncompromising Pathway

India's development cannot be compromised - nor can the imperative to decarbonise. At Adani, we reject the notion of trade-offs. We are proving that growth and sustainability are not opposing forces but mutually reinforcing ones.

The energy transition is inevitable, but leadership in that transition is a choice.

And we have made ours.



## Green Hydrogen



### From Energy Dependence to Strategic Strength

In the global race towards decarbonisation, few names have been as ambitious and assertive as Adani. The conglomerate is positioning itself at the vanguard of India's green hydrogen revolution - not just a mere corporate strategy but a definitive pivot shaping India's energy future.

Adani's commitment to green hydrogen is a crucial piece in India's clean energy puzzle. Due to the absence of well-established sequestration reserves, carbon capture and storage is not a scalable solution.

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**Achieving Net Zero by 2070 will inevitably depend on the widespread adoption of green hydrogen and its derivatives coupled with carbon capture and utilisation where green hydrogen will again play an important role.**

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### The Green Hydrogen Pivot

Green hydrogen, produced using renewable energy sources like wind and solar to split water molecules, has long been touted as the fuel of the future. It offers a viable alternative to fossil fuels, especially for hard-to-abate industries such as steel, cement, and chemicals. However, high production costs, infrastructure challenges, and limited global adoption have kept green hydrogen from realising its full potential.

Adani aims to change that.

The Portfolio's Adani New Industries Ltd. is committed to nurturing, constructing and advancing an integrated green energy platform.

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**ANIL is building an end-to-end green hydrogen ecosystem, integrating low-cost renewable power, large-scale hydrogen production, and downstream manufacturing; thereby enabling vertical integration at scale.**

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ANIL has pledged to invest USD 50 billion in green hydrogen value chain over the next decade. This would make Adani one of the largest green hydrogen players globally, and place India at the heart of a new energy paradigm.

### Adani's Green Hydrogen Play: Perfect Fit, Perfect Timing

India, with its vast renewable energy capacity and cost advantages, is uniquely positioned to be a global green hydrogen hub. Adani, with its integrated energy ecosystem-spanning solar, wind, transmission, and logistics-is leveraging this landscape to build an end-to-end green hydrogen value chain. The Portfolio's expertise in infrastructure development and access to competitively priced renewable power give it a strategic advantage over competitors.

The conglomerate is not merely dipping its toes into green hydrogen - it is diving in headfirst, with plans that could reshape the global hydrogen economy. In the scorching heat of Gujarat's Mundra port, Adani Portfolio is undertaking one of the energy sector's most ambitious ventures - The Mundra Green Hydrogen cluster, projected to produce 1 million tons annually initially, and eventually scaling to 3 million tons annually. The infrastructure blueprint includes 10 GW polysilicon-to-module solar manufacturing capacity, 5 GW of wind turbine manufacturing capacity, and 5 GW electrolyser capacity facilities. By integrating port infrastructure, Adani signals its intent to cater to both domestic and global markets via a seamless green hydrogen value chain.

The timing is also critical. With the Indian government rolling out its National Green Hydrogen Mission, offering production-linked incentives and policy support, the sector is at an inflection point. Global energy majors are racing to secure their stakes in the hydrogen economy. By making a decisive early move, Adani is positioning itself as the dominant player in India's hydrogen ambitions.

### Cracking the Cost Code

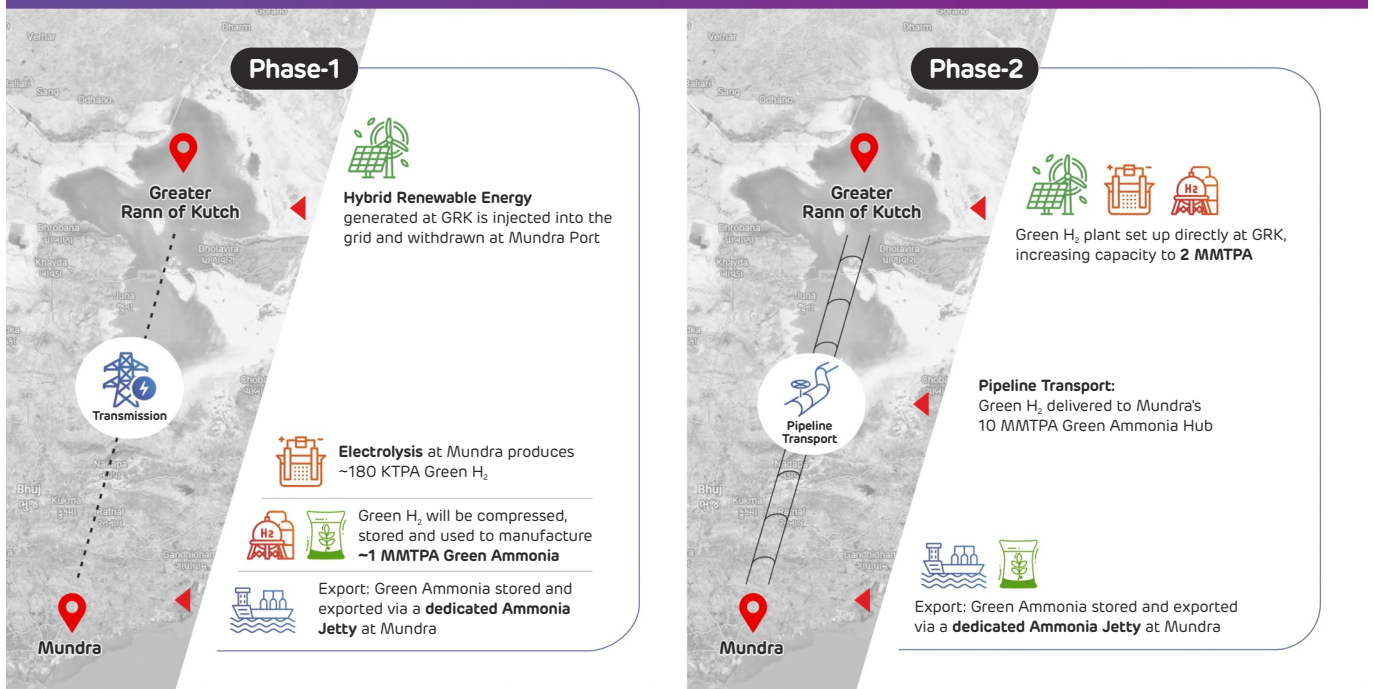
Despite its vast potential, green hydrogen faces a major hurdle: cost. Success depends on scaling up production to drive down expenses, improving electrolyser efficiency, and building essential infrastructure for storage and transportation. Adani is tackling this challenge head-on by maximising electrolyser utilisation, particularly through solar-wind hybrids. This demands cost-effective transmission lines, a sector where Adani leads India's private industry.

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**By integrating green hydrogen production with giga scale manufacturing of solar panels, wind turbines, and electrolysers, and leveraging India's competitive labour costs, Adani is positioning itself to achieve some of the world's lowest cost green hydrogen molecules.**

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## Adani Green Hydrogen & Derivatives Ecosystem



## Pioneering Green Hydrogen Applications

What sets Adani's approach apart is its comprehensive ecosystem strategy. Rather than focusing solely on production, the Portfolio is simultaneously developing multiple end-use applications.

**In partnership with Ashok Leyland and Ballard Power, it has already rolled out Asia's first hydrogen fuel cell electric truck - a vital step towards decarbonising its extensive mining operations.**

The Portfolio's experiments extend beyond transportation. At its Mundra power plant, Adani in collaboration with IHI Corporation and Kowa Company has undertaken a feasibility study on an innovative project to co-fire green ammonia with coal.

The initiative, supported by Japan's New Energy Development Organisation (NEDO), aims to replace up to 20% of coal with green ammonia in a 330 MW unit. Given that ammonia combustion produces zero carbon dioxide, success here could offer a blueprint for decarbonising thermal power generation.

Meanwhile, in Ahmedabad, Adani Total Gas is conducting one of India's first hydrogen blending trials. The project, serving over 4,000 consumers, currently mixes 2% hydrogen with natural gas, with plans to increase this to 5%.

While modest, such initiatives could pave the way for broader adoption across India's growing gas network.

Beyond these projects, Adani is also exploring electricity to heat solutions and the potential of green ammonia co-firing in cement kilns. Though still in early stages, these breakthroughs reinforce Adani's leadership in India's hydrogen economy, paving the way for widespread adoption in the near future.

## More Than Just a New Fuel, It Is a New Future

Adani's green hydrogen foray is more than just a business venture - it is a robust plan to ensure India's energy self-sufficiency. It underscores India's transition from an energy-importing nation to a clean energy exporter. Executed effectively, it could provide India with energy security, reduce reliance on costly crude imports, and position Indian firms as global suppliers in the hydrogen economy.

Moreover, the ripple effects of Adani's green hydrogen push could be transformative. From accelerating India's broader renewable energy expansion, spurring innovations in hydrogen storage and distribution to creating thousands of jobs in emerging clean-tech industries.

## Circular Carbon Solutions



### Redefining Sequestration

Traditional sequestration methods focus on capturing and storing emissions, but emerging circular carbon solutions aim to repurpose captured CO<sub>2</sub> into valuable products like synthetic fuels (thereby reusing CO<sub>2</sub>) and building materials (thereby storing CO<sub>2</sub>). With regulations becoming stringent and call for sustainability becoming more conscious, integrating advanced carbon capture technologies with circular solutions could help high-emission-intensity industries progress towards net-zero emissions while maintaining cost efficiency.

The cement industry is often regarded as one of the most challenging sectors to decarbonise due to its inherent process emissions and energy-intensive production methods. However, even for a hard-to-abate sector like cement, green hydrogen-powered circular carbon solutions present a promising opportunity, particularly in the Indian context.

**Adani's cement businesses, for instance, exhibit emission intensity significantly below the sector average, standing at approximately 540 kg CO<sub>2</sub> equivalent per ton compared to the industry norm of 680\* kg per ton cement.**

Despite this advantage, some degree of carbon capture will be necessary to achieve net-zero targets. The challenge, however, lies in India's limited proven sequestration reserves, making conventional carbon storage solutions less viable.

A more practical approach lies in the utilisation of captured CO<sub>2</sub> to manufacture long-lived building materials such as polyvinyl chloride (PVC), thereby effectively locking carbon into infrastructure and urbanisation projects. India's rapid urban expansion and infrastructure growth will drive substantial demand for PVC and similar materials, making this pathway a compelling alternative to sequestration.

Beyond emissions reduction, the fate of captured CO<sub>2</sub> depends on its end use. When e-methanol derived from captured CO<sub>2</sub> and green hydrogen is used as a fuel, the carbon is eventually released back into the atmosphere. However, if the same e-methanol is used to produce PVC, the CO<sub>2</sub> could be locked away for a century.

\*Ref.: Decarbonization Roadmap for the Indian Cement Sector by GCCA India and TERI.

This distinction aligns with evolving global regulatory frameworks. For instance, as direct air capture remains a distant commercial reality, and biomass-based alternatives face scalability challenges, policymakers in European countries have classified e-methanol derived from captured CO<sub>2</sub> from industrial processes such as cement and steel and green hydrogen to receive "green" premium until at least 2040. This recognition could create an opportunity for India to develop a business model where captured CO<sub>2</sub> is converted into methanol by combining with green Hydrogen.

Further, captured CO<sub>2</sub> can be combined with green hydrogen-at a competitive price of USD 1-1.5/kg-to produce e-methanol. This e-methanol will then serve as a feedstock for the Methanol-to-Olefins (MTO) process, ultimately enabling the cost-competitive production of PVC compared to fossil-fuel-derived methods.

Research and pilot project designs are already underway to evaluate the feasibility of integrating carbon capture with e-methanol production using green hydrogen. If proven viable at scale, this innovation could redefine the sustainability trajectory of India's cement industry, transforming what was once a major emitter into a key contributor to a circular carbon economy.

### Growing Carbon Sinks, Naturally



In a bold move to combat climate change, the Adani Portfolio has pledged to grow 100 million trees by 2030 as part of its sustainability and decarbonisation strategy.

This initiative is aimed at enhancing biodiversity, restoring ecosystems, and significantly increasing carbon sequestration across its operations.

Adani has already planted and conserved around 40 million trees, demonstrating steady progress towards its goal. **Tree planting is a cornerstone of Adani's nature-based climate solutions, which complement its broader decarbonisation efforts.**



## The Vital Energy Bridge

At Adani, we take pride in being both an enabler and an accelerator of India's transition to a low-carbon future. Our operating renewable energy portfolio, at 19.3 GW, is the largest in India and among the largest in the world.

**Yet, even as we invest billions in green energy, we continue to operate coal assets. Some call it a contradiction. We call it a commitment. Commitment to India First.**

## Powering a Billion Aspirations

India's energy landscape is shaped by the dual imperatives of economic growth and social transformation. With a population exceeding 1.4 billion and a rapidly expanding economy, the demand for reliable, affordable, and accessible energy has never been greater. As millions are lifted out of poverty and urbanisation accelerates, ensuring an uninterrupted energy supply becomes paramount, not just for industry, but for homes, schools, hospitals, and infrastructure. Coal, as a proven and scalable energy source, remains a foundational pillar in securing India's energy future for the next two decades.

## Uninterrupted Power for an Unstoppable India

While the transition to renewable energy is an undisputed necessity, the path to a green future must be pragmatic and inclusive. The intermittency of solar and wind power, coupled with the challenges of large-scale energy storage, means that India cannot afford to prematurely abandon coal. A balanced approach-where coal continues to play a stabilising role in the energy mix-ensures resilience against supply shocks, price volatility, and grid instability. Adani recognises this reality and has strategically positioned itself to ensure that coal, used responsibly and efficiently, serves as a bridge to India's long-term energy sustainability. Through advanced ultra-supercritical technology and a commitment to source lower-emission coal, Adani is enhancing the efficiency of thermal power while simultaneously reducing emissions.

## Power for All, Not Just the Privileged

Access to affordable energy is fundamental to climate justice. The economically marginalised, who have contributed the least to climate change, are also the most vulnerable to its adverse effects. If coal were suddenly removed from the energy mix without viable, affordable alternatives in place, these communities would bear the

brunt of energy poverty, exacerbating inequality and hindering social progress. Moreover, imported LNG at a price range of USD 10-12 per MMBTU is simply too expensive for electricity generation.

Additionally, shutting down India's domestic coal sector is neither feasible nor desirable. Many of India's poorest states depend on coal mining for economic survival. Abruptly dismantling this industry would jeopardise jobs, disrupt local economies, and undermine India's broader development goals. The transition must be calibrated, not sudden and chaotic.

## Energy Security - A Must For a Secure Future

India's per capita energy consumption remains well below global averages. As the nation industrialises, energy demand is projected to triple by 2050. Large-scale electrification of rural India, expansion of manufacturing, and rapid digitisation all require a stable and affordable base load power supply. Given its abundant domestic reserves, coal provides an energy backbone that can support these aspirations without excessive reliance on expensive imports.

Furthermore, coal-driven power plants are critical for sectors like steel, cement, and fertilizers, which form the bedrock of India's infrastructure development. By ensuring energy security through coal, India can drive self-reliance (Atmanirbhar Bharat), reduce vulnerabilities to geopolitical risks that impact global fuel supply chains, and advance towards its ambitious 'Viksit Bharat 2047' vision - a USD 30-trillion developed economy driven by industrial growth, sustainable development, and enhanced quality of life.

## Greenlighting The Future Without Dimming Anyone's Present

Adani's strategy aligns with India's broader vision of a phased energy transition. While accelerating green investments, it is developing one of the world's largest integrated green hydrogen hubs at Mundra and aims to install 50 GW of renewable energy capacity by 2030-equivalent to 10% of India's NDC target. At the same time, the Portfolio is modernising its coal infrastructure to minimise environmental impact. From efficiency upgrades and carbon capture technologies to afforestation and biodiversity conservation, Adani is committed to ensuring that coal is a responsible component of India's energy mix.

The transition to a fully renewable future will take time, and until then, coal remains indispensable in powering India's growth. Adani is not just leading the charge in renewables but is also ensuring that India's energy greenprint remains robust, resilient and inclusive -one that leaves no one behind in the march towards progress.

## Strengthening Grid Stability with Pumped Storage



Adani Green Energy Limited (AGEL)

To complement India's rapidly expanding renewable energy base, AGEL has initiated the construction of its first 500 MW pumped storage project (PSP) on the Chitravathi River in Andhra Pradesh. This innovative project leverages an existing lower reservoir and involves the creation of an upper reservoir to store and release energy as needed, crucial for balancing supply and demand in a renewables-heavy grid.

As India targets 500 GW of non-fossil fuel capacity by 2030, large-scale storage solutions like PSPs are essential for grid reliability and energy security. With a development pipeline exceeding 10 GW across Andhra Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, Madhya Pradesh, Assam and Telangana, AGEL is well-positioned to build the backbone of long-duration storage that supports round-the-clock clean energy supply. Over time, PSPs are expected to become one of the most cost-effective and sustainable storage solutions, further accelerating India's journey to a fully renewable future.

## Strengthening Energy Security Through Strategic BESS Deployment



Adani Portfolio

To support the growing share of renewables in India's power mix, Adani entered the Battery Energy Storage Systems (BESS) sector in 2025 with a 1,126 MW / 3,530 MWh project at Khavda. Planned as India's largest and among the world's largest single site BESS installations, the project will deploy over 700 battery containers. Out of this, 1,376 MWh of BESS has already been brought online.

As high renewable penetration increases the need for system flexibility, Adani's BESS initiatives are designed to stabilise the grid, manage peak demand, and enable round the clock clean power. Built on advanced lithium ion technology and integrated energy management systems, the platform is set to scale to 15 GWh by FY27 and 50 GWh within five years, reinforcing long term energy security and India's clean energy transition.

## Unlocking Nuclear's Role in Clean Energy Security



Adani Power Limited (APL)

India has set a target to scale nuclear power capacity to around 100 GW by 2047, positioning nuclear energy as an important pillar of long term energy security and achievement of India's net zero goal by 2070. In this context, the recent passage of the Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Bill, 2025 marks a significant step in modernising India's nuclear regulatory framework and to build a large scale and safe nuclear ecosystem in India.

Most importantly, the Bill allows private sector to undertake activities like plant operations, power generation, equipment manufacturing, and some select activities like the fabrication of nuclear fuel including conversion, refining and enrichment up to a threshold value. This will help significantly accelerate private sector investment into the sector and expedite the capacity addition to meet India's targets under robust regulatory oversight.

Following the enactment of the SHANTI Bill, the private sector is now looking ahead to the notification of detailed rules, licensing processes and implementation frameworks that will provide clarity and enable the private sector to move quickly on new projects. Besides standardisation, access to long tenor financing to support capital intensive nuclear investments, scaling up domestic capacity, GST reduction, etc. have been advocated as key enablers in follow-up to the Act.

Adani Power is closely tracking policy and regulatory developments and exploring strategic opportunities in the sector. As the ecosystem matures, nuclear energy has the potential to play a complementary role in strengthening India's clean, resilient and secure power system over the long term. Adani Atomic Energy Ltd., a subsidiary of Adani Power Limited, has also been established to advance Adani's nuclear ambitions over the coming decades.



## From Scarcity to Surplus

**Water is more than a resource - it's the lifeline of industries, ecosystems, and communities. It shapes not just landscapes but livelihoods, powering progress drop by drop. True water abundance goes beyond conservation; it means creating a future where every drop sustains life, renews nature, and fuels human ambition.**

India faces a growing water challenge. A 2024 report by the Central Water Commission projects per capita freshwater availability at 1,513 cubic metres - below the 1,700 cubic metre threshold that defines water stress. Despite accounting for nearly 18% of the world's population, India has access to only 4% of global freshwater resources. In fact, if there's one resource India lacks more than energy, it's freshwater.

## Decarbonisation & Water Security: Two Sides of the Same Sustainability Coin

Decarbonisation is not only about reducing emissions but also about securing the planet's most critical resource - water. As carbon emissions rise and escalate global warming, they disrupt the water cycle, depleting freshwater through increased evaporation and triggering prolonged droughts and extreme floods. Changing rainfall patterns further strain water availability, while rising sea levels cause saltwater intrusion, contaminating freshwater sources. The link is clear - without deep decarbonisation, water insecurity will only worsen.

In fact, water security is increasingly becoming an energy security challenge. For a water-stressed country like India, desalination offers a viable pathway to water sufficiency - but it is highly energy-intensive. Without affordable, clean energy at scale, the promise of water abundance remains out of reach.

Thus, along with the transformative decarbonisation programme, Adani also has a sharp focus on water and is integrating innovative solutions to reduce freshwater dependence and promote circular water management.

## Flowing Forward, Together

Recognising that industrial growth and community well-being are intrinsically linked, Adani Portfolio has embarked on a mission to ensure that every drop it uses is returned, replenished, and reinvested into ecosystems and communities. Adani's strategy is twofold: making operations water-positive and empowering the neighbouring communities to achieve water sufficiency.

## Waterwise Pathways to Prosperity

At the heart of Adani's approach lies advanced water management across its industries, spanning ports, power plants, and mining operations. The Portfolio has aggressively adopted water recycling, rainwater harvesting, and desalination technologies to minimise freshwater consumption. By treating and reusing industrial wastewater, the Portfolio not only reduces its dependency on external sources but also contributes to maintaining regional water tables. Adani's Mundra facility, for instance, has one of India's largest desalination plants, turning seawater into a sustainable resource for industrial and community use. Additionally, Adani Solar's Water Reuse Initiative in Mundra has repurposed Reverse Osmosis (RO) rejected water for construction and dust settling, saving approximately 1,200 KL of freshwater per month and aligning with global sustainability goals.

Adani's commitment to wastewater management is also evident in its innovative adoption of Food Chain Reactors (FCR) technology at Adani RMRW, revolutionising sewage treatment and enabling efficient faecal sludge management. This promotes resource recovery, including biogas and essential nutrients. Similarly, at Adani Hazira Port, a sustainable water collaboration with KRIBHCO ensures a daily supply of 2,000 KL of treated wastewater through a 14-km pipeline, significantly reducing freshwater reliance while optimising industrial water supply. Furthermore, at Parsa East and Kanta Basan OCP, a 40 KLD Sewage Treatment Plant (STP) has been installed to enable the reuse of treated water for greening activities, further minimising environmental impact and freshwater dependency.

## Water as a Shared Responsibility

However, true water stewardship extends beyond corporate gates. Understanding that water is a shared resource, Adani is actively working to ensure water sufficiency for local communities around its operations. This commitment means not only addressing industrial water needs but also empowering the communities that surround Adani's facilities to secure and sustain their own water sources.

## Creating a Water Sufficiency Measure

Water sufficiency for a community depends on its type - a rural agricultural community will have different parameters for sufficiency compared to a semi-urban settlement. Recognising this, the Portfolio Companies have set an ambition to be water positive. As part of this journey, we will work with communities to address their unique water-related needs and, through targeted interventions, help them become water sufficient.

Whether it is large-scale water conservation in farming regions or improved sanitation and reuse in semi-urban areas, Adani ensures that its water interventions meet localised needs effectively. This structured approach allows for a more precise and sustainable path towards water security for all.

## Augmenting Supply, Rationalising Demand

Adani's water sufficiency strategy is a two-pronged approach-while projects like check dams and the revival of water sources augment water supply, initiatives such as micro-irrigation and improved agricultural productivity reduce water demand. By addressing both sides of the spectrum, Adani is accelerating the journey towards true water sufficiency, ensuring that communities are not just supported for today but are resilient for the future.

### Boosting Supply: Water Bodies Revived, Reservoirs Recharged

Adani has implemented large-scale watershed development projects, restoring lakes, rejuvenating rivers, and building check dams.

- In Rajasthan, Ambuja Cement has spearheaded the revival of Mohini Nadi, increasing its catchment area by over 30,000 cubic metres, ensuring sustainable water access for local villages.
- In Odisha's Bargarh district, the Katapalli Pond Conservation initiative involved excavation and check dam construction to enhance the water retention capacity of the 12-acre pond, benefiting the surrounding communities by improving water availability.

### Rationalising Demand: Smarter Use, Greater Efficiency

Managing water demand requires a tailored approach that considers the type of local community and the specific areas of water usage. For semi-urban settlements, optimising household and industrial water use is key, while for a rural agricultural community, reducing water demand means improving irrigation efficiency and boosting crop yields.

- In Dhakori, Yavatmal (Maharashtra), a lift irrigation scheme by Adani has facilitated efficient water distribution, enabling crop diversification and increasing farmer income. Over 100 acres of farmland now benefit from improved irrigation methods.
- In Ambujanagar, micro-irrigation techniques like drip irrigation have significantly reduced water consumption while improving productivity. This initiative spans 1,869 hectares and benefits 1,200 farmers, demonstrating how technology-driven water management can transform agricultural economies.

## Turning Every Drop into a Wellspring of Abundance

With a vision that goes beyond compliance, Adani is proving that water positivity isn't just a corporate responsibility-it's a transformative force for people and the planet. By embedding sustainability into its DNA, Adani is not just mitigating water risks but catalysing a future where industry and community thrive together.

### Building Water Resilience for Industry and Community

Sanghi Industries



At Adani, our approach to water stewardship goes beyond operational efficiency-it's about building water security for the regions we operate in. A standout example of this is the transformation of mined-out pits into large-scale rainwater harvesting reservoirs.

One such reservoir in Kutch, Gujarat, now holds over 6 million kilolitres of rainwater, eliminating the need for a desalination plant for the past 7-8 years, for both our plant and the adjoining township. At mine closure, nearly 1,250 hectares out of 1,543 hectares will be converted into a permanent water reservoir, creating a vital asset for the region.

This reservoir has also become a lifeline during periods of water scarcity, supplying water to Border Security Force (BSF) camps and villages within a 10-15 km radius. Its impact extends beyond industry, supporting three neighbouring villages for up to three years and offering much-needed relief to the water-stressed Talukas of Kutch district.

With this innovative model, Sanghi Industries, a part of Adani Cement business has emerged as a net water-surplus company, a rare achievement in the industrial sector. What began as a water management solution has evolved into a thriving ecosystem, supporting biodiversity and drawing visitors from across the globe.

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