



**Guidehouse**  
INSIGHTS

Research Report

# **Guidehouse Insights Leaderboard: Home Energy Management Providers**

Assessment of Strategy and Execution for 13 Home Energy Management Solutions Providers

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# Section 1

## Executive Summary

### 1.1 Market Introduction

The purpose of a home energy management (HEM) solution is to offer homeowners the necessary information on their power loads, and if appropriate, their power generation. This information helps homeowners better achieve their goals of comfort, convenience, lower costs, higher reliability, and reduced environmental impact. In addition to being useful for homeowners, this detailed power usage and generation information enables a wide range of additional solutions. Homeowners can engage third-party companies that offer value-added services including energy as a service (EaaS), virtual power plants (VPPs), and predictive maintenance services for appliances and equipment.

Grid operators and utilities can use this information to offer a variety of customer engagement (CE) tools to better serve specific customer segments with information and services. Utilities can also use the usage data to support green energy transition plans with additional capabilities including demand side management (DSM), demand response (DR), and grid management tools.

There are two primary HEM solution types. The first type involves monitors installed within the home that collect information directly and in real time from the different power loads, circuits, and generation sources (if present). The second involves service providers using power meter data from individual residences provided by utilities. These companies apply complex algorithms to disaggregate the information on usage and generation with impressive accuracy.

All companies in this *Leaderboard* report offer the homeowner useful and detailed information about their loads and generation. What distinguishes these companies are the additional capabilities enabled by that information. The HEM marketplace has undergone significant structural changes since the last *Guidehouse Insights Leaderboard: Home Energy Management* report published in 2018. For example, several leading companies that make electrical components, including Schneider Electric and Generac Power Systems, are incorporating HEM monitors into their offerings. Doing so makes it more convenient for homeowners to obtain real-time usage and generation information.

In addition, competition for advanced metering infrastructure (AMI)-based HEM solutions has increased with the creation of Uplight from several independent companies involved in the HEM space. Uplight joins Bidgely and Oracle Opower in serving the largest utilities with their respective platforms. The nature of the competition among these organizations is intense. There are indications this segment of the HEM market will become hypercompetitive where companies will pursue aggressive efforts to gain market share.

The criteria by which manufacturers are compared in this *Guidehouse Insights Leaderboard* include:

- Vision
- Go-to-Market Strategy
- Partners
- Production Strategy
- Technology
- Geographic Reach
- Sales, Marketing, and Distribution
- Product Performance
- Product Quality and Reliability
- Product Portfolio
- Pricing
- Staying Power

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

## 1.2 The Guidehouse Insights Leaderboard Grid

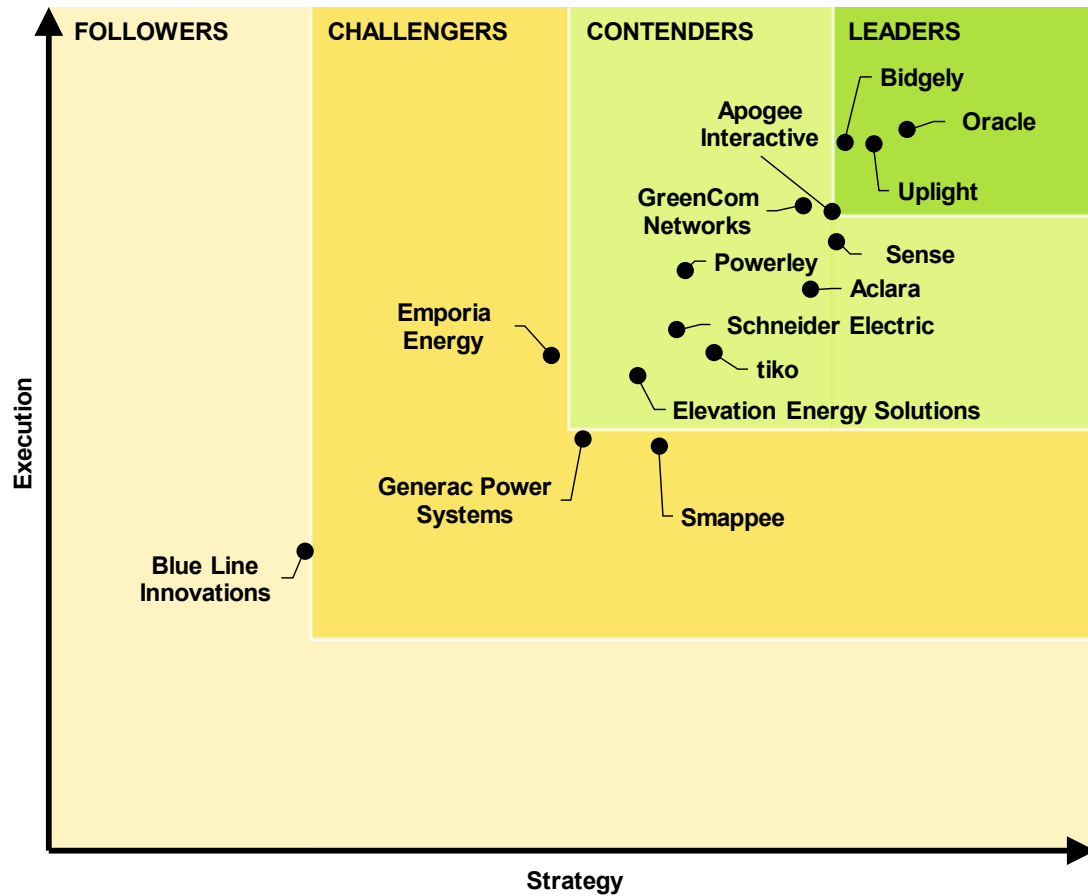
Chart 1-1 shows the *Leaderboard* grid, which highlights that the Leaders are the three organizations that offer AMI-based HEM solutions to top-tier utilities. Most of the remaining companies are clustered in the Contender category.

It is important to note is that all the companies are pursuing the goal of supporting homeowners in their need to make optimal tradeoffs while encouraging utilities to transition to green power. What distinguishes the rankings are factors such as the ability to provide their offerings in additional geographies, the ability to attract and retain marketing partners, and staying power as more and larger companies enter this market.

This grid is a snapshot of market conditions in 1Q 2021. What is not seen within the grid is that several lesser HEM companies from 2018 are no longer in business. A number of more established companies are left, along with a number of new entrants that all have viable plans but are not yet fully formed and therefore did not score as highly as the more established companies.

The HEM marketplace has shown dramatic growth since 2018. Guidehouse Insights estimated the market size for HEM solutions was \$3.5 million in 2018. Despite the challenges of 2020, the market has grown to about \$6 million, at a compound annual growth rate (CAGR) of 30.8% through 2020. Guidehouse Insights anticipates that the market will continue to grow at a CAGR of 12.2% through 2030. This marketplace is dynamic and will only become more so as existing companies compete aggressively and new companies enter with variations on existing strategies.

**Chart 1-1. The Guidehouse Insights Leaderboard Grid**



(Source: Guidehouse Insights)

## Section 2

### Market Overview

#### 2.1 Market Definition

Home energy management (HEM) technology offers residential customers tools to gain a deeper understanding of how they use, and sometimes produce, residential energy. There are two technological approaches to producing the information for homeowners on their energy use. The first involves monitoring hardware installed within the home that continuously monitors current through the main incoming circuit, the circuits throughout the house, and major appliances. The second involves analysis of the power usage based on electric meter measurements.

Monitors typically involve professional installation along with current sensors to measure power usage on circuits, which are defined as HEM monitoring solutions within this report. Different monitors can connect to a variety of current sensors (sometimes called current transfer clamps). Smart plugs, some newer appliances, and equipment come with built-in power usage intelligence and can communicate with monitors via Wi-Fi installed in the home or power line communications technology.

The second HEM solution involves analysis of the power usage data generated from the advanced meter installed at the residence by the utility supported by advanced metering infrastructure (AMI), which send data at frequent intervals. These intervals can be as often as every 5 minutes but are more typically every 15 minutes or hourly. The utility contracts with a third-party provider to disaggregate the uses and sources of the power loads. This class of solution is called an AMI-based HEM within this report and has impressive accuracy.

In both technologies, there is often further analysis to define the major power loads and perform disaggregation of the total power consumption and production into increments useful for the homeowner. The most basic delivery medium is a paper-based home energy report, although the information is more commonly presented in digital format on a smartphone or PC.

In most cases, the homeowner pays for the HEM monitoring solution and professional installation. Sometimes they acquire the technology from a consumer channel such as Amazon. Homeowners also acquire home monitors through a variety of resellers when they install PV solar panels or other distributed energy resources (DER), chargers for EVs, or home energy storage systems (HESSs). The monitor is a part of the bundle that enables the homeowner to appreciate the effect of their new acquisition.

In addition to these channels, certain third parties provide non-traditional offerings that may interest a homeowner. This includes companies that offer energy as a service (EaaS) where energy efficient retrofits are installed and paid as an ongoing fee rather than as an upfront cost. The monitoring is a part of the offering. Homeowners can also join with others to share power within the community or to sell power back to the grid as a virtual power plant (VPP). These solutions are relatively novel, but an integral part of the future grid and use real-time data provided by HEM monitors.

For AMI-based HEM solutions, the utility implements the solution and provides the homeowner with a home energy report. Utilities can derive a wide range of benefits for offering customers detailed information on their usage. Because of these benefits, the utility typically absorbs the installation and maintenance costs of this solution.

HEM monitoring and AMI-based solutions are not mutually exclusive. In fact, HEM monitoring and AMI-based HEM are complimentary. The advantage of HEM monitoring solutions is that the information on power usage is real time. The AMI-based HEM solutions are easier to implement on a large scale.

## 2.2 Market Drivers

For homeowners, there are two primary motivations to receive HEM information. The first is the desire to be more engaged in energy use, and in some cases generation. The second is to make informed decisions on ways to protect the environment while maintaining a desired level of comfort and convenience.

This kind of customer may be in the minority but dismissing this as a small niche is a mistake. Interest in the environment is growing. States have ambitious goals encouraging the adoption of PV technology, and the demand for both EVs and smart thermostats is exploding. At the same time, the electrical component industry is making it easier to install a monitor by embedding this technology within advanced meters, circuit-breaker boxes, and within appliances. Any of these factors has the potential to catch the curiosity of a customer that would be willing to pay a small premium for real-time information.

There is also the possibility that the EaaS and community power sharing arrangements could further reduce HEM monitor costs. Homeowners that engage with EaaS or community power sharing agreements get the benefits of a more energy efficient house, which is comfortable and environmentally friendly, without significant upfront expenses.

The larger opportunity in terms of absolute numbers is where the utility/grid operator provides the homeowner with disaggregated power usage data. This is valuable to the homeowner because it outlines usage and generation data. While such information is important, utilities can use data on usage patterns at individual residences to perform detailed customer segmentation at levels that were inconceivable not long ago. Such segmentation enables highly targeted marketing programs to communicate mutually beneficial offerings and programs. Collectively these offerings and programs are called customer engagement (CE).

AMI-based HEM solutions providers offer a variety of complementary offerings. Some of these offerings support CE solutions that enhance the relationship between the utility and the customer. Examples of CE programs include:

- Education on simple ways customers under financial stress can reduce costs
- Suggestions that environmentally-conscious customers can take to reduce carbon footprints
- Maintenance issue identification flagging appliances and equipment prior to complete failure
- Discounted or free hardware and services to reduce demand and shift demand to off-peak usage times through an e-commerce site

These capabilities align with a class of solutions called demand side management (DSM) tools. DSM help grid operators manage costs, increase overall service reliability, and encourage desirable usage patterns that use lower cost energy and help the environment. In turn, these facilitate a more positive relationship, resulting in much higher customer satisfaction. For example, utilities can encourage EV owners to charge vehicles overnight rather than during peak evenings with the knowledge that this pattern would not be detrimental to homeowner's use and enjoyment of EVs based on past patterns. AMI-based HEM providers are continuously adding new capabilities to support utility clients to pursue their respective visions.

There is typically no cost to the homeowner for the AMI-based HEM solution nor does it involve any of the issues associated with installing new hardware. It is likely that many customers will have both solutions in place given the growth in-home energy solutions for homeowners to purchase monitors and the value that utilities derive from having detailed customer segmentation information. Such information helps the power industry transition to greater use of renewable power while providing consumers the kind of service that they are accustomed to.

## 2.3 Market Barriers

There are different barriers for each kind of solution. The two primary barriers for the HEM monitoring solution involving in-home equipment are the upfront cost of the equipment and the necessity in most cases to have a skilled professional perform the installation. The monitoring hardware cost is typically around several hundred dollars. Installation usually involves changes in the circuit-breaker box, so the universal advice is to hire a licensed professional, which adds to the total cost.

Once installed, the equipment involves setup and configuration of the system. There is also the need for the homeowner to be patient while the disaggregation algorithms learn the patterns of the load. This can take weeks but is an ongoing process and requires patience on the part of the homeowner as the system learns the patterns of the loads in that home.

One solution to upfront costs are for companies that offer EaaS and community power sharing to pay for the installation of the monitor. However, the barrier is that too few homeowners are unaware of these kinds of services. This is less of an issue in the European Union (EU) where these services have been available for several years. Greater awareness of these services will continue to grow across the globe.

The barriers for AMI-based HEM offerings provided by the grid operator for the homeowner are numerous, but there are also systems in place for implementation and ongoing support. The first technological challenge includes the presence of AMI where advanced meters frequently report on power usage at each residence. Some HEM solutions providers work with existing analog meters, but disaggregation algorithms are more accurate with the more frequent sampling associated with advanced meters.

The second technological challenge is integration with the customer-facing solutions within the utility, in particular with the billing system. It is a challenge to implement large-scale IT solutions under any circumstances. It is particularly challenging when the integration involves sensitive personal information and where any problems are likely to be visible to the public.

There is also the challenge of company culture within utilities that is unaccustomed to engaging in detailed customer segmentation and targeted marketing. Many employees in utilities are more comfortable with treating all customers equally. The idea of providing different messages, much less services, is uncomfortable for some, even if the ultimate outcome is beneficial for all. In addition, the effectiveness of a HEM offering is highly dependent upon geography.



The first geographical factor to consider is the role of regulatory bodies that set the policies under which the utility operates. While some of these bodies see CE as an essential and effective tool in supporting the migration to clean and reliable energy and other laudable goals, other agencies are uncomfortable with the utility expanding beyond its traditional roles.

The next factor is that many regions have unique electrical codes and standards. Solutions providers need to ensure that any equipment is code compliant and that installers are properly trained. Another consideration is that the appliances and equipment found within homes often varies among regions. It takes time for the algorithms to learn the usage patterns of unfamiliar loads.

Finally, there is an inherent time lag associated with HEM offerings based on AMI usage data compared with energy monitors that are installed locally. This lag is not relevant for most CE offerings. However, AMI-based solutions do not support advanced capabilities such as demand response (DR) and community-based energy sharing.

## 2.4 Market Trends

A snapshot of the HEM marketplace, as recently as 2018, involved three sales channels for each of solutions type:

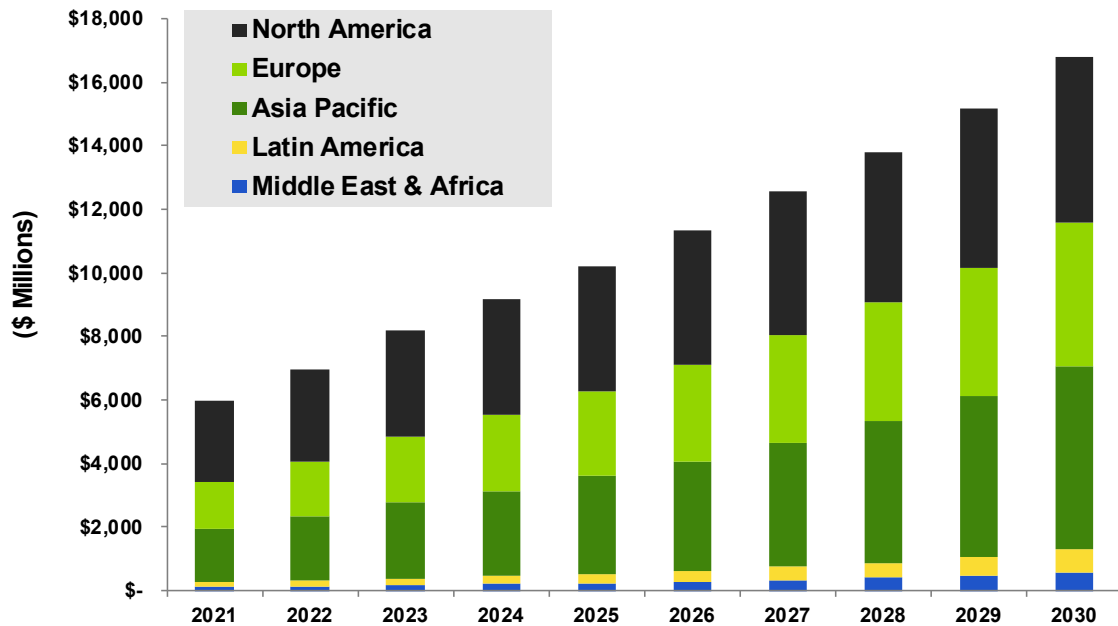
- HEM monitors that were available from consumer channels such as Amazon and other e-commerce sites
- HEM monitors that were also available from resellers that sold solar panels, HESS, and EV chargers
- AMI-based solutions that were sold to utilities that then used the disaggregation information for home energy reports and some basic CE solutions

However, now there are many more sales channels for HEM solution. For example, in addition to consumer channels and resellers, HEM monitors are integrated into advanced meters, built into circuit-breaker panels, provided at no charge by EaaS and community systems offering VPP solutions, and sold by utilities to augment their AMI-based offerings. The impact of these solutions encompasses easier and more economical access for homeowners to gain insight into their real-time energy usage.

At the same time, the companies that performed disaggregation from AMI-based data are competing aggressively by quickly adding new capabilities. The vendors that serve the largest utilities are looking like a hypercompetitive market where refinements and enhancement come at an ever-increasing pace, at times faster than utilities can rollout programs to support them.

Although these vendors serve and focus on the top segment, there is a category of AMI-based vendors that serve smaller utilities. Smaller utilities, particularly when owned by municipalities, tend to work with HEM suppliers that offer a portfolio of a few CE solutions to address specific needs. This is because many smaller utilities have a formal acquisition process that tends to restrict the scope of the acquisition to a single, narrowly-focused capability. Often the outcome is that the AMI-based companies with portfolios have an easier time being competitive for smaller utilities. As Chart 2-1 shows, the global HEM marketplace is expected to grow from almost \$6 billion to \$16.8 billion by 2030, at a compound annual growth rate (CAGR) of 12.2%. This reflects the strong demand from utilities and end users. It highlights the intense competition globally in serving this marketplace.

**Chart 2-1. HEM Solutions Revenue by Region, World Markets: 2021-2030**



(Source: Guidehouse Insights)

## Section 3

# The Guidehouse Insights Leaderboard

### 3.1 The Guidehouse Insights Leaderboard Categories

Guidehouse Insights scored the vendors in this *Guidehouse Insights 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. In addition to offering valuable information to homeowners, these companies are actively enabling utilities to change the way they interact with customers and support the strategic initiatives to transition to more renewable energy.

#### 3.1.2 Contenders

Contenders are vendors that scored between 50 and 75 in both Strategy and Execution. The companies in this category all offer homeowners valuable information along with a viable strategy for growth and long-term success. They are well-positioned to become Leaders. However, they have not yet fully executed their product plans, have limited geographic presence, or are early-stage startups.

#### 3.1.3 Challengers

Challengers are vendors that scored higher than 25 in Strategy and Execution but are not yet ready for market leadership. While the vendor offering is fundamentally sound, they face challenges stemming from a limited strategic vision or uncertain staying power.

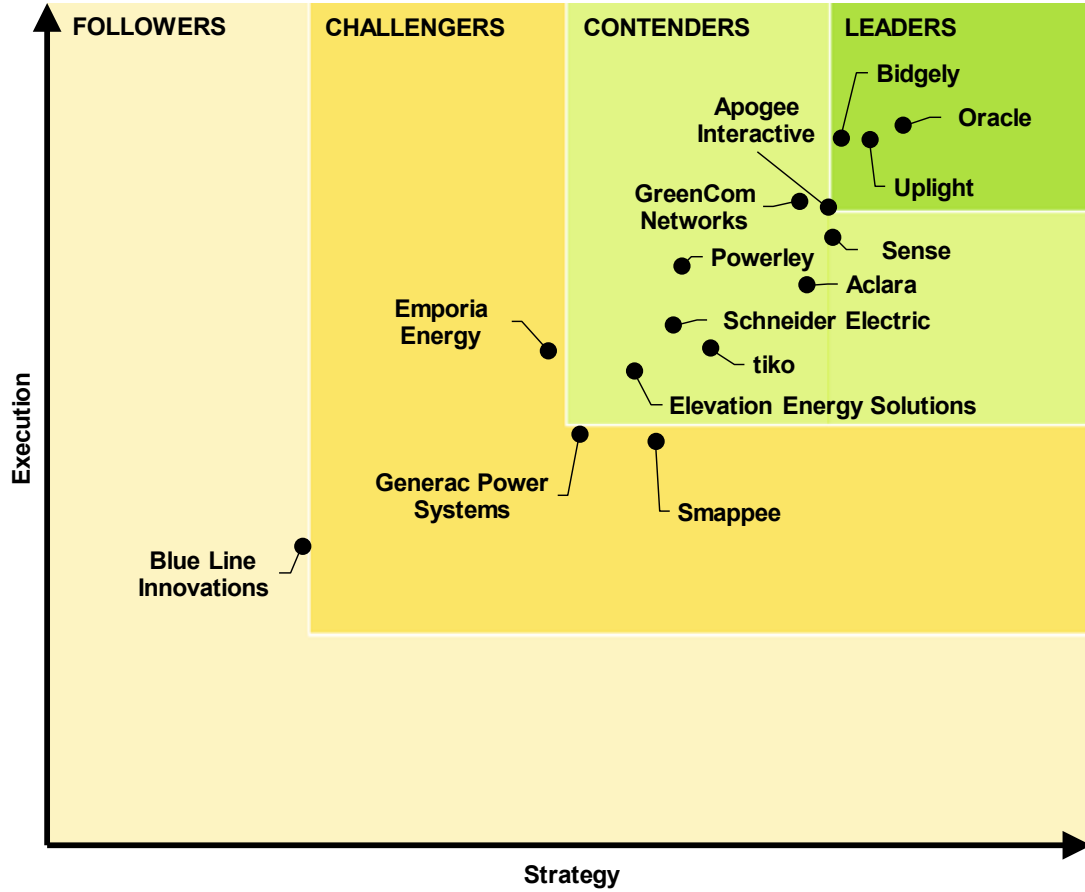
#### 3.1.4 Followers

Followers include vendors that have failed to distinguish themselves and scored below 25 in Strategy and Execution. Companies in this category are not currently expected to challenge the Leaders unless they can substantially execute on their strategic vision, expand their resources, or be acquired by another company that has a greater vision.

**3.2 The Guidehouse Insights Leaderboard Grid**

The companies in this Guidehouse Insights Leaderboard provide homeowners with usage information in several countries. The companies in the Contenders and Leaders sections also provide significant value-added services to the homeowner and, in some cases, to their client utilities.

**Chart 3-1. The Guidehouse Insights Leaderboard Grid**



(Source: Guidehouse Insights)

Table 3-1 is a ranking of the *Leaderboard*. It is important to recognize that all the companies on the *Leaderboard* offer homeowners useful information on home energy use. There are a variety to ways that each company uses this information to address multiple uses outside the needs of homeowners. It is important to consider the strategy of each of these companies, highlighted in Section 4.

**Table 3-1. The Guidehouse Insights Leaderboard Overall Scores**

Rank	Company	Score
1	Oracle	83.8
2	Uplight	81.3
3	Bidgely	80.1
4	Apogee Interactive	75.3
5	GreenCom Networks	74.3
5	Sense	73.8
6	Aclara	69.7
7	Powerley	64.9
8	tiko	61.3
8	Schneider Electric	60.9
9	Elevation Energy Solutions	56.3
10	Emporia Energy	53.6
11	Smappee	53.4
12	Generac Power Systems	49.9
13	Blue Line Innovations	30.5

(Source: Guidehouse Insights)

## Section 4

### Company Rankings

#### 4.1 Leaders

These companies have differentiated themselves from the competition through aggressive development of capabilities to serve their primary target market which are the top-tier utilities. Their technology does an exceptional job of disaggregating power loads for individual residences and offers this information in formats that serve utility customers.

The Leaders also offer a platform of capabilities that enable a utility to improve planning, lower costs, communicate relevant information to narrow customer segments, add value-added services, and reliably transition to more renewable energy. All these vendors are diligently working to expand their offerings in other countries. Competition among the Leaders is intense and the scores are very close. The variances among the scores involved subtle differences relating to the amount of time executing to their strategy and corporate structure. Each of these companies is worthy competitive with a powerful suite of valuable offerings.

##### 4.1.1 Oracle

*Overall Score: 83.8*

*Strategy: 82.0*

*Execution: 85.5*

Oracle offers suites of integrated applications plus secure, autonomous infrastructure in the Oracle Cloud. Headquartered in Austin, Texas, Oracle had revenue of \$39 billion in its fiscal year 2020. The company has 430,000 customers in 175 countries and 135,000 employees globally. Oracle offers a full suite of solutions for utilities related to customer care and engagement, metering, work and asset management, grid and network management, and data analytics.

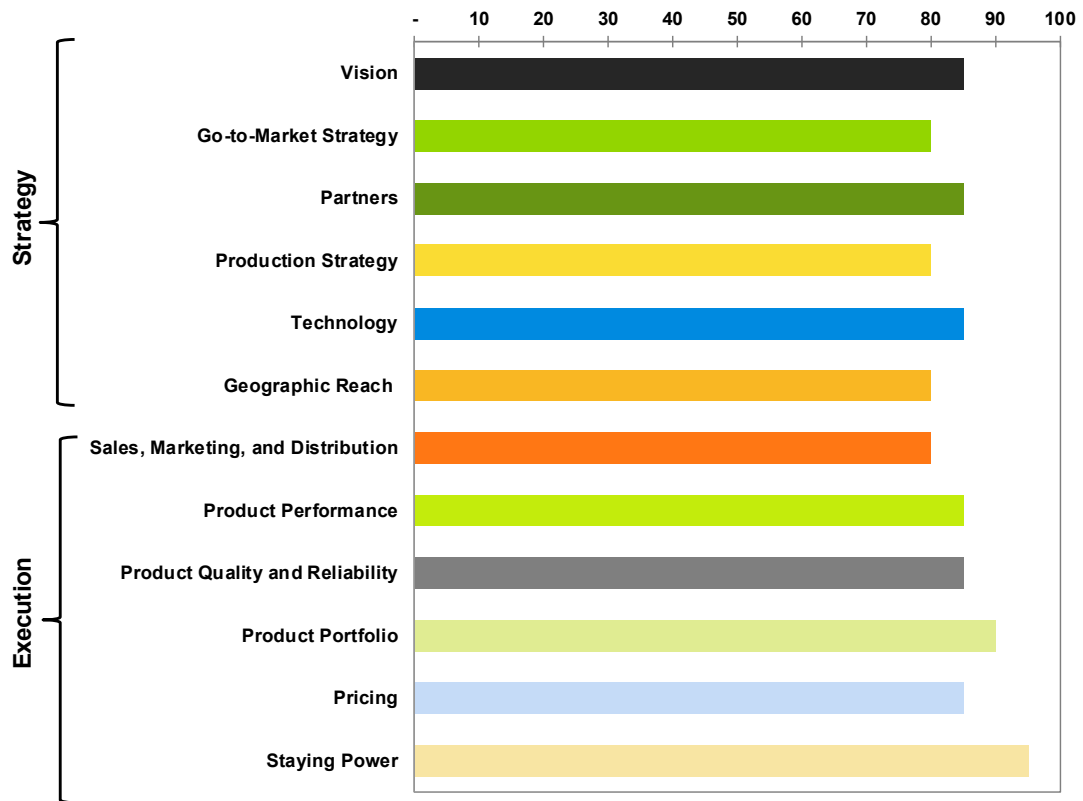
Oracle Utilities Opower is a leading utility CE solution with more than 175 deployments across North America, Europe, and Asia Pacific. In addition to behavioral energy efficiency, Opower cloud services include omnichannel solutions for peak management, rates engagement, proactive alerts, digital self-service, device automation, smart meter rollouts, corporate social responsibility tools, analytics visualization, and personalized consumer marketing. In the past few years, Opower has delivered a wide variety of new capabilities including EV and appliance detection and disaggregation, behavioral load shaping, and DER CE.

The company also offers reimagined home energy reports, integrations with technology partners and enterprise utility applications, and custom solutions available through the Opower X professional services practice. Opower has maintained its position as a leader in the HEM marketplace by rapidly adding new capabilities based on requests from a current client and quickly making it available to all existing customers. This is and will continue to be an effective approach to serve and learn from its impressive partner program.

Its challenge going forward is to successfully enter new territories. This has proven to be more difficult than it would seem. Regional differences among regulatory bodies and customer behavior and attitudes, combined with what are often extremely different loads, complicate entry to new markets. Continued work on leveraging Oracle’s market position is the most logical way to retain its leadership position in the HEM marketplace.

[www.oracle.com](http://www.oracle.com)

**Chart 4-1. Oracle Strategy and Execution Scores**



(Source: Guidehouse Insights)

## 4.1.2

## Uplight

*Overall Score: 81.3*

*Strategy: 78.8*

*Execution: 83.8*

Based in Boulder, Colorado, Uplight is a privately-held utility customer software as a service (SaaS) provider. Uplight came from the merger between Tendril and Simple Energy in July 2019. It is also made up of the acquisition of additional companies including Ecotagious, EEME, EnergySavvy, and FirstFuel following a December 2018 majority share investment by Rubicon Technology Partners.

On March 3, 2021, Uplight announced strategic investment from Schneider Electric, AES, and Huck Capital with Rubicon Technology Partners taking a minority role. Besides providing additional capital for future investments, the engagement of Schneider Electric and AES offer the potential for even greater product development scenarios and faster access to additional markets.

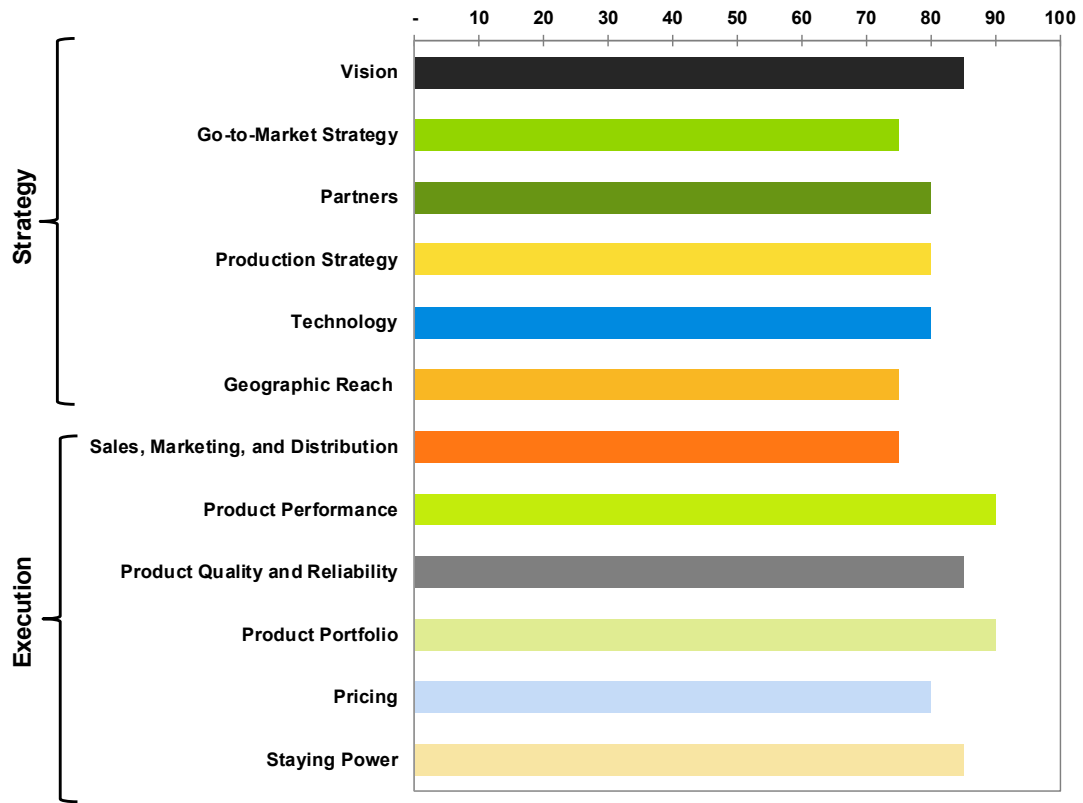
The Uplight platform supports home energy reports, utility marketplaces, CE portals, energy alerts, rates optimization, online energy assessments, voice assistants, and next best actions. Uplight also offers EV Advisor—an EV adoption and experience solution. One of the company's signature products is Orchestrated Energy, a continuous DSM solution for utilities that creates a load dispatch schedule for each participating home. Uplight applies behavioral science to engage customers through personalized content and Uplight's individualized device optimization.



It is important to recognize that since the previous *Leaderboard*, Uplight has successfully merged the offerings of several competing HEM companies into what is now a cohesive whole. This feat would have been impressive on its own, but the company accomplished this while retaining existing customers and gaining new clients. The combination has worked better than any reasonable expectation from the individual companies as recently as a few years ago by simplifying the addition of new capabilities for their utility clients. The challenge for Uplight going forward will be to expand share without sacrificing its profitability in a competitive environment.

[www.uplight.com](http://www.uplight.com)

**Chart 4-2. Uplight Strategy and Execution Scores**



(Source: Guidehouse Insights)

## 4.1.3

## Bidgely

*Overall Score: 80.1*

*Strategy: 76.0*

*Execution: 84.0*

Founded in 2011, Bidgely is a SaaS startup focused on helping utilities use data and AI to achieve their strategic goals and engage their customers. Based in Mountain View, California, the company employs over 160 people. Its main product delivers load disaggregation data through algorithms. The company has a growing global presence, working with major utilities beyond North America, including some in Europe and Asia Pacific. The company has more than 24 million homes under management across more than 30 utility clients.

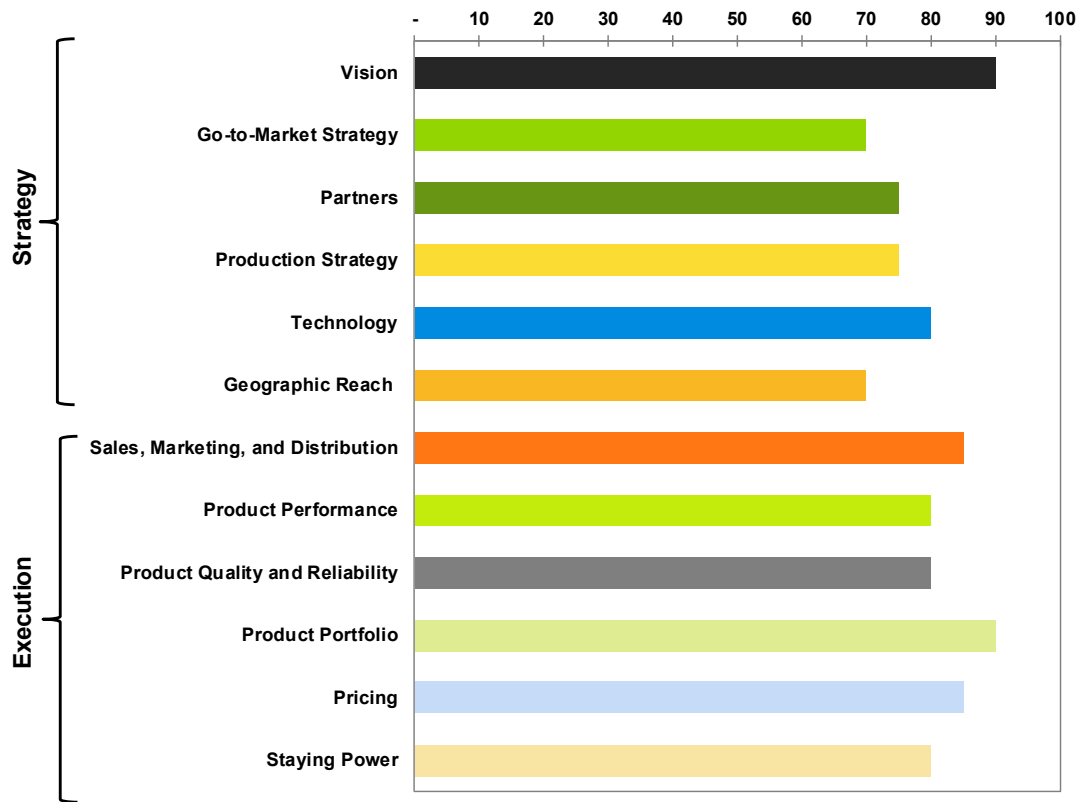
In the HEM space, Bidgely's UtilityAI platform enables utilities to target all customers, regardless of whether they have a smart meter installed. The platform can deliver personalized insights based on actual customer data. Bidgely's overall solutions also help with CE across multiple channels, including mobile apps, web portals, text messaging, email, and paper reports.

Recent innovations include the launch of its Analytics Workbench, an AI-powered analytics solution for delivering business intelligence to utilities and energy retailers. Analytics Workbench enables multiple stakeholders within a utility to directly address challenges around four key areas: DSM, EVs, solar PV, and load research.

Bigdely has a somewhat smaller customer base but is otherwise on equal footing with the other Leaders in terms of technical capabilities. What distinguishes the company among the other larger Leaders is that Bigdely is forced to be more imaginative with its business strategy and marketing. The result of this extra effort will ensure that the HEM marketplace will be interesting for all participants and the beneficiaries will be the utilities as well as their customers. The next several years will show if it can execute its full vision and gain additional market share.

[www.bigdely.com](http://www.bigdely.com)

**Chart 4-3. Bidgely Strategy and Execution Scores**



(Source: Guidehouse Insights)

## 4.2 Contenders

Each of the Contenders is in the process of executing a strategy that offers homeowners detailed information on energy usage and additional capabilities. These additional capabilities vary by company, but they include encouraging greater customers engagement for utilities, enabling value-added services such as EaaS and VPPs, and offering insight into exceptional energy usage scenarios.

### 4.2.1 Apogee Interactive

*Overall Score: 75.3*

*Strategy: 74.8*

*Execution: 75.8*

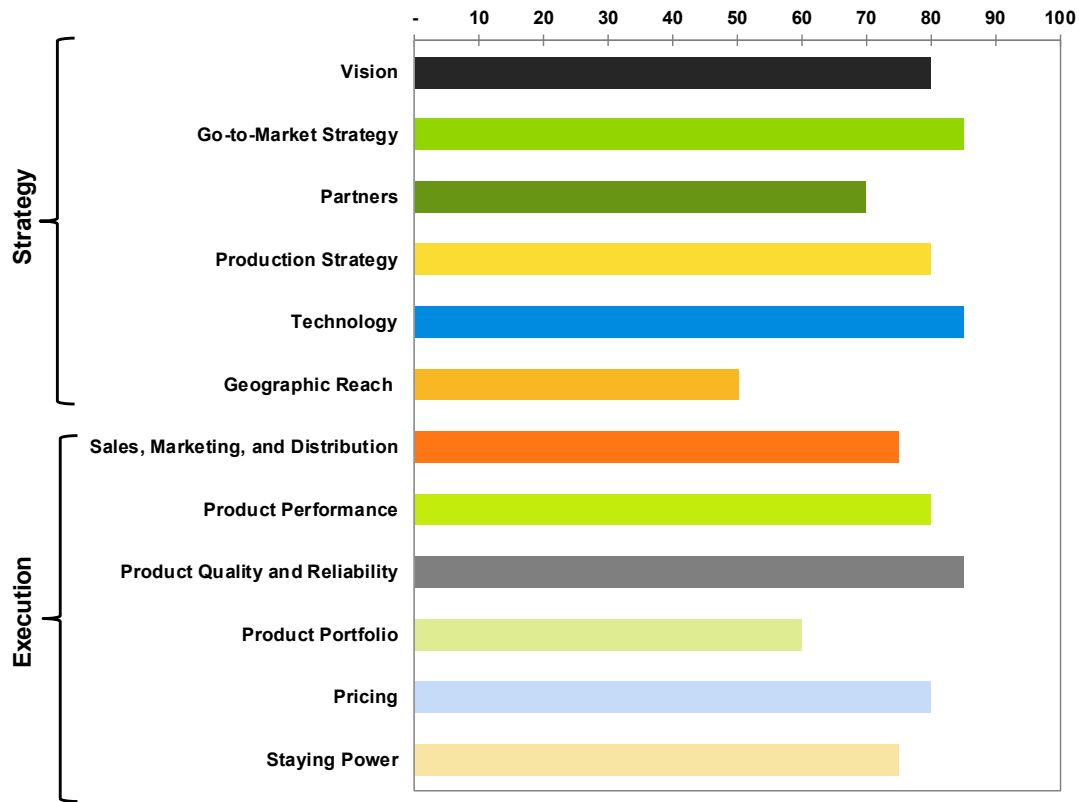
Apogee Interactive provides web-based energy analysis and CE software for utilities. Founded in 1993 and based in Atlanta, Georgia, the company serves hundreds of North American electric and gas utilities with its cloud-based Empower digital engagement platform.

The software delivers personalized, proactive, and digital communications to utility customers using AI and predictive analytics, to serve consumers. In addition to reports, Apogee uses personalized videos that explain energy bills, request DR event participation, and provide high and mid-cycle bill notifications. These videos are interactive, allowing consumers to select viewing options during the video that are relevant to their interests. The company has also developed an Amazon Alexa skill that explains a customer's energy bill and provides savings tips.

Apogee Interactive has an enviable market position. While its technology is competitive with the Leaders, Apogee chooses to market to smaller, underserved utilities with a portfolio of high quality point solutions that address narrow needs. The result is that Apogee has many smaller clients that the Leaders could serve with their technology, but otherwise have a hard time marketing to. As long as Apogee maintains the quality and scope of its offerings, where it scored exceptionally well, it should be well-positioned to maintain its position or even move up on the *Leaderboard* in the future.

[www.apogee.net](http://www.apogee.net)

**Chart 4-4. Apogee Interactive Strategy and Execution Scores**



(Source: Guidehouse Insights)

#### 4.2.2 GreenCom Networks

*Overall Score: 74.3*

*Strategy: 72.0*

*Execution: 76.5*

GreenCom Networks, based in Munich, Germany, and Sophia Antipolis, France, is a SaaS company leveraging its Internet of Things platform for the management of power usage to utilities, energy service companies, and OEMs of energy-relevant devices. GreenCom was founded in 2011 and has about 60 employees.

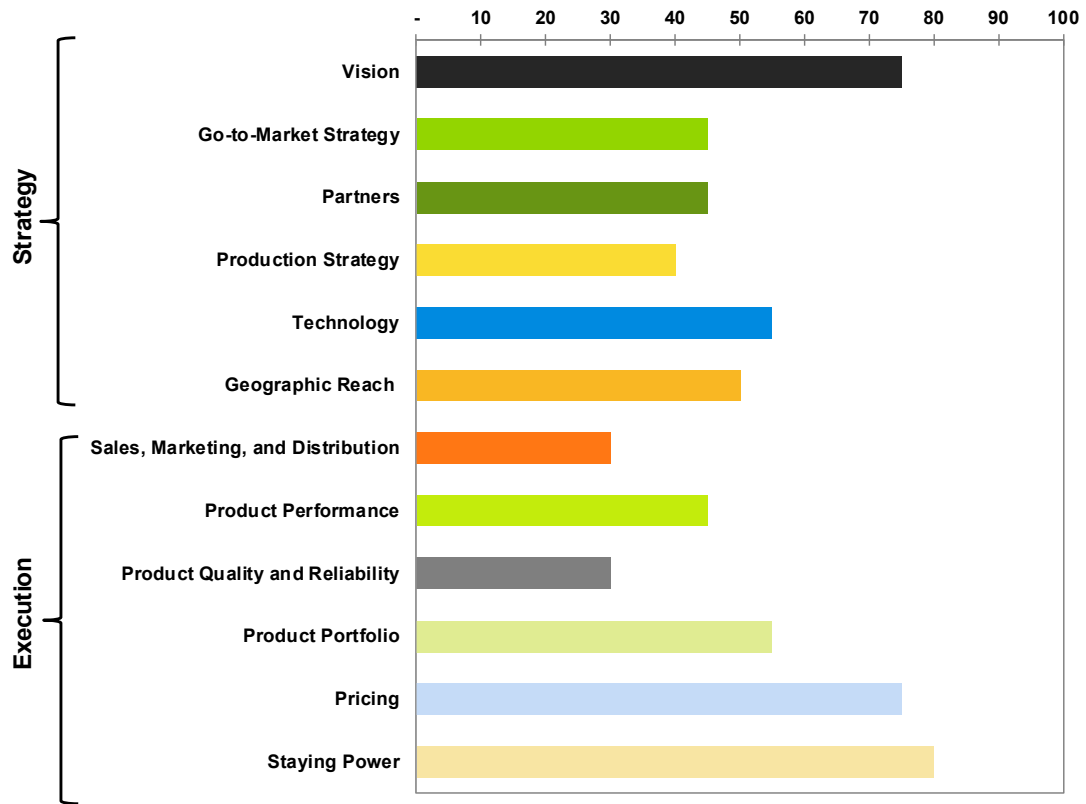
GreenCom's two investment rounds in January 2019 and May 2019 raised financing from innogy Innovation Hub and Centrica Innovations, the venture capital subsidiaries of energy companies innogy and Centrica, among others. GreenCom Networks' strong technology combined with the partnering with its investors contributes to its strong position among the Contenders.

GreenCom offers an end-to-end solution for DER management, from asset implementation and management to data processing and shaping the end-customer experience through apps and services. The technology at the heart of GreenCom's offering is an energy information brokerage platform (EIBP) that allows for the integration of a diverse range of hardware from solar PV systems to heat pumps, batteries, EV chargers, and electric heating. Its EIBP allows for optimized operation of individual DER and utilization as part of a VPP.

In April 2019, the company acquired shine, a provider of energy management services for residential customers called Mesh. GreenCom is transforming Mesh into a tool for an end-to-end demonstration of local energy communities sharing energy in near real time.

[www.greencom-networks.com/en](http://www.greencom-networks.com/en)

**Chart 4-5. GreenCom Networks Strategy and Execution Scores**



(Source: Guidehouse Insights)

## 4.2.3

## Sense

*Overall Score: 73.8*

*Strategy: 75.3*

*Execution: 72.3*

Based in Cambridge, Massachusetts, Sense offers a home energy monitoring system to consumers that provides real-time insights at the appliance level. Founded in 2013, the privately-held company employs approximately 60 people.

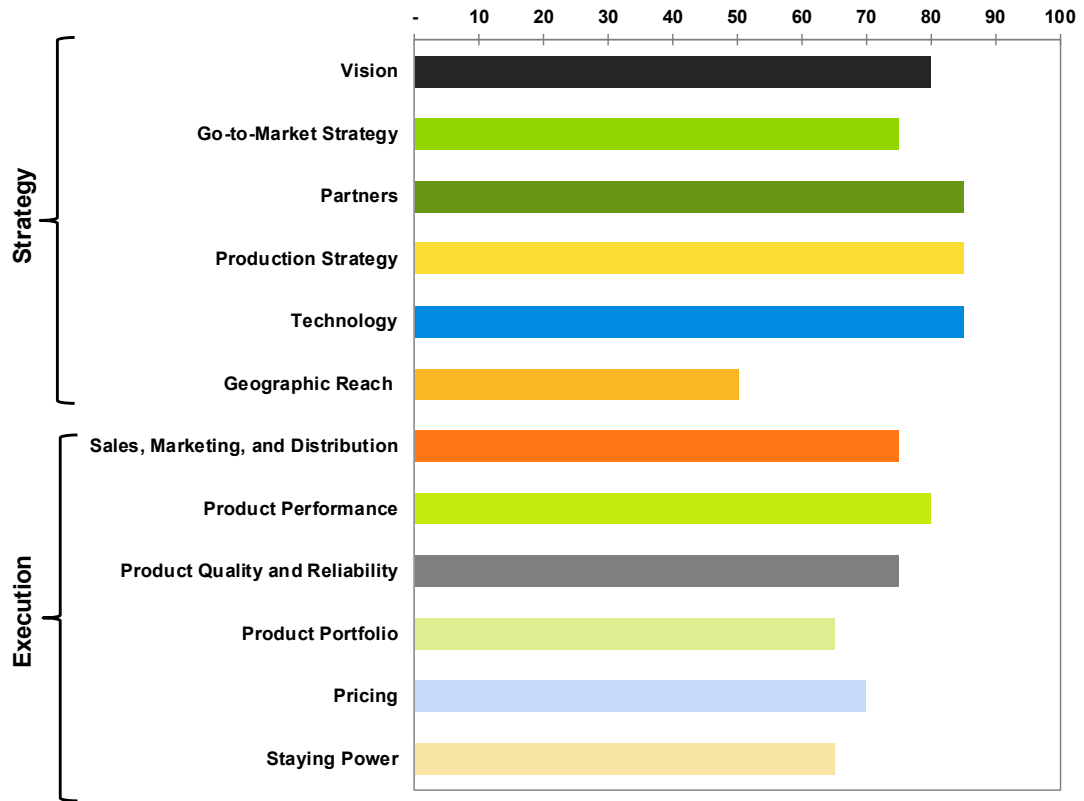
The heart of the Sense solution is a monitoring device that connects within the circuit break panel within a home. The device collects high resolution energy consumption data from circuits, as is supplemented with information from smart plugs, connected lighting, and solar inverters. It sends it over a home's Wi-Fi network to the cloud for analysis. Once Sense has been installed, a user gains access to the monitoring information through a smartphone app for iOS or Android, or a web browser. The basic Sense package retails for about \$300 and the offering for homes with solar PV sells for \$350. Sense is partnering with other industry leaders. Schneider Electric has integrated Sense technology into its Wiser Energy product and recent Energy Center. Landis+Gyr will use the Sense App within its Revelo smart metering platform. The partnering program at Sense has served it well in recent years as reflected in its score.



With these partners, the Sense offering has evolved significantly since the previous *Leaderboard* when it was in the Follower category. Its challenge going forward will be to continuously improve its machine learning disaggregation algorithms and ensure it and its partners remain current with apps. The reputation of Sense can be damaged by bad customer reviews even if the problem lies with the partner.

[www.sense.com](http://www.sense.com)

**Chart 4-6. Sense Strategy and Execution Scores**



(Source: Guidehouse Insights)

## 4.2.4

## Aclara

*Overall Score: 69.7*

*Strategy: 72.8*

*Execution: 66.5*

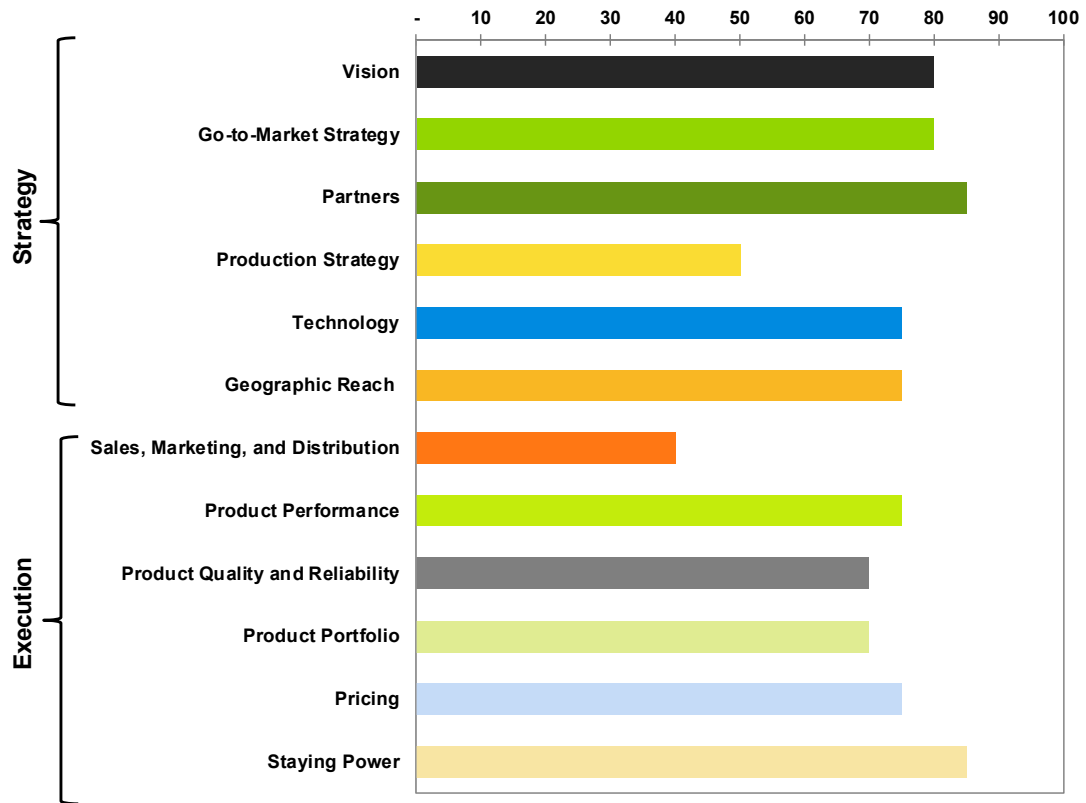
St. Louis, Missouri-based Aclara is a subsidiary of the Hubbell Power Systems family of brands and it employs about 1,700 people. The privately-held company was founded in 1972 and provides smart infrastructure solutions to electric, gas, and water utilities worldwide. Its portfolio includes smart meters and other field devices, AMI, software, and services.

Aclara tends to market its advanced meters to utilities as a bundled package from a single vendor. This is unlike most advanced metering projects that involve multiple vendors and require extensive systems integration support. This approach offers the utility a single point-of-contact to address any problems. The same single vendor logic applies when a utility wants to add HEM and other CE capabilities to Aclara AMI systems. This approach contributes to Aclara's strong score for its go-to-market strategy.

The Aclara Adaptive Consumer Engagement platform in collaboration with Uplight works with the Aclara meters to generate home energy reports, encourage customers to engage in energy efficiency through behavioral changes, and perform customer self-service. Aclara can profitably serve this market as long as it maintains a comparable level of functionality as the other AMI-based HEM solutions.

[www.aclara.com](http://www.aclara.com)

**Chart 4-7. Aclara Strategy and Execution Scores**



(Source: Guidehouse Insights)

## 4.2.5

## Powerley

*Overall Score: 64.9*

*Strategy: 60.8*

*Execution: 68.8*

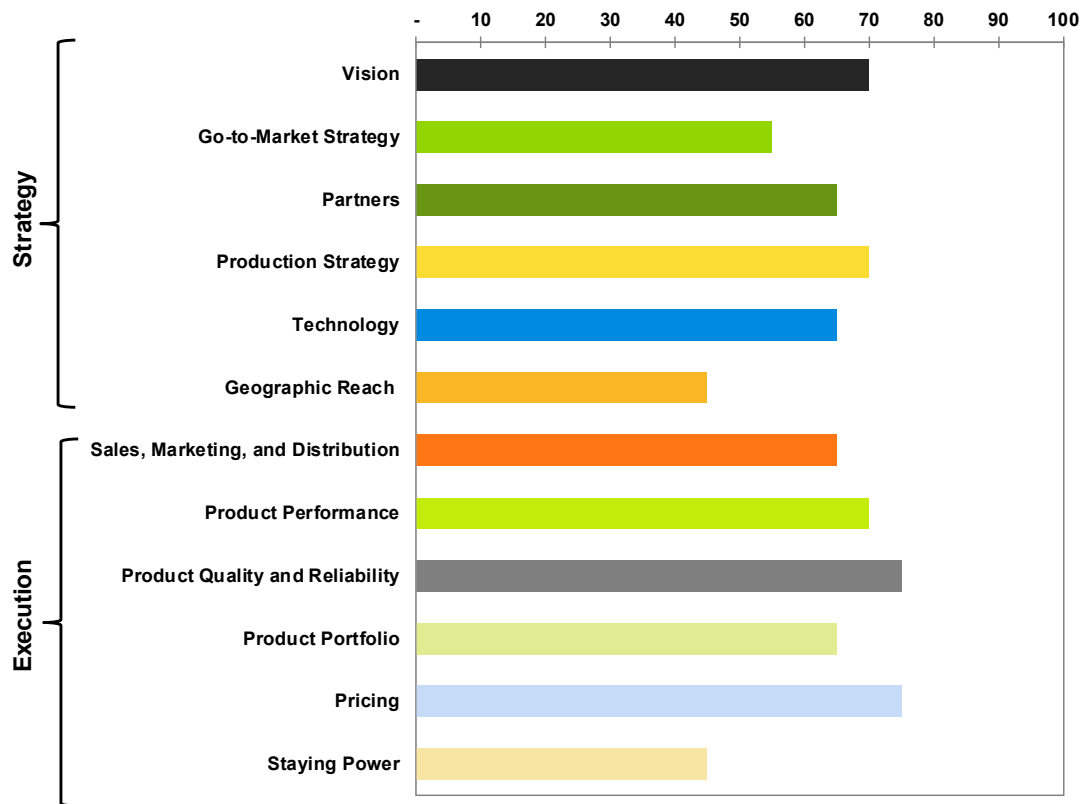
Privately-held Powerley was founded in 2015 through a JV with DTE Energy and technology company Vectorform. It provides a smart HEM platform for utilities to offer their residential customers, tapping the meter to give access to real-time energy data. With headquarters in Royal Oak, Michigan, the company employs approximately 50 people.

Powerley offers three levels of HEM platform. The entry level offering, Lite, is a mobile app that offers useful information for homeowners. The Live and Link offerings include the Powerley Energy Bridge, an in-home device that acts as a central hub of home automation. Other offerings include a data-driven intelligence engine, real-time energy data, popular smart home devices such as Amazon Alexa, and smart plugs, a mobile application, and software support for a utility's engagement portal. Users can also track their energy consumption patterns, set goals, and compare usage.

Powerley is unique by marketing its HEM monitor through utilities, many of which also offer AMI-based HEM solutions. This offers the homeowner the best of both HEM technological approaches even though the total cost is somewhat higher. Powerley markets to utilities directly with its partner Oracle Opower. The combination of its unique positioning with utilities and the solid performance of its technology place it in a strong position among the Contenders. Expanded marketing and partnering programs will help Powerley toward a stronger position in the future.

[www.powerley.com](http://www.powerley.com)

**Chart 4-8. Powerley Strategy and Execution Scores**



(Source: Guidehouse Insights)

4.2.6

tiko

*Overall Score: 61.3**Strategy: 63.5**Execution: 59.0*

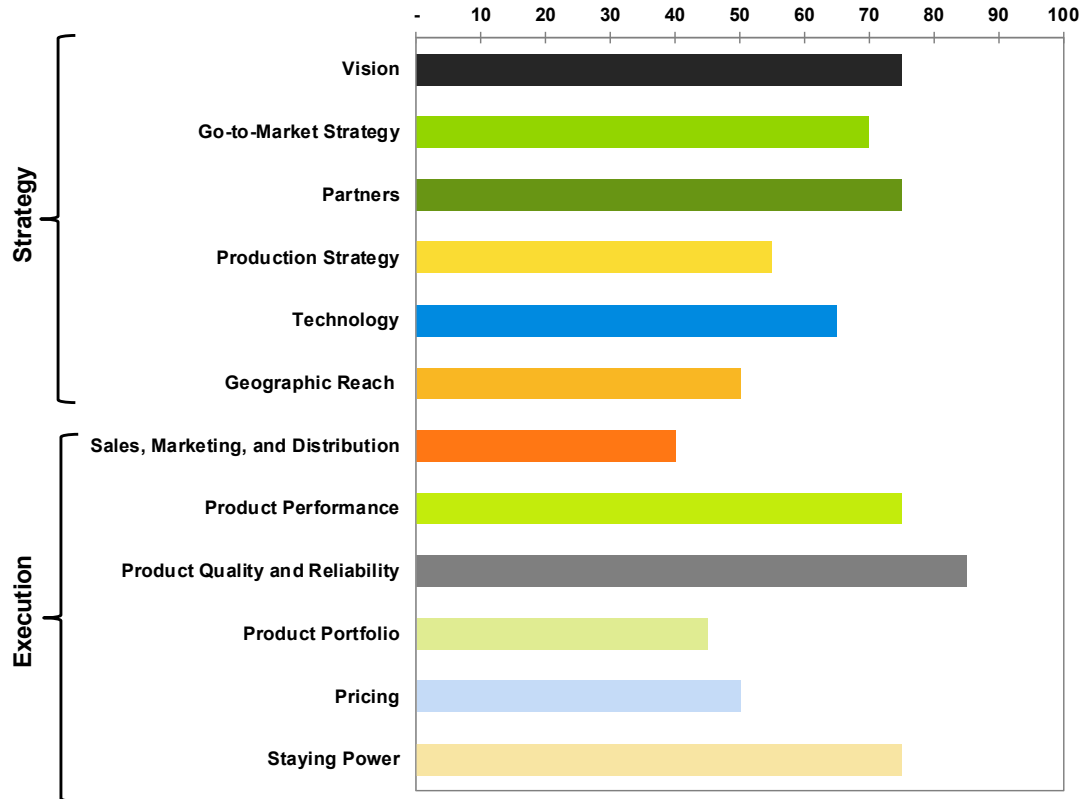
tiko is based in Olten, Switzerland, and provides a software platform for smart HEM and VPPs. The company was founded in 2012 and has about 60 employees. In March 2019, French utility ENGIE acquired a majority stake in tiko. The company's other investors are Swisscom and Repower.

tiko's energy management platform for the residential sector connects a range of appliances, solar panels, HESSs, and EV chargers. In addition, due to the modular setup of the platform, tiko can adapt its solution to various appliances. Through optimized operation of residential loads and generation, the platform enables the maximization of self-consumption and similar customer-centered services. The quality of the platform is one of its key strengths.

The approach tiko takes involves empowering homeowners to change their own behavior to be greener. This, in turn, will drive utilities to be greener. This approach has significant potential and is an important factor in tiko’s ranking as a Contender. In addition, the investment from ENGIE will help tiko gain traction in more of the EU and eventually other parts of the world.

[www.tiko.energy](http://www.tiko.energy)

**Chart 4-9. tiko Strategy and Execution Scores**



(Source: Guidehouse Insights)

#### 4.2.7 Schneider Electric

*Overall Score: 60.9*

*Strategy: 60.0*

*Execution: 61.8*

Schneider Electric offers energy management and automation solutions in homes, buildings, data centers, government, infrastructure, and industrial segments. Based in Rueil-Malmaison, France, Schneider Electric has a global presence in over 120 countries and employs more than 140,000 employees. The company generated revenue of \$30.0 billion in 2020.

Schneider offers a wide range of products under the Schneider Electric brand. Many brands are from its subsidiaries such as Square D and APC that are often used for residential applications. Schneider Electric has a large global presence and is frequently recognized for its corporate sustainability practices and focus.

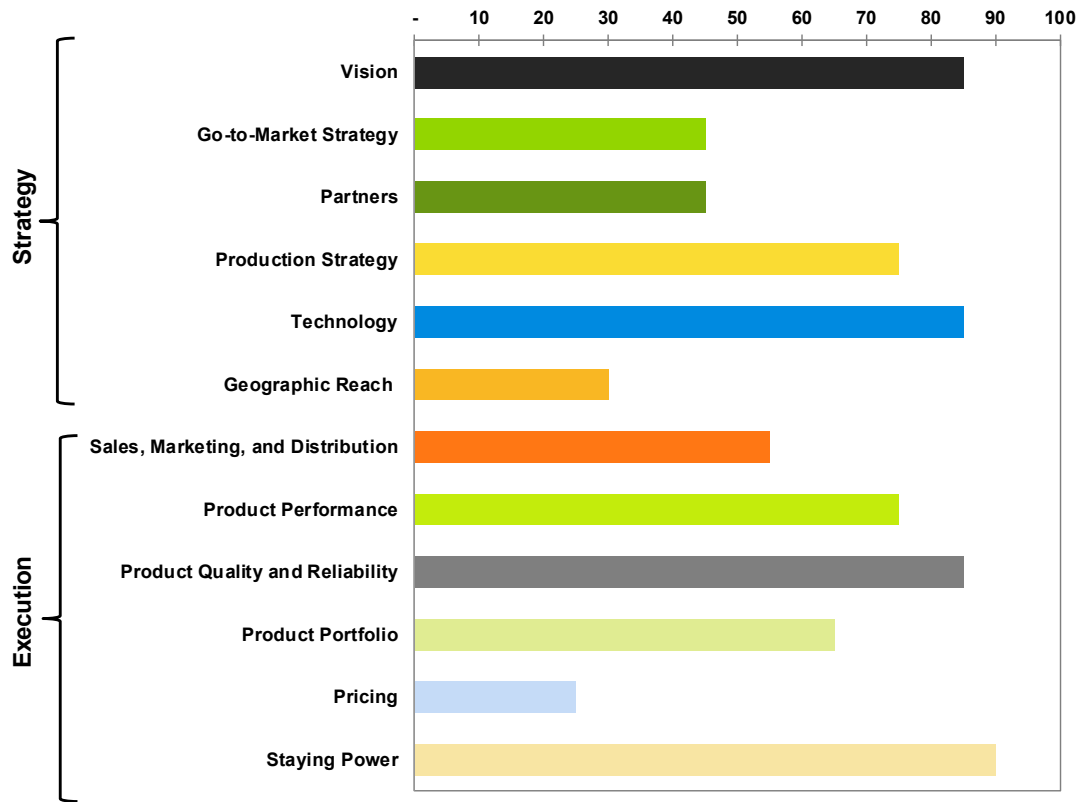
Schneider Electric made an important announcement for a new product called the Energy Center at the 2021 Consumer Electronic Show. The Energy Center incorporates a circuit-breaker panel with a built-in Wiser Energy monitor, a transfer switch for PV or DER support, and wiring devices that can be controlled by home agents like Amazon Alexa. The information on generation and usage is sent in real time to the homeowner's smartphone. The integration of what are normally discrete components into an integrated whole simplifies what is otherwise a complex installation process.



Schneider Electric is extremely deliberate in its launch plans to ensure success. Initial plans are to only make this product available in the US and France, and only in new homes. Over time, Schneider Electric has plans to take this offering to other markets and bring it through its vast distribution network. Because the scoring in this report is based on present offerings, Schneider Electric’s rankings are lower than they will likely be in the future. It would be a mistake to underestimate the disruptive nature of this offering in how it addresses several barriers with HEM solutions.

[www.se.com](http://www.se.com)

**Chart 4-10. Schneider Electric Strategy and Execution Scores**



(Source: Guidehouse Insights)

#### 4.2.8 Elevation Energy Solutions

*Overall Score: 56.3*

*Strategy: 56.3*

*Execution: 56.3*

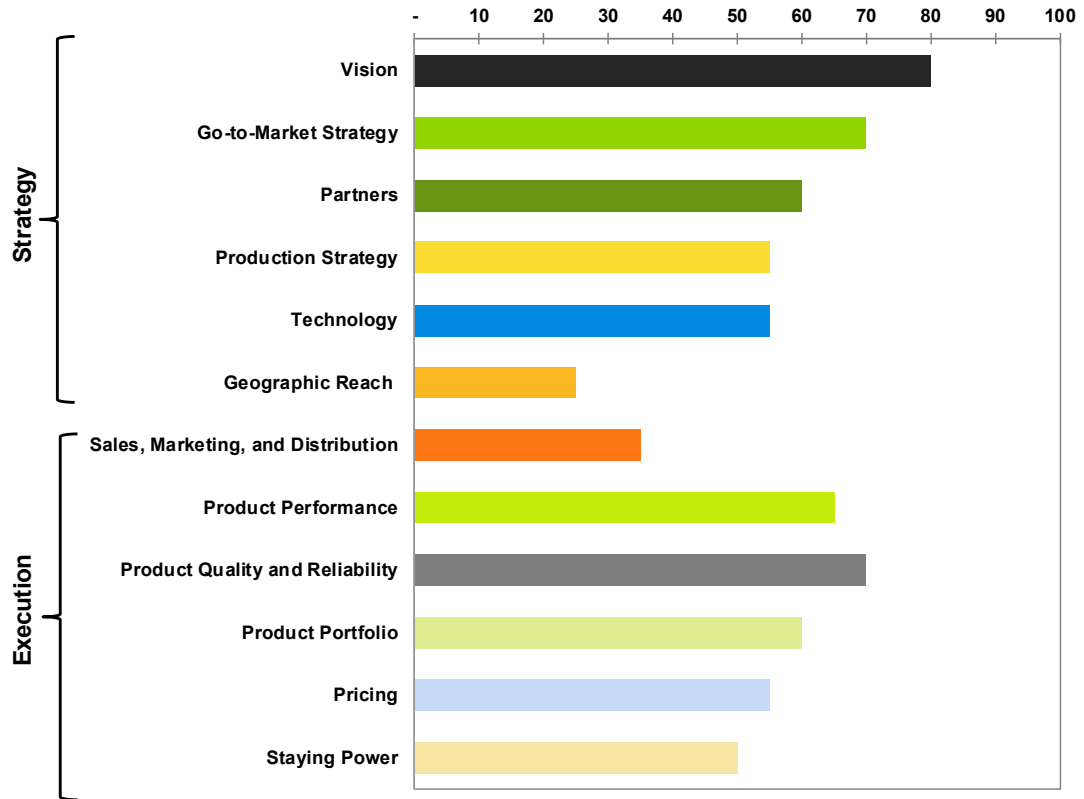
Elevation Energy Solutions, based in Chandler, Arizona, offers solar panels, HESSs, energy efficiency retrofits, and energy intelligence technology to customers for use in residential, multifamily, and commercial buildings. The company is privately held and employs more than 200 employees. It focuses on ethical business practices, maintains customer-first values, and has been recognized multiple times by the US Department of Energy as contractor of the year.

In 2020, Elevation Energy Solutions acquired privately-held CURB to enhance its energy intelligence solutions. The CURB offering is different from other monitors in that it uses up to 18 sensors that enable submetering of major home appliances. Data from the monitor enables homeowners, landlords, and utilities to implement continuous VPP solutions, engage in advanced demand management and HVAC predictive analytics.

Elevation Energy Solutions plans to reduce barriers to adoption by offering free installation of the CURB monitor in states where it already has presence. This is only a portion of the US at the moment, which results in a lower geographic rating. The company has aggressive plans to expand distribution throughout the US in areas that it does not serve.

[elevationenergysolutions.com](http://elevationenergysolutions.com)

**Chart 4-11. Elevation Energy Solutions Strategy and Execution Scores**



(Source: Guidehouse Insights)

### 4.3 Challengers

This category includes vendors that have viable HEM solutions but will need to make some important strategic moves to continue to succeed in this rapidly evolving marketplace. Challengers include Emporia Energy, Smappee, and Generac. Each of these has a solid vision and will likely move up to be Contenders in the future.

#### 4.3.1 Emporia Energy

*Overall Score: 53.6*

*Strategy: 48.0*

*Execution: 58.8*

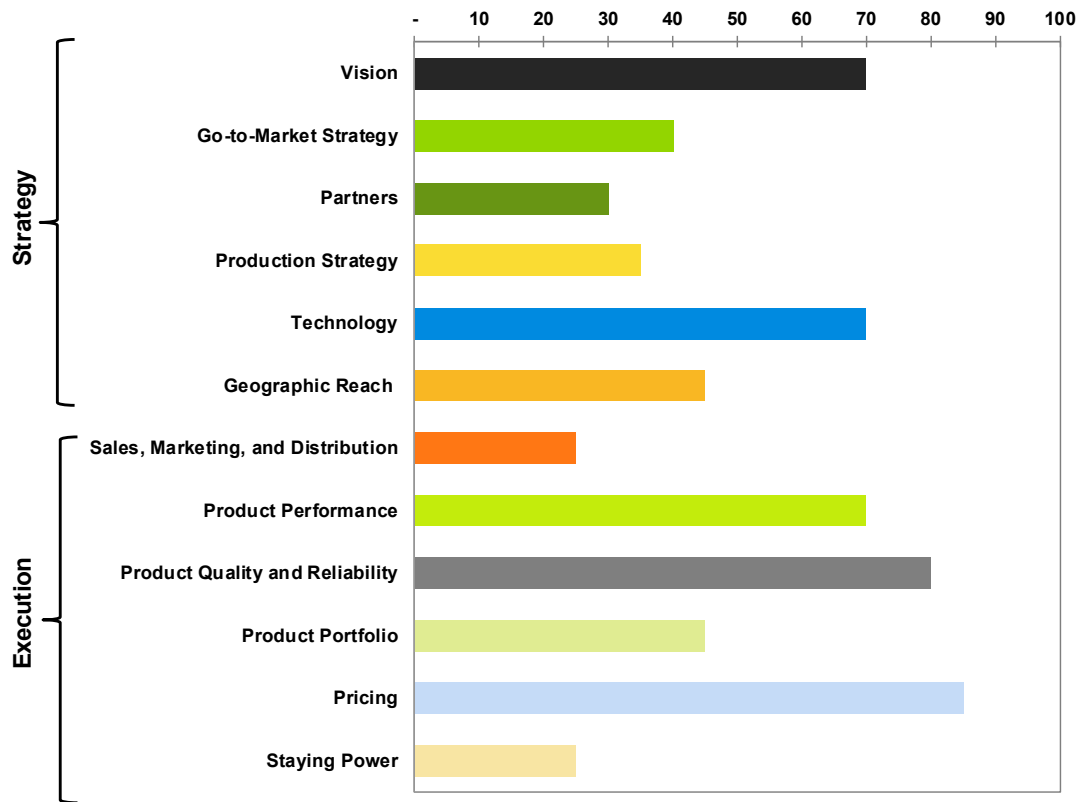
Based in Littleton, Colorado, Emporia Energy offers energy monitoring systems to consumers and small businesses that provides information on power usage in real time. Founded in 2018, the privately-held company employs about 40 people.

The energy monitor and current sensors from Emporia Energy install in the home's electrical panel or, in some cases, to a plug near certain advanced meters. The monitor collects information on the power flow of individual circuits and certain appliances, along with information on power from solar panels and home energy storage system if installed. The company focuses on four priorities it calls pillars, which include: Customer satisfaction, optimization of processes and procedures, innovation, and to make the world better.

Emporia Energy is pursuing a disruptive strategy based on gaining market share with low pricing with the ultimate objective to attain critical mass and then offer value-added advanced services. This is a high risk/high reward approach that will take time to evolve. Such a strategy accounts for the lower scores in some areas such as sales, marketing, and distribution and partners. However, if the strategy works and expands marketing and sales channels, Emporia Energy will certainly move up in the *Leaderboard* rankings.

[emporiaenergy.com](http://emporiaenergy.com)

**Chart 4-12. Emporia Energy Strategy and Execution Scores**



(Source: Guidehouse Insights)

## 4.3.2

## Smappee

*Overall Score: 53.4*

*Strategy: 58.3*

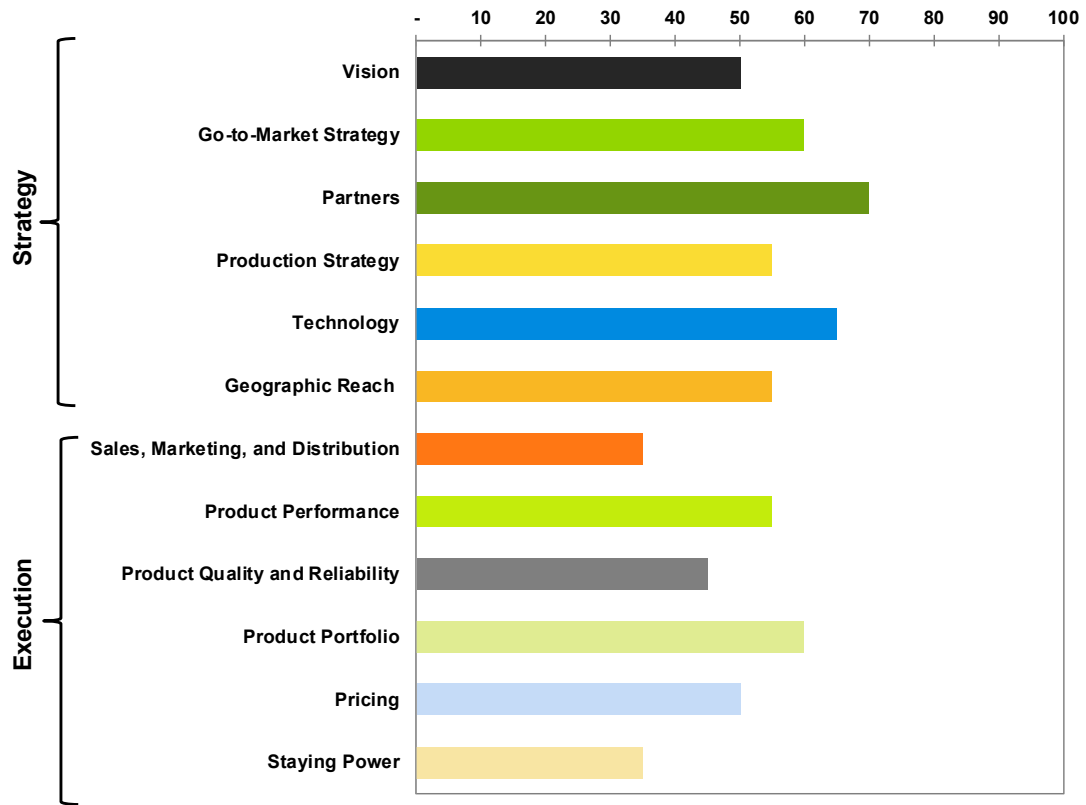
*Execution: 48.0*

Founded in 2012 and based in Kortrijk, Belgium, Smappee is a privately-held company that makes and sells energy monitoring solutions for electricity, gas, and water. The company employs about 40 people. The company's goal is to better inform consumers about energy and water use within their residence and allow them to manage their energy usage via automated and custom-created scenes. This approach enables consumers to optimize self-consumption and obtain self-sufficiency. The company sells its products through value-added resellers (energy service companies) and as an OEM solution in more than 90 countries.

Its HEM product is called Infinity, which emphasizes submetering via load disaggregation, current clamps, and smart plugs. A typical Infinity setup includes a device called Power Box for line voltage measurement, a gateway called Genius, several hubs, and several current transformer clamps for submetering. Its technology analyzes data locally, and in the cloud, sending relevant information to a user's mobile app. The company also sells a smart plug and products for monitoring natural gas and water consumption. Smappee has a solid product and adds value but will need to expand its vision and sales channels in this dynamic marketplace if it is to move up on the *Leaderboard* in the future.

[www.smappee.com](http://www.smappee.com)

**Chart 4-13. Smappee Strategy and Execution Scores**



(Source: Guidehouse Insights)

### 4.3.3 Generac Power Systems

*Overall Score: 49.9*

*Strategy: 51.0*

*Execution: 48.8*

Generac Power Systems is the principal operating group of Generac Holdings. It is a generator and related product manufacturer based in Waukesha, Wisconsin with about 5,800 employees and \$2.49 billion in revenue for 2020. The company is known for its residential standby generators—residential products account for more than half of revenue—but also offers commercial and industrial generators and a variety of other energy-related products. Generac Power Systems has over 6,000 dealers, some offering installation and after sale service support. Other channels include wholesalers, mass retailers, and licensing partners.

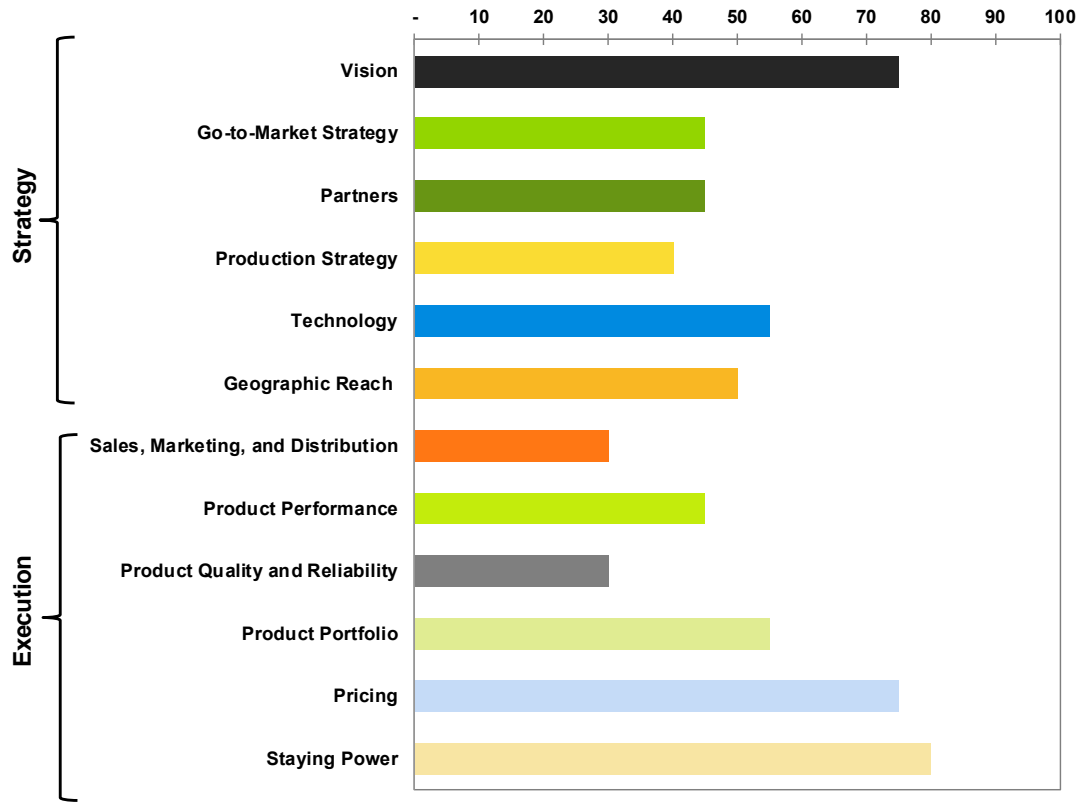
More recently, the company has pursued a strategy supporting smart energy technologies with a series of acquisitions including battery system provider Pika Energy, smart grid provider Enbala Power Networks, and Neurio Networks. These acquisitions fall under the company's Clean Energy solutions for homeowners with the plan to complement Generac Power Systems' current home backup power offerings.



Neurio Networks was among the Followers in the 2018 HEM *Leaderboard*. With Generac bundling these solutions and rebranding Neuroio with the PWRview software brand name, this offering has become a Challenger. This new strategy has great potential given the company’s position in the power industry. However, the integration has not been without its challenges with perceived quality with the mobile app. When Generac fixes these issues, it is expected to improve its ranking.

[www.generac.com](http://www.generac.com)

**Chart 4-14. Generac Power Systems Strategy and Execution Scores**



(Source: Guidehouse Insights)

#### 4.3.4 Blue Line Innovations

*Overall Score: 30.5*

*Strategy: 24.5*

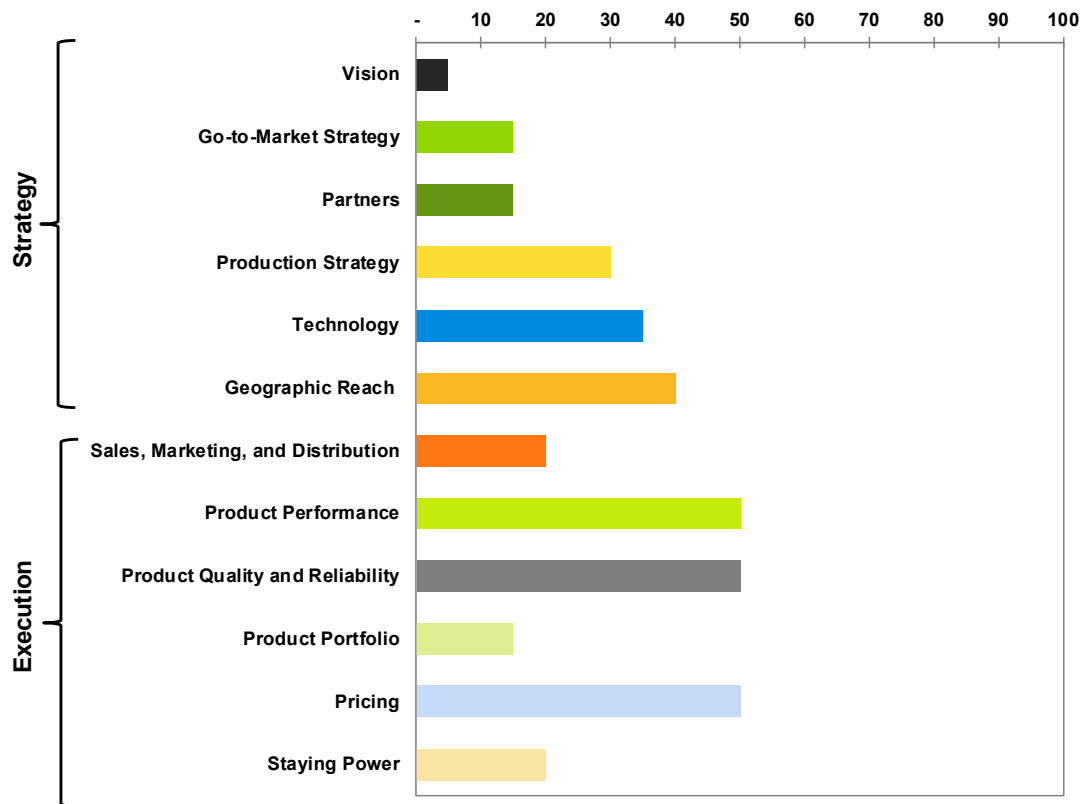
*Execution: 35.5*

Privately-held Blue Line Innovations is based in St. John's, Newfoundland, and Labrador, Canada. Founded in 2004, the company employs about 15 people. Its main HEM product is called EnergyCloud, which allows users to monitor and track a home's electricity usage in real-time. It consists of a sensor that attaches to an electricity meter and a small device called the CloudConnector, which attaches to a home network. In combination, these pieces securely send usage data to a personal EnergyCloud account.

The EnergyCloud web portal and mobile app provide easily understood energy use analysis. Blue Line’s solution is compatible with most North American electricity meters. More recently, the firm has developed a skill for EnergyCloud that enables it to be used with Amazon Alexa. Instead of waiting for a paper bill to arrive, users can find out their consumption status by asking Alexa for an update. Blue Line Innovations has a significant installed base of customers, but its sole channel of distribution is its website. Establishing new sales channels will be necessary to move forward.

[www.bluelineinnovations.com](http://www.bluelineinnovations.com)

**Chart 4-15. Blue Line Innovations Strategy and Execution Scores**



(Source: Guidehouse Insights)

## Section 5

### Acronym and Abbreviation List

AI .....	Artificial Intelligence
AMI .....	Advanced Metering Infrastructure
CAGR .....	Compound Annual Growth Rate
CE .....	Customer Engagement
DER .....	Distributed Energy Resources
DR .....	Demand Response
DSM .....	Demand Side Management
EaaS .....	Energy as a Service
EIBP .....	Energy Information Brokerage Platform
EU .....	European Union
EV .....	Electric Vehicle
HEM .....	Home Energy Management
HESS .....	Home Energy Storage System
HVAC .....	Heating, Ventilation, and Air Conditioning
IT .....	Information Technology
OEM .....	Original Equipment Manufacturer
PV .....	Photovoltaics
SaaS .....	Software as a Service
US .....	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 Insights has prepared this report to provide participants in the HEM market with an analysis of the current competitive landscape. The report is intended to help providers in this market understand how companies and brands fit into the overall global market landscape.

The major objective of this *Leaderboard* is to provide a timely overview of the companies involved in the HEM market, as well as their Strategy and Execution in developing, marketing, and delivering HEM solutions. Company ratings capture the vendor's standing at the time of the report and are not a retrospective of past accomplishment or an indication of future success. In this market, ratings are likely to shift as companies consolidate and switch focus and HEM applications continue to evolve.

#### 8.2 Sources and Methodology

Guidehouse Insights' industry analysts use a variety of research sources in preparing Research Reports. The key component of Guidehouse Insights' 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 that 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 Insights' 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 Insights' 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 Insights is a market research group whose goal is to present an objective, unbiased view of market opportunities within its coverage areas. Guidehouse Insights 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 two kinds of HEM solutions. Some provide hardware monitors installed within a residence that monitors power usage of circuits and individual plugs, appliances, and home-based equipment. The data collected are typically analyzed and disaggregated and provided to the homeowner. In some cases, the data are also provided to third parties for use to provide value-added services by third parties and utilities.

There are also software-based HEM solutions focused on increasing CE and satisfaction, supporting utility DSM programs, and enhancing control, automation, and optimization of home energy production and consumption. These companies have a distribution target of either regional or global sales.

### 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 they will operate. In this *Leaderboard*, the vision includes providing the homeowner with useful information in addition to the plans for third parties including utilities, to offer value-added services that include supporting the green energy transition, EaaS, VPPs, and predictive maintenance for appliances and equipment. Clear and compelling 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 the sales and marketing channels to be used, as well as the processes established for informing the target market about brand differentiation and unique product value.
- **Partners:** Measures the company's established partnerships with key organizations that will provide an advantage in financial backing, sales, business, and product development. Higher scores are given to companies that have established partnership networks or are operating within an ecosystem that furthers the traction of their offering.
- **Production Strategy:** Evaluates the long-term competitiveness of the manufacturing plan for hardware as well as software as an effective solution that satisfies market requirements and meets market capacity needs.
- **Technology:** Evaluates whether the company has developed and patented technology that provides a significant business advantage over competitors that is likely to have an enduring impact on its success. Higher scores are given if the company's technology is already a proven market success or delivers unique product attributes.
- **Geographic Reach:** An evaluation of companies' ability to reach national and international customers. Scores are lower if the company does not have a sales or dealer strategy suitable for retail or fleet sales in multiple regions.

#### 8.2.3.2 **Execution**

- **Sales, Marketing, and Distribution:** Evaluates the company's marketing and sales performance and current distribution channels. Higher scores are given to companies with brand recognition and significant sales.
- **Product Performance:** Evaluates the competitive performance of the vehicles. Higher scores are given to companies that provide higher fuel economy and lower operating costs while delivering on customer expectations.

- **Product Quality and Reliability:** Evaluates the competitive performance of the company's HEM solution. Higher scores are given to companies with higher customer satisfaction, and energy savings results.
- **Product Portfolio:** Addresses the company's breadth of offerings related to HEM. Companies that score highly in this category have products that address a variety of HEM applications and have integrated with third-party solutions to offer more comprehensive solutions.
- **Pricing:** Determines the suitability of product pricing based on its feature set, including whether products are available at multiple price points and how pricing compares to that of competitor products.
- **Staying Power:** Evaluates whether the company has the financial resources to withstand the strains of an emerging market and increasing competition. Also measures the maturity of a company's solution, including how long it has been present in the market. Higher scores are given to companies that are more likely to persist in the future.

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