

This entire design (including recycling bins at EV charging stations) was recommended to the U.S. CalRecycle 2026 Zero Waste Plan, [see slide 4/9](#), “Homeless-to-Housed” jobs idea, which was also designed for peace/post conflict jobs, New Gaza reconstruction, recycling, energy jobs (concept described in slide 4). Materials feedstock “[responsible AI](#)” smart city, road infrastructure (scaling up our 2008 infrastructure micro pilot). Recycling, litter clean-ups are included in school curriculum, potentially with NVIDIA Deep Learning Institute and this pilot can scale to schools to power E-mobility transportation.

Partner recommendations:
 Epri (U.S., EU, Gulf)
 ACWA Power and Masdar
 Epri OPAI MCD collaboration (NVIDIA)
 Zero Waste Foundation
 COP31
 Board of Peace
 Whitehouse AI Task Force

Consumers can [see a micro](#) perspective for how improving their recycling efforts can support energy dense Circular Solar.



Nanorocks & Wind Blade, Bottle Glass
 CDR Nanorocks
 Food Waste Compost
 E-bike, cargo trailer transport recycled materials to depot
 CS photocatalytic road markings for smart city AV FSD pavement

Circular Solar CDR Nanorocks, Wind blade, increase solar power to the EV Charger, Zero Waste/Sifir Atik bin for COP 31



SUSTAINABLE DEVELOPMENT GOALS



[See whitepapers for financial, social, post conflict reconstruction cost benefits.](#)



The Future of Gaza with Circular Solar. A COP31 micro example also demonstrates scale to new Gaza, where rubble is turned into Nanorocks:

Ground Material	Albedo Value	Expected Bifacial Gain	Output vs. Baseline Monofacial
Brown Soil / Dark Grey Gravel	15% – 25%	~5% Gain	Operates at the lower end of bifacial potential. Darker gravel can sometimes underperform soil if it creates micro-shadows.
Circular Solar Nanorocks	65%+	~23% Gain	High-reflectance white materials can boost energy production by 23% compared to dark surfaces.

Today

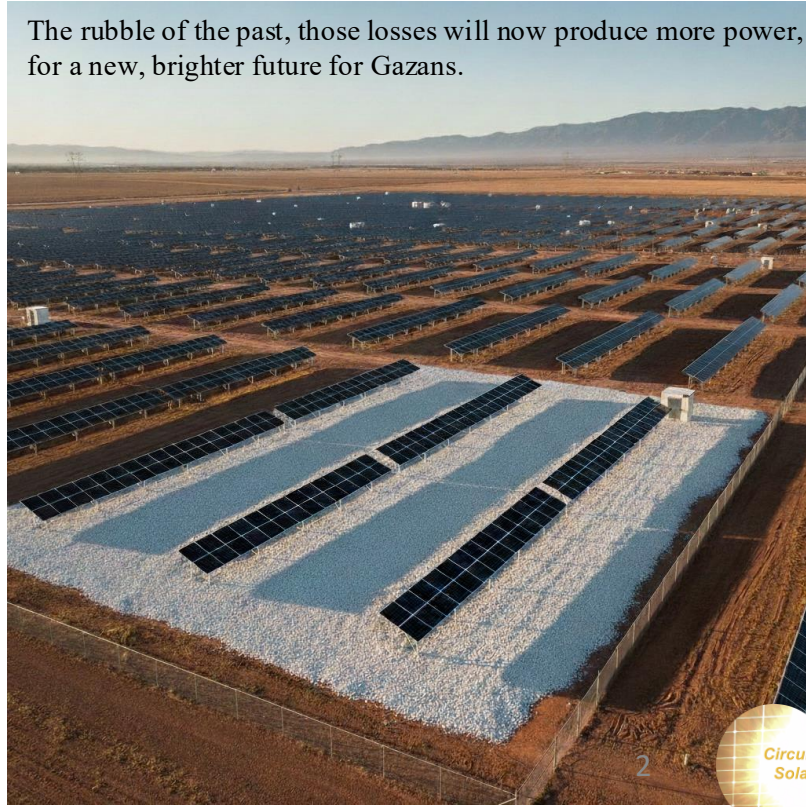


- **85% of buildings & infrastructure damaged or destroyed**

Albedo Value of Rafah Rubble **Gain: 5%**



Transformed, by Gazans, into Nanorocks **Gain: 23%**



The rubble of the past, those losses will now produce more power, for a new, brighter future for Gazans.



Using **White CS Nanorocks** effectively adds a "virtual" expansion to your solar field without installing a single extra panel and supports local labor and materials.

Strategic Fit for the Board of Peace

The Board of Peace has expressed a preference for technologies that offer **Circular Economy** benefits. Nanorocks fits this mandate because:

- 1. Rubble Utilization:** It can potentially use processed concrete from destroyed buildings as the base material. **For 1000MW, 5M tons of rubble could be repurposed!**
- 2. Land Efficiency:** Because of the **23% Bifacial Gain**, the Board can generate the same amount of power using 25% less land compared to standard ground-mount systems—a critical factor in a high-density area like Gaza.
- 3. Diffuse Scattering:** Unlike flat surfaces, the "circular" nature of Nanorocks scatters light in all directions, ensuring more uniform irradiance across the panel.
- 4. Self-Cleaning:** Nanorocks break down organic pollution, grime, keeping the "floor" bright and maintaining peak gain without manual washing, maintaining albedo in dusty, high-grime environments reducing water demand for cleaning in a water scarce region which requires desalination plants.
- 5. Thermal Efficiency:** Highly reflective ground keeps the immediate environment cooler. Standard dark ground can heat panels and lower efficiency; white surfaces can keep panels **5°C – 10°C cooler**, adding a secondary boost to performance. See next video demo in Antalya 2023 (to help end war, rebuild) IR/Thermal camera data.
- 6. Recycling concrete waste** from war/rubble which creates new jobs for young people without degrees, or certifications, can perform the labor for Circular Solar Nanorocks. The project meets various UN sustainable goal categories. Recycled aggregates should qualify for EU or GCC carbon credits (recycled aggregates).
- 7. Supporting the UN Charter by meeting 9/17 sustainable development goals (SDGs):**



Circular Solar for the UN Zero Waste Initiative:
circular materials for peace, reconstruction, energy efficiency

This video was partially filmed and shared in Antalya province, Turkiye, in November 2023, to support Turkiye for COP31, global UN Zero Waste initiative expansion and to encourage an end to the wars in Gaza and Ukraine – showing new job opportunities in recycling, reconstruction and energy from consumer materials and war debris/rubble concrete.



Learn more about UN Habitat Zero Waste: <https://unhabitat.org/advisoryboardzerowaste>
 Turkiye Zero Waste Foundation: <https://sifiratikvakfi.org/en>
 US, CalRecycle, 2026 Zero Waste Plan Draft: <https://calrecycle.ca.gov/zerowasteplan/>
 Circular Solar's recommendations, to the 2026 Zero Waste Plan, SB1013, SB54, including Homeless-to-Housed job program: <https://circularsolar.net/our-thinking>
 Wind blade, nacelle reuse with Nanorocks as the highest density solar-bess project: <https://circularsolar.net/cs-wind%2C-recycling%2C-ai>

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Photo shoot with IR, thermal camera overlay to show UHI of materials, some of these littered. Which can become Zero Waste to building and solar efficiency.

Mediterranean Sea, Kas, Turkiye

Albedo values for Earth surfaces

Water	Forest	Sand	Diff. snow (M. ice)	Cloud	Fresh snow
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Albedo (% reflectivity)

Figure 19.7 Typical albedo values for Earth surfaces [SE] photo credit: Steven Ebel

Fresh snow albedo effect

14.6°F 76.4

79.0°F

19.1

77.1 75.6

8.7°F

51.3

FLIR

14.6°F 76.4

79.0°F

19.1

FLIR

77.1 75.6

8.7°F

51.3

Some recyclable natural resource materials, including bottles, are cooler building materials versus the hotter wooden deck. Cool like the Mediterranean Sea

They also can even generate more solar energy yields, while breaking down pollution build-up.

These materials, from albedo effect, reflect sunlight to the solar panels

Category	1 MW Baseline (5% Gain)	1 MW Nanorocks (23% Gain)
Physical Build Size	1.0 MW (DC)	1.0 MW (DC)
Total Acres Required	4.75 Acres	3.45 Acres (1.30 Saved)
Rubble Utilized (7" base)	0 Tons	3,700 Tons
Direct Community Labor	\$0	\$85,000 (Initial + Refresh)
Hardware & Install CAPEX	\$680,000	\$667,200
Circular Solar IP & Tech Fee	\$0	\$40,032 (6% of Capex)
Total Initial CAPEX	\$680,000	\$707,232
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Gross 25-Year Revenue	\$3,547,000	\$4,154,300
Est. Carbon Credits (\$21/ton)*	\$0	\$105,000
Total Operational Costs (O&M)	(\$250,000)	(\$125,000)
Year 12 Refresh (Labor/Materials)	\$0	(\$95,000)
CS 2.0% Royalty	\$0	(\$83,086)
U.S. Gov 0.5% Royalty	\$0	(\$20,772)
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Net 25-Year Profit (Owner)	\$2,617,000	\$3,235,442
Total Net Advantage	—	\$618,442

* Due to costs of CC auditing >10MWs is required



Category	1 GW Baseline (5% gain)	1 GW Circular Solar (23% gain)
Physical Build Size	1,000 MW	1,000 MW
Total Acres Required	4,750 Acres	3,450 Acres (1,300 Saved)
Rubble Utilized (7" base)	0 Tons	3.7 Million Tons
Direct Community Labor	\$0	\$85,000,000
Hardware & Install CAPEX	\$680,000,000	\$667,200,000
Circular Solar IP & Tech Fee	\$0	\$40,032,000
Total Initial CAPEX	\$680,000,000	\$707,232,000
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Gross 25-Year Revenue	\$3,547,000,000	\$4,154,300,000
Est. Carbon Credits (\$21/ton)	\$0	\$105,000,000
Total Operational Costs (O&M)	(\$250,000,000)	(\$125,000,000)
Year 12 Refresh (Labor/Mat.)	\$0	(\$95,000,000)
CS 2.0% Royalty	\$0	(\$83,086,000)
U.S. Gov 0.5% Royalty	\$0	(\$20,771,500)
Net 25-Year Profit (Owner)	\$2,617,000,000	\$3,235,442,500
Total Net Advantage	—	\$618,442,500

Circular Solar DAT for within New Rafah's community and for Micro data-centers supporting AI for all:



EPRI OPAI PILOT PITCH SLIDE: CIRCULAR SOLAR ALPHA ASSET

570KW DAT Solar + 1MWh BESS Powering Mission-Critical AI

WASTE-TO-VALUE:
Nanorocks (+23% Yield)

WASTE-TO-VALUE:
Nanorocks + Wind blades (+30% Yield)
Circular Solar materials ready for installation

THERMAL SHIELD
Nanorock Albedo
-8°C MDC Cooling

GRID SUPPORT
Peak Shaving & Frequency Regulation

24/7 POWER:
Peak Shaving & (99.999% Regulation)

MICRO DATA CENTER
(100kW Compute Load)

DIRECT-SALE PPA:
High Margin Revenue

MICRO DATA CENTER
Solar BESS Hybrid
(99.999% Uptime)

LAND EFFICIENCY:
644 MWH/Acre
(2x Industry Std)

PROFITABILITY
\$4.5M+ Net Profit

Less panels, hardware = zero waste jobs

Circular Solar



Category	1 MW Baseline (Grid)	1 MW CS Nanorocks (Grid)	570 kW CS DAT (AI Inference)
Physical Build Size	1.0 MW (DC)	1.0 MW (DC)	0.57 MW (DC)
Total Acres Required	4.75 Acres	3.45 Acres	2.30 Acres
Rubble Utilized (7" base)	0 Tons	5,000 Tons	3,300 Tons
Hardware & Install CAPEX	\$680,000	\$667,200	\$1,083,000 (\$1.90/W)
Circular Solar IP & Tech Fee	\$0	\$40,032 (6%)	\$64,980 (6%)
Total Initial CAPEX	\$680,000	\$707,232	\$1,207,980
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Effective Rate per kWh	\$0.065 (Grid)	\$0.065 (Grid)	\$0.130 (AI)
Gross 25-Year Revenue	\$3,547,000	\$4,154,300	\$7,060,000
Est. Carbon Credits (\$21/ton)*	\$0	\$105,000	\$88,000
Total Operational Costs (O&M)	(\$250,000)	(\$125,000)	(\$110,000)
Year 12 Refresh (Labor/Mat.)	\$0	(\$95,000)	(\$80,000)
CS 2.0% Royalty	\$0	(\$83,086)	(\$141,200) (Based on \$7.06M)
U.S. Gov 0.5% Royalty	\$0	(\$20,772)	(\$35,300) (Based on \$7.06M)
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Net 25-Year Profit (Owner)	\$2,617,000	\$3,235,442	\$5,493,520
Total Net Advantage	---	\$618,442	\$2,876,520 (Relative to Baseline)

*Due to costs of CC auditing > 10MWs is required



Now we see 100MW equivalent, including where clusters of Circular Solar DAT can power MDCs/AI within New Rafah and other phases of the New Gaza:

Category	100 MW Baseline (Grid)	100 MW Nanorocks (Grid)	57 MW CS DAT (AI Inference)
Physical Build Size	100.0 MW (DC)	100.0 MW (DC)	57.0 MW (DC)
Total Acres Required	475 Acres	345 Acres	230 Acres
Rubble Utilized	0 Tons	500,000 Tons	330,000 Tons
Hardware & Install CAPEX	\$90,000,000 (\$0.90/W)	\$88,000,000	\$108,300,000 (\$1.90/W)
Circular Solar Tech Fee (6%)	\$0	\$5,280,000	\$6,498,000
Total Initial CAPEX	\$90,000,000	\$101,780,000	\$120,798,000
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Effective Rate per kWh	\$0.065 (Grid)	\$0.065 (Grid)	\$0.130 (AI)
Gross 25-Year Revenue	\$354,700,000	\$415,430,000	\$706,000,000
Est. Carbon Credits (\$21/ton)	\$0	\$10,500,000	\$8,800,000
Total Operational Costs (O&M)	(\$25,000,000)	(\$12,500,000)	(\$11,000,000)
Year 12 Refresh	\$0	(\$9,500,000)	(\$8,000,000)
CS 2.0% Royalty	\$0	(\$8,308,600)	(\$14,120,000)
U.S. Gov 0.5% Royalty	\$0	(\$2,077,200)	(\$3,530,000)
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Net 25-Year Profit (Owner)	\$239,700,000	\$293,544,200	\$549,352,000
Total Net Advantage	---	\$53,844,200	\$309,652,000 (vs Baseline)



Economic Impact Highlights

Yield Efficiency: The increase from a 5% to 23% bifacial gain adds **\$618 million** in direct energy revenue over the project's life. This allows the 1 GW nameplate capacity to perform with the output of a **1.23 GW** standard facility of .20 albedo.

Asset De-Risking: Allocating a **0.5% royalty (\$20.7M)** to the U.S. Government establishes a formal diplomatic interest in the project's security and longevity, potentially lowering insurance costs and attracting institutional capital.

Operational Savings: The engineered Nanorock bed significantly reduces vegetation and soil erosion management, cutting long-term O&M costs by **50%** compared to traditional "brown dirt" installs.

Community Investment: The project injects **\$85 million** directly into local labor markets for the initial processing and periodic "refresh" of the Nanorock surface, fostering regional stability and buy-in.

Circular Solar DAT for adjacent micro data-centers (especially well suited to inference loads): This holds the biggest upside potential for revenue and ensuring AI for all – which would support better healthcare to help manage post war health impacts (physical to mental) or school curriculum which also educates to create tolerance for other people, cultures, religions and of course - recycling.

For years, our family has envisioned the Circular Solar DAT farms within New Gaza. With Nanorocks made from rubble, to double as a memorial space. Where Gazans can try to find a sense of closure, a place to remember their lost loved ones and also a place to pray ; as the Circular Solar Light (which can occupy one DAT array with Nanorocks, perhaps just outside the DAT farm; which may be secured) as already prototyped since 2022, it creates a visual display, signal for the Call To Prayer (Adhan). People who live in the apartments with balconies, they can see this light illuminating (at dawn and night) the rubble/memorial – which now has a new purpose, creating additional energy, supporting local needs or AI MDC power to ensure peace and prosperity.

Revised Drivers of the \$618M Advantage:

1. The "Soiling" Effect & Yield Recovery

- The Problem:** On standard "Brown Dirt" sites, wind and maintenance vehicles kick up fine particulates that settle on the glass, reducing efficiency by 5% to 15% in weeks.
- The Nanorocks Solution:** By locking down **5 million tons** of rubble per 1,000 MW, you eliminate the source of the dust.
- The Benefit:** You maintain the **23% gain** longer. Panels stay cleaner, avoiding the "sawtooth" efficiency drops seen on dirt sites.

2. Radical Reduction in Water Demand

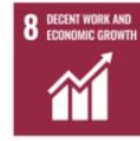
- The Baseline:** A 1,000 MW farm on dirt requires millions of gallons of water annually for panel "scrubbing".
- The Nanorocks Advantage:** Because there is no loose soil, the frequency of cleaning cycles is reduced by **50% or more**.
- Cost Impact:** This is the primary reason your O&M costs drop from **\$250M to \$125M** in the 1,000 MW model.

3. "Albedo" and Thermal Cooling

- Reflectivity:** Nanorocks reach an albedo value of **65%+**, reflecting significantly more light to the back of bifacial panels than brown soil (15%-25%).
- Heat Dissipation:** Bare dirt absorbs heat, raising ambient temperatures and decreasing panel efficiency by roughly **0.4% per 1°C**. The porous Nanorock layer allows for better airflow, keeping the panels cooler and closer to peak performance.

4. Erosion and Structural Integrity

- Eliminating "Washout":** Dirt sites suffer from erosion that can undermine racking foundations.
- Zero Weeding:** Using processed material as a "hardscape" eliminates the need for herbicides or mowing. This keeps community labor focused on high-value **refresh tasks** (\$85M total) rather than low-value weeding.



Goal	Description	Circular Solar Contribution
SDG 1	No Poverty	Living wages and housing for the previously homeless.
SDG 3	Good Health	Pollution degradation (NOx/PFAS reduction) in communities.
SDG 7	Affordable & Clean Energy	>18% solar yields supporting affordable solar- BESS for housing to AI DCs, grid stability.
SDG 8	Decent Work	Career pathways in the green tech and AI-sorting sector.
SDG 9	Industry & Innovation	AI-driven mining and high-tech e-waste repurposing.
SDG 11	Sustainable Cities	UHI reduction and urban waste-to-resource management.
SDG 12	Responsible Consumption	Closing the loop on wind blades and nacelles.
SDG 13	Climate Action	Direct methane reduction and lower carbon concrete.
SDG 17	Partnerships	Global UN Zero Waste initiatives through resource management.