E-FINITY

PROJECT PROFILE · ISLAND PRIME POWER · THE BAHAMAS

Walker's Cay: an island's second life, powered by LNG

To rebuild the northernmost cay in the Abacos, Allen Exploration started with power. E-Finity replaced the island's aging diesel plant with two Capstone C1000S microturbines running on liquefied natural gas.



44%	99%	30k gal	2 MW
less CO_2 than the diesel plant it replaced	less NO_x; ~184 t avoided per MW-year	of LNG stored on the island, extendable before a storm	ten 200 kW turbines: one down, nine keep running

Emissions projected per 1 MW of average load vs. the replaced 25%-efficient diesel plant. Methodology on reverse.

THE CHALLENGE

Rebuilding an island with no grid

Walker's Cay sits at the top of the Abaco chain, closer to Florida than to Nassau. Long a celebrated sport-fishing destination, it was left in ruins by consecutive hurricanes and sat largely abandoned for several years.

Allen Exploration's 100-acre redevelopment brings it back in phases: a reconfigured marina with mega-yacht slips, villas, restaurants, a chapel, a bonefish lodge, a spa and more than 100,000 sq ft of new buildings. None of it works without power, and the island has no utility grid. It depended on an outdated, inefficient diesel plant fed by fuel shipped in by sea, with the noise, exhaust and spill risk that come with it.

THE SOLUTION

A modular, oil-free plant on natural gas

Phase 1 of the redevelopment was infrastructure: power, water and fuel. E-Finity designed, installed and now operates an on-site plant built around two Capstone C1000S packages, each with five 200 kW microturbines. Together they carry the island's entire load, and stay efficient as demand swings between construction, off-season and peak occupancy.

LNG arrives in ISO containers through a dedicated supply chain and is held in 30,000 gallons of on-island storage, kept full at all times. E-Finity monitors the plant 24/7 through a redundant mTIM controller and maintains it under a fixed-rate program covering scheduled and unscheduled work.

What's next. With Phase 1 infrastructure in place, Phase 2 of the development is underway, and the modular plant gives the island room to grow.

Project Profile

CUSTOMER
Allen Exploration

LOCATION
Walker's Cay, Abaco, Bahamas

COMMISSIONED
April 2026

APPLICATION
Off-grid prime power

FUEL
LNG, delivered by ISO container

EQUIPMENT
2 × Capstone C1000S (10 × 200 kW)

CONTROLS
Redundant mTIM controller

E-FINITY SCOPE
Design, install, operate & maintain



Carl Allen, CEO of Allen Exploration, at the power plant.

> *"The multiple-turbine configuration will allow the island to stay at peak electrical performance during seasonal occupancy changes. Along with the low noise levels and oil-free operation, the microturbine-powered system dials right into helping the island achieve its sustainability goals."*
>
> Carl Allen, CEO, Allen Exploration

FUEL SECURITY

Built for hurricane season

On a remote island, the real test of a power plant is the week after a storm. Walker's Cay holds 30,000 gallons of LNG on site, about nine days of full 1 MW output with no delivery at all, and longer at lighter loads.

A dedicated supply chain serves the project, scheduling LNG deliveries so that on-island storage stays topped up at all times.

When a hurricane alert becomes real, additional ISO containers are staged on the island ahead of the storm. Each 40-ft container adds about three days at full output, and because the containers are the storage, there are no new tanks and no added investment.

Once the storm clears, diesel is the fuel everyone is chasing at once, for generators, vehicles and recovery equipment. LNG moves through its own supply chain, so the island is not competing in that rush to refuel.

Fuel on hand when a storm hits

Normal operation

30,000 gal storage — **~9 days***

Hurricane warning

30,000 gal storage + ISO →

Each extra 40-ft ISO container staged before landfall adds ~3 days.

**at full 1 MW output; longer at lighter loads*

How the plant works

LNG ISO containers (dedicated supply chain) → On-island storage (30,000 gal, kept full) → Vaporizer (LNG back to gas) → 2 × Capstone C1000S (10 × 200 kW turbines) → Island microgrid (marina, villas, utilities)

Redundant mTIM control · 24/7 remote monitoring by E-Finity

WHY MICROTURBINES

Made for a remote island

Efficient at every load
Ten turbines share the load; units stage off as occupancy drops.

N+1 by design
One turbine down for service, nine keep the island running.

Oil-free
Air bearings: no lube oil, coolant or waste oil to ship off-island.

Quiet
65 dBA at 10 m, suited to a resort setting.

ENVIRONMENTAL RESULTS

44% less carbon, 99% less NO_x

PER MW-YEAR	OLD DIESEL PLANT	C1000S ON LNG	REDUCTION
CO_2	9,437 t	5,326 t	44%
NO_x	185 t	1.6 t	99%
Particulates and SO_2	6.9 t	0.5 t	93%
Diesel burned	920,000 gal	none	100%

Air and water. NO_x falls 99%, and particulates and SO_2 nearly disappear, with no exhaust treatment. About 920,000 gallons of diesel per MW-year no longer cross the dock, removing a spill risk next to the marina and the flats.

Carbon. Natural gas carries 28% less carbon than diesel, and the microturbines burn 21% less fuel than the old plant. Together that is a 44% cut in CO_2, consistent with the ~45% Allen Exploration has reported: about 4,100 t a year per megawatt, or roughly 890 cars off the road.



The C1000S packages at Walker's Cay. Projected figures; metered results will follow the first full year.

Running an island, resort or remote site on diesel?
Let's size your LNG conversion in a 30-minute call.

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Methodology. *Emissions projected, not metered: 1.0 MW average load, 8,760 h/yr; results scale with actual generation. Replaced diesel plant at 25% LHV, uncontrolled, 0.05% S fuel (AP-42 §3.4; CO_2 at 163.1 lb/MMBtu per 40 CFR 98 Table C-1). Capstone C1000S at 33% LHV on natural gas (117.0 lb CO_2/MMBtu); NO_x, CO and VOC per Capstone TechRef 410065 Rev D at ISO conditions; SO_2 and PM per AP-42 §3.1. Combustion emissions only. Cars at 4.6 t CO_2/yr; tanker loads at 8,000 gal; diesel at 138,700 Btu/gal. Fuel autonomy: 30,000 gal usable LNG (~2,500 MMBtu) at 11.46 MMBtu/MWh ≈ 9 days at 1.0 MW average; each 40-ft ISO container (~10,000 gal) adds ~3 days; longer at lower loads.*