

A futuristic electric vehicle (EV) driving on a road in a city with a futuristic skyline. The car is white and sleek, with a driver and a passenger visible. The background shows tall buildings and a clear sky.

PLUGGED IN

AN EV NEWSLETTER

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Editor's Note

Welcome to this month's edition of *Plugged In*. In this issue, we focus on the complex challenges facing electric utilities in addressing the critical need to adequately generate and transmit electricity to power the transformational transition from ICE to EVs, as well as, facilitating access by all segments of society to adequate charging infrastructure.

We are pleased to include in our latest edition a wide-ranging interview with Pina Bennett, DTE Director of Electric Sales and Marketing, covering [DTE's](#) collaborative plan to support and encourage the transition to EVs.

In a companion article entitled, "Is Our Electric Grid Up to the Task," Bob Weiss addresses the challenges faced by the existing grid to concurrently satisfy the increased power generation and transmission to fuel the expanding fleet of EVs, while also meeting the extraordinary increasing and competing demands for electricity of proliferating data centers and EV related manufacturing centers. You may be surprised by the magnitude of the problem and some creative potential solutions that are being explored.

I hope you will find this edition informative and thought-provoking.

Heather L. Frayre | Editor and Member Partner
and
Bob Weiss | Of Counsel | Co-Chair, EV Initiative

Interview with Pina Bennett from DTE

Question 1

Bob: It is a pleasure to have the opportunity to speak with you this afternoon. The critical role of energy providers in facilitating the transition from ICE to BEV has been a hot topic recently, with articles appearing in the *New York Times*, *Wall Street Journal*, *Washington Post*, and other general circulation and industry publications addressing this subject. I hope we will be able to give our readers a better understanding of the critical role of regional utilities and, in particular, DTE, in this complex, challenging process.

Why don't we start with you describing your role as DTE Director of Electric Marketing?

Pina: As director of DTE's Electric Marketing organization, I am responsible for accelerating the adoption of electric vehicles across all segments of transportation within DTE's service territory, for bringing to market customer-centric products and services that support customer affordability, and for communicating with external customers regarding the various rate tariffs that the company offers.

Question 2

Bob: What are DTE's objectives/goals in relation to the automotive industry's transition to EVs and does it have a defined plan to meet those objectives?

Pina: DTE worked with over 100 stakeholders representing the EV industry, transit organizations, environmental groups, businesses, and municipalities over a year and a half period (2022-23) to build the DTE Electric Company 2025-2028 [Transportation Electrification Plan \("TEP"\)](#), which was published in January 2024. It was important to DTE that its plan be transparent and made public to facilitate coordination among stakeholders and interested groups to maximize efficiency and ensure optimal use of funds. DTE's objective was to design a plan that is accessible, affordable, and equitable and that focuses on closing charging gaps, supporting disadvantaged and rural communities, and focusing our rebates on charging infrastructure – ensuring that Michiganders benefit from a robust and easily accessible network of chargers across the state. The TEP was developed utilizing in-depth benchmarking, robust analyses of data obtained from a variety of authoritative sources, extensive stakeholder input and careful evaluation of the unique role of the utility to guide necessary investment in the transportation electrification sector.

DTE's guiding principles for transportation electrification include:

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- Support and accelerate EV adoption by facilitating charger deployment while maintaining affordability benefits for all DTE customers.
 - Focus on unique reasons for utility participation such as closing charging gaps, minimizing grid impacts, and improving the economics of electrification in the near-term.
 - Promote equity with a focus on low-income customers and disadvantaged communities

Question 3

Bob: I would assume the drafters of the TEP had to make certain assumptions regarding market conditions and rate of EV adoption by the consuming public during the period covered by the TEP. Given all the uncertainties and variables on that subject, how did DTE approach the difficult task of developing reasonable assumptions?

Pina: We utilized a variety of sources of information, including extrapolation from registration data and short and long-term forecasts published by industry experts. (See page 13 of the TEP for a listing of representative sources of industry expert forecasts.) The TEP evaluated the charging requirements to support the adoption forecasts of five primary customer segments: (1) residential customers; (2) commercial customers; (3) public (commercial customers owning chargers for public use; (4) fleet; and (5) workplace (commercial customers owning chargers for employee use). This analysis demonstrated that approximately 240,000 incremental chargers will be needed over the four-year TEP time frame, increasing from approximately 35,000 in 2025 to 78,000 in 2028. (Note: see last paragraph of page 15 of the TEP.)

Question 4

Bob: What programs has DTE developed to facilitate the auto industry's transition to EVs?

Pina: DTE is delivering cleaner energy through a reliable, modern grid to power Michigan's EV transformation. We want to accelerate our customer's EV journey through programs and resources to help guide their purchasing decisions. We are also supporting the state's MI Healthy Climate Plan and MI Future Mobility Plan by proposing to close charging gaps. In other words, we want to make sure chargers are available to all our customers and not concentrated only in affluent areas and by making EVs more affordable through targeted EV charger rebates.

DTE is helping both residential and business customers through programs, resources, and rebates that can make the switch to EVs even more affordable. Examples include EV rebates for residential customers, home charging rebates for home installation of chargers, rebates for business customers, and incentives for fleet managers. Our current programs and rebates can be found on our website at dteenergy.com/ev and <https://dteenergy.com/evbiz>.

Question 5

Bob: I would imagine that to accomplish these goals, there would need to be significant investment. What is the estimated total investment required, and what portion will be contributed by DTE?

Pina: Yes, significant investment will be required. DTE has determined that the charging infrastructure required to support forecasted EV adoption, which could increase from about 46,000 EVs in DTE Electric's service territory in Southeast Michigan today to approximately 326,000 by 2028, would require approximately 238,000 incremental chargers in the DTE service territory over the four-year TEP time horizon, requiring nearly \$1.9 billion of infrastructure investment – of which DTE has proposed \$145 million in EV charger installation rebates for our customers between 2025 and 2028.

This total infrastructure investment will ultimately need to be funded by a mix of public, private, government, and utility sources.

Question 6

Bob: So you are saying that of the \$1.9 billion in investment, DTE's share will be \$145 million. Where do you anticipate the balance of the funding coming from?

Pina: Correct; DTE is proposing a \$145 million commitment, which needs to be approved by the MPSC. Broadly, we are forecasting a much larger investment by public and private entities is needed to meet our forecast.

Question 7

Bob: There are so many uncertainties and variables underlying the rate and timing of the unprecedented aggressive transition to EVs, what are the implications to DTE and the DTE customer if the projected timelines prove inaccurate?

Pina: We will be watching closely how our Southeast Michigan customers make the switch to all-electric vehicles. The plan we are proposing is flexible, and we'll make modifications as needed based on how we see the market respond.

Question 8

Bob: How will DTE get the energy to those who, for one reason or another, do not have the ability to have their own home-charging infrastructure? Is that DTE's responsibility or is it

responsibility limited to having adequate electricity available to those who have access to charging infrastructure?

Pina: DTE is balancing our EV charger rebates across single-family homes, apartments, and other multi-unit residential buildings, and public chargers with the goal of accelerating the deployment of EV infrastructure while minimizing the cost of installing EV chargers for Michigan families. Our TEP proposal:

- Helps qualifying Michigan families by offering up to \$2,200 in rebates for charger installation (household of 4 making \$60k or less) – fully covering the cost of installation.
- DTE has proposed supporting low-income single-family homes, multi-unit dwellings, transits, schools, and rural and disadvantaged communities with millions of dollars in rebates.

This will make EVs more accessible for many Michigan families and ensure all Michiganders benefit from a robust and easily accessible network of chargers across the state.

Question 9

Bob: You mentioned earlier that you worked with various entities/organizations in developing your TEP, do you continue to work with those entities in implementing the TEP and, if so, in what ways?

Pina: Yes, we do and will continue to work with a broad range of stakeholders. Successfully facilitating a transition of this magnitude in a complex and somewhat uncertain environment will require DTE and the respective private and public sectors to play significant roles individually in terms of investment and collectively to innovate and address issues that arise in a transparent and collaborative manner.

Partnerships allow us to take our work even further. We work with outside organizations, like OEMs and government bodies, to bring innovative programming and initiatives to our customers.

For example, our recent EV Charging Hub announcement, bringing the ‘truck stop of the future’ to fleet drivers, became a reality by working hand-in-hand with Daimler Truck North America and the state of Michigan. The partnership is a joint effort that would not be as successful without the other groups, and each of us brings forward a unique piece of the puzzle.

Question 10

Bob: Is DTE using advanced technology in preparing to meet demand?

Pina: Yes, DTE is building a modern grid that delivers the clean energy our customers expect, and we are doing this through our four-point plan to strengthen the grid while generating cleaner energy through our CleanVision IRP.

- **Accelerating the deployment of technology and the company's transition to a smart grid:** Through 2028, we have plans to install thousands of smart devices and achieve automation across our system. During outages, this will allow us to pinpoint damage so our crews can get to work on repairs faster. This will also allow us to reroute power during an outage so we can restore power for many of our customers while crews make repairs. And most important, these devices will automatically de-energize a line when it senses a fault – and that keeps our customers safe when a line falls to the ground.
- **Modernizing existing infrastructure:** Last year, we inspected and upgraded overhead electrical equipment across more than 1,700 miles. We replaced and upgraded infrastructure with equipment like stronger poles and fiberglass cross arms that can better withstand extreme weather. We also replaced more than 3,800 poles across our service territory.
- **Rebuilding significant portions of the grid:** And while updating equipment is certainly important, just like you can only repair your car for so long before you need to replace it, we're also completely rebuilding the older portions of our grid. This is critical work where we build entire substations from scratch and replace entire circuits – the equipment that delivers power to our customers' homes.
- **Continuing to trim trees** around equipment and power lines. Trees falling and damaging DTE's equipment accounts for 50% of the time customers are without power.

Question 11

Bob: What about energy generation capacity? Much has been written lately about the enormous demands of data centers and new mega-factories on the grid. Is there a concern that there will be inadequate capacity to concurrently satisfy that demand, transition to cleaner energy sources and facilitate the transition to EVs?

Pina: You can visit DTE Energy - Net Zero Carbon Emissions by 2050 (dtecleanenergy.com) to see our long-term generation capacity planning and how we will retire coal by 2032 while developing enough renewables to power approximately 5 million households.)

Question 12

Bob: I have heard the term "Managed Charging". What does that mean in the context of supporting EV charging?

Pina: Managed charging is an umbrella term for the implementation of any passive or active strategy that optimizes EV charging. It can include everything from incentivizing off-peak charging with Time of Day electric rates to using EVs as a grid resource with bidirectional charging. To date, DTE's managed charging efforts have primarily included incentivizing off-peak charging and implementing its demand response pilot, DTE Smart Charge.

Question 13

Bob: You referenced the term "bi-directional charging." What does that mean and does that fit into DTE's plans?

Pina: Bi-directional charging, also known as two-way charging, is an innovative technology that allows EV batteries to both draw power from the grid and send energy back to it or other devices. Unlike conventional charging, where EVs can only receive energy from an external power source, bi-directional charging enables more versatile and efficient use of EV batteries. When an EV battery is connected to an external power source, it can either charge the battery or discharge it, sending energy back to the grid. This technology has the potential to benefit both EV owners and the energy grid by enhancing flexibility and efficiency.

As for DTE's plans, we are starting up a pilot to fund 16-20 vehicle to grid "V2G" school bus chargers, to provide a dependable asset base for future DTE V2G pilots. We are collaborating with school districts right now to assess opportunities for supporting, first, the deployment of V2G chargers and then using these locations as test beds for future V2G capabilities and standards development that can then be made widely available to all customers in our service territory.

Question 14

Bob: Is it possible that via bi-directional charging, the electricity cost of driving for the average motorist could be zero? What would have to happen to achieve that result?

Pina: As I mentioned earlier, bi-directional charging allows EVs to both receive power from the grid and send power back to it. With vehicle-to-home (V2H) functionality, EVs can serve as backup generators during power outages, potentially lowering energy bills. Vehicle-to-grid (V2G) capability enables EVs to contribute power to the grid, stabilizing it and providing financial incentives for owners. To achieve zero electricity cost for driving, widespread adoption of bi-directional charging, supportive policies, infrastructure, and collaboration between utilities and EV owners are essential.

Question 15

Bob: Much has been written lately, including recent articles in the *New York Times* ("Why the US Electric Grid Isn't Ready for the Energy Transition", June 12, 2024) and *Washington Post* ("Amid explosive demand, America is running out of power", March 7, 2024) regarding the deficiency of transmission capabilities of the nationwide grid and the enormous demands of data centers and new manufacturing centers competing for capacity with existing customers, including EV buyers. Will these challenges impact DTE's ability to service the projected demand by EVs for charging capacity?

Pina: DTE is ready to meet our customer's evolving energy needs, and we work with all of our stakeholders to ensure we are generating the reliable, affordable, and clean energy our customers expect.

Question 16

Bob: Any final thoughts that you would like to share with our readers?

Pina: DTE will be monitoring and adjusting to changes in customer demand for EVs and charging infrastructure. Whether you purchase an all-electric vehicle or a hybrid vehicle, DTE's charging infrastructure will help our customers get to where they need to go.

Closing Comment

Bob: Thanks so much for your time and sharing your insights with our readers. I certainly have a much more informed understanding of the challenges being addressed by DTE and its comprehensive plan to address its customers' needs.

Pina Bennett is a seasoned and strategic business professional, with comprehensive experience across a broad range of strategic leadership roles. An inclusive thinker, Ms. Bennett looks to developing solutions that are collaborative to drive long-term business growth and create sustainable outcomes. With 25 years of experience in the consumer goods and energy industries, she has core competencies in contract negotiation, strategic & operational planning, lean & Six Sigma leadership, process optimization, productivity improvement, product & brand management, project management, and building motivating cross-functional teams that exceed expectations. As Director of DTE's Electric Marketing, Ms. Bennett's responsibilities include accelerating the adoption of electric vehicles across all transportation sectors within DTE's service area, introducing customer-centric products and services to enhance affordability, and liaising with external customers about the company's range of rate tariffs. Ms. Bennett's expertise spans

from lean Six Sigma leadership to marketing strategy. She has a proven track record in organizational leadership, serving on various boards and committees.

Is Our Electric Grid Up to the Task?

The availability of charging infrastructure and adequate electricity generation capacity are two, among several, significant challenges to the rapid transition from combustion powered vehicles to electric vehicles. Of these two challenges, until recently, the focus has been on the critical need for charging infrastructure to allay "range anxiety," one of the primary obstacles to consumer adoption. This article will address the equally, if not more, serious subject of the grid's ability to meet projected demand.

There is concern that notwithstanding the billions of dollars that have been and will be invested to upgrade the national electric grid, it will be unable to handle the enormous surge in energy demand needed to meet the government's zero emission timeline and at the same time power the transition from combustion engines to electric vehicles.

Nature and Scope of the Problem

Navigating the intricacies of the U.S. electricity grid reveals a landscape marked by complexity and fragmentation. Contrary to a singular, unified system, the nation's grid comprises interconnected regional grids, each operating with distinct characteristics and governance. This decentralized structure, as illuminated in various media analyses, presents formidable challenges to achieving coherence and adaptability across the entire network. Against a backdrop of escalating energy demands and imperatives for sustainability, understanding the nuances of the grid's composition and dynamics is crucial to grasp the urgency of addressing its readiness for the evolving energy landscape.

In an [article](#) appearing in the June 12th edition of the *New York Times*, entitled "Why the US Electric Grid Isn't Ready for the Energy Transition," the author explains that "... in reality, there is no single US grid. There are three – one in the West, one in the East and one in Texas – that only connect at a few points and share little power between them." The fragmented nature of the grid poses challenges for achieving nationwide coordination and consistency. As mentioned above, the nation's grid is not a unitary system. One of the major obstacles results from the fragmented national grid, which the author describes as "...being divided into a patchwork of regions, each overseen by different operators." Each of these regions has different resources, challenges and, in some cases, political perspectives regarding environmental issues. The federal government has limited jurisdiction over these separate grids, which complicates the required

coordinated effort. The Energy Department released its National Transmission Needs Study in October 2003, which assessed the current and near-term future transmission needs through 2040. The study determined that being able to transmit energy among regional grids would be very beneficial, little progress has been made in that regard, because of the need to obtain multi-state approval regarding allocation of costs and terms of transmission. The study concluded that "...today's grid cannot adequately support 21st Century challenges – including the integration of new clean energy sources and growing transportation and building electrification – while remaining resilient in the face of extreme weather and climate change".

In an [article](#) appearing in the October 30th edition of the *New York Times* entitled, "Energy Dept. Pours Billions Into Power Grid but Warns it's Not Enough", the author cites an Energy Department report that the national network of transmission lines may need to expand by two-thirds or more by 2035 to meet the current administration's zero emissions goals. This article underscores the pressing need for significant expansion of transmission infrastructure to align with the administration's emissions reduction goals by 2035.

In an [article](#) appearing in the March 7th edition of the *Washington Post* entitled, "Amid explosive demand, America is running out of power," the author outlines the premise of his article by asserting "Vast swaths of the United States are at risk of running short of power as electricity hungry data centers and clean technology factories proliferate around the country, leaving utilities grasping for credible plans to expand the nations creaking power grid." The author then cites a number of states, including Georgia, Arizona, and Virginia, where the projected demand is likely to materially outstrip supply in the absence of substantial investment in transmission capability and expansion of capacity.

Apparently, a major factor underlying the increased demand is the development of "large warehouses of computing infrastructure that require exponentially more power than traditional data centers." Increased adoption of AI and crypto mining are fueling the need for, and growth of, these energy use intensive data centers.

In an [article](#) appearing in the March 14th edition of the *New York Times* entitled, "A New Surge in Power Use is Threatening Climate Goals," the authors cite a study by the Boston Consulting Group that energy demand to support data centers could triple by 2030, which increase would be the equivalent of providing energy for 40 million homes.

Compounding these issues are the concurrent transitions to electric vehicles, heat pumps, and battery manufacturing, all of which strain the existing grid originally designed for fossil fuel reliance. Frustrated by grid limitations, companies like Microsoft and Google are exploring alternative solutions such as small on-site nuclear plants and zero-emission fusion power. In

the *Washington Post* article mentioned above, the author cites what many might consider an extreme example of possible conventional grid alternatives, "Microsoft and Google are among the firms hoping that energy-intensive industrial operations can ultimately be powered by small nuclear plants on-site...Microsoft has also inked a deal to buy power from a company trying to develop zero-emission fusion power."

In summary, the U.S. electricity grid faces multifaceted challenges stemming from its fragmented structure, increasing demand, and evolving energy landscape. Addressing these challenges requires coordinated efforts to modernize infrastructure, integrate clean energy sources, and enhance grid resilience to ensure sustainability and meet future energy needs.

What is Being Done to Address the Problem

The Bipartisan Infrastructure Act allocated \$20 billion to upgrade the grid. To incentivize investment in expanding the grid, the government is entering into contracts directly with developers to purchase generated energy. By being the initial customer, the government seeks to give the developers comfort to move forward with these projects. The government would later sell its rights to conventional buyers and recoup any funds advanced in the original transaction to be reinvested in further infrastructure projects.

The government is also providing funds to state and local governments to be used to explore creative ways to improve and streamline permitting processes.

In addition, advances in transmission technology are being utilized to make transmission more efficient and effective.

As noted above, although not a comprehensive solution, off the grid energy generation may be a partial solution for certain customers and provide some alleviation of the problem.

Finally, utilities are considering continuing to utilize and, in some cases, expand the use of fossil fuels and nuclear technology to address the unprecedented projected energy demand.

Conclusion

The challenges are myriad and the consequences of not timely addressing them are very great. Providing adequate electricity to fuel increasing demand from competing constituencies where and when it is needed will require creative and innovative thinking and substantial investment.

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To learn more about our EV practice, visit our website at <https://www.dickinson-wright.com/practice-areas/electric-vehicles?tab=0>.

All views presented in this newsletter are that of the authors and do not necessarily reflect the views of Dickinson Wright.

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