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Guidehouse Research Leaderboard: Home Energy Management Systems Providers

Assessment of Strategy and Execution for
10 Home Energy Management Systems Providers

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Section 1
Executive Summary

1.1 Market Introduction

Home energy management systems (HEMS) measure, monitor, and manage residential energy usage. Two main types of HEMS are on the market today: in-home HEMS and grid-based HEMS. In-home HEMS are typically based on smart technologies installed in the home that can monitor and manage multiple end uses like space heating and cooling, water heating, and EV charging. Grid-based HEMS are products and services that enable utilities to measure and manage residential energy use, typically through software platforms that integrate data from a variety of sources including utility meters, in-home devices, and external systems. While in-home HEMS providers have historically targeted consumers as their main customer base and grid-based HEMS providers have targeted utilities, an emerging trend among HEMS providers is to offer products and solutions for both customer segments.

This *Guidehouse Research Leaderboard* examines 10 HEMS providers that offer residential energy management solutions with features for consumers, utilities, or both. The companies included in this analysis offer either in-home or grid-based HEMS, with many offering a combination of the two. The criteria by which vendors are compared in this *Leaderboard* include:

- Vision
- Go-to-Market Strategy
- Partners
- Technology
- Geographic Reach
- Sales, Marketing, and Distribution
- Product Performance
- Product Portfolio
- Support and Services

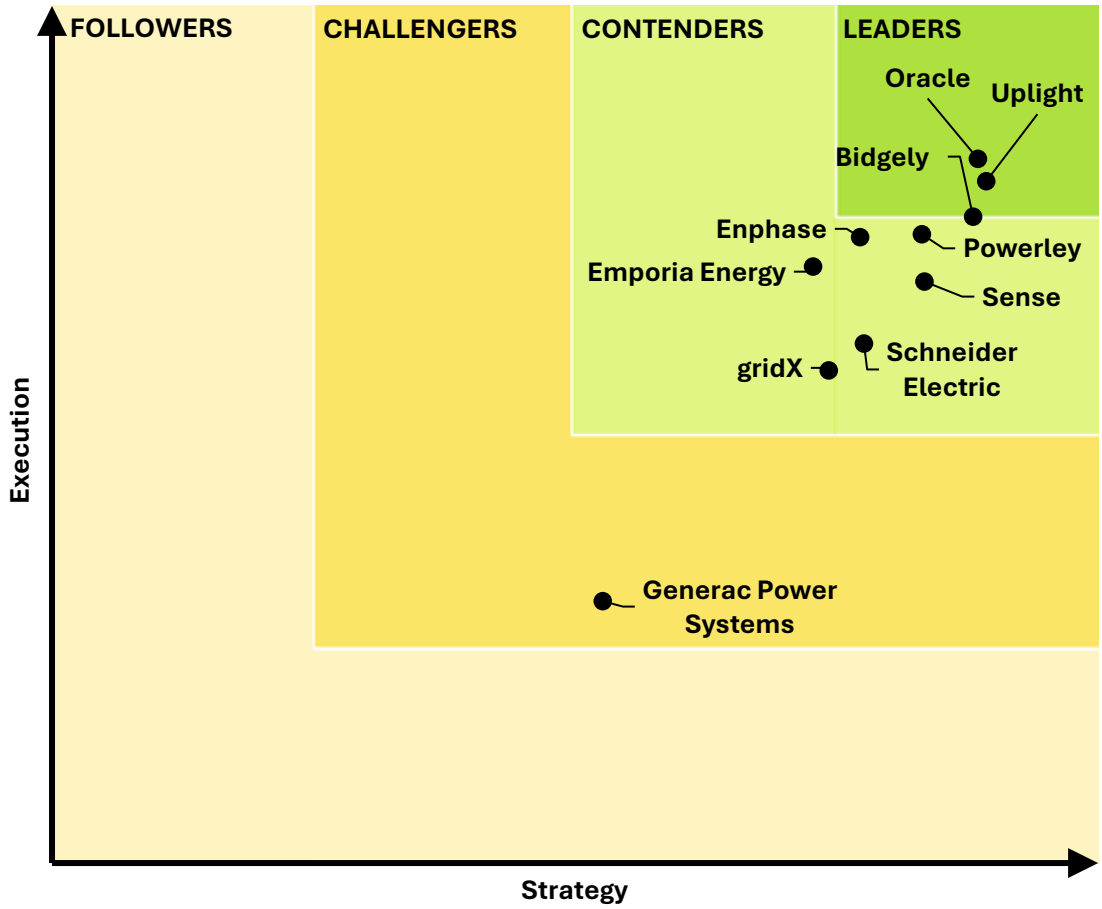
Detailed descriptions of each criterion are provided in the Criteria Definitions section of this report.

1.2 The Guidehouse Research Leaderboard Grid

Three companies achieved Leader status in this analysis: Oracle, Uplight, and Bidgely. These companies are distinguished by their leading-edge technologies,

comprehensive sets of energy management features for both consumers and utilities, robust end-user bases, and well-documented performance for delivering energy savings and other benefits from energy management. Six companies ranked as Contenders: Powerley, Sense, Enphase, Emporia Energy, Schneider Electric, and gridX. Generac Power Systems is the only company ranked as a Challenger, largely due to its recent introduction of its comprehensive HEMS.

Chart 1-1. The Guidehouse Research Leaderboard Grid



(Source: Guidehouse Research)

Section 2
Market Overview

2.1 Market Definition

HEMS providers are companies that offer systems for measuring, monitoring, and managing residential energy use. Two main types of HEMS are on the market today: in-home HEMS and grid-based HEMS. In-home HEMS typically include hardware installed in the home that monitors and controls multiple energy end uses. Grid-based HEMS are products and services that enable utilities to measure and manage residential energy use, typically through software platforms that integrate data from a variety of sources including advanced metering infrastructure (AMI), in-home devices, utility systems, and external sources like weather forecasts.

The home energy management market comprises two primary customer segments: consumers and utilities. Consumers typically purchase HEMS to gain a better understanding and control over their energy consumption, whereas utilities invest in HEMS to have greater visibility and management over residential energy consumption in their territories. While historically in-home HEMS providers targeted consumers and grid-based HEMS providers targeted utilities, more recently providers have moved toward developing products and strategies to reach both customer segments.

This *Leaderboard* evaluates both in-home and grid-based HEMS providers. While many HEMS providers are in the market today, this report focuses on providers with systems that offer whole-home energy management and include more than one major energy system in the home. These include HVAC equipment, EV charging equipment, solar PV systems, and battery storage systems.

2.2 Market Drivers

HEMS are an increasingly relevant technology as residences become more grid interactive. Both consumers and utilities are interested in HEMS to leverage grid-connected residential energy assets to provide benefits to both consumers and the grid. The following drivers are likely to contribute to growing demand for HEMS.

- **Consumer adoption of distributed energy resources (DER):** Consumers continue to adopt DER at a higher rate, which is likely to drive both consumer and utility demand for HEMS. From the consumer perspective, growing DER adoption creates a need for HEMS that can provide greater control over their new home energy resources. This becomes particularly true for equipment associated with large energy impacts on the home like EV charging, solar generation, and battery storage. From the utility perspective, consumer-

installed DER provide both an opportunity and challenge for operating the grid. HEMS allow utilities to both address the challenges posed by customer-installed DER and tap into the opportunities that they offer.

- **Technological advances:** The growth of IoT and AI has led HEMS to become more comprehensive and scalable, making them more attractive to both consumers and utilities. Furthermore, with many facets of consumers' everyday lives becoming more digitalized, consumers are beginning to expect smart systems in the products and services that they buy, including their energy equipment and services.
- **Rising energy costs:** In recent years, the cost of energy has risen as a result of global supply chain disruptions and inflation, creating an increased demand for HEMS from both consumers and utilities. A growing number of consumers are purchasing HEMS to help reduce their energy bills. Likewise, more utilities and power providers are investing in HEMS to help combat and curb rate increases for their customers. This is likely to remain a persistent driver in the future, as many load forecasts indicate growing electricity demand is going to require significant investments in increasing supply capacity, which will likely drive up the cost of energy for customers.
- **Utility business model evolution:** Around the world, utility business models are having to evolve to address new challenges in supplying reliable and affordable energy and meet new regulatory requirements. Many of these changes create a market environment that is supportive of HEMS, including net metering regulations, time-varying rates, renewable standards, and energy efficiency and demand response programs.

2.3 Market Barriers

While the HEMS market has matured significantly over the last decade, it still has considerable room to grow and evolve. Uncertainty about how and when this growth is likely to occur can make it challenging for HEMS providers to successfully navigate the market. The following are the primary barriers in the HEMS market, particularly as they relate to HEMS providers.

- **Highly competitive and crowded market:** The number of companies entering the HEMS market continues to grow year over year, creating greater competition for customers' attention. As the market becomes increasingly crowded, HEMS providers will need to be strategic about which companies they choose to partner with in order to gain a competitive advantage.
- **Localized markets:** Successful HEMS providers must strike a balance in developing a system comprehensive enough to serve a large end-user base but also agile enough to be adapted for local markets. For example, HEMS that are based on in-home equipment need to be able to integrate with other home energy equipment and devices, which tend to vary from country to

country. Likewise, grid-based providers need to be able to provide solutions for utilities in different markets that face unique challenges and regulatory requirements and therefore require specific software tools that comply with local regulations. Achieving this balance between a comprehensive platform and a customizable platform is not easy and will likely remain a barrier as long as the HEMS market exists.

- **Integration and communication protocols:** The lack of widely adopted standardized communication protocols is a challenge for platform integration because companies must integrate with third-party products and systems on an individual basis. This ultimately requires companies to dedicate significant time and resources to ensure quality integrations with third parties.
- **Cybersecurity:** Cybersecurity will always present a risk to HEMS providers, as a security breach can be devastating for their brand reputation. As a result, all HEMS providers must invest heavily in developing state-of-the-art security systems and protocols. Despite these investments, cybersecurity can also act as a barrier to HEMS adoption, particularly in the utility software-as-a-service (SaaS) market, as utilities can be fearful of cybersecurity risks, especially if breaches could expose customer data.
- **Consumer interest:** While the growth in consumer-adopted DER signifies an increased consumer interest in more active engagement with home energy systems, the vast majority of consumers remain disengaged from their energy use. This is largely a challenge for in-home hardware-based HEMS providers, as they require homeowners to purchase and install HEMS devices and can only scale based on the number of consumers interested in energy management.

2.4 Market Trends

Over the next decade, Guidehouse Research expects global revenue from in-home and grid-based HEMS to grow from an estimated $920.0 million in 2025 to $1.5 billion in 2034 at a CAGR of 5.2%.

North America has the most mature market for HEMS, largely because the major grid-based HEMS providers have been operating in the region for over a decade. HEMS revenue is projected to grow from $521.3 million in 2025 to $712.7 million in 2034 at a CAGR of 3.5%, driven by greater adoption of both in-home and grid-based HEMS.

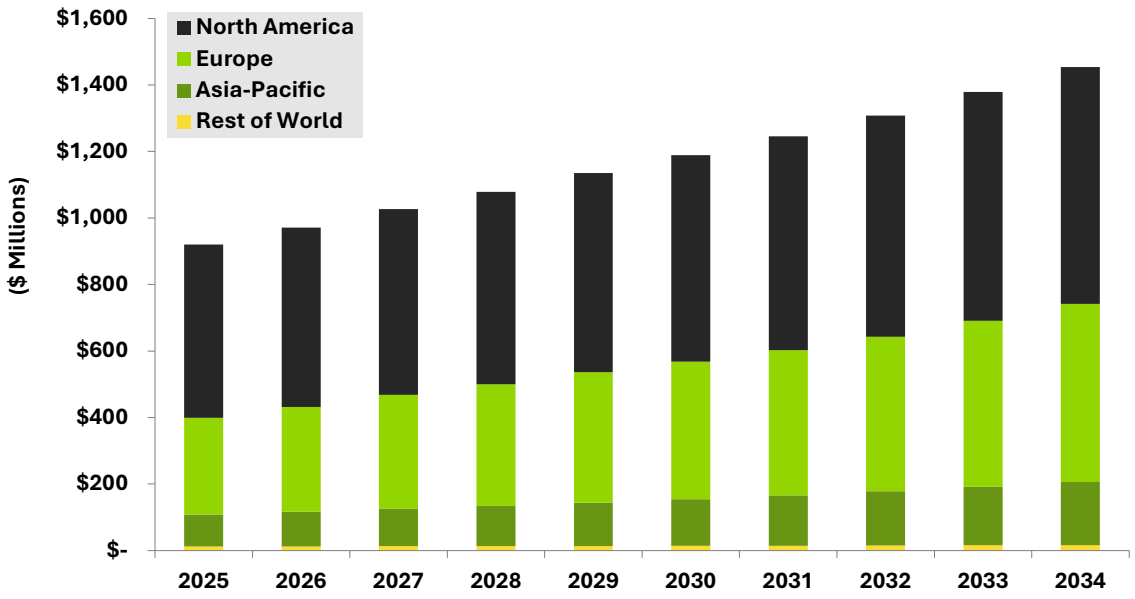
Europe's HEMS market is the second-largest globally and is expected to grow substantially over the next 10 years. Revenue in the region is forecast to nearly double from $290.2 million in 2025 to $535.4 million in 2034 at a CAGR of 7.0%. Both in-home HEMS and grid-based HEMS are expected to drive revenue growth,

as both consumers and power providers are increasingly adopting these technologies to manage residential energy use and reduce energy costs.

Asia-Pacific has a smaller and more nascent HEMS market, mainly due to two factors: lower average household income and less modern grid infrastructure. Household income limits adoption of in-home HEMS because households are less likely to own smart home equipment, particularly systems with high costs like solar and energy storage systems. Grid infrastructure limits the value that more advanced SaaS offerings can offer to utilities and other energy providers, making it difficult for grid-based HEMS vendors to enter the market. However, both in-home and grid-based HEMS providers have been successfully expanding in this region over the last few years and are committed to growing their presence. HEMS revenue in Asia-Pacific is anticipated to grow from $96.7 million in 2025 to $189.6 million in 2034 at a CAGR of 7.8%.

The HEMS market in the rest of the world (i.e., Latin America and the Middle East & Africa) is significantly smaller, due to the same factors that limit growth in Asia-Pacific. Revenue is expected to grow from $11.8 million in 2025 to $16.1 million in 2034 at a CAGR 3.5%.

Chart 2-1. HEMS Revenue, World Markets: 2025-2034



(Source: Guidehouse Research)

Section 3
The Guidehouse Research Leaderboard

3.1 The Guidehouse Research Leaderboard Categories

Guidehouse Research scored the vendors in this *Guidehouse Research Leaderboard* according to four categories: Leaders, Contenders, Challengers, and Followers. These categories are defined here.

3.1.1 Leaders

Leaders are vendors that scored 75 or above in both Strategy and Execution. These companies have clearly differentiated themselves from the competition through prudent go-to-market strategies, leading-edge technologies, strong partnerships, well-documented product performance, and sizable end-user bases. Leaders are currently in the strongest position for long-term success in the HEMS market.

3.1.2 Contenders

Contenders are vendors that scored higher than 50 in both Strategy and Execution but are not yet Leaders. While these companies have a solid foundation for growth and long-term success, they have not attained a superior position in the market. They are well positioned to become Leaders but either have not yet fully executed their product launches, have reached fewer end users relative to Leaders, or have developed less robust HEMS features for either consumers or utilities.

3.1.3 Challengers

Challengers are vendors that scored higher than 25 in both Strategy and Execution but are not yet Contenders for market leadership. While these companies are fundamentally sound, they face significant challenges stemming either from a lack of strategic vision or investments, or from risks to successful potential execution. These vendors are likely to have only recently introduced their HEMS to the market and therefore score lower for fewer partnerships, less advanced technologies with fewer features, small end-user bases, and little data to support their product performance claims.

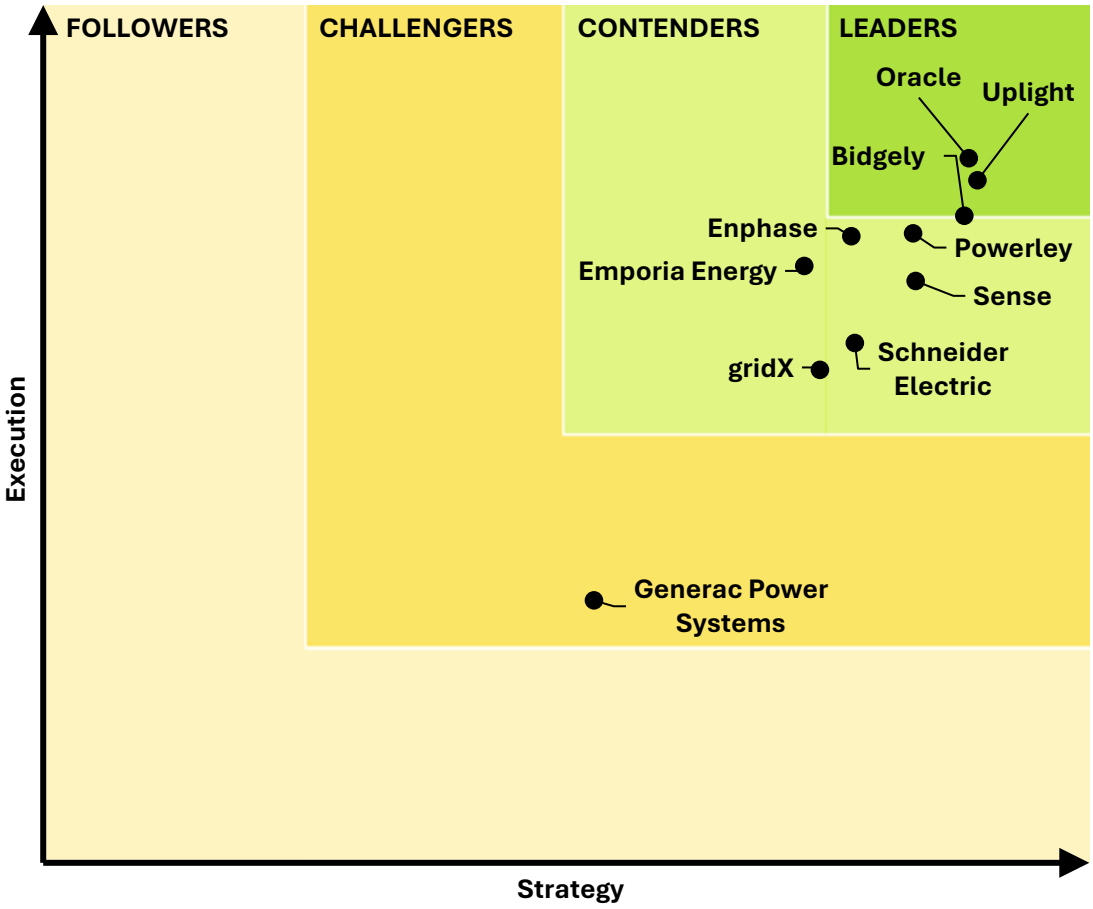
3.1.4 Followers

Followers are vendors that have failed to distinguish themselves and scored below 25 in Strategy or Execution (or both). These companies are not currently expected to challenge the Leaders unless they can substantially alter their strategic vision and expand their resources. No companies scored as Followers in this *Leaderboard*.

3.2 The Guidehouse Research Leaderboard Grid

Three companies achieved Leader status in this analysis: Oracle, Uplight, and Bidgely. These companies are distinguished by their leading-edge technologies, comprehensive sets of HEMS features for both consumers and utilities, large end-user bases, and well-documented performance for delivering energy savings and other HEMS benefits.

Chart 3-1. The Guidehouse Research Leaderboard Grid



(Source: Guidehouse Research)

All of the remaining companies in this analysis achieved Contender status aside from one, Generac Power Systems, which achieved Challenger status largely due to its relatively new entrance to the HEMS market. Across the board, Contenders have strong visions for the HEMS market, mature technologies, considerable HEMS features for both consumers and utilities, and strong customer support offerings. This is unsurprising, as these attributes are necessary for remaining competitive in the HEMS market. Beyond these attributes, Contenders vary considerably across their Strategy and Execution, underscoring the diverse and

unique technologies and business models among HEMS providers in this *Leaderboard*, and in the HEMS market more broadly.

Table 3-1. The Guidehouse Research Leaderboard Overall Scores

Rank	Company	Score
1	Oracle	85.4
2	Uplight	84.6
3	Bidgely	82.0
4	Powerley	78.4
5	Sense	76.0
6	Enphase	75.2
7	Emporia Energy	71.2
8	Schneider Electric	69.6
9	gridX	66.4
10	Generac Power Systems	43.0

(Source: Guidehouse Research)

Section 4
Company Rankings[1]

4.1 Leaders

To qualify for the Leaders category, a company must score 75 or higher in both Strategy and Execution. This *Guidehouse Research Leaderboard* features three Leaders: Oracle, Uplight, and Bidgely.

4.1.1 Oracle

Overall Score: 85.4

Strategy: 88.5

Execution: 82.2

Oracle, headquartered in Austin, Texas, is an enterprise software and IT company that employs 160,000 people globally and reported revenue of $53.0 billion in fiscal year 2024. The Oracle Energy and Water platform offers a suite of utility-focused solutions for customer care and engagement, grid and network management, and data analytics. To date, close to 200 utilities have used this platform to deliver HEMS solutions.

As part of its Opower-branded product line, Oracle Energy and Water offers a wide variety of HEMS features for both utilities and their customers, including home energy reports (HERs), rates engagement, proactive alerts, device automation, and personalized consumer marketing. The company has demonstrated its commitment to not only advancing its existing HEMS features but also introducing new ones to meet the evolving needs of utility clients, their customers, and the market. Recent innovations include the use of affordability analytics to promote program enrollment, peak period disaggregation, and generative AI (GenAI) features to provide enhanced customer service.

Oracle has maintained its position as a Leader in the HEMS market by demonstrating its ability to execute on its well-thought-out strategies. It scored strongly across all Strategy criteria due to its clear vision for the HEMS market, highly scalable go-to-market strategy, advanced technology, and wide global reach. In particular, the company's commitment to advancing its HEMS technology and its ability to leverage the broader Oracle IT platform to develop comprehensive utility systems gives the company a unique advantage in the market and earned it a high score for the Technology criterion. As the company

[1] Note that company profiles reflect information gathered through December 2024.

has been operating in the HEMS market for over 15 years, it can provide many examples of how it has been able to rapidly introduce new features and scale its capabilities.

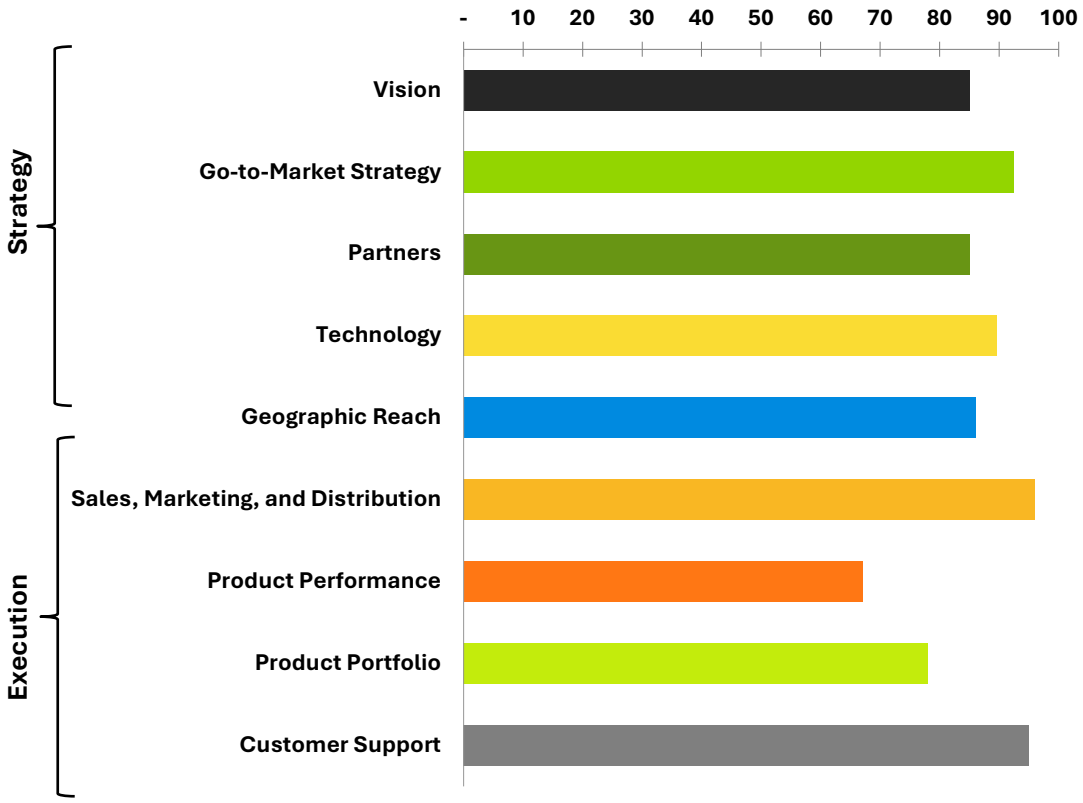
Oracle has a proven track record of not only maintaining and growing existing customer relationships but also entering new global markets, justifying its high scores for both the Go-to-Market Strategy and Geographic Reach criteria. Furthermore, the company has the largest user base of any HEMS providers, earning it the highest score for the Sales, Marketing, and Distribution criterion.

Oracle's lowest score was for the Product Performance criterion due to its relatively low energy savings per household. While the company's energy savings per household are competitive with other leading AMI-based HEMS providers, they are lower than those of several other HEMS providers evaluated in this *Leaderboard*. However, due to the company's large user base, it has been able to save customers $3.6 billion in cumulative energy bill savings since 2009, illustrating the value of the scale that AMI-based HEMS can achieve. In addition to energy savings, the company continues to demonstrate its ability to deliver benefits from its HEMS, including reducing peak EV charging by 25%, driving a tenfold increase in heat pump interest, and achieving an 89% customer satisfaction rating, all of which contributed to its Product Performance score.

Overall, Oracle has proven its ability to not only execute on its forward-looking vision and go-to-market strategy but also deliver its HEMS at a market-leading scale. As long as it continues to execute on its vision and strategy, the company is likely to remain a Leader in this market in the long term.

oracle.com

Chart 4-1. Oracle Strategy and Execution Scores



(Source: Guidehouse Research)

4.1.2 Uplight

Overall Score: 84.6

Strategy: 89.3

Execution: 79.6

Based in Boulder, Colorado, Uplight is a privately held clean energy technology and SaaS company for energy providers. Formed in 2019, the company's HEMS helps utilities and their customers conserve and manage residential energy use.

Uplight's platform is designed to enable utilities and other energy providers to drive active customer participation in the clean energy transition. Its Customer Engagement solutions portfolio offers many energy management solutions including HERs, utility marketplaces, rate education and coaching, and managed EV charging. Customer engagement is central to the platform, and the company has invested heavily in identifying ways to make the customer journey to understanding and managing energy use as simple and connected as possible. The company leverages these connected customer journeys to accelerate its Flexibility Management solutions portfolio offerings, which enable energy providers to leverage customer-sited DER to deliver demand flexibility, resilience, and decarbonization outcomes.

Despite being one of the younger companies in this *Leaderboard*, Uplight has one of the most advanced HEMS in terms of cutting-edge technology, earning it a high score for the Technology criterion. The company continues to expand and improve on its energy management features, as illustrated by its acquisition of AutoGrid in 2023, which added a market-leading edge DER management system (DERMS) to its platform, enabling it to provide advanced load management solutions to its clients. The company is able to process and deliver more than 268 million customer touchpoints a year, underscoring the technical power and scalability of the Uplight platform.

Uplight's ability to execute on its vision and go-to-market strategy is underscored by its tremendous growth in the last few years. It has one of the largest end-user bases of any HEMS providers and continues to win business with new clients, including 8 of the 10 largest electric utilities in North America, justifying its high score for the Sales, Marketing, and Distribution criterion.

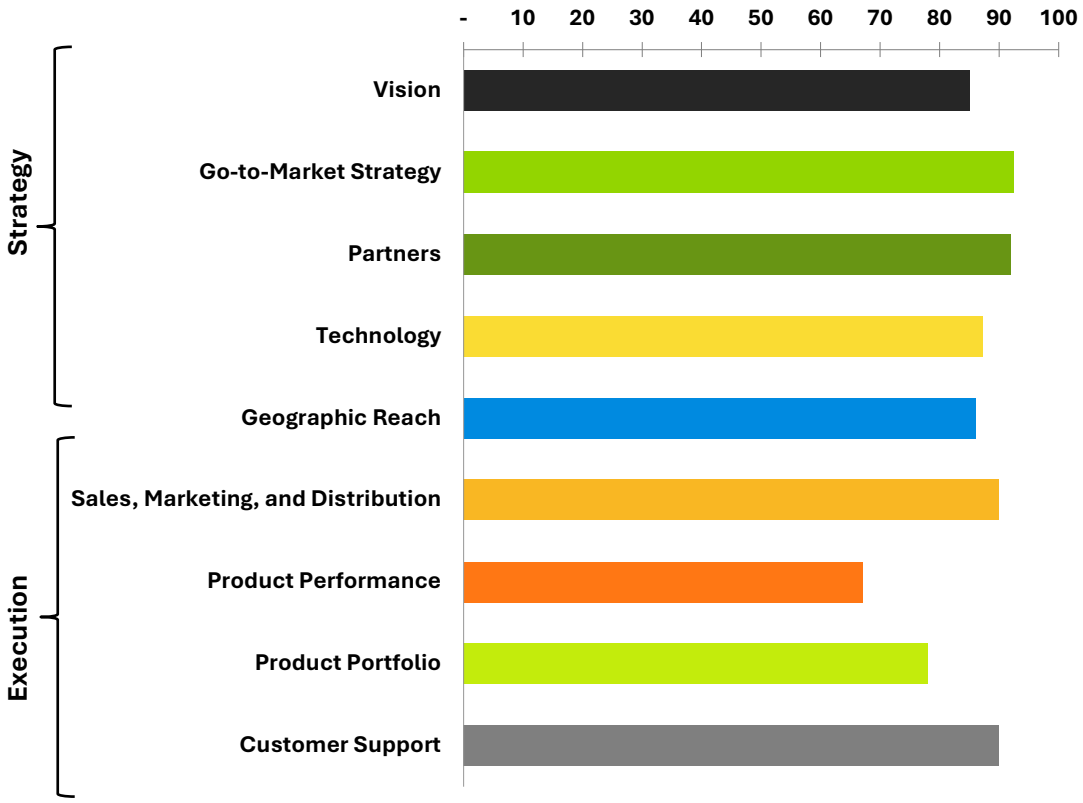
Uplight is able to provide robust data on the performance of its HEMS, including delivering 7.85 TWh of energy savings, achieving a 50% conversion between marketplace purchases and demand response preenrollment, and increasing marketplace transactions by a factor of 2.6. While the company is able to demonstrate significant cumulative energy savings due to its large user base, it scored lower in the Product Performance category due to its low energy savings

per household relative to other companies in this *Leaderboard,* much like the other Leaders.

Uplight has proven to have one of the most robust HEMS in terms of cutting-edge technology, global reach, and end-user bases. The company's rapid and sustained growth in the last few years does not show signs of slowing, solidifying its place as a Leader in the HEMS market.

uplight.com

Chart 4-2. Uplight Strategy and Execution Scores



(Source: Guidehouse Research)

4.1.3 Bidgely

Overall Score: 82.0

Strategy: 88.0

Execution: 75.4

Based in Los Altos, California, Bidgely is an energy intelligence SaaS provider focused on helping utilities use disaggregation, data, and AI to achieve their business objectives and engage their customers with personalized energy insights. Founded in 2011, the company currently works with over 30 utility clients covering more than 30 million meters globally.

In the HEMS space, Bidgely's UtilityAI platform enables utilities to target all customers, regardless of whether they have a smart meter installed. Its analytics dashboards provide greater visibility into customer equipment ownership and hour-by-hour usage—what Bidgely calls "8760 load curves" (based on the number of hours in a year). It also offers forward-looking predictive tools for grid planning, EV grid intelligence to find and target EVs on the grid, and appliance-level behind-the-meter segmentation. The company also offers many customer-facing solutions to help consumers understand and manage their energy use including hyper-personalized HERs, time-of-use (TOU) rate enrollment and coaching, and managed EV charging.

Bidgely continues to advance its platform to make home energy management more interactive, explainable, and automated, earning it a high score for the Technology criterion. In 2024, the company announced new solutions that leverage GenAI to provide enhanced capabilities for engaging customers and managing grid assets. Its Energy Assistant solution uses GenAI to provide customers and customer support teams with instant answers, insights, and recommendations surrounding their energy use. The company also launched Grid Assistant to provide a conversational interface that helps energy companies query meter data, analyze DER, and monitor grid assets.

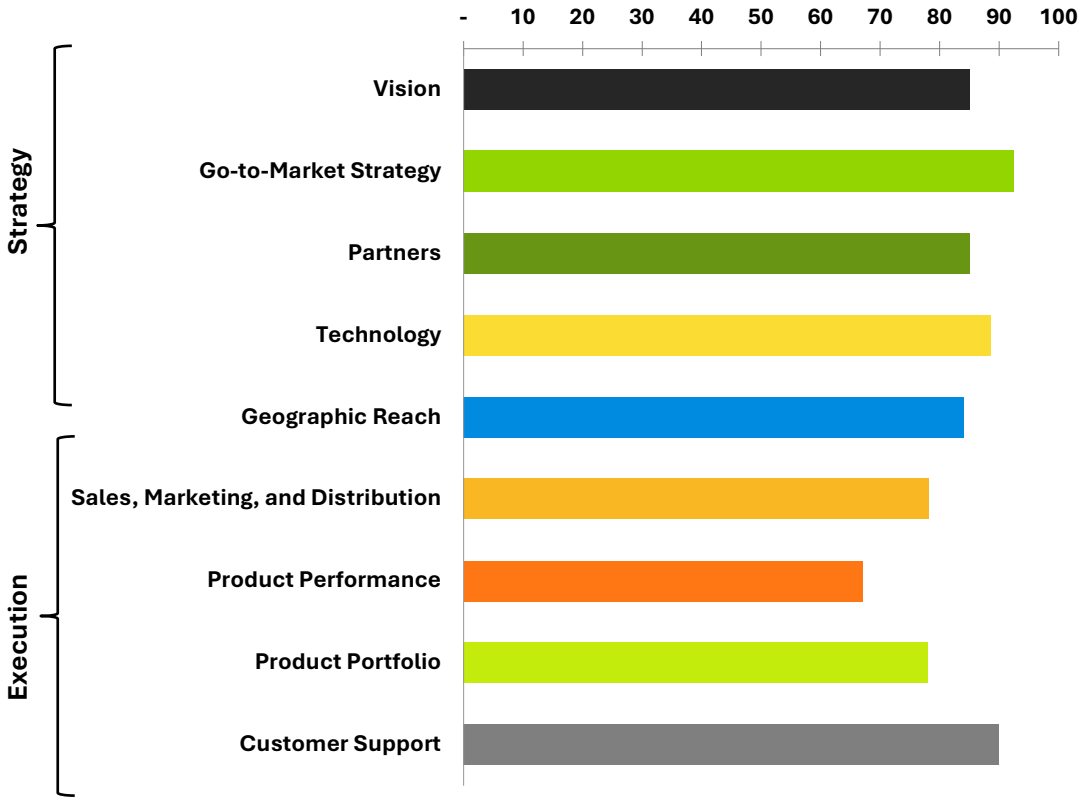
Bidgely earned high scores across the other Strategy criteria for its strong strategic vision and highly scalable go-to-market strategy for expanding its reach in the HEMS market. The company has pursued several highly strategic partnerships that will open it up to new clients, as well as streamlined its integration capabilities so that it can scale more rapidly, contributing to its high scores for both the Partners and Technology criteria. For example, the company has partnered with the National Information Solutions Cooperative (NISC), a major IT provider for rural utility cooperatives, to integrate Bidgely's platform with NISC's solutions. The partnership has successfully allowed Bidgely to expand its client base, with over 36 cooperatives now delivering Bidgely insights to 1.5 million members.

While Bidgely has a smaller end-user base than the other Leaders, it still has one of the largest user bases of companies in the market, justifying its strong score for the Sales, Marketing, and Distribution criterion. In terms of Execution, the company also scored highly for its robust customer support offerings including its new GenAI solutions. The company received a lower score for Product Performance due to its relatively low savings per household, which, like the other Leaders, are lower than the savings delivered by several of the other HEMS providers in this *Leaderboard*. However, as with the other Leaders, the company is able to help customers save a significant amount of energy in the aggregate due to its large user base and highly scalable technology. Its solutions have driven over 1 TWh in energy savings while maintaining high customer satisfaction ratings.

Bidgely has successfully demonstrated its ability to deliver quality services to its clients and their customers. Overall, the company's dedication to expanding its platform capabilities, reaching new clients, and delivering quality services suggests that it will remain a Leader in the HEMS market for the foreseeable future.

bidgely.com

Chart 4-3. Bidgely Strategy and Execution Scores



(Source: Guidehouse Research)

4.2 Contenders

To qualify for the Contenders category, a company must score 50 or higher in both Strategy and Execution. This *Guidehouse Research Leaderboard* features six Contenders: Powerley, Sense, Enphase, Emporia Energy, Schneider Electric, and gridX.

4.2.1 Powerley

Overall Score: 78.4

Strategy: 83.2

Execution: 73.4

Powerley is a privately held SaaS business that was founded in 2015. The company provides a HEMS for utilities to offer to their customers. It is headquartered in Royal Oak, Michigan, and employs approximately 50 people.

Powerley offers three levels of HEMS platforms to provide utilities flexible options for meeting varying customer needs. The entry level offering, LITE, is a white-label mobile app that allows utilities to provide high-level energy use information to homeowners. The more advanced offerings, LIVE and LINK, leverage a proprietary in-home device, named the Energy Bridge, to connect to the home's electric meter and send real-time data to the Powerley platform. In 2021, the company introduced a second in-home device, the Powerlync, which is a smart plug that provides the same capabilities as the Energy Bridge but is more cost-effective and easier to install. The Powerley platform offers many features for home energy management including highly accurate load disaggregation, energy use data visualizations, personalized coaching, and DER management.

Powerley has a strong strategic vision for how to expand its presence in the HEMS market. The company has pursued several strategic partnerships to grow its sales channels, including partnerships with Oracle and NET2GRID. Through these partnerships and its own direct sales channels, Powerley has successfully grown its client base to 20 utility partners, significantly increasing the number of end users on its platform over the last few years, earning it a high score for both the Partners and Go-to-Market Strategy criteria. While the NET2GRID partnership has allowed the company to explore expansion in Europe, the company still largely operates only in North America, limiting its score for Geographic Reach.

Powerley has also leveraged strategic partnerships to advance the technological capabilities of its platform. In 2024, the company announced a partnership with Enode, an API provider, to allow users to enroll their DER into the Powerley platform. The partnership allows Powerley to deliver minute-level insights to both utilities and their customers and enables deeper control and optimization of DER,

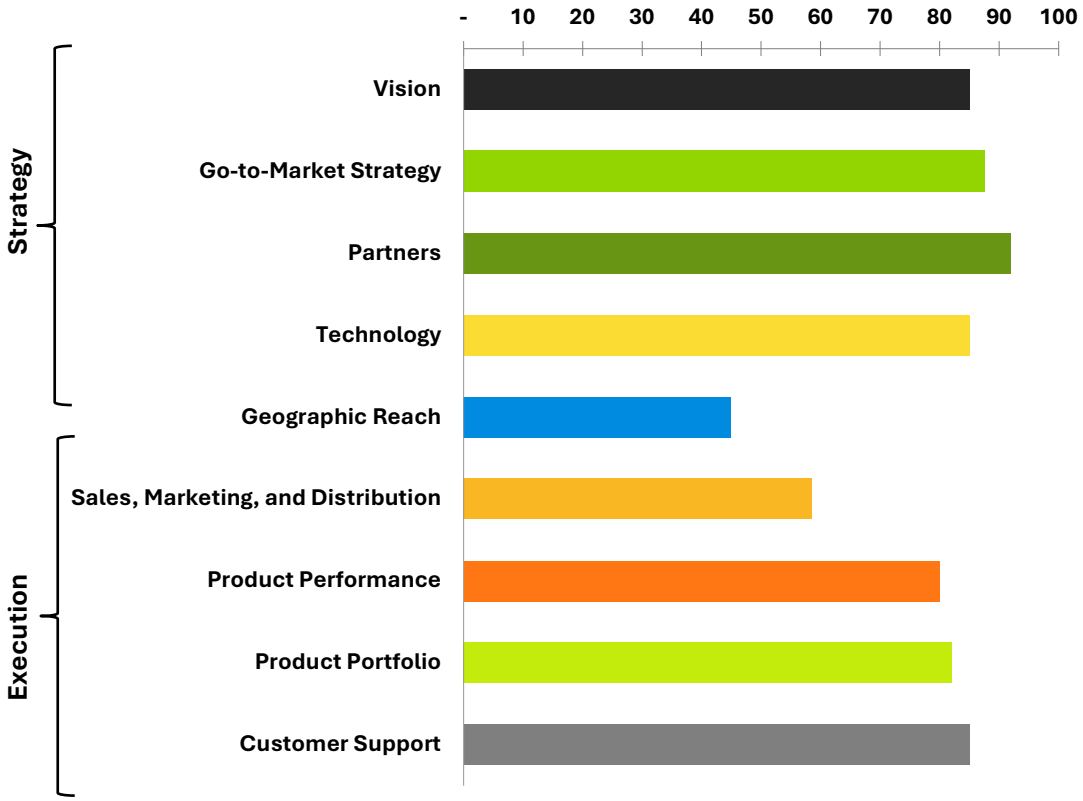
both of which contributed to its strong scores for the Partners and Technology criteria.

In terms of Execution, Powerley scored well across the Product Performance, Product Portfolio, and Support and Services criteria. The company has provided performance data from third-party evaluations showing that its real-time data analytics can achieve high energy savings per customer, contributing to its strong Product Performance score. The company received a lower score for Sales, Marketing, and Distribution due to its small user base relative to the Leaders in this report.

Powerley's ability to provide utilities and their customers real-time load disaggregation and insights gives the company a strong position in the HEMS market. The company expects its real-time energy solutions to drive greater customer engagement, and in turn, greater energy savings and demand flexibility. Its solid growth over the last few years and strategic positioning places Powerley in a strong position among the Contenders.

powerley.com

Chart 4-4. Powerley Strategy and Execution Scores



(Source: Guidehouse Research)

4.2.2 Sense

Overall Score: 76.0

Strategy: 83.4

Execution: 67.8

Sense is a privately held company based in Cambridge, Massachusetts, with approximately 100 employees. The company was founded in 2013 as a direct-to-consumer business that sold real-time home energy monitoring devices. In 2019, the company partnered with Landis+Gyr, an AMI manufacturer, to embed Sense software into next-generation meters. The company has since scaled this approach by partnering with other leading AMI manufacturers including Itron, Sensus, and Trilliant, and it is now Sense's primary go-to-market strategy.

The Sense HEMS uses high-resolution data (up to 1 MHz), edge computing, and machine learning to identify devices and monitor energy use in real-time. Advanced meters with Sense embedded provide enhanced monitoring, control, and automation of home energy use to both utilities and their customers. The company offers a mobile app for consumers that provides many energy management features, including intuitive visualizations of real-time energy use, third-party device integration, automated management of connected devices, and personalized recommendations for how to save energy.

Part of Sense's vision for the HEMS market is to democratize data from next-gen AMI to ensure consumers get the benefits from this new technology, contributing to its strong score for the Vision criterion. Its strategy of partnering with AMI manufacturers is proving to be successful for executing on this vision while simultaneously scaling its end-user base, justifying the company's high scores for both the Partners and Go-to-Market Strategy criteria. The company primarily operates in North America but has been conservatively laying the groundwork to expand to markets in Europe and Asia-Pacific. Its limited global presence contributed to its lower score for Geographic Reach.

Sense's Execution score was largely limited by its low end-user base. To date, its end-user base is primarily from consumers purchasing its in-home monitors, as the first Sense-embedded AMI meters have only recently started being installed. However, as more meters are deployed, the company is likely to see strong growth in its end-user base due to the scale at which AMI meters are contracted and deployed. Currently, the company has 5 million meters under contract, with several million more in the pipeline.

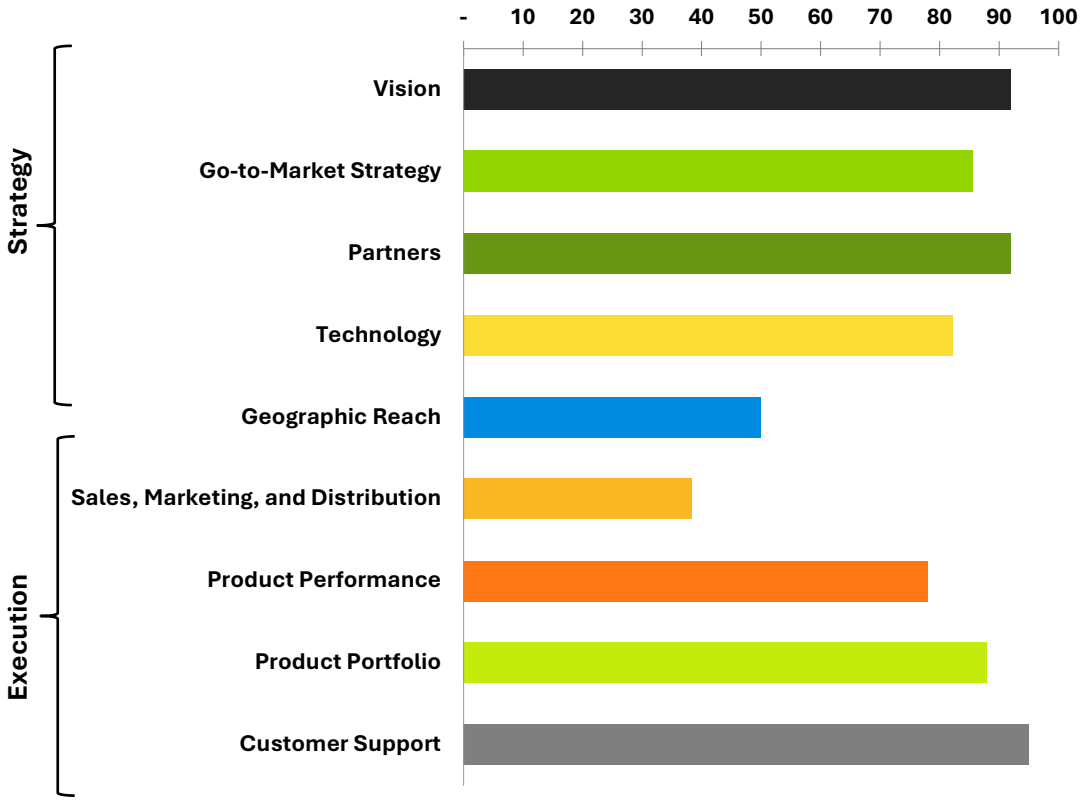
Sense has some of the strongest performance data to prove its ability to deliver benefits to consumers and the grid, justifying its high score for the Product

Performance criterion. Third-party evaluations have demonstrated that Sense technology can help consumers reduce their energy use by 5% on an annual basis. The company has also partnered with OhmConnect (now Renew Home) to provide a virtual power plant (VPP) platform that has helped customers reduce their energy use by 18% during peak demand events. The company boasts a strong ability to engage consumers, with over 50% of its end users accessing the app weekly.

Sense is well positioned to continue its growth in the foreseeable future. Its partnerships with AMI manufacturers are not only driving its growth in North America, but will likely enable the company to expand globally in regions where similar next-gen AMI investments are expected to occur. Overall, the company is likely to remain a Contender in the HEMS market and potentially become a Leader as it continues to scale.

sense.com

Chart 4-5. Sense Strategy and Execution Scores



(Source: Guidehouse Research)

4.2.3 Enphase

Overall Score: 75.2

Strategy: 77.3

Execution: 73.0

Enphase was founded in 2006 in Fremont, California. The company began as a solar inverter manufacturer and has since expanded its product portfolio to provide a comprehensive HEMS, known as the Enphase Energy Management System. The company employs nearly 2,840 people across its global offices and has installed over 4.5 million Enphase-based systems in more than 160 countries.

The Enphase Energy Management System is built around four proprietary technologies: (1) the Enphase IQ Microinverter for solar PV systems, (2) the Enphase IQ Battery, (3) the Enphase IQ EV Charger, and (4) the Enphase App. The underlying AI-based IQ Energy Management software maximizes the benefits of these technologies for homeowners. The system provides a wide variety of features for consumers to manage their energy use including energy use data visualizations, simplified settings to input user preferences, automations to help consumers maximize self-consumption and solar generation, green charging for EVs, and energy bill savings for customers with TOU rates.

Enphase also enables consumers to connect third-party devices into the system including EV chargers, battery systems, and heat pumps. The company has a very deliberate approach for third-party integration, which has largely been informed by its acquisition of GreenCom Networks, an IoT company, in 2022. Enphase requires all third-party device manufacturers to enter a service contract, which ensures that both companies are dedicated to maintaining a quality integration. The company's intentional approach to partnerships and product integration contributed to its high scores for both the Technology and Partners criteria. The company also works with integration partners to develop installation manuals for its contractor network so that any Enphase contractor can easily install and connect third-party devices into a customer's Enphase system, contributing to its high score for Support and Services.

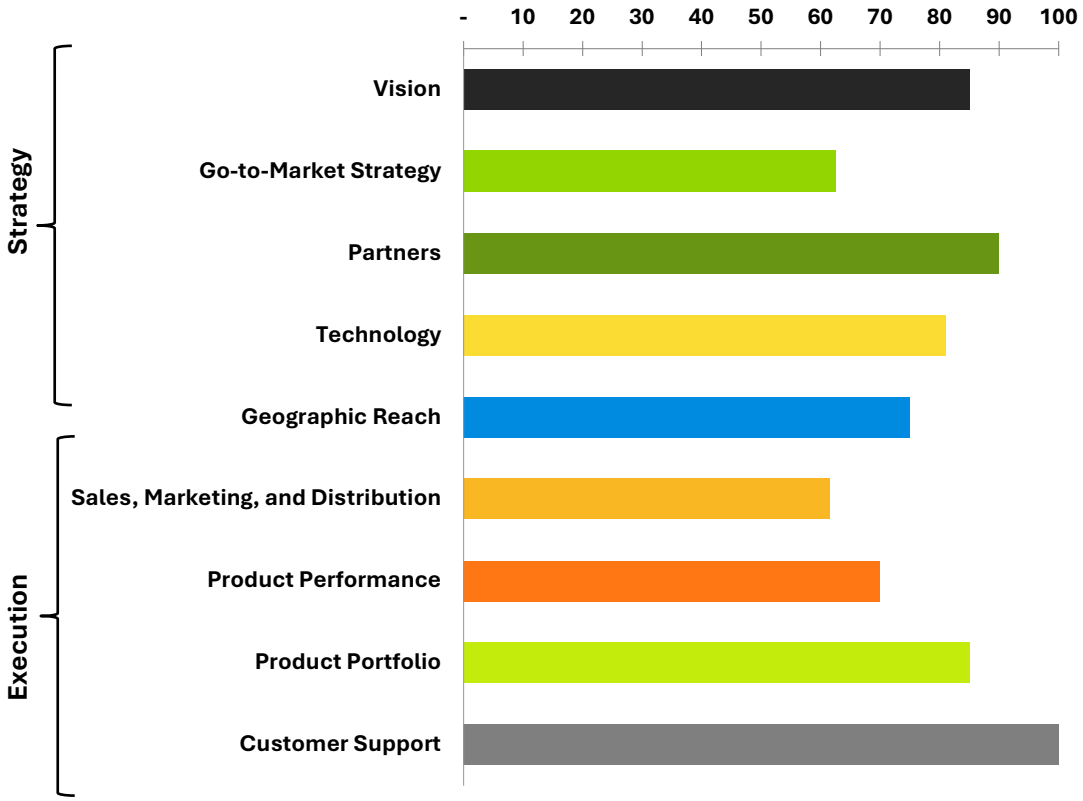
Enphase's strategy for expanding its reach in the HEMS market has focused on providing a quality high-end product for consumers. Just as the company has focused on quality integrations with third-party devices, it has also formed strong partnerships with utilities and power providers so that Enphase systems can provide grid services, unlocking additional financial benefits for its customers and earning it a high score for the Product Portfolio criterion. Its brand reputation has served the company well, as it has a strong presence in North America and Europe, earning it a decent score for Geographic Reach.

Enphase is also dedicated to adapting its products to meet the needs of regional markets, as well as rolling out new features when regulations or conditions in local markets change, earning it a high score for the Technology criterion. For example, the company rolled out new features for the California market to help prospective customers take advantage of new net metering regulations that encourage homeowners with solar to store energy and consume it during peak demand. The company also developed a tool for installers to help them design the best system for taking advantage of these new net metering regulations.

Enphase's focus on developing a high-end product limited its scores for both the Go-to-Market Strategy and Sales, Marketing, and Distribution criteria, because this approach is less scalable due to the high upfront cost of its systems, limiting its total potential customer base. Furthermore, the company is susceptible to general downturns in the demand for solar systems, which has been a challenge over the last two years. As of November 2024, the company announced plans to reduce its workforce by 17% to decrease its operating expenses in the face of declining revenue. If the company is able to successfully navigate these tough economic conditions, then it is likely to remain a Contender in the HEMS market.

enphase.com

Chart 4-6. Enphase Strategy and Execution Scores



(Source: Guidehouse Research)

4.2.4 Emporia Energy

Overall Score: 71.2

Strategy: 72.7

Execution: 69.6

Emporia Energy offers in-home energy monitoring equipment and systems to consumers and small businesses. The company is based in Littleton, Colorado, and was founded in 2018. The company is privately held and has 64 employees.

Emporia's suite of home energy management products includes whole-home energy monitors (both in-panel and wireless), EV chargers, smart plugs, battery storage, and sensors. The Emporia HEMS seamlessly connects to the company's proprietary equipment and third-party products to offer a single interface for residents to view and manage their energy use via a mobile app and web interface. The management system offers many features including peak demand management, optimized solar self-consumption, remote control, and load prioritization based on user inputs and local TOU rates.

Emporia's go-to-market strategy is founded on the high quality and affordability of its hardware and software offerings for consumers, reflected in its high customer ratings across its product portfolio. The company has one of the best-selling EV chargers in the North American market and is actively testing its bidirectional EV chargers with Honda. Its consistently high ratings, strong sales, and forward-looking roadmap illustrate the company's commitment to pushing its product line forward to deliver additional HEMS benefits while prioritizing the voice of the customer, justifying its strong scores for the Vision, Go-to-Market Strategy, and Technology criteria.

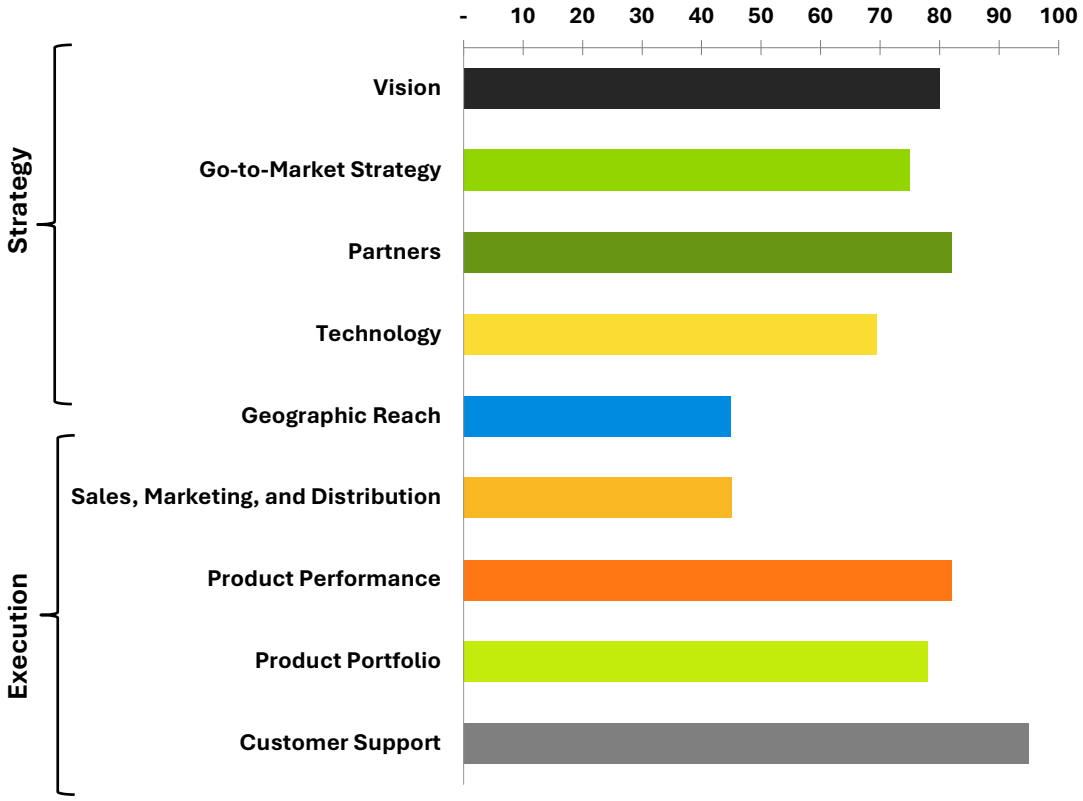
Emporia has pursued several highly strategic partnerships to expand its sales channels. Most recently, it has white-labeled its energy monitors and management software to Siemens and its Level 2 EV charger to Honda, which will inevitably drive new users to the Emporia platform. The company has also partnered with several edge DERMS providers to enable Emporia users to easily enroll their DER into demand management programs. All of these engagements contributed to the company's high score for the Partners criterion.

Emporia's go-to-market strategy limits its score for the Sales, Marketing, and Distribution criterion largely because in-home HEMS sold directly to consumers take more time to scale than AMI-based HEMS. As a result, the company has a much smaller end-user base compared with the Leaders. Likewise, the company primarily operates in North America, with a small presence in Europe, leading it to receive a low score for Geographic Reach.

Overall, Emporia has established itself as a Contender in this market due to its high-quality and affordable in-home HEMS. With its strategic partnerships and white-labeling, the company is likely to continue seeing growth in its end-user base, ultimately solidifying and improving its position in the market.

emporiaenergy.com

Chart 4-7. Emporia Strategy and Execution Scores



(Source: Guidehouse Research)

4.2.5 Schneider Electric

Overall Score: 69.6

Strategy: 77.6

Execution: 60.6

Schneider Electric offers energy management and automation solutions in homes, commercial buildings, data centers, government, infrastructure, and industrial segments. Based in France, it operates in more than 100 countries and employs over 168,000 people. The company generated revenue of €35.9 billion (US$38.8 billion) in 2023.

Schneider's HEMS is based on its suite of proprietary technologies, which include a smart electrical panel (Schneider Pulse), smart switches and outlets, real-time energy monitors (Schneider Energy Monitor, PowerTag), solar inverter (Schneider Inverter), battery storage (Schneider Boost), and mobile applications (Schneider Home in the U.S. and Wiser everywhere else). The company's HEMS connects its proprietary equipment and third-party devices to provide a streamlined interface for consumers to view and manage their energy use. It provides many energy management features including energy use data visualizations, control of power-intensive appliances, load shifting to prioritize solar power consumption or lower TOU rates, AI-powered and automated energy savings, extended backup power operation, and improved electrical safety.

Schneider's go-to-market strategy is based on providing consumers a comprehensive home energy ecosystem and tapping into its vast distribution network to reach consumers around the world. Of companies considered in this *Leaderboard*, Schneider has one of the largest global reaches and has been deliberate in adapting its HEMS solutions to meet the needs of regional markets, earning it a high score for both the Geographic Reach and Technology criteria. This strategy has proven successful thus far, as the company has seen strong growth in its sales since launching its comprehensive HEMS products, but it is limited in its scalability due to the high upfront cost of Schneider's HEMS equipment, leading the company to receive a more moderate score for Go-to-Market Strategy.

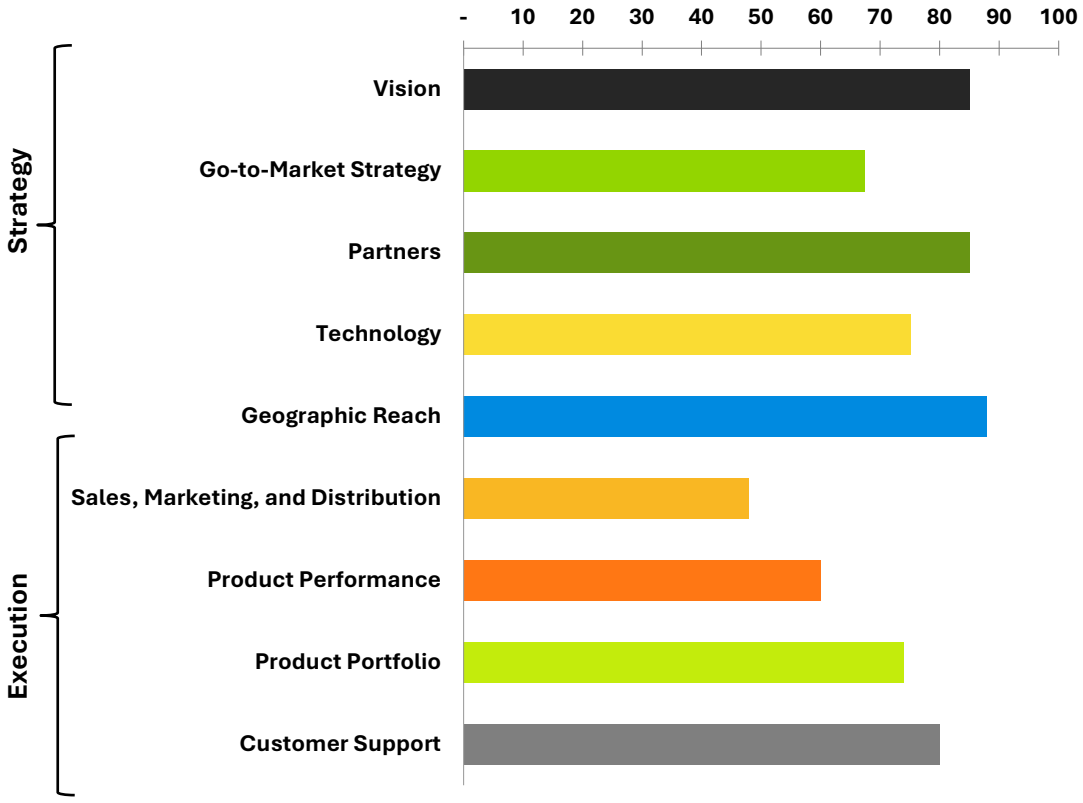
Schneider has one of the most comprehensive approaches to partnerships, positioning itself to engage key stakeholders throughout the HEMS market, earning it a high score for the Partners criterion. It works with third-party manufacturers, utilities and VPP providers, real estate developers and home builders, and regulators. The company's acquisition of EnergySage and partnership with Qmerit has enabled it to strengthen its offerings for contractors, underscoring its vision for delivering innovative solutions for key stakeholders throughout the HEMS value chain.

While Schneider has seen strong growth in its end-user base, largely due to its global reach, it still has a relatively small end-user base compared with the other companies included in this *Leaderboard*, earning it a low score for the Sales, Marketing, and Distribution criterion. Similarly, the company was only able to provide preliminary data on the energy savings per household, limiting its score for Product Performance.

Overall, Schneider has proven its position as a Contender in this market through its strong partnerships, global reach, and sales growth. As the company continues to deploy more systems globally, it is likely to improve on its Execution score by growing its end-user base and providing more robust data on its ability to deliver HEMS benefits, solidifying its position as a Contender in the market.

se.com

Chart 4-8. Schneider Electric Strategy and Execution Scores



(Source: Guidehouse Research)

4.2.6 gridX

Overall Score: 66.4

Strategy: 74.3

Execution: 57.5

gridX is a privately held SaaS business that was founded in 2015 and is headquartered in Germany. The company's HEMS combines both an in-home device (gridBox) and a software platform (XENON) that allows clients to build their own HEMS to connect, monitor, and control DER. The company operates throughout Europe and has 200 employees.

The gridBox is a local gateway installed within the home that connects to DER to monitor and control them in near real-time, and transmits data to the XENON platform. The gridBox responds within 100 milliseconds, allowing for immediate adjustments and control over connected DER, and is also designed to function offline for up to 10 days, depending on the use case. The XENON platform allows clients to design their HEMS through modules with bundled sets of functionalities. The gridX system provides many features for home energy management including real-time energy system monitoring and visualizations, automated energy use optimization, dynamic tariff optimization, and simple interfaces for end users to input their preferences and priorities.

gridX's go-to-market strategy revolves around forming long-term partnerships with key stakeholders throughout the HEMS value chain to offer HEMS through the XENON platform. These partners include fully integrated energy providers, utilities, solar companies, and manufacturers. The company views its broad approach to partnerships as a way to stay agile as the HEMS market continues to evolve, particularly as new types of stakeholders enter the market, contributing to its strong scores for both the Partners and Go-to-Market Strategy criteria.

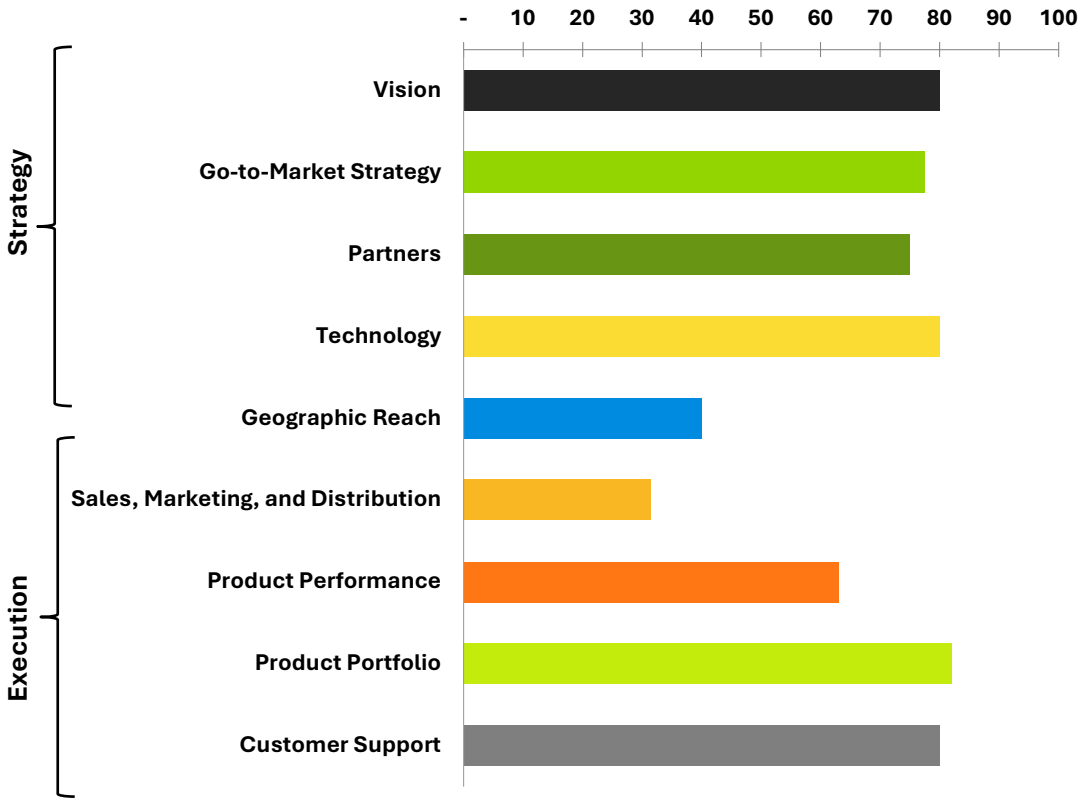
gridX has also emphasized the reliability and scalability of its platform as a core strategic focus to ensure it can execute on its vision for growth. Since 2022, the XENON platform has been able to handle a 220% CAGR in the number of connected energy assets, while maintaining an uptime of over 99%, justifying its high score for the Technology criterion. It has continued to scale the production of its gridBox, particularly as sales have continued to grow year over year. The company has also developed a "Ready for gridX" label for equipment manufacturers as a way to build strategic partnerships and expand the comprehensiveness of the XENON platform, contributing to its scores for both the Go-to-Market Strategy and Technology criteria.

While gridX has a strong technology portfolio and clear strategy for growth, it is still smaller than other companies in this *Leaderboard* in terms of end users and

global reach, leading to lower scores for both the Geographic Reach and the Sales, Marketing, and Distribution criteria. However, as the company continues to execute on its strategy and grow its end-user base in Europe, it is expected to strengthen its position as a Contender in the market.

gridx.ai

Chart 4-9. gridX Strategy and Execution Scores



(Source: Guidehouse Research)

4.3 Challengers

To qualify for the Challengers category, a company must score 25 or higher in both Strategy and Execution. This *Guidehouse Research Leaderboard* features one Challenger: Generac Power Systems.

4.3.1 Generac Power Systems

Overall Score: 43.0

Strategy: 52.6

Execution: 30.6

Generac Power Systems is the principal operating group of Generac Holdings. It is a manufacturer of generators and related products based in Waukesha, Wisconsin, with about 8,600 employees and $4.0 billion in revenue in 2023. The company is known for its residential standby generators but also offers commercial and industrial generators and a variety of other energy-related products.

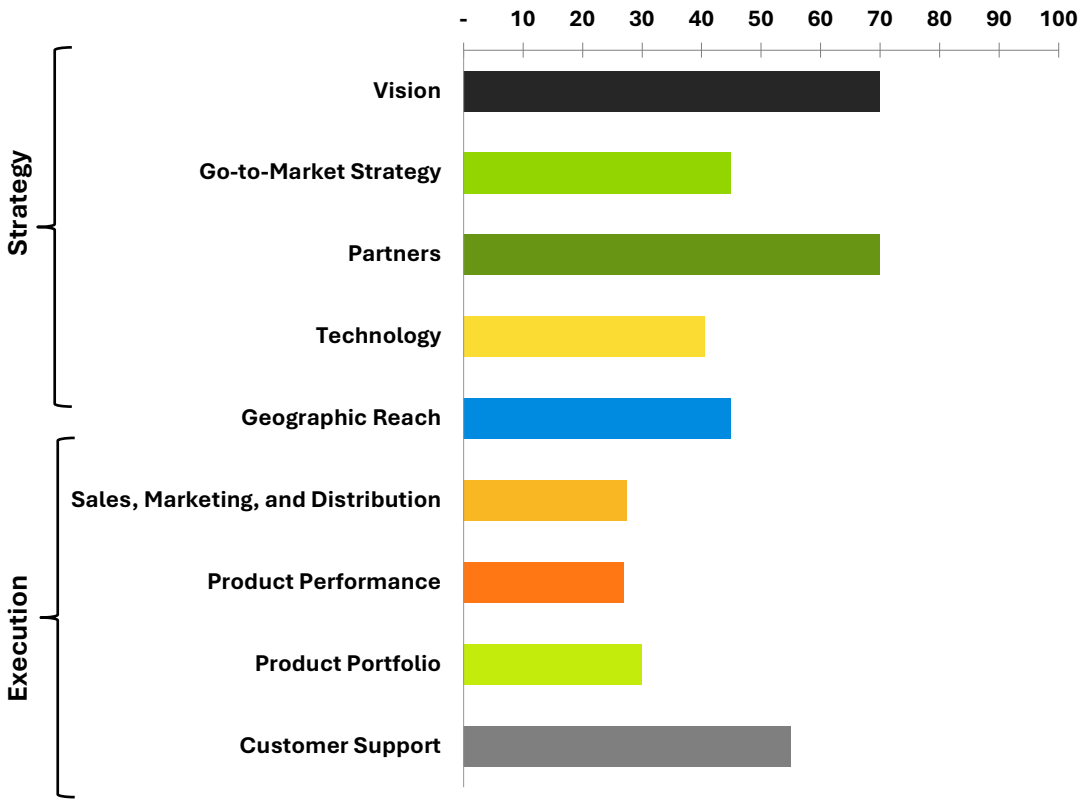
Generac's HEMS is built around power resilience and includes a suite of proprietary in-home technologies including the PWRcell 2 home battery, standby home generators, the ecobee smart thermostat (acquired in 2021), and the PWRview mobile app. The company also has plans to launch a solar inverter solution in 2025 and has a commercial relationship with Wallbox that is working toward integrating EV chargers into Generac's system. The PWRview app provides many features for home energy management including real-time energy supply and storage visualizations, energy bill predictions, and the Outage Guard feature that automatically monitors weather data and proactively charges the home battery to prepare for potential power outages.

Generac has a clear vision for leveraging its reputation as a leader in resilient standby power systems to drive consumer interest in its modernized HEMS, earning it a strong score for the Vision criterion. However, it is so early in executing this vision that its product offerings are less comprehensive and mature than other companies considered in this *Leaderboard*, earning it low scores across the Execution criteria. Further, the company only offers its HEMS and associated equipment in North America at this time, limiting its score for Geographic Reach.

Due to its more recent entrance into the HEMS market, Generac is considered a Challenger, as it has potential for growth but has yet to fully demonstrate its strategy and ability to execute on its vision. As the company continues to expand its product portfolio and ramp up sales of its HEMS, it is poised to continue growing its position in the market.

generac.com

Chart 4-10. Generac Strategy and Execution Scores



(Source: Guidehouse Research)

Section 5
Acronym and Abbreviation List

AI.....Artificial Intelligence

AMI..... Advanced Metering Infrastructure

API..... Application Programming Interface

CAGR .....Compound Annual Growth Rate

DER ..... Distributed Energy Resources

DERMS ..... Distributed Energy Resource Management System

EV..... Electric Vehicle

GenAI ..... Generative Artificial Intelligence

HEMS ..... Home Energy Management System

HER .....Home Energy Report

HVAC..... Heating, Ventilation, and Air Conditioning

IoT ..... Internet of Things

IT .....Information Technology

MHz.....Megahertz

NISC..... National Information Solutions Cooperative

PV ..... Photovoltaic

SaaS.....Software-as-a-Service

TOU .....Time of Use

TWh.....Terawatt-Hour

U.S. ..... United States

VPP .....Virtual Power Plant

Section 6

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Section 8
Scope of Study and Methodology

8.1 Scope of Study

Guidehouse Research has prepared this report to provide an analysis of the current HEMS provider competitive landscape. The report is intended to help providers in this market understand how companies and brands fit into the overall global market.

The major objective of this *Leaderboard* is to provide a timely overview of the prominent companies involved in the home energy management market. It evaluates each company on its Strategy and Execution in developing and delivering HEMS at scale. Company ratings capture the vendor's standing at the time of the report and are not a retrospective of past accomplishments or an indication of future success. In this market, ratings are likely to shift as companies continue to advance their technologies, form strategic partnerships, expand their sales channels, grow their user base, and demonstrate their ability to deliver the many benefits of home energy management.

8.2 Sources and Methodology

Guidehouse Research's industry analysts use a variety of research sources in preparing research reports. The key component of Guidehouse Research's analysis is primary research gained from phone and in-person interviews with industry leaders including executives, engineers, and marketing professionals. Analysts are diligent in ensuring they speak with representatives from every part of the value chain, including but not limited to technology companies, utilities and other service providers, industry associations, government agencies, and the investment community.

Additional analysis includes secondary research conducted by Guidehouse Research's analysts and its staff of research assistants. Where applicable, all secondary research sources are appropriately cited within this report.

These primary and secondary research sources, combined with the analyst's industry expertise, are synthesized into the qualitative and quantitative analysis presented in Guidehouse Research reports. Great care is taken in making sure that all analysis is well supported by facts, but where the facts are unknown and assumptions must be made, analysts document their assumptions and are prepared to explain their methodology, both within the body of a report and in direct conversations with clients.

Guidehouse Research is a market research group whose goal is to present an objective, unbiased view of market opportunities within its coverage areas.

Guidehouse Research is not beholden to any special interests and is thus able to offer clear, actionable advice to help clients succeed in the industry, unfettered by technology hype, political agendas, or emotional factors that are inherent in cleantech markets.

8.2.1 Vendor Selection

The companies evaluated in this *Leaderboard* are providers of in-home and grid-based HEMS. While many HEMS providers are on the market today, this *Leaderboard* selected vendors that have mature HEMS with robust energy management features for consumers and/or utilities, and a sizable end-user base. Most of the vendors included have been evaluated in previous *Guidehouse Research Leaderboards*, with a few companies added this year due to their growing presence in the HEMS market.

8.2.2 Ratings Scale

Companies are rated relative to each other using the following point system. The ratings are a snapshot in time, showing the current state of the company. These scores are likely to be fluid as new competitors enter the market and customer requirements evolve.

- Very Strong 91–100
- Strong 76–90
- Strong Moderate 56–75
- Moderate 36–55
- Weak Moderate 21–35
- Weak 11–20
- Very Weak 1–10

8.2.2.1 Score Calculations

The scores for Strategy and Execution are weighted averages based on the subcategories. The overall score is calculated based on the root mean square of the Strategy and Execution scores.

8.2.3 Criteria Definitions

8.2.3.1 Strategy

- **Vision:** Measures the company's stated goals in designing market solutions against the actual needs of customers based on the entire environment in which it operates. Clear, compelling, and unique visions that are effectively communicated to the industry result in higher scores.
- **Go-to-Market Strategy:** Evaluates the company's strategy for reaching the target market, including its sales and marketing channels, as well as

processes for informing the target market about brand differentiation and unique product value.

- **Partners:** Measures the company's established partnerships with key organizations that provide an advantage in expanding its HEMS' technological capabilities and open the company to new sales channels.
- **Technology:** Evaluates each company's HEMS based on three key technology attributes: integration capabilities, platform flexibility, and the use of AI and machine learning. These technology attributes are critical to delivering advanced HEMS features at a meaningful scale. Higher scores are given if the company's technology is already a proven market success.
- **Geographic Reach:** An evaluation of companies' ability to reach national and international customers. Higher scores are given to companies that operate in multiple global regions.

8.2.3.2 Execution

- **Sales, Marketing, and Distribution:** Evaluates the company's marketing and sales performance and current distribution channels, predominately based on the number of end users on its platform. Higher scores are given to companies with large end-user bases that have seen strong and consistent growth in the last few years.
- **Product Performance:** Evaluates the competitive performance of the HEMS. Higher scores are given to companies that can provide robust data on energy savings per household, as well as data on other energy management benefits like peak demand savings, load shifting, and TOU rates enrollment.
- **Product Portfolio:** Addresses each HEMS' competitiveness and suitability to the market. Points are awarded for HEMS that provide robust energy management features for both consumers and utilities, with companies that can demonstrate unique features receiving higher scores.
- **Support and Services:** Evaluates the company on its customer service and support offerings. Higher scores are given to companies with strong customer ratings and reviews, as well as unique approaches to improving customer service.

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