

**UTILITIES:**

# **LEAD THE CHARGE IN eMOBILITY**

**ACHIEVE COMPETITIVE AGILITY**

**accenture**strategy

Electric vehicles (EVs) are on a roll. Battery costs are dropping and consumer interest continues to climb. Even without subsidies, the total cost of EVs is fast reaching parity with internal combustion engine vehicles.

As the market takes shape, utilities are actively exploring their potential roles. We believe winners will charge ahead by investing smartly, tapping their trusted customer relationships, and partnering with others to provide bundled, differentiated and meaningful eMobility experiences.

**There is tremendous value potential in eMobility. In Europe and North America alone, the eMobility market is expected to top **US\$2 trillion by 2040.****

Source: Accenture Strategy eMobility Value Research, 2019.<sup>1</sup>

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Bruno is senior managing director for Europe as well as for Utilities within Accenture Strategy. His role focuses on driving the operational performance of Accenture Strategy in this large geographic area as well as developing its positioning at the digital intersection of Business & Technology. Bruno is based in Paris.

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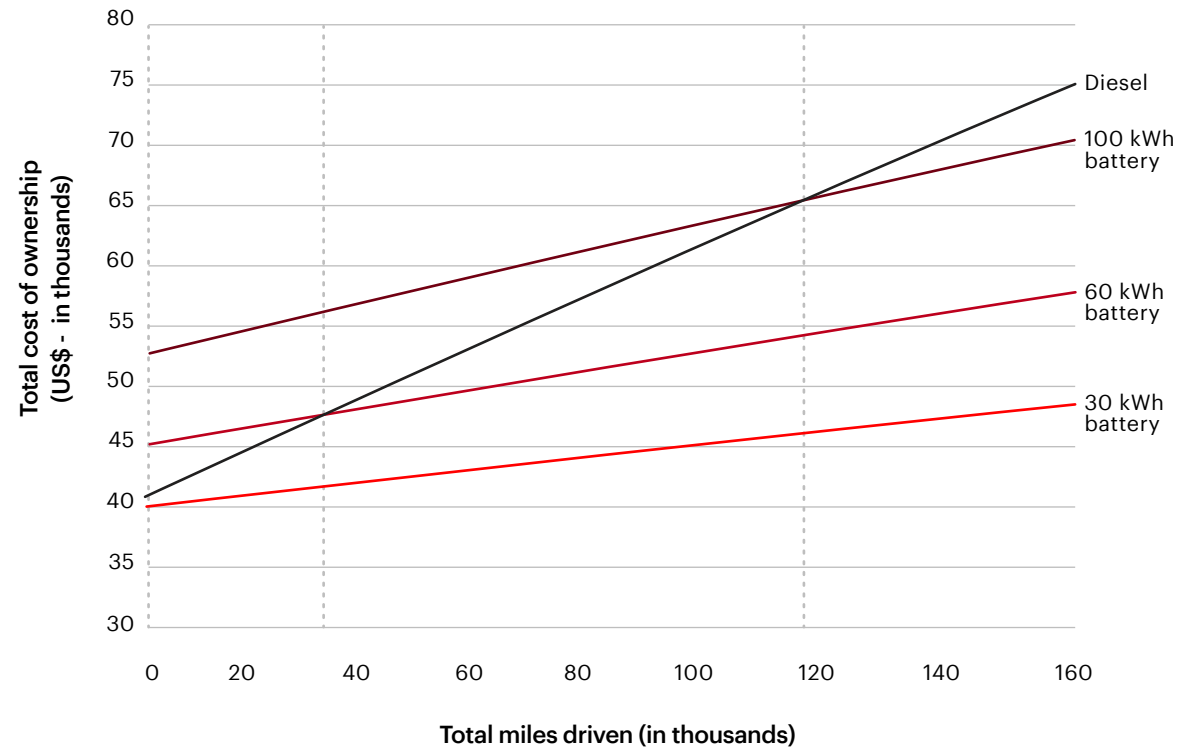
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Justin Keeble works at the intersection of digital technologies, the energy transition and growth strategies for companies. He is passionate about how sustainability constraints are driving innovation and growth for companies, especially in energy, utilities and mobility. He leads the Sustainability practice for Europe and the UK Utilities practice for Accenture Strategy. He has worked across numerous industry sectors as well as for the World Economic Forum, and the UN Environment Programme. Justin is based in London.

# The EV acceleration

EV battery costs—US\$750 per kilowatt-hour (kWh) in 2010—dropped more than 80 percent in six years.<sup>2</sup> This helped make the purchase price of certain EVs comparable to that of internal combustion engine (ICE) vehicles. But the real economic benefit of EV ownership materializes over time, as the costs per mile driven are lower than for conventional vehicles. Two-thirds of future EV owners we surveyed indicated “saving money over the longer term” is one of their top reasons for making the switch.<sup>3</sup>

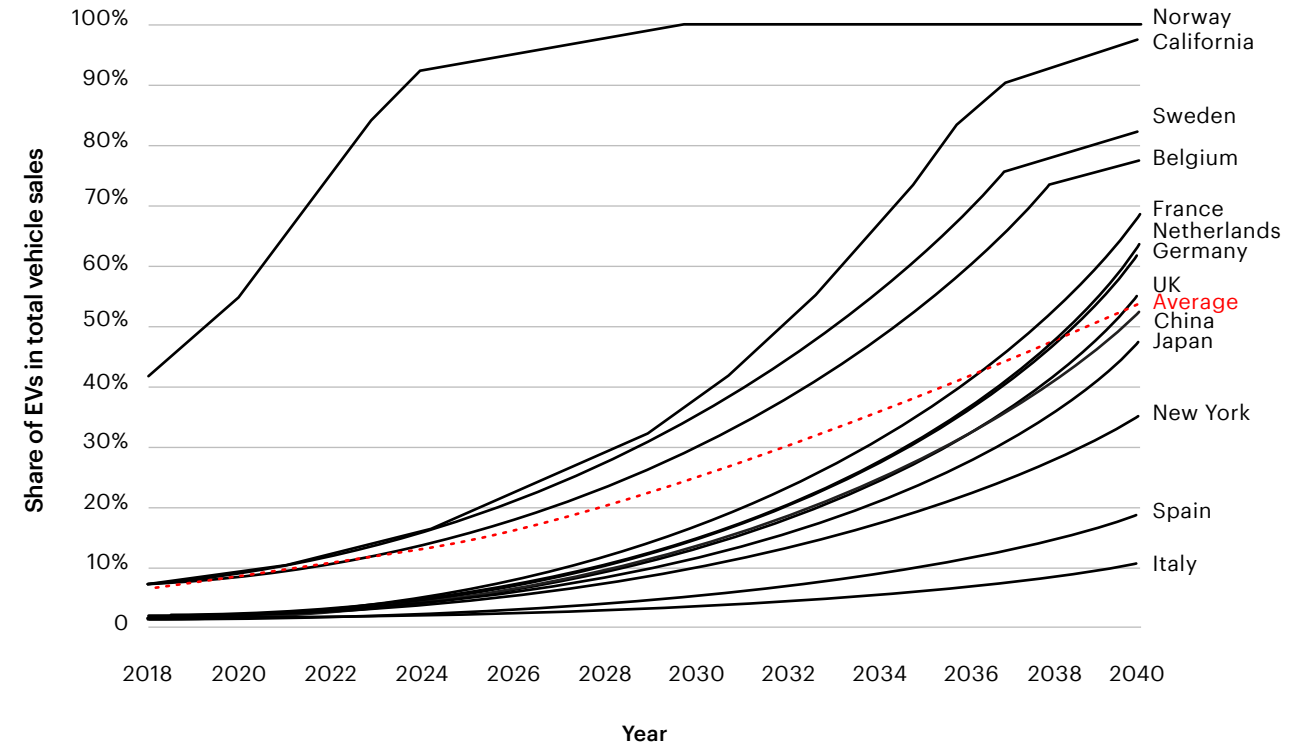
**Figure 1: In the long run, the total cost for an EV is lower than for a conventional, diesel-powered car**



Source: Accenture Strategy eMobility Value research, 2019. Countries included as part of the analysis: Belgium, China, France, Germany, Italy, Japan, Netherlands, Norway, Spain, Sweden, UK, US (California + New York)

Further spurring consumer interest is the speed with which auto manufacturers are shifting their investments toward EVs. Currently, US and European consumers can choose from between 30 and 50 EV models, respectively.<sup>4,5</sup> It is estimated there will be 400 EV models available globally by 2025.<sup>6</sup> At that time, Europe and the United States will have 10 million EVs on the roads, compared to 2.5 million today.<sup>7</sup>

**Figure 2: In major markets around the world, EV sales are expected to grow exponentially**



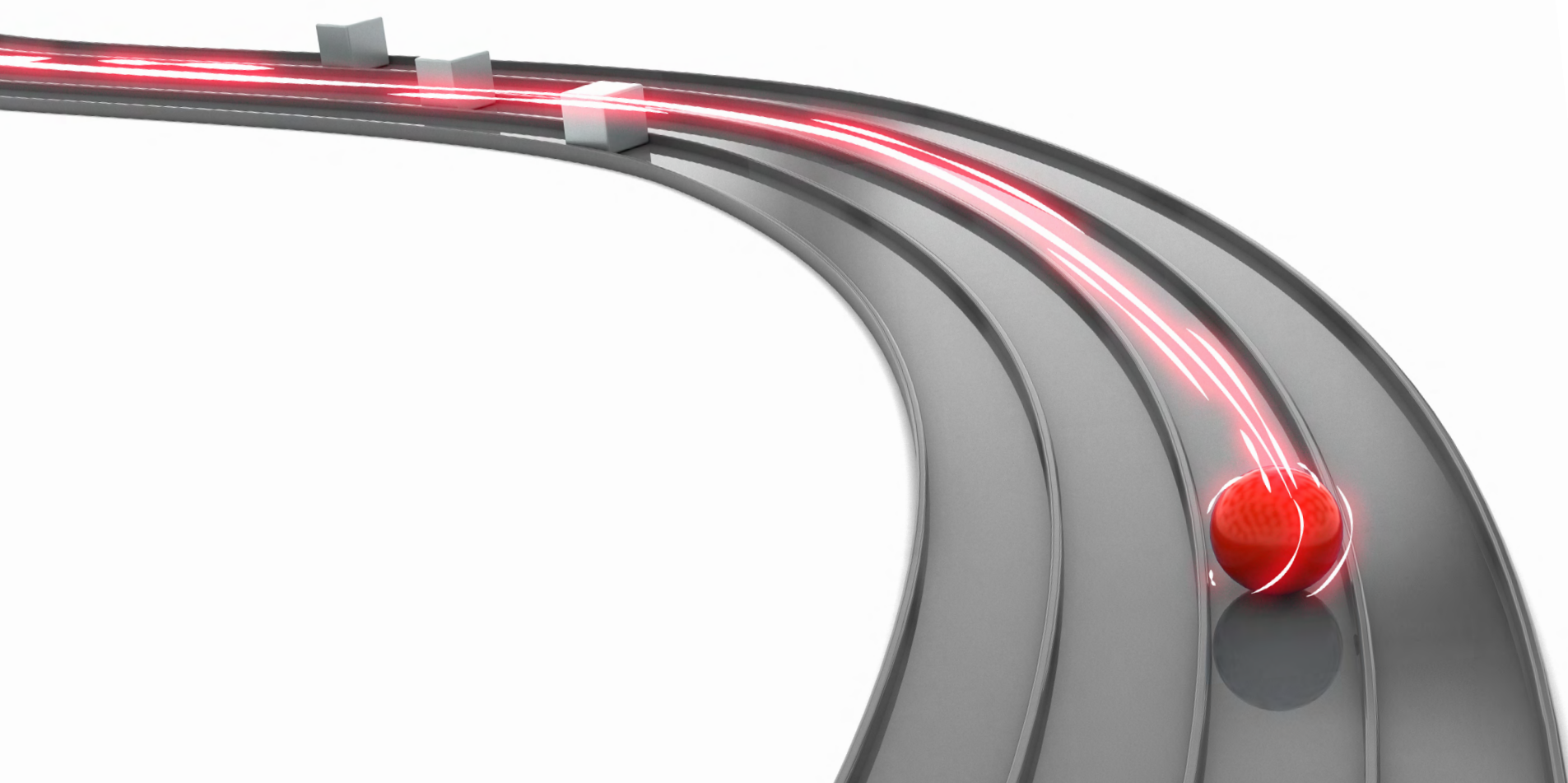
Source: Accenture Strategy eMobility Value research, 2019 – amending Digitally Enabled Grid Research Modeling, 2018<sup>8</sup>

While EV sales are taking off faster than imagined, obstacles still exist. Owning an EV is a complex undertaking. Many EVs still have a shorter mileage range than conventional cars, and charging takes time. Owners charging from their home will need to ensure their domestic energy systems are up to the task, schedule the installation of the home charging infrastructure, and determine maintenance requirements. Owners who opt for public charging need to check public charging options and their availability, choose the right tariff/payment options, and schedule their charging routines according to their travel needs. Consequently, 39 percent of conventional car owners say they would never buy an electric car.<sup>9</sup>

Companies that can help owners make EV ownership as easy as owning any other type of vehicle will bend the adoption curve upward—further accelerating the transition to eMobility.

**Over 80 percent  
of future EV  
owners plan  
to charge their  
vehicles primarily  
from their homes.  
Yet, only 55  
percent have  
their own garage.**

Source: Accenture Strategy eMobility Value Research, 2019



# Utilities charge ahead

We have quantified four distinct opportunities for utilities across the eMobility value chain.

**Figure 3: The cumulative value potential by 2040 of eMobility value chain opportunities**

	ESTIMATED VALUE POTENTIAL	VEHICLE & BATTERY	GENERATION	TRANSMISSION SYSTEM	DISTRIBUTION SYSTEM	PUBLIC CHARGING STATIONS	PRIVATE CHARGING STATIONS	RETAIL ENERGY SUPPLY	BILLING & PAYMENT
<b>1</b> COMMODITY SALES	US\$1.7 Tr		Demand growth for generator Demand growth for system operations					Demand growth for retailer	
<b>2</b> CHARGING STATIONS	US\$400 Bn					Public charging point ownership	Private charging point ownership		
<b>e</b> eMOBILITY-RELATED SERVICES	US\$250 Bn	Bundled EV & battery financing					Private charging point operation		Bundled payment and customer services
<b>4</b> GRID/SYSTEM FLEXIBILITY	US\$100 Bn		Generation portfolio optimization Transmission system optimization Distribution system optimization					Retail portfolio optimization	

Source: Accenture Strategy eMobility Value research, 2019

# 01

## Commodity sales:

Selling kilowatt-hours in the EV market is a natural extension for utilities. Some are already strengthening their core commodity business by introducing innovative time-of-use tariffs for EV owners. While EV-directed commodity sales may reach US\$1.7 trillion in Europe and North America by 2040<sup>10</sup>, such sales generate margins in the three to five percent range. For this reason, utilities should think of electricity sales as just one component of a bundled set of services.

# 02

## Charging stations:

Another opportunity for utilities focuses on deploying the many charging stations needed. Utilities are best equipped to address at-home charging requirements, but margins may be limited—especially once interoperability standards are in place and drivers can use any charging infrastructure to power their EV.

Public charging requires substantial investments, with infrastructure costs estimated to total approximately US\$150 billion.<sup>11</sup> Beyond the investment cost, a number of oil and gas players are exploiting the public-charging opportunity. BP, Total and others made significant investments in the past year.<sup>12</sup> Their retail networks and business models make them natural providers of new fuel for public consumption. A recent Accenture survey of fuel retailers showed they expect eMobility to have the greatest impact on their retail business over the next three to five years.<sup>13</sup> In such a heavily contended space, data will be key in determining the highest value charging point locations.

# 03

## eMobility-related services:

Utilities are well positioned to orchestrate a host of services across the customer journey (see Figure 4). To pursue this US\$250 billion opportunity, utilities could, for example, facilitate charging station installation and maintenance services, or provide apps that enable remote charging. Platforms that enable other services designed to create a seamless, more satisfying customer experience—such as integrated home-EV energy management, charge point navigation, charging reservations, battery management or payment processing—would also be valuable to customers. Similarly, financing services would help facilitate EV ownership as the high initial purchase costs is consumers' biggest barrier toward buying an EV.<sup>14</sup>

Consumers have an appetite for such services. For example, 53 percent of current EV owners financed or leased their batteries, and half of future EV buyers expect to purchase their home charging station as part of a packaged deal.<sup>15</sup>

# 04

## Grid flexibility:

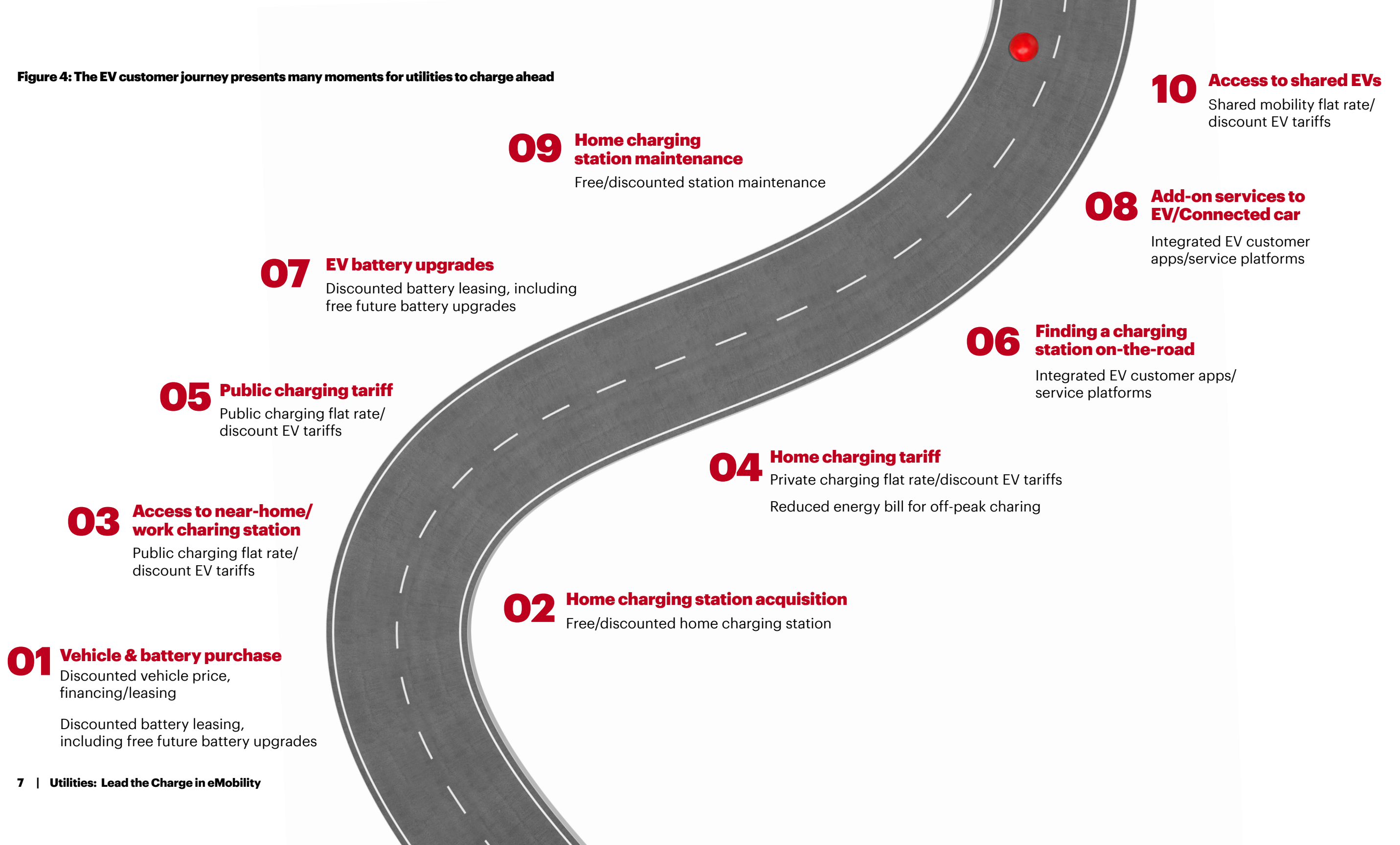
Consumers plan to do most (53 percent) of their charging in the early evening, between 5 and 10 pm, placing an extra load on the grid at peak times. There is an opportunity for utilities to actively use EV charging to balance supply and demand—and optimize grid and portfolio performance—much as they do to accommodate wind or solar energy sources. Alternatively, focusing on creating a more flexible grid for eMobility would enable utilities to better manage network congestion, reduce grid stabilization costs (see Sidebar), and optimize wholesale/retail portfolio spend.

# Emerging flexibility markets

**A consortium of grid operators in Germany is launching a power exchange platform that uses grid flexibility to provide a market-based congestion management solution. In the Netherlands, too, high-voltage grid operator Tennet and regional network operators are setting up a flexibility platform that enables grid users to temporarily increase or decrease their consumption or production for a fee. This means existing capacity can be used more efficiently, without operators needing to strengthen the physical network.**

Source: First trade on flexibility platform enera completed successfully," enera (press release), February 5, 2019

**Figure 4: The EV customer journey presents many moments for utilities to charge ahead**



# Powering growth with practicality and purpose

Beyond the four distinct opportunities listed, utilities can generate additional value by combining solutions in a bundled service. Such an offering would comprise the electricity that EV owners need to power their vehicles, new services integrated on a single platform and designed to improve the ownership experience, and the grid flexibility to drive cost and network optimization.

This bundled approach creates a new value equation for utilities:

**Commodity + Services + Flexibility =  
US\$2 trillion Integrated Value**

Utilities are uniquely positioned to deliver bundled services. In addition to understanding the energy market model, its rules and complex regulations, utilities enjoy strong relationships with customers and are perceived as trusted suppliers.<sup>16</sup> Accenture's Competitive Agility Index, which quantifies the value of trust, shows that a material increase in trust for utilities leads to a 6 percent boost in revenue growth.<sup>17</sup>

Additionally, utilities have volumes of consumer data and a deep understanding of customers as energy consumers, which enable them to deliver targeted offerings quickly. This particularly holds for high-performing utilities, who ensure customer data moves seamlessly and securely across the organization and its partners (94 percent) and act on insights derived from customer analytics (90 percent).<sup>18</sup>

Finally, utilities can align their purpose to the values and beliefs of their consumers. Nearly two thirds of consumers say their purchase considerations are driven by a company's ethical values and authenticity.<sup>19</sup> As consumers become increasingly committed to environmental sustainability—environmental reasons are a driver for 73 percent of EV buyers<sup>20</sup>—utilities can bolster their brands by supporting consumers' efforts to reduce emissions and reliance on fossil fuels.





# Cruising to value

Leading utilities will thrive in the eMobility market by taking actions that will bend the EV adoption curve upward. They will maximize the size of the eMobility opportunity for all invested parties and drive sustainable profitability from the opportunities EVs present, by:



## Putting the customer in the driver's seat

With the trust of their customers, along with their deep consumer insights into everything from consumption patterns and payment preferences to home-charging abilities, utilities are well positioned to help consumers make the right choices as they navigate the complex EV ownership journey. Leading utilities will double down on understanding the motivations for—and barriers to—EV adoption. They will crack the code on EV consumer behaviors and drive the EV customer experience.



## Mapping the journey to hyper-relevance

Despite their strong customer relationships and unique capabilities, utilities can't deliver all the services an EV owner needs or wants. Leading utilities will establish a platform approach for bundling highly relevant offerings to enhance the end-to-end customer journey and their experiences in every single touchpoint. They will select partners from different industries that are committed and able to boost the customer value proposition—from car manufacturers and dealers to fleet operators, charge point operators, ride-sharing companies, parking space owners and many others. Further,

they will appropriately incent their ecosystem partners and architect collaborations to ensure that joint offerings benefit EV owners and multiply value to all ecosystem players. More than half of utilities executives believe ecosystems will create new competitive advantage (60 percent) and new customer experiences (54 percent).<sup>21</sup> Given their expertise in delivering energy-related services and their trusted relationships with EV owners, utilities bring instant legitimacy to new platform services.<sup>22</sup>



## Outmaneuvering the competition

With a keen focus on addressing EV owners' needs, leading utilities will invest strategically in a portfolio of services aimed at improving and simplifying their ownership experiences and removing barriers to adoption. Drawing on their vast amounts of consumer data and insights, they will identify new value propositions and rapidly develop and test offerings that will fortify their customer relationships. In doing so, they will see EVs not in isolation, but as part of a broader set of emerging growth opportunities such as distributed energy and the connected home—and focus on further integration of services. The eMobility race is won through a combination of speed and value.

**More than half of utilities executives believe ecosystems will create new competitive advantage and new customer experiences.**

Source: Accenture Strategy eMobility Value Research, 2019

## About the Research

Our Accenture Strategy eMobility Value research is based on geographic level value scenario modeling and a survey of 6,000 consumers, conducted between August and October of 2018, in France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, the United Kingdom and the United States.

## References

- <sup>1</sup> This number does not include EV car sales.
- <sup>2</sup> “Plummeting costs for wind, solar and batteries pose challenge to fossil fuels,” Energy World, 1 May 2018, Factiva, Inc. All Rights Reserved.
- <sup>3</sup> Accenture Strategy eMobility Value research, 2019
- <sup>4</sup> <https://wattev2buy.com/usa-ev-market-price-list-electric-cars-us/>
- <sup>5</sup> <https://wattev2buy.com/european-ev-market-price-list-electric-cars-eu/>
- <sup>6</sup> “Global electric vehicle market outlook, 2018,” PR Newswire, 30 April 2018.
- <sup>7</sup> Accenture Strategy eMobility Value research, 2019 – amended from Digitally Enabled Grid Research Modeling, 2018
- <sup>8</sup> Current penetration is strongly dependent on government policy and incentives, and the maturity of the charge network. However, this dependency is reduced as battery costs continue to drop and the range of EVs is extended.
- <sup>9</sup> Accenture Strategy eMobility Value research, 2019
- <sup>10</sup> Ibid
- <sup>11</sup> Ibid
- <sup>12</sup> Ron Bousso, “BP bets on electric car switch with Britain’s Chargemaster,” Reuters, 27 June 2018.
- <sup>13</sup> Neale Johnson and Brian Gray, “Accelerate the customer journey,” Accenture, 31 October 2018.
- <sup>14</sup> Accenture Strategy eMobility Value research, 2019
- <sup>15</sup> Ibid
- <sup>16</sup> “Activating connected energy consumer experiences,” Accenture, 5 December 2018.
- <sup>17</sup> Accenture Strategy Competitive Agility Index, 2018
- <sup>18</sup> Accenture Living Business research, 2018
- <sup>19</sup> Accenture Strategy Global Consumer Pulse research, 2018
- <sup>20</sup> Accenture Strategy eMobility Value Research, 2019
- <sup>21</sup> Ibid
- <sup>22</sup> Ibid

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