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FORD

How Ford, DTE energy deal will cut carbon emissions, boost state's solar capacity

Jordyn Grzelewski and Breana Noble The Detroit News

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A massive new renewable energy deal between Ford Motor Co. and DTE Energy Co. stands to eliminate hundreds of thousands of tons of carbon dioxide emissions annually in Michigan, significantly expand the state's solar capacity — and could push other companies to follow suit.

The Metro Detroit-based companies on Wednesday said that DTE will add 650 megawatts of new solar energy capacity under a purchase agreement with Ford that they are billing as the largest-ever renewable energy purchase through a utility in the U.S. The initiative would boost the state's total amount of installed solar energy by roughly 70% and, by 2025, means that Ford will be able to attribute all of its electricity supply in its home state to renewable energy.

Officials from the companies and the state heralded the deal as a major step toward all three entities achieving their goals of being carbon neutral by 2050. Ford also has a goal of powering its global facilities with renewable energy by 2035.

"We have our carbon neutrality (goal) by 2050. But a goal really isn't anything unless there's a plan. It's just a wish," Ford CEO Jim Farley said at an event at Ford's Michigan Assembly Plant in Wayne, home to Bronco and Ranger production. "Today is an example of what it looks like to actually get off our butts and do something about it and take action."

How will it work?

Ford is purchasing the additional solar capacity through DTE's MIGreenPower program, for which the automaker was the first large industrial customer starting in 2019. The program is

open to all DTE electric customers and has more than 62,000 residential enrollees and more than 650 businesses.

DTE will spend the money upfront to develop the new solar projects for Ford — at an estimated cost of about \$1 billion. Ford will pay an annual subscription fee of \$70 million that will eventually allow DTE to recover its costs.

DTE will have to identify between 6,000 and 7,000 acres at various sites across the state to accommodate construction of solar panels that will support Ford's enrollment. They'll build the solar panels and the cables that will plug the projects into the electrical grid.

DTE estimates that the construction of the solar arrays will create at least 250 temporary construction jobs and 10 permanent ones.

"The electrons from those projects essentially get mixed in with the electrons that are on the wires that we see out in our area," explained Brian Calka, DTE Energy's vice president of renewable energy solutions. "There's not a dedicated wire or cable running from these projects into the Ford facilities."

However, for each megawatt hour of energy that is generated, there is an associated renewable energy credit. DTE then calculates how many megawatt hours were generated from specific facilities and retires those credits on Ford's behalf.

Once the new solar capacity is added, Ford will get its electric bill just like usual, but it will see the \$70 million annual subscription fee as well as credits that will offset the subscription fee.

"In some cases that \$70 (million) could shrink to a couple of million or in some cases it could flip and Ford is getting money sent back to them because of their enrollment," Calka said.

DTE looks at energy market pricing forecasts and currently expects MIGreenPower enrollees to see a net savings, but Calka cautioned that there is some fluidity to the variables that go into the forecasts.

"It could be relatively significant over time, where customers might get a 10% to 15% to 20% discount on their bill just because they're enrolled in MIGreenPower," he said. "There's that type of potential, but it varies significantly."

A participant's enrollment in the program does not have any impact on other customers, according to DTE.

Lisa Wood, vice president of customer solutions at Edison Electric Institute — which represents investor-owned electric companies — emphasized that EEI's members (including DTE) are regulated so as to ensure these types of projects don't result in costs shifting onto other customers.

"They are paying for what they are getting," she said of Ford. "Other customers benefit by having an overall cleaner grid."

The transaction is the largest for a single customer that Wood has seen. She equated the project to a good-sized power plant.

"These transactions are a result of corporate interest in doing this, because they have carbon goals," Wood said. "We know Google, Microsoft and these tech companies are doing that, and now we're seeing it expand to companies like Ford. They also have the commitment to electric vehicles. It all works together."

Environmental, economic impacts

Ford and DTE said the additional solar capacity from this deal is slated to cut out as much as 600,000 tons of carbon dioxide emissions annually.

The combination of Ford reducing tailpipe emissions with EVs as well as emissions from its manufacturing operations is especially important because production emissions tied to EVs is about double that of internal combustion engine vehicles, said Greg Keoleian, director for the Center for Sustainable Systems at the University of Michigan. That's because of the manufacturing of the electric vehicles' batteries.

"This is a way to reduce those manufacturing emissions and decarbonize vehicle production in addition to vehicle operation," Keoleian said, noting the increased production emissions are made up within two years because of reduced greenhouse gas tailpipe emissions. From cradle to grave, EVs have on average 57% less emissions than ICEs.

Additionally, the investment will increase the amount of renewables in Michigan's current energy mix. The Ford projects would expand installed solar capacity in the state by roughly 70%. As of the first quarter, Michigan had 927 megawatts of installed solar capacity, enough to power 147,908 homes, according to the Solar Energy Industries Association. Currently, Michigan ranks 24th in the country in terms of installed solar.

The Ford project also will by far eclipse DTE's other solar parks in the state. Lapeer Solar Park, for example, generates enough clean energy to power 11,000 homes and offsets 47,089

metric tons of carbon dioxide annually.

How much of an effect the investment will have on the environment depends heavily on what type of generation the electricity supporting Ford's facilities is coming, but "it will lead to the reduction of other air pollutants that contribute to smog and reduced air quality," Keoleian said.

Also important is that the investment is happening in Michigan, he added. Substantial amounts of land are needed for these solar arrays, and sometimes they result in companies having to go out of state to places like Arizona.

"This is going to be a net positive for the Michigan economy especially by investing in this clean technology in state as opposed to elsewhere," Keoleian said.

Barry Rabe, a public policy, environmental policy and political science professor at the University of Michigan, said the timing of the deal comes as Congress is poised to pass major climate legislation that could include an expansion of tax incentives for clean energy production — meaning DTE potentially could benefit from boosting its renewable energy production. And Ford stands to benefit from EV subsidies in the legislation.

"We are on the cusp of what some are calling the biggest piece of climate legislation ever passed by an American Congress. But these two major southeastern Michigan firms would be taking this initiative," said Rabe. "I think for Ford, it suggests that they are really doubling down not just on an electric vehicle future, but really trying to implement their carbon emission reduction goals."

The magnitude of the deal and visibility of the companies involved, he added, raises the question of whether it will prompt others to follow suit.

"Are these purchase power agreements going to really pick up momentum, once Ford and DTE set this precedent?," Rabe said.

"In an era in which a lot of Michigan-based companies are seriously thinking about trying to reduce their carbon impact and how to do that, following this model may become even more attractive after today," he added. "Maybe firms or companies that have never thought about this before or looked at it begin to take a closer look."

jgrzelewski@detroitnews.com

Twitter: @JGrzelewski

bnoble@detroitnews.com

Twitter: @BreanaCNoble