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Can Somalia's Coast Power Its Blue Economy?

Beyond fisheries: exploring the energy of Somalia's sun, wind and sea.

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Executive Brief

Somalia's coastline is usually discussed as a fisheries asset. But the same coast also sits within a much larger energy geography.

Somalia has exceptionally strong solar resources, substantial wind potential, and a long coastline exposed to ocean currents, waves and tides. The World Bank and IFC have identified significant renewable-energy potential, including an estimated 283 GW of offshore wind technical potential. The African Development Bank has also identified southern and northern Somali waters as areas with promising technical potential for ocean-current energy.

Yet resource potential is not the same as electricity generation. A resource map does not tell an investor whether a project can be financed. It does not establish whether a site is suitable, whether transmission exists, whether communities and fisheries can coexist with the project, whether environmental impacts are acceptable, or whether there is a buyer for the electricity.

This distinction matters for Somalia. The country is simultaneously trying to expand electricity access, reduce dependence on expensive diesel generation, modernize fisheries, improve cold chains, develop ports and build a more productive Blue Economy. Somalia's 2025 Generation and Transmission Development Plan provides a 20-year roadmap toward 2045, while the 2023 National Electricity Act provides a legal foundation for electricity-sector reform and renewable-energy development.

The opportunity, therefore, is not simply to ask *how much renewable energy Somalia has*. The more important question is:

Where can clean energy unlock the greatest economic value along Somalia's coast?

For OPONE, the answer begins with the systems that already exist:

Fisheries → Ice → Cold Storage → Processing → Water → Markets → Coastal Businesses → Communities

Energy can become the infrastructure connecting them. Some opportunities are ready today. Others need research first. Both deserve attention.

Key Takeaways

- **Energy is Blue Economy infrastructure.** Ice, refrigeration, cold storage, water, processing, communications and transport all depend on affordable, reliable power.
- **The cost of power is already a fisheries problem.** FAO reports average electricity costs of roughly US\$0.61 per kWh in Somalia, above US\$1 per kWh in some regions, and attributes about 30% of landed-catch losses to inadequate storage and preservation.
- **Solar plus storage is the deploy-now opportunity,** particularly for fisheries cold chains, ice production, processing and water systems where the national grid is absent.
- **Wind is substantial but must be proven site by site.** The 283 GW offshore figure is a technical resource estimate, not installed or bankable capacity.
- **Ocean currents, waves and tides are research-and-demonstration priorities,** not mainstream deployment options today.
- **Data is the scarcest resource.** Somalia needs a coastal investment intelligence system, not another isolated energy atlas.

01 — The Coast Is More Than a Fishing Ground

Somalia has approximately 3,333 kilometres of coastline, giving it one of the most extensive coastal territories in Africa. Its marine space supports fisheries, maritime transport, ports, coastal settlements and ecosystems ranging from coral reefs and seagrasses to mangroves and productive offshore waters.

All of these activities depend, directly or indirectly, on energy. A fishing economy needs more than boats. It needs ice, refrigeration, cold storage, water, lighting, communications, processing, transport, workshops, markets and digital infrastructure. Without affordable and reliable electricity, each of these becomes more expensive.

This is why energy should not be treated as a separate issue from the Blue Economy.

Energy is Blue Economy infrastructure.

02 — The Energy Problem Is Already a Fisheries Problem

In January 2026, FAO reported that electricity in Somalia averaged approximately US\$0.61 per kWh, with prices exceeding US\$1 per kWh in some regions. FAO specifically identified expensive fossil-fuel energy as a barrier to profitability in small-scale fisheries.

The consequences extend throughout the value chain. A fishing business may need electricity to produce ice. Ice is needed to preserve fish. Cold storage allows fish to remain marketable. Processing increases value. Reliable refrigeration allows businesses to reach more distant markets. The chain is therefore:

ENERGY → QUALITY → VALUE → MARKETS → INCOME

When electricity is unreliable or expensive, the entire chain suffers. FAO estimates that inadequate storage and preservation account for roughly 30% of Somalia's landed catch losses. FAO is now supporting solar refrigeration and solar-powered ice machines for fishing companies and isolated coastal communities.

This is not a theoretical opportunity. It is already happening.

03 — The First Opportunity: Power the Coastal Economy

The most immediate renewable-energy opportunity may not be a giant offshore wind farm. It may be something much simpler: power the infrastructure that coastal businesses already need. Consider a coastal fisheries hub:

Fishing boats → Landing site → Solar-powered ice → Cold room → Processing → Refrigerated transport → Market

A reliable renewable-energy system can support every stage. The World Bank's Somali Sustainable Fisheries Development Project explicitly envisages energy-efficient cold-chain infrastructure supported by renewable generation, particularly solar systems where the national grid is unavailable.

Previous FAO-supported interventions have also demonstrated solar-powered ice production in Madhawa Island in the Bajuni Archipelago and Kismayo. The Madhawa installation created local employment while giving fishers access to ice for preservation. This suggests an important principle:

The Blue Economy does not always need more resources. Sometimes it needs better infrastructure around the resources already being used.

04 — Somalia's Solar Advantage

Solar is probably the clearest near-term renewable-energy opportunity. Somalia receives abundant sunshine, with FAO reporting approximately 3,100 hours of sunshine annually. The IFC's Somalia Country Private Sector Diagnostic estimates solar global horizontal irradiation at approximately 5.38–6.74 kWh/m², among the highest levels in the Horn of Africa.

Solar has another advantage: it can be deployed close to demand. That matters in Somalia because many coastal communities and fisheries facilities are distant from reliable national-grid infrastructure. Instead of waiting for a large centralized grid to reach every coastal economic centre, distributed systems can provide power where it is immediately needed.

Application	Coastal Blue Economy Role
Solar-powered ice machines	Preserve catch quality at the landing site
Solar cold rooms	Allow storage instead of distressed sales
Fish-processing facilities	Enable cleaning, grading, filleting, drying, packaging
Water pumping and desalination	Supply processing, households and small businesses
Lighting and telecommunications	Extend working hours, safety and market information
Workshops and small businesses	Support boat repair, gear, trade and services
Health and education facilities	Strengthen coastal community resilience

Solar therefore has a dual role: **energy generation + economic infrastructure**.

05 — The Wind Is Already There

Somalia also possesses an exceptional wind resource. The IFC estimates an average wind speed of approximately 9.01 m/s and identifies Somalia as having the highest potential for onshore wind power in Africa in its assessment. It also reports estimated offshore wind electricity potential of up to 283 GW.

But there is an important distinction. **283 GW is not 283 GW of installed capacity**. It is a technical resource estimate. The World Bank's offshore-wind dataset separates technical potential between fixed and floating technologies and is intended to support further development toward bankable projects. A resource estimate does not answer the questions that determine whether a project can be built:

- Where should turbines be located?
- What are the actual wind speeds at project height?
- What water depths and seabed conditions exist?
- How far is the site from shore?
- Where is the transmission infrastructure?
- What ports could support construction?
- What fishing activity occurs there?
- What environmental constraints exist?
- Who will purchase the electricity?

The 283 GW figure should therefore be treated as an invitation to investigate — not a promise of future generation.

06 — Fixed or Floating?

Offshore wind becomes more complicated as water becomes deeper. Nearshore areas may support fixed-bottom turbines. Deeper waters may require floating platforms. This distinction matters enormously for Somalia because the country's offshore wind resource is not located in one uniform marine environment. A future Somali offshore-wind programme would therefore require detailed spatial analysis of:

Wind → Depth → Seabed → Distance → Transmission → Ports → Fisheries → Ecosystems → Demand

Only after these layers are combined can a technical resource begin to look like an investment opportunity.

07 — Then There Is the Ocean Itself

The most distinctive opportunity in Somalia's renewable-energy story may lie beneath the surface. The African Development Bank's assessment of offshore renewable energy in Africa identifies the fastest and most consistent nearshore water speeds in its assessment in parts of Somalia, particularly around **Kismayo to Mogadishu** and **Puntland**.

The assessment concludes that these areas appear to have high technical potential for ocean-current power, while emphasizing that the technology remains at an early stage and that site-specific studies are required.

This raises a remarkable question: could the Somali Current become an energy resource? But this is where Somalia needs science rather than hype.

08 — The Somali Current Is Not Static

The Somali Current is strongly influenced by the monsoon system. Scientific research shows that the surface current generally flows southwestward during the winter monsoon and reverses toward the northeast during the summer monsoon, with additional complexity in the subsurface circulation.

That seasonality matters for energy. An ocean-current turbine requires sufficient speed, consistency, depth, accessibility, survivability, maintenance feasibility and transmission potential. A crucial research question is therefore not simply "*How strong is the Somali Current?*" It is:

Where, when and at what depth does the current provide an economically usable energy resource?

That requires measurements over time. Potential must become data.

09 — The Same Ocean Current Also Feeds the Fishery

The energy story cannot be separated from the oceanographic system that supports fisheries. The Somali upwelling system is one of the major productive upwelling systems of the Indian Ocean. Monsoon winds and ocean circulation bring nutrient-rich waters toward the surface. The conceptual chain is:

Winds → Currents & Upwelling → Nutrients → Plankton → Fish → Fisheries → Livelihoods

The same ocean dynamics that make Somalia potentially interesting for ocean-current energy are also connected to marine productivity. This creates an important OPONE principle:

The ocean should be planned as a connected system, not as separate sectors.

An energy project cannot be evaluated only as an energy project. It exists within a living ocean.

10 — What About Waves and Tides?

Waves and tides deserve attention — but not exaggeration. Ocean-energy technologies remain substantially less mature than solar and conventional wind. IRENA reports that global installed ocean-energy capacity reached approximately 494 MW at the end of 2024, illustrating the still-small scale of the global sector.

For Somalia, the appropriate question is not “*When will wave energy power the country?*” It is “*Which Somali sites justify further investigation?*” Wave and tidal assessments should consider:

- resource intensity and seasonal variability;
- technology requirements and water depth;
- proximity to demand;
- maintenance and storm exposure;
- environmental impacts and marine navigation;
- cost of electricity.

NOT READY TO SCALE. READY TO STUDY.

11 — Energy Can Become Fisheries Infrastructure

Imagine a renewable-powered coastal fisheries hub.

Stage	What Happens	Energy Role
Boat	Fish are landed	Lighting, safe landing operations
Ice	Solar-powered ice preserves quality	Ice production
Cold room	Fish are stored rather than sold at distressed prices	Refrigeration
Processing	Cleaning, grading, filleting, drying or packaging add value	Equipment, water, lighting
Transport	Refrigerated transport extends market reach	Cold chain continuity
Market	Higher-quality fish reaches domestic and potentially export markets	Communications, digital market access

This is more than an energy project. It is a value-chain project. The World Bank has already incorporated renewable-energy-supported cold-chain infrastructure into Somalia’s fisheries development planning. FAO’s technical guidance similarly identifies solar refrigeration and ice-making as important applications for small-scale fisheries, while stressing that systems must be assessed for economic feasibility and local operation and maintenance capacity.

12 — From Resource Maps to Investment Maps

A renewable-energy resource map tells us *where the resource is*. An investment map needs to tell us much more.

Question	What It Asks
Where?	Is the resource strong enough?
How strong?	What is the energy density?
How consistent?	How does it vary by season and year?
How deep?	What are the water depths?
What infrastructure?	Are ports, roads, grids and substations available?
Who needs the power?	Where are the major electricity loads?
How does it reach shore?	What transmission or storage is required?
What are the environmental constraints?	What ecosystems and species are present?
What permits?	What regulatory approvals are required?
What will it cost?	What are the capital and operating costs?
Who buys the power?	Is there a credible offtaker?

This is the difference between **resource potential** and **investment readiness**.

13 — The Ocean Is Already Crowded

There is no empty ocean waiting for development. The same marine space may support fishing, shipping, ports, conservation, tourism, cables, energy infrastructure, navigation and coastal communities. Offshore renewable-energy development therefore requires marine spatial planning. A future Somali marine spatial framework could bring together:

Fisheries + Energy + Shipping + Biodiversity + Ports + Communities + Infrastructure

This would help identify where different activities can coexist — and where they cannot. The next generation of Blue Economy planning will need maps that show more than fish.

14 — Environmental Responsibility Is Part of the Opportunity

Renewable energy does not automatically mean zero environmental impact. Offshore infrastructure can interact with fisheries, marine mammals, seabirds, coral reefs, seagrass, coastal habitats, navigation, sediment dynamics and local communities.

Somalia's Environmental Protection and Management Act establishes environmental and social impact assessment requirements for activities with environmental and social impacts, including electrical infrastructure. The 2024 ESIA Regulations establish the procedural framework for environmental and social assessment. For marine renewable energy, this means:

MEASURE FIRST. DESIGN SECOND. BUILD RESPONSIBLY.

A successful Blue Economy project must create economic value without undermining the natural capital on which other ocean industries depend.

15 — Somalia Is Building the Energy Framework

The opportunity is emerging at the same time as Somalia's electricity sector is undergoing institutional reform. The National Electricity Act 2023 provides the legal foundation for reform of electricity generation, transmission and distribution, while establishing the framework for a National Electricity Authority and encouraging private-sector participation and renewable energy.

In 2025, the Ministry of Energy and Water Resources endorsed the Optimized Cost Electricity Generation and Transmission Development Plan, a 20-year roadmap through 2045. The plan considers a mix of solar, wind, hydropower, geothermal, fossil generation and regional electricity interconnections. It also envisages thousands of kilometres of future transmission infrastructure and more than 100 substations.

This matters because renewable resources alone do not create an electricity system. Generation needs transmission. Transmission needs demand. Demand needs productive economic activity. Investment needs institutions.

16 — The Most Important Resource May Be Data

Somalia's renewable-energy opportunity is large. But the country's measurement and investment-readiness gap remains equally important. The IFC has identified exceptional renewable resources but also the need for deeper resource evaluation before large-scale development. This suggests a national research agenda. Somalia needs increasingly detailed datasets covering:

Domain	Data Needed
Energy	Solar irradiation, wind speed, waves, tides and currents
Oceanography	Temperature, salinity, circulation, upwelling and seasonal variability
Marine ecology	Coral reefs, seagrass, mangroves, fisheries habitats and sensitive areas
Fisheries	Fishing grounds, landing sites, seasonality, vessel activity and value chains
Infrastructure	Ports, roads, grids, substations, cold chains and industrial sites
Economics	Electricity demand, tariffs, project costs and potential offtakers
Governance	Licensing, environmental assessment, marine spatial planning and investment rules

The result should not be another isolated energy atlas. It should become a **coastal investment intelligence system**.

17 — From Energy Potential to Blue Economy Value

The opportunity can be understood as a five-level hierarchy.

Level	Layer	Components
1	Resource	Sun, wind, currents, waves, tides
2	Technology	Solar PV, wind turbines, batteries, current turbines, wave devices, tidal systems
3	Infrastructure	Grid, ports, cold chains, ice plants, processing facilities, water systems
4	Economic activity	Fisheries, processing, trade, logistics, coastal businesses
5	Blue Economy value	Jobs, food security, investment, exports, resilient communities, economic growth

The opportunity is not created at Level 1. It is created by connecting all five.

18 — A Practical Investment Priority for Somalia

Based on the current evidence, OPONE sees three broad horizons.

Horizon 1 — Deploy Now

Solar + storage + productive coastal uses. Priorities: fisheries cold chains; ice production; processing; water systems; coastal businesses; isolated communities. These applications have existing demonstrations and relatively mature technologies.

Horizon 2 — Develop With Site-Specific Studies

Wind + larger renewable systems. Priorities: detailed wind measurement; grid integration; transmission; project sites; port infrastructure; environmental assessment; investment structures. Somalia's wind resource is substantial, but individual projects still need bankability studies.

Horizon 3 — Research & Demonstrate

Ocean currents + waves + tides. Priorities: long-term measurements; site characterization; technology testing; ecological assessment; engineering studies; pilot projects. The resource may be promising, but the technology and the Somali evidence base are not yet mature enough to treat these as mainstream deployment opportunities.

Horizon	Technology	Maturity	Primary Need	Posture
1	Solar PV + storage	Relatively mature, demonstrated in Somalia	Financing, operation and maintenance capacity	Deploy
2	Onshore and offshore wind	Mature globally; Somali projects unproven	Site data, transmission, bankability studies	Develop
3	Currents, waves, tides	Early stage	Long-term measurement, pilots, ecological study	Research

19 — OPONE Outlook: Positive, but Evidence First

Somalia has the ingredients for a significant renewable-energy opportunity. Its solar resource is strong. Its wind resource is exceptional. Its offshore wind technical potential is substantial. Its ocean currents deserve serious scientific investigation. Its fisheries sector already demonstrates how renewable energy can reduce operating constraints and improve value-chain infrastructure.

But Somalia should resist the temptation to turn resource potential into headline investment numbers without the underlying evidence. The next stage should be:

- 1 Map** — Where are the resources?
- 2 Measure** — How strong and consistent are they?
- 3 Assess** — What technology and economics apply?
- 4 Plan** — How does energy interact with fisheries, ecosystems, ports and communities?
- 5 Regulate** — What rules and safeguards are required?
- 6 Finance** — What projects can actually attract capital?
- 7 Deploy** — Where can renewable energy create the greatest economic value?

20 — The Question Is No Longer Whether Somalia Has Resources

Somalia does. The more important question is whether the country can build the knowledge, infrastructure, institutions and investment frameworks required to turn those resources into productive economic assets.

A solar-powered ice machine in a remote fishing community may create more immediate Blue Economy value than a 1 GW offshore wind project that has no transmission connection or electricity buyer. A current-energy pilot may generate valuable scientific knowledge even before it generates commercial electricity. A marine spatial plan may prevent future conflict between energy infrastructure and fisheries. A coastal energy hub may reduce fish losses, create jobs and increase the value of existing production.

These are different forms of progress. The Blue Economy does not require every opportunity to mature at the same speed. It requires knowing which opportunity belongs where, when and why.

Who Needs to Act: Implications by Stakeholder

Stakeholder	Practical Implication
Government and regulators	Advance implementation of the National Electricity Act and the 2045 generation and transmission plan; build licensing and ESIA capacity for coastal and marine projects; support national resource measurement and marine spatial planning.
Investors and developers	Start with demonstrated, demand-anchored solar and storage projects at fisheries hubs; treat wind and ocean-energy resource figures as screening data, not bankability evidence; require credible offtake and environmental safeguards.
Development partners	Fund long-term measurement campaigns, pilots and shared datasets; support operation and maintenance training so that installed systems keep working.
Researchers and universities	Lead multi-season current, wave and tidal measurement; link oceanography, ecology and engineering assessments.
Fishers and coastal businesses	Engage early in site selection and project design so that energy infrastructure strengthens, rather than competes with, existing livelihoods.
Blue Economy enterprises	Integrate energy planning into ice, cold-chain, processing and logistics business models from the outset.

Risks and Caveats

- **Resource-to-capacity confusion.** Technical potential figures, including 283 GW, are not installed or bankable capacity.
- **Grid and offtake risk.** Generation without transmission or a credible buyer does not become an investment.
- **Operation and maintenance.** Solar refrigeration and ice systems must be assessed for local operation and maintenance capacity, as FAO guidance stresses.
- **Marine conflict.** Offshore projects can overlap with fishing grounds, shipping routes, ports and sensitive habitats.
- **Environmental impact.** Renewable does not mean impact-free; ESIA obligations apply.
- **Technology immaturity.** Ocean-energy technologies remain early-stage globally, with roughly 494 MW installed worldwide at the end of 2024.

Conclusion

The future of Somalia's Blue Economy will depend on more than how much fish can be caught. It will depend on whether coastal economies can access the energy required to preserve, process, transport and add value to what the ocean produces. It will depend on whether renewable energy can reach communities beyond the national grid. It will depend on whether Somalia can responsibly develop its wind and marine-energy resources. And it will depend on whether the country can build the data and institutions needed to distinguish resource potential from commercial opportunity.

The opportunity is therefore not simply to generate more electricity. It is to build an energy system that enables a more productive, connected and resilient coastal economy.

Energy is not separate from the Blue Economy. It is one of the systems that can make it work.

OPONE POSITION

The Somali coast deserves to be understood in full.

Not only its fish. Not only its ecosystems. Not only its ports. But also its sun, its winds, its currents, its waves, its energy demand, its communities, its infrastructure and its investment potential.

Some opportunities are ready today. Others need research first. Both deserve attention.

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