

# Low-Emission Field Power Systems

## ANMD-MRS20-194 · Green Defense Technologies

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

### WHY THIS REPORT

Low-emission field power systems replace diesel-only generators with hybrid, solar-diesel and fuel-cell power across squad, company and base power classes. Hybrid gensets, energy storage and fuel cells cut fuel use, emissions and resupply while improving reliability and reducing acoustic and thermal signature. This decision-grade study sizes the global market three ways — value, unit volume and adoption — across technology, fuel and application, across seven regions and four scenarios to 2032, with outlooks to 2050.

### SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

Sustainability is this report's backbone, not an afterthought. Beyond operational performance, this market delivers measurable fuel-and-emissions reduction, resupply-risk avoidance and energy resilience, while storage and circularity strengthen the resource-security story.

#### Mapped Sustainable Development Goals:

<b>SDG 7</b> Affordable & Clean Energy	<b>SDG 12</b> Responsible Consumption & Production	<b>SDG 13</b> Climate Action
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#### Measurable sustainability outcomes assessed:

- Fuel-and-emissions reduction and resupply-risk avoidance
- Energy resilience and improved power availability
- Embodied carbon and end-of-life of batteries and cells as a material risk
- Dual-use export-control exposure assessed

**Framework alignment:** Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

### WHAT'S INSIDE AT A GLANCE

<b>53</b> Chapters	<b>9</b> Report Parts	<b>7</b> Regions Covered	<b>40+</b> Country Markets
<b>2025–32</b> Forecast Horizon	<b>4</b> Forward Scenarios	<b>25+</b> Companies Profiled	<b>3</b> SDGs Mapped

### REPORT COVERAGE

**Geographic scope:** North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. North America leads procurement; Europe scales on energy resilience; Asia Pacific is the growth engine; other regions assessed on their own merits.

- Lower fuel burn, fewer resupply convoys and quieter operation
- Hybrid gensets, energy storage and fuel cells
- Improved power availability and reduced signature
- Battery/cell circularity and export-control exposure as risks

## MARKET OVERVIEW

**From diesel-only genset to hybrid power — where lower consumption, quieter operation and availability underpin returns diesel-only sets cannot match.**

Low-emission field power is moving from trial to deployment. Demand is driven by generator fuel use, emissions and resupply risk across North America, Europe and Asia Pacific. The market is read three ways — value, unit volume and adoption — and forecast under four scenarios, each region reported separately.

- **North America leads procurement** — the United States and Canada, where AMMPS-class and hybrid-microgrid programmes are most advanced
- **Europe scales on energy resilience** — Germany, France and the United Kingdom, combining defense demand with emissions drivers
- **Fuel-and-resupply savings are the differentiator** — lower consumption, quieter operation and improved availability underpin returns diesel-only sets cannot match
- **Technology and fuel segment the value** — hybrid generators, solar-diesel hybrids and fuel cells, each with distinct economics

## REGIONAL OUTLOOK

Across seven reporting regions, the report separates procurement leaders from high-growth and emerging markets — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Country Markets & Drivers
North America	Procurement leader	United States, Canada — operational-energy strategy, DoD programmes, allied demand
Europe	Fleet renewal	Germany, France, United Kingdom, Italy — NATO drivers, energy security, defense OEMs
Asia Pacific	Growth engine	South Korea, Japan, India, Australia — modernisation, domestic capability
Latin America	Emerging	Brazil, Chile — selective modernisation, cost-driven adoption
Africa	Frontier	Egypt, South Africa — peacekeeping, expeditionary support
Middle East	Frontier	Saudi Arabia, UAE, Israel — sovereign procurement, climate resilience

## KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> <li>• Generator fuel use &amp; resupply-risk reduction</li> <li>• Operational-energy &amp; emissions mandates</li> <li>• Acoustic &amp; thermal-signature reduction demand</li> <li>• Power-reliability &amp; islanding requirements</li> <li>• Hybrid-genset, storage &amp; fuel-cell technology gains</li> </ul>	<ul style="list-style-type: none"> <li>• Hybrid &amp; fuel-cell CAPEX premium vs diesel</li> <li>• Battery mass, ruggedisation &amp; thermal limits</li> <li>• Hydrogen &amp; fuel-supply logistics</li> <li>• Power-electronics &amp; cell cost inflation</li> <li>• Qualification &amp; integration complexity</li> </ul>

## SEGMENTATION SNAPSHOT

<b>By Technology</b>	Hybrid generator · solar-diesel hybrid · fuel cell
<b>By Fuel</b>	Diesel-hybrid · solar-hybrid · hydrogen/fuel-cell
<b>By Component</b>	Genset · battery storage · PV · power electronics
<b>By End User</b>	Army engineers · expeditionary units · bases · allied forces
<b>By Business Model</b>	Hardware sale · SaaS · data · managed service
<b>By Application</b>	Squad/small · company · base/large power classes

## TECHNOLOGY & APPLICATION FINDINGS

Where the category is differentiating fastest — the technology and application fronts that separate leaders from followers:

- **Squad/small** — portable hybrid and solar sets cut fuel and noise for small-unit operations
- **Company** — hybrid gensets with storage improve efficiency and availability for mid-size loads
- **Base/large** — fuel cells and integrated microgrids enable resilient, low-emission base power

## TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

### Part I — Report Foundation, Discovery and Strategic Intelligence

- › Chapter 1. Scope, Methodology and Report Architecture
- › Chapter 2. Industry Discovery Summary — Low-Emission Field Power Systems
- › Chapter 3. Executive Intelligence and Decision Dashboard
- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

### Part II — Market Intelligence, Sizing, Forecasting and Segmentation

- › Chapter 5. Industry Overview and Market Evolution
- › Chapter 6. Market Dynamics
- › Chapter 7. Global Market Size and Forecast, 2020–2032
- › Chapter 8. Market Segmentation Analysis
- › Chapter 9. End-User and Demand-Side Intelligence
- › Chapter 10. Pricing, Cost and Commercial Model Intelligence

### Part III — Regional and Country Intelligence

- › Chapter 11. Global Regional Intelligence Framework
- › Chapter 12. North America Market Intelligence
- › Chapter 13. Europe Market Intelligence
- › Chapter 14. Asia Pacific Market Intelligence
- › Chapter 15. Latin America Market Intelligence
- › Chapter 16. Africa Market Intelligence
- › Chapter 17. Middle East Market Intelligence
- › Chapter 18. Rest of World Market Intelligence

### Part IV — Technology, Innovation and Category-Specific Intelligence

- › Chapter 19. Technology Landscape and Architecture
- › Chapter 20. Emerging and Next-Generation Technology Intelligence
- › Chapter 21. Category-Specific Intelligence Module
- › Chapter 22. Research, Innovation and Funding Landscape

## Part V — Company, Competition, Patent and Project Intelligence

- › Chapter 23. Competitive Landscape
- › Chapter 24. Company Profiles
- › Chapter 25. Mergers, Acquisitions, Partnerships and Ecosystem Intelligence
- › Chapter 26. Patent Landscape and Intellectual Property Intelligence
- › Chapter 27. Project, Deployment and Case-Study Intelligence

## Part VI — Sustainability, ESG, SDG, Climate and Natural-Capital Intelligence

- › Chapter 28. Sustainability Intelligence Suite
- › Chapter 29. ESG Intelligence and Double Materiality
- › Chapter 30. ESG and Sustainability Framework Alignment
- › Chapter 31. SDG Intelligence
- › Chapter 32. Carbon, Net-Zero and Climate-Mitigation Intelligence
- › Chapter 33. Water, Biodiversity and Natural-Capital Intelligence
- › Chapter 34. Circular Economy and Resource-Security Intelligence
- › Chapter 35. Social Impact, Human Capital and Community Intelligence
- › Chapter 36. Climate Risk, Adaptation and Resilience Intelligence

## Part VII — Supply Chain, Policy, Legal, Economics and Finance

- › Chapter 37. Value Chain, Supply Chain and Geopolitical Intelligence
- › Chapter 38. Policy, Regulation and Incentive Intelligence
- › Chapter 39. Legal, Contracting and Risk-Allocation Intelligence
- › Chapter 40. Unit Economics, CAPEX, OPEX and Return Analysis
- › Chapter 41. Investment, Sustainable Finance and Bankability Intelligence

## Part VIII — Scenario, Future Intelligence and Final Due Diligence Verdict

- › Chapter 42. Scenario Analysis and Future Intelligence
- › Chapter 43. Sustainability Due Diligence Framework and Data-Room Index
- › Chapter 44. Risk Register, RAG Rating and Anti-Greenwashing Screen
- › Chapter 45. Bottom-Line Verdict and Strategic Recommendations
- › Chapter 46. Implementation Roadmap and Stakeholder Playbooks

## Part IX — Annexes, Directories and Reference Material

- › Chapter 47. Methodology Annex
- › Chapter 48. Corporate Directory and Company Intelligence Annex
- › Chapter 49. Patent Directory and Patent Intelligence Annex
- › Chapter 50. Project Intelligence Annex
- › Chapter 51. Forecast Annex
- › Chapter 52. Sustainability KPI Annex
- › Chapter 53. Reference Annexes

## COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans established defense primes, specialist technology suppliers and turnkey integrators. Deal activity — hybrid-microgrid partnerships, fuel-cell pilots and operational-energy procurements — signals a market consolidating around bankable, fieldable systems.

### Representative players profiled in the full report:

Cummins Inc. · Caterpillar Inc. · HDT Global, Inc. · Ballard Power Systems Inc. · SFC Energy AG · and 20+ further profiled players.

**Investment intelligence:** venture, growth, infrastructure and blended finance, green bonds and sustainability-linked instruments — culminating in a bankability assessment and a conditional investment view.

## KEY QUESTIONS THIS REPORT ANSWERS

- How large is the global low-emission field power market, and how fast will it grow to 2032?
- Which regions, countries and programmes offer the strongest risk-adjusted opportunity?
- Which technologies and architectures reshape the addressable market and the cost curve?
- Who leads, and where is the competitive and patent white space?
- Is the investment case bankable — and under what conditions?
- How does the category align with the SDGs, operational-energy mandates and disclosure regulation?

## WHY ANMD — THE DIFFERENCE

*Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate and natural-capital intelligence and a decision-ready bankability view in a single architecture.*

- **Triangulated sizing** — every market read three ways so value, volume and the adoption view reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and programme databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and programme analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, conditional investment view.

## WHO SHOULD BUY THIS REPORT

Army engineers, expeditionary units, bases, allied forces, power-systems suppliers, investors and policymakers, and strategic corporate planners and decision-makers.

### Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at [www.anewmarketdynamics.com](http://www.anewmarketdynamics.com) · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

### Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at [www.anewmarketdynamics.com](http://www.anewmarketdynamics.com). The full detailed table of contents will be sent directly to your registered company email address.