

# Global Grid-Forming Controllers Supply, Demand and Key Producers, 2026-2032

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## Abstracts

The global Grid-Forming Controllers market size is expected to reach \$ 1647 million by 2032, rising at a market growth of 17.4% CAGR during the forecast period (2026-2032).

In 2025, global Grid-Forming Controllers production reached approximately 170 thousand units, with an average global market price of around USD 3000 per unit.

The gross profit margin of major companies in the industry was approximately 35%–55%.

In 2025, global production capacity of Grid-Forming Controllers was approximately 220 thousand units.

Grid-Forming Controllers are advanced power control devices that enable energy storage and power conversion systems to actively establish and regulate voltage, frequency, and phase rather than merely following an existing grid signal. They implement control functions such as virtual inertia, frequency response, voltage support, synchronization, and islanded operation. Products are primarily integrated into battery energy storage, renewable power plants, microgrids, and weak-grid power systems.

The industrial chain of Grid-Forming Controllers includes upstream processors, power control chips, sensors, communication modules, embedded software, algorithms, and electronic components; midstream covers control architecture development, hardware design, algorithm implementation, software integration, testing, and certification; downstream applications mainly include battery energy storage, renewable power plants, microgrids, utility grids, industrial power systems, and weak-grid environments.

## Report Scope

This report studies the global Grid-Forming Controllers production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Grid-Forming Controllers and provides market size (US\$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Grid-Forming Controllers that contribute to its increasing demand across many markets.

## Highlights and key features of the study

Global Grid-Forming Controllers total production and demand, 2021-2032, (K Units)

Global Grid-Forming Controllers total production value, 2021-2032, (USD Million)

Global Grid-Forming Controllers production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (K Units), (based on production site)

Global Grid-Forming Controllers consumption by region & country, CAGR, 2021-2032 & (K Units)

U.S. VS China: Grid-Forming Controllers domestic production, consumption, key domestic manufacturers and share

Global Grid-Forming Controllers production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (K Units)

Global Grid-Forming Controllers production by Type, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

Global Grid-Forming Controllers production by Application, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

This report profiles key players in the global Grid-Forming Controllers market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include SMA Solar Technology AG, Hitachi Energy Ltd., Siemens Energy AG, GE Vernova Inc., Schneider Electric SE, ABB Ltd., Wärtsilä Corporation, Fluence Energy, Inc., Tesla, Inc., Nidec Conversion, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Grid-Forming Controllers market

## **Detailed Segmentation:**

Each section contains quantitative market data including market by value (US\$ Millions), volume (production, consumption) & (K Units) and average price (US\$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

## **Global Grid-Forming Controllers Market, By Region:**

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

## **Market Segmentation**

### **Global Grid-Forming Controllers Market, Segmentation by Type:**

Droop Control-based Controllers

Virtual Synchronous Machine Controllers

Virtual Oscillator Control-based Controllers

### **Global Grid-Forming Controllers Market, Segmentation by Controller Architecture:**

Centralized Plant Controllers

Distributed Unit Controllers

Hierarchical Coordinated Controllers

### **Global Grid-Forming Controllers Market, Segmentation by Supported Plant Capacity:**

Small-scale(<10 MW)

Medium-scale(>10–100 MW)

Large-scale(>100 MW)

### **Global Grid-Forming Controllers Market, Segmentation by Application:**

Voltage and Frequency Formation

Synthetic Inertia and Fast Frequency Response

Black Start and Weak-grid Stabilization

Other

## **Companies Profiled:**

SMA Solar Technology AG

Hitachi Energy Ltd.

Siemens Energy AG

GE Vernova Inc.

Schneider Electric SE

ABB Ltd.

Wärtsilä Corporation

Fluence Energy, Inc.

Tesla, Inc.

Nidec Conversion

Ingeteam S.A.

Power Electronics S.L.

Toshiba Energy Systems & Solutions Corporation

Mitsubishi Electric Corporation

LS ELECTRIC Co., Ltd.

Sungrow Power Supply Co., Ltd.

Huawei Digital Power Technologies Co., Ltd.

Sineng Electric Co., Ltd.

NR Electric Co., Ltd.

Shenzhen KSTAR Science and Technology Co., Ltd.

Kehua Data Co., Ltd.

CRRC Zhuzhou Institute Co., Ltd.

Shenzhen Hopewind Electric Co., Ltd.

Beijing HyperStrong Technology Co., Ltd.

XJ Electric Co., Ltd.

## Key Questions Answered

1. How big is the global Grid-Forming Controllers market?
2. What is the demand of the global Grid-Forming Controllers market?
3. What is the year over year growth of the global Grid-Forming Controllers market?
4. What is the total value of the global Grid-Forming Controllers market?
5. Who are the Major Players in the global Grid-Forming Controllers market?
6. What are the growth factors driving the market demand?

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