

GREEN ENERGY & HYDROGEN INNOVATIONS

Big Idea: Decentralized Clean Energy and Hydrogen

Essential Question: How can decentralized green technologies like hydrogen and AIoT smart grids accelerate our transition to a sustainable, net-zero future?

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A FESTIVAL OF LIGHTS TURNED DARK

The Spark: A sudden, severe asthma attack during Diwali.

The Reality: Air Quality Index (AQI) spiked to nearly 500—almost unbreathable.

The Insight: Pollution from fossil fuels and emissions isn't just an environmental issue; it is a direct threat to human life.

**If you can't breathe,
nothing else matters.
— Dr. David B. Hill**

**AQI
500**



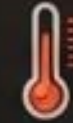
**ALARMING
LEVEL**

THE 1.5°C THRESHOLD AND THE GLOBAL ENERGY CRISIS

GLOBAL ENERGY CRISIS



HEALTHY PLANET



2070: BURNING PLANET



78%

FOSSIL FUEL DOMINANCE

The 1.5°C Reality: Crossing this threshold triggers irreversible damage to Earth's climate systems—leading to severe heatwaves, water stress, and crop losses.

The Trajectory: By 2070, without intervention, warming will increase by 78%, trapped in a dangerous cycle.

INDIA'S UNIQUE ENERGY LANDSCAPE

THE CHALLENGE & VULNERABILITY

- India is the **world's third-largest energy consumer**, facing surging demand, rapid urbanization, and heavy fossil fuel dependence.
- High peak demand, transmission losses, and severe urban air pollution.

THE OPPORTUNITY



SCALABLE
SOLAR POWER



GREEN
HYDROGEN
PRODUCTION



DECENTRALIZED
SMART GRIDS

Massive untapped potential for scalable solar power, green hydrogen production, and decentralized smart grids.

Drawing Inspiration from Global Pioneers



JAPAN & SOUTH KOREA



Ultra-thin solar cells



Global hydrogen supply networks



Carbon Free Energy (CFE) Initiative



Net-zero goals

DENMARK & ICELAND



Geothermal & Hydropower



Green Fuels Alliance



THE TAKEAWAY: The technology exists. The blueprint is proven. It is time to adapt these solutions for India.

OUR VISION FOR DECENTRALIZED CLEAN ENERGY

The Goal: Move from climate awareness to concrete, hardware-driven implementation.

The Strategy: Build localized, school-led innovation hubs that combine renewable generation with intelligent management.



Intelligent Load Balancing with AIoT Smart Grid 360

- **The Concept:** A decentralized power generation and intelligent distribution system.
- **The Tech:** Uses AI and IoT sensors to monitor real-time consumption patterns and predict energy demand.
- **The Action:** Automatically redistributes surplus renewable energy from one zone to another, preventing blackout risks and reducing energy waste.



MAXIMIZING EFFICIENCY VIA SOLAR PVT AND GROUND-SOURCE COOLING



SOLAR PHOTO VOLTAIC THERMAL SYSTEM



THE CONCEPT:

- A hybrid solar photovoltaic-thermal (PVT) system.



THE TECH:

- Integrates copper plates and water circulation pipelines directly beneath the solar panels.



THE ACTION:

- Ground-source cooling maintains lower panel temperatures to significantly enhance electricity generation, while simultaneously providing heated water as a sustainable byproduct.

ZERO-EMISSION POWER WITH HYDROGEN FUEL CELLS

- **The Concept:** Compact hydrogen fuel cells for backup power and mobility.
- **The Tech:** Harnessing the fuel of the future to replace highly polluting diesel generators commonly used in Indian campuses and industries.
- **The Action:** Developing IoT-monitored, zero-emission units that support energy resilience and transition toward heavy-duty clean mobility.

NGEL Green Hydrogen Hub, Pudimadaka, Anakapalli Dist

150
Hydrogen
Projects in India



DEMOCRATIZING CLEAN TRANSIT: THE SOLAR E-RICKSHAW



- 💡 **THE CONCEPT:** A localized urban transport solution adapted for Indian streets.
- 🔌 **THE TECH:** Integrates flexible, roof-mounted solar panels directly onto E-Rickshaws.
- ⚙️ **THE ACTION:** Generates 20–30% of required energy on the go, reducing dependency on the overburdened electric grid.
- + **BONUS INNOVATION:** Portable, solar-powered EV charging stations to support these vehicles in remote or temporary locations.

TAKING LOCAL INNOVATION TO THE GLOBAL STAGE



THE PLATFORM: The 9th 1M1B Impact Summit at the United Nations in Geneva, Switzerland.



THE ACTION: Presenting our grassroots findings and prototypes to an international audience, aligning our work with UN Sustainable Development Goal 7 (Affordable and Clean Energy).



THE VALIDATION: Proving that youth-driven, local school pilots can shape and inspire scalable national and global frameworks.



9th 1M1B
Impact Summit



THE GREEN ENERGY COMMUNITY DRIVE



IN CLASS SESSIONS

- Classroom Action: Built HEPA/Carbon filter air purifiers to directly combat indoor AQI for students, and installed PIR energy optimizers cutting classroom power use by 30-40%.



STREET PLAYS

- Community Action: Led street plays and digital campaigns to sensitize families on EV adoption and energy literacy.

“**The Philosophy:** Technology only scales when the community is educated and empowered to use it.”

THE CLIMATE CLOCK IS TICKING: MISSION 1.5

The Reality: Three years ago, our school installed the Climate Clock. It reminds us daily that the window to prevent irreversible damage is rapidly closing.

The Ask: We invite the Ministries of Power and Education, along with global partners, to help scale our school-level AIoT and Hydrogen pilots nationwide.

The Final Word: Clean energy is not just a goal; it is our shared responsibility and our children's future. Let's move with the clock, not watch it run out.

