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# It's Time to End the DCFC Arms Race

## Ditch the plug for an electric vehicle future

# Introduction

It is absolutely the case that the world is going electric: the pledges by governments and automakers, the budgets for infrastructure, the rebates for consumers... it's everywhere. And the shift to EVs is every bit as big of a paradigm shift as the one that saw the horse and buggy give way to automobiles at the turn of the last century.

**What we haven't shifted, though, is our assumed charging model. It looks like this: a gas pump.**

Is this the right charging model? Most people haven't even asked that. Instead, what people are asking is, "how can we make the plug as fast as a gas pump?"

**We're here to say that charging needs to be easy, convenient, safe, and accessible. And that's not the plug.**

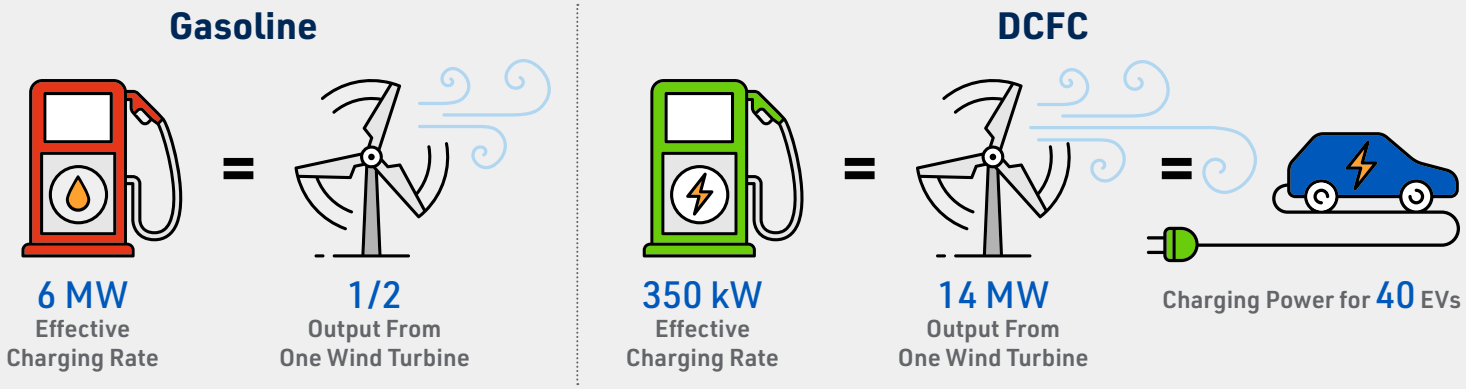
## So, let's explore – what would the rate have to be to have electric charging meet the gas pump?

Gasoline energy density roughly equates to 33kW hours per gallon, and a combustion energy efficiency of 30%. At a gasoline pumping rate of 10 gallons per minute, that's 10kW hours per gallon of energy density. 10 kW hours per gallon x 10 gallons per minute, delivers an effective charging rate of 6 megawatts.

**What does 6 MW look like?** Almost half the output from a multi-million-dollar wind turbine.

Okay, so 6 MW is a stretch. Let's look instead at the fastest of the current DC Fast Chargers (DCFC) out there today that promise rates up to 350 kW.

**What does 350 kW look like?** This same wind turbine can generate 14 MW on a windy day. That could then charge 40 EVs. So for every million EVs adopted, we'd need 25,000 wind turbines. That's a lot of planning, NIMBY battles, and investment! It took a decade to get the first 62 wind turbines approved off the coast of Massachusetts.




***For every million EVs adopted, we'd need 25,000 wind turbines.***

Yes, DCFC is needed for long-distance travel – but it's expensive, both to deploy and to use. In most cases, drivers will find it costs more than its gas equivalent, which is another barrier to EV adoption. It still takes too long – resulting in lines at the "pump" or a need to build out massive infrastructure. And it simply demands too much from the grid.

It's almost as if the industry is talking out of two sides of its mouth. On the one hand, we want to assure people that "with DCFC you can charge as fast as you pump gas!" ... while on the other, we're also saying "we really, really hope you never use it."

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## It's time for an EV charging reality check.

EVs are different from gas-powered vehicles in many ways. But what ISN'T different is that most EVs, like most ICE cars, spend MOST of their time parked. What many EV owners have already found is that they can easily charge during the many hours that the vehicle is standing by for the next trip, at home, at work, or parked curbside. Today, more than 90% of charging happens this way with Level 2 charging.

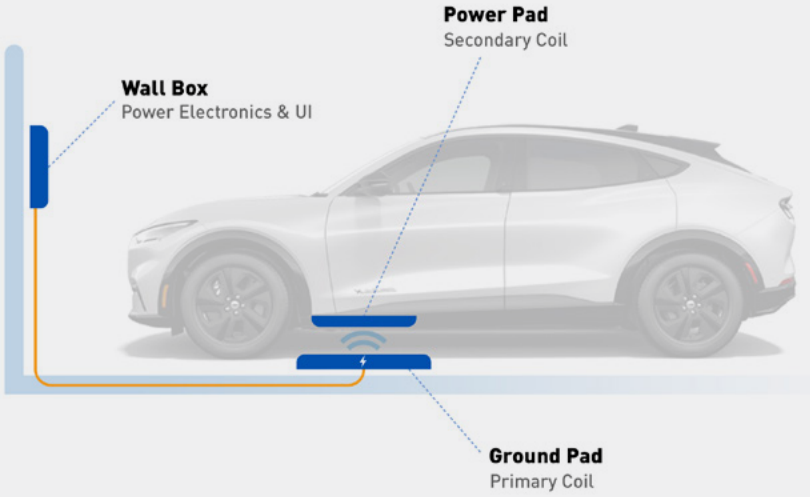
But they still hate charging. Recent data from a survey conducted for WiTricity by Tidewatch, an independent market research firm, showed that issues around charging continue for EV owners and are the biggest barriers for those who don't yet own an EV. They worry that they will forget to charge, they worry that someone else in the household will forget to charge, they worry that the charger will get stolen or malfunction.

## So how can we make charging easier?

Let's leave the fueling station behind and bring the charge to where the cars are already parked and charge them wirelessly. Just park, and charge. Doesn't matter what else is in your arms, no moving parts to break, nothing to forget. The vast majority of the car owners surveyed are **very** or **extremely** interested in wireless charging – 81%. What's more, the intent to purchase an EV increases by up to 68% when wireless charging is part of the mix. We need to welcome this next wave of car buyers into the EV fold.

### How does it work?

There are three key components: the **wall box** that connects to the grid or home wiring, and brings the power to the **ground pad**, or charging pad. The pad generates a magnetic field that is captured by the **power pad**, or power receiver pad in the vehicle itself. The receiver pad delivers DC current directly to the EV battery for charging.



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Wireless charging using WiTricity's patented technology is just as fast and just as efficient as a Level 2 plug. (Read this excellent article about DCFC and the Tesla Model 3 to get a deeper understanding of why the plug isn't 100% efficient, either.)

Our technology has been built into global standards – SAE, IEC, ISO, and more. Automakers, starting with Hyundai and their Genesis GV60, are bringing the first cars to market with wireless charging factory installed. While the first installations will be in garages and parking lots, wireless charging can be deployed in urban parking spots in the future.

Yes, along highway corridors and for long-distance travel, there is an important role for DCFC. But for the day-to-day commuting, the errands around town, the carpools – it is far more critical that charging be easy, convenient, safe, and reliable. Wireless charging is tomorrow's EV infrastructure.

## WiTricity has many resources to help you stay informed about wireless EV charging.

- Stay in-the-know by subscribing to our monthly **newsletter:** https://witricity.com/newsletter
- Check out our other **white papers:** https://witricity.com/media/additional-resources
- Watch **videos** that bring wireless EV charging to life: https://witricity.com/media/videos
- Read our **blog** with posts featuring keen insights and information on the hot topics surrounding wireless EV charging: https://witricity.com/media/blog

 

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## About WiTricity

WiTricity is the pioneer in wireless charging for electric vehicles, leading the development and implementation of magnetic resonance technology across passenger and commercial vehicles alike. The company's products are backed by an extensive patent portfolio critical to ratified global EV wireless charging standards including SAE, ISO, and GB. Automakers and Tier 1 suppliers rely on WiTricity to help accelerate the adoption of EVs by eliminating the hassle of plug-in charging and setting the stage for future autonomy. Beyond EVs, WiTricity technology is indispensable to the wireless charging of all products, from consumer electronics to micro-mobility to robotics.

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