



# From Maps to Actions

**How Drones and AI are Empowering  
Communities for a greener future**

Insights from World's Largest Rooftop Solar Potential Assessment

SKYLARK  
DRONES

# India's Vision for Rooftop Solar

- In February 2024, Prime Minister Narendra Modi launched **PM Surya Ghar: Muft Bijli Yojana**.
- **Scale:** The world's largest domestic rooftop solar initiative, targeting 50 crore households
- **The Goal:** 30 GW rooftop solar by 2027

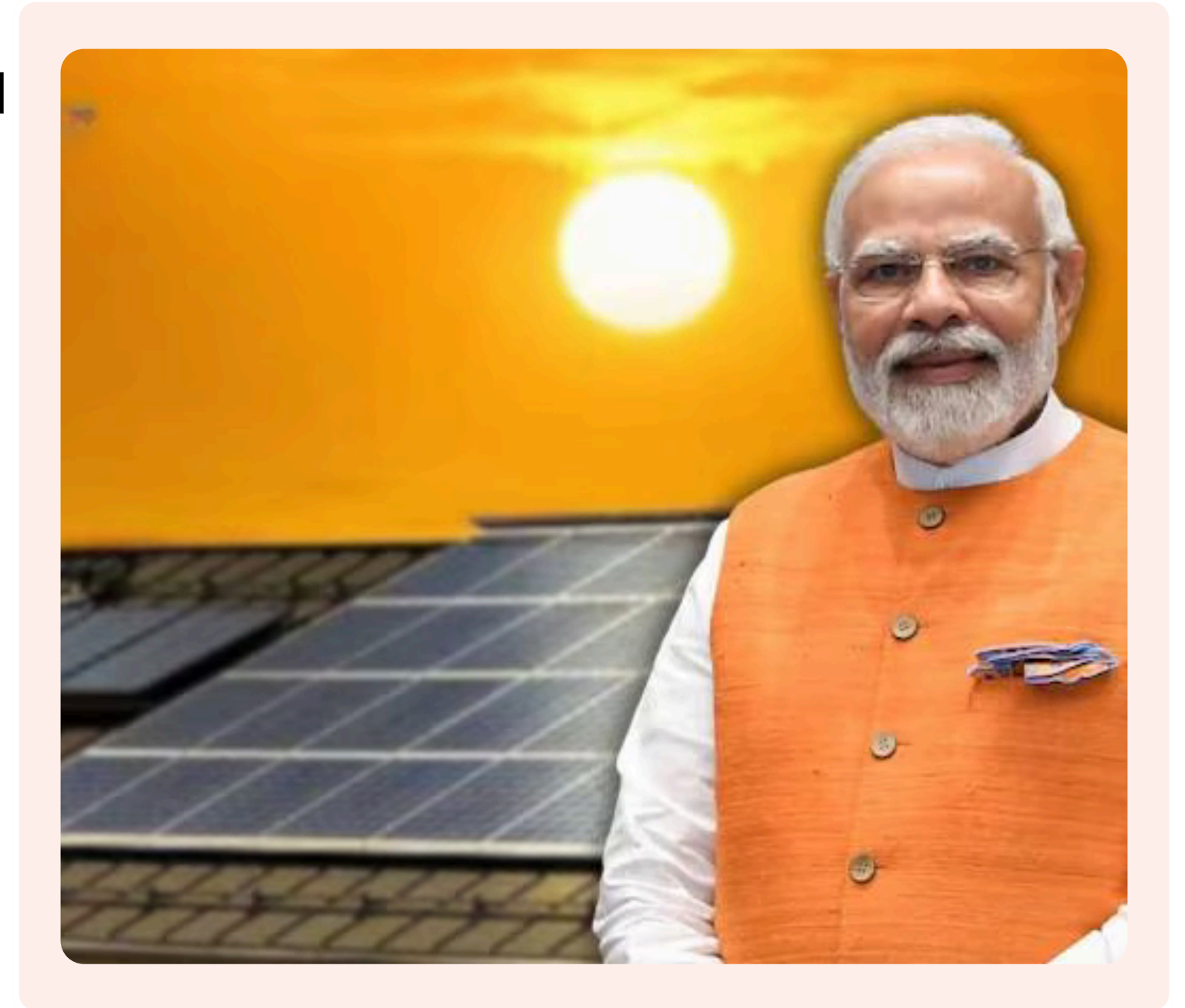


Image Source: [MoneyControl](#)

Scaling this vision requires one critical ingredient:  
high-quality, reliable data to assess viability, plan installations, and deliver on promises



# The Core Challenge

## No Visibility at National Scale

### MILLIONS OF UNCHARTED ROOFTOPS

#### No Visibility Into Solar Behaviour

Critical parameters such as shading, tilt, and true generation capacity remain inconsistently measured and poorly understood

#### Feasibility Driven by Assumptions

Citizens and installers are forced to rely on approximations rather than validated, site-specific insights

#### Inefficient Effort Across the Value Chain

Vendors expend significant resources on rooftops that offer limited or no real conversion potential

#### Policy Without Ground-Level Intelligence

Governments struggle to direct incentives, plan infrastructure, or monitor adoption in the absence of reliable, city-scale baseline data

*"How does a family decide if solar is right for them, if they can't see their own rooftop clearly?"*

# The National Mission

MNRE × **Skylark Drones** × CSTEP

## 01 Vision & Commission

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MNRE partnered with CSTEP to build India's first large-scale, accurate rooftop solar potential dataset

## 02 Execution Partnership

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Skylark Drones partnered as the data engine, bringing cutting-edge geospatial and AI capabilities

## 03 The Scope

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Map, analyze, and compute solar potential for 120+ Indian cities using hybrid drone and satellite technology

## 04 The Outcome

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Deliver city-wise, ward-level insights that enable confident decision-making at every level

This was not just mapping; it was building the foundation for collective action



# Scale that Redefined What's *Possible*



27K

Square Kilometers

Total area processed across 120+ Indian cities

7Cr+

Rooftops Assessed

Individual structures analyzed for solar potential

1.5Cr+

Radiation Rasters

Hourly simulations computed for accurate yield modeling

1PB

Data Processed

Raw geospatial data analyzed and transformed and compressed

40

Teams

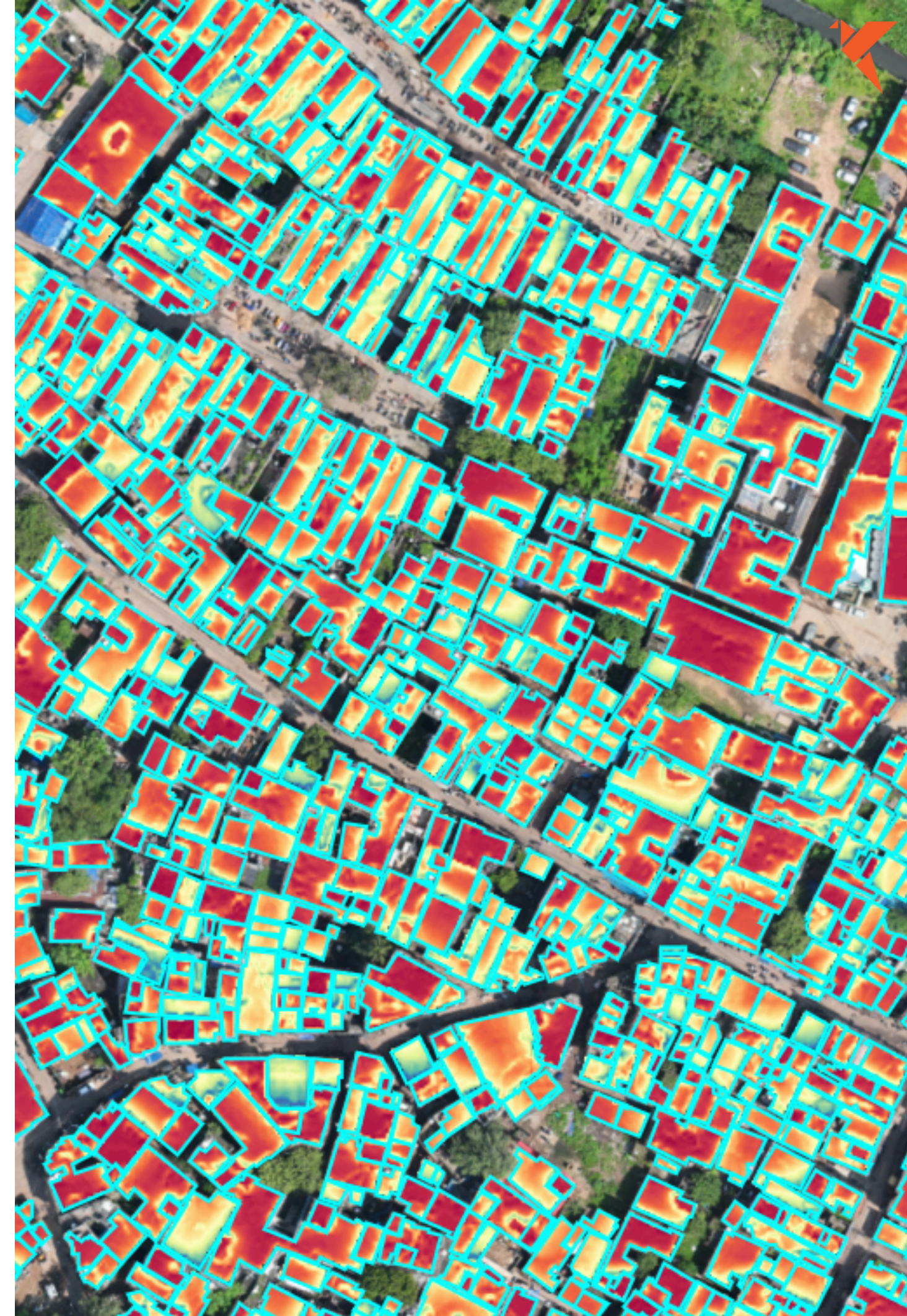
Simultaneous large scale Drone Operations Management at scale

*"We didn't just map rooftops, we mapped opportunity"*

# The Technology Backbone

- **State of the art AI**  
Automated rooftop identification and marking advanced computer vision algorithms
- **Custom Radiation Engine**  
Hourly annual radiation modeling with real shadow behavior across the whole year
- **Real-World Validation**  
Integrated historical weather and cloud cover datasets ensuring realistic yield estimates
- **Computing Power**  
HPC-driven 4D raster processing to compute potential at unprecedented scale

**Output:** A uniform, trusted, city-wide solar potential dataset ready for action





# The Impact

## Data That Moves the Ecosystem



### Policy & Planning

MNRE and state governments identify high-potential zones for targeted PM Surya Ghar rollout and subsidy allocation



### Citizen Confidence

Households receive trusted feasibility insights backed by precise data, not rough guesswork or sales pitches



### Grid Readiness

DISCOMs gain visibility to plan infrastructure upgrades, manage distributed generation, and ensure grid stability



### Installer Efficiency

EPCs focus resources on high-conversion rooftops, reducing site visit costs and improving close rates

*"When people know their potential, they start participating and that's where change begins."*

# From Mapping to Market Intelligence



1

## National Dataset

India's first comprehensive rooftop solar assessment now exists

2

## Accessibility Challenge

Make intelligence usable by EPCs, DISCOMs, banks, and citizens

3

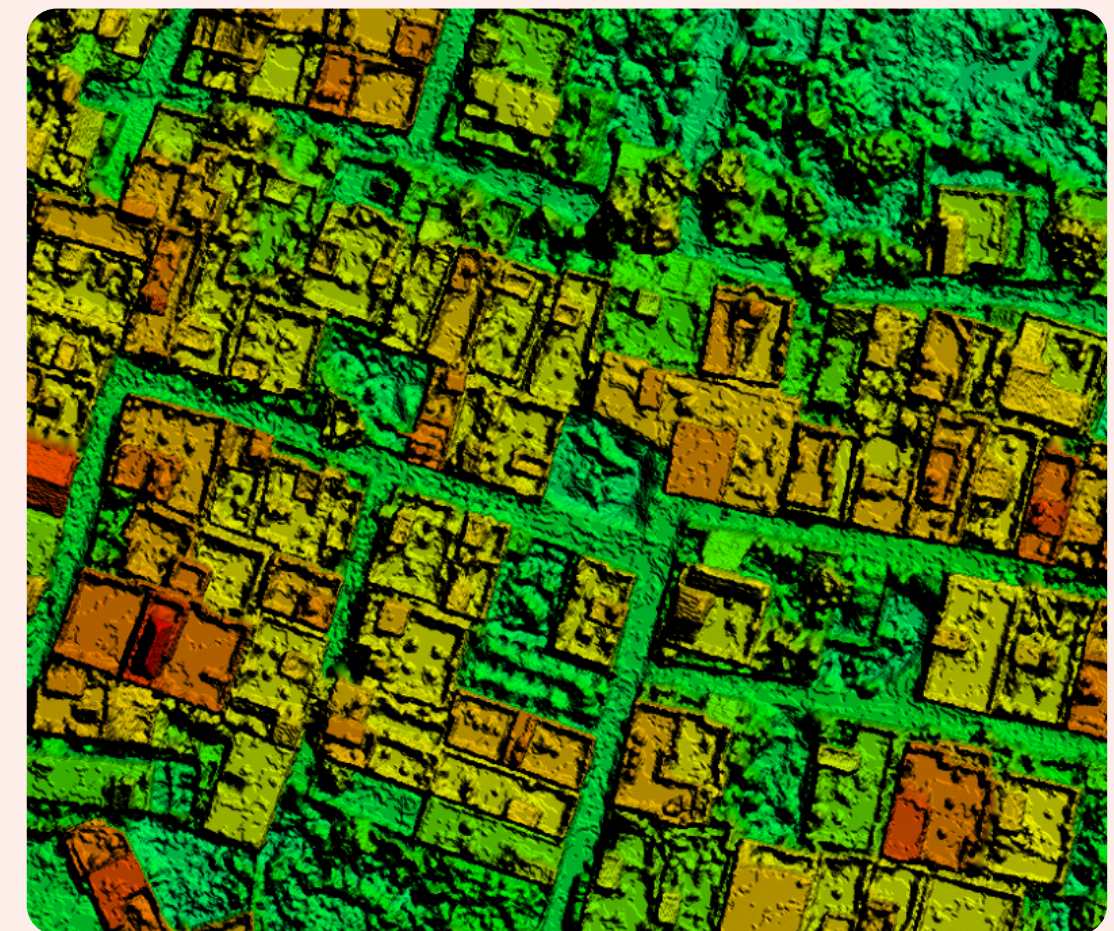
## Actionable Insights

Move beyond static maps to instant, decision-ready information

4

## Real-World Decisions

Build systems that convert solar potential into installations





# Empowering India's Solar Future, *Intelligently*

- From Awareness to Participation**  
Rooftop solar is now measurable, comparable, and trusted across 120+ cities
- From Policy to Ground Reality**  
MNRE's PM Surya Ghar mission stands on deep data and precise modeling
- From Potential to Action**  
Skyroof brings decision-grade intelligence to every citizen, installer, and policymaker
- From Maps to a Movement**  
The next decade of solar growth will be shaped by AI-enabled, community-driven adoption, not guesswork

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Rooftop solar is no longer a guess. It is a measurable, actionable system and India now leads the way  
*"Data gives communities the clarity to act, and clarity is the beginning of transformation"*

# THANK YOU

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## SKYLARK DRONES

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### Unlocking the economic potential of the skies



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