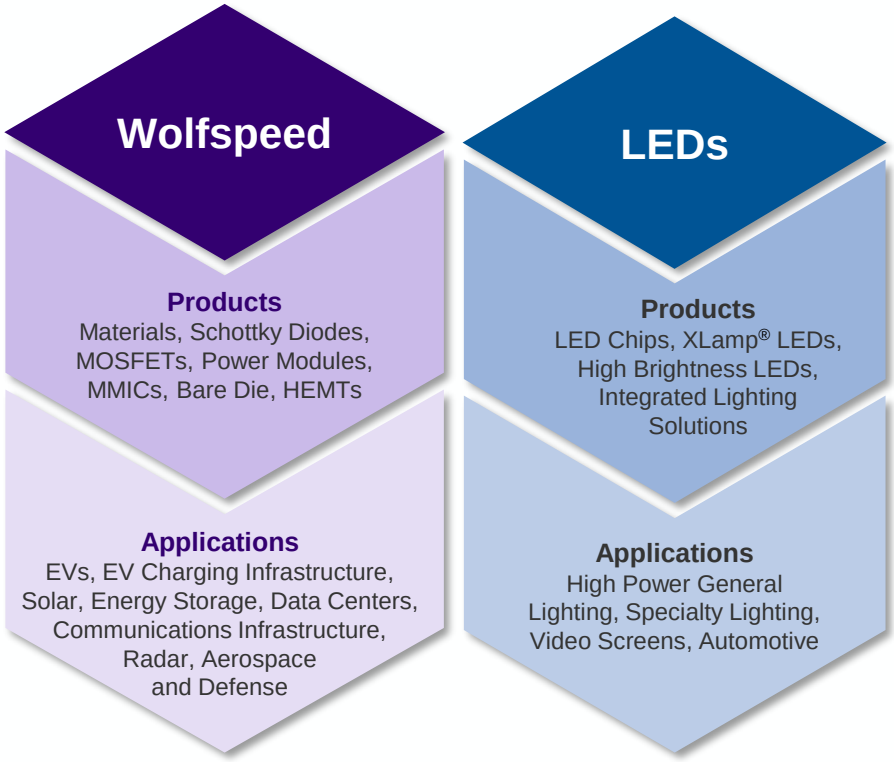
CREE

Wolfspeed®

Electric Vehicle Charging
9/22/20

Our Business



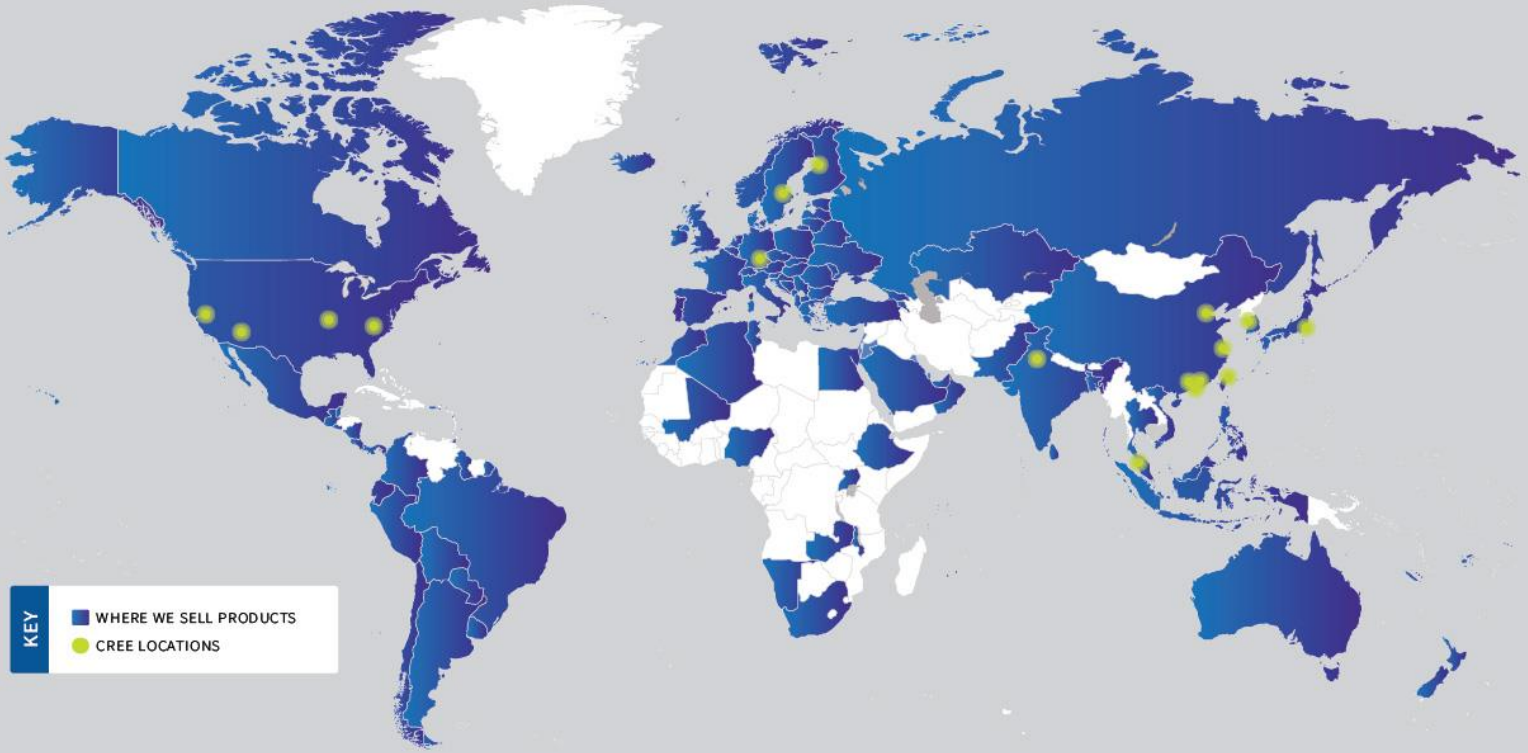
▸ PATENTS
3,800+ Issued Patents

▸ LOCATIONS
17 Global

▸ INNOVATION **30+ Years** of Technology Leadership

▸ CAREERS
~5,300 Employees

WHERE IN THE WORLD IS CREE Wolfspeed.



Where in the world is Cree | Wolfspeed?

Shimmer Wall

PNC Arena

Times Square

Partnerships with automotive companies for EVs

The automotive industry is investing $350B into the EV market. Are you ready?

Wolfspeed has already invested its silicon carbide technology into the EV market, enabling a power density 50% greater than silicon. Silicon carbide systems can increase range, decrease system size, and reduce cooling requirements.

Are you ready for this investment?
We are.

ELECTRIC VEHICLES

Silicon Carbide (SiC) in Power Semiconductors

What is Silicon Carbide?

- Semiconductor base material

Types of SiC Applications:

- EVs
- EV charging
- Renewable energy
- 5G

Silicon Carbide vs. Silicon:

- EVs: Smaller battery, more range
- EV charging: Faster charging times

SiC ENABLES SYSTEMS THAT DELIVER UP TO:

WHEN COMPARED TO Si

Investing to Expand Silicon Carbide Capacity

WILL YIELD:

30x

at least 30x increase in silicon carbide wafer fabrication

30x

increase in silicon carbide and GaN materials production

WILL LEVERAGE:

New

480,000 SQ FT

facility

WILL DELIVER:

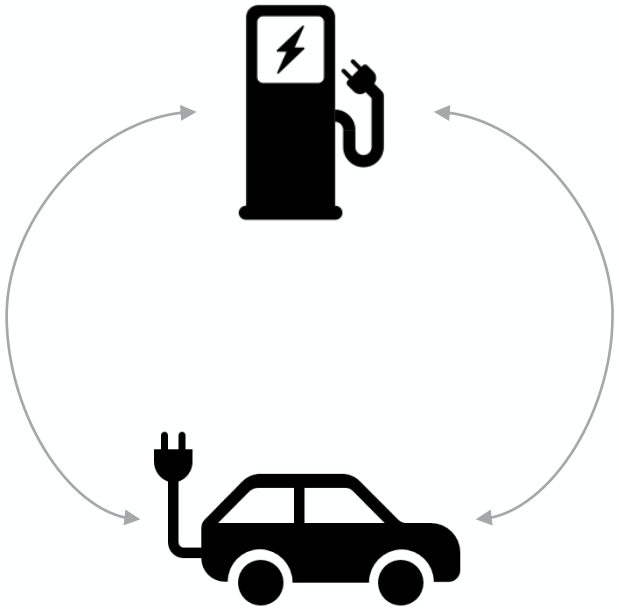
State-of-the-art automotive-qualified production facility

Investment Supports Silicon Carbide Materials Growth and Wafer Fabrication

New wafer fab in Marcy, NY

Expand in Durham, NC

What comes first - the charger or the car?



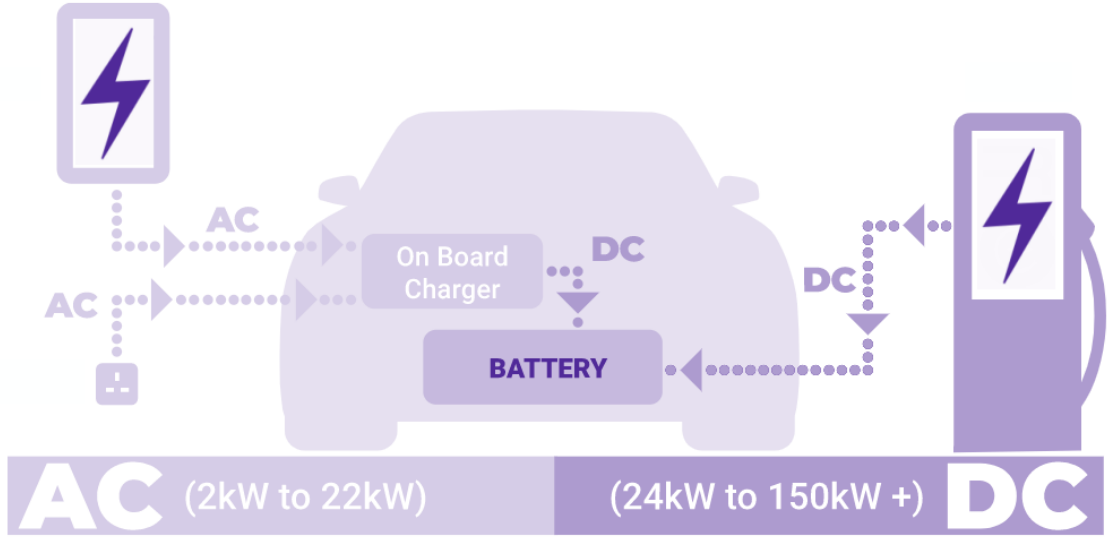
2018 Volvo survey*:

Obstacles to buying an EV
- Running out of power (range anxiety)
- Limited availability of charging stations

“More charging stations” was the leading factor that would increase the likelihood of buying an EV.

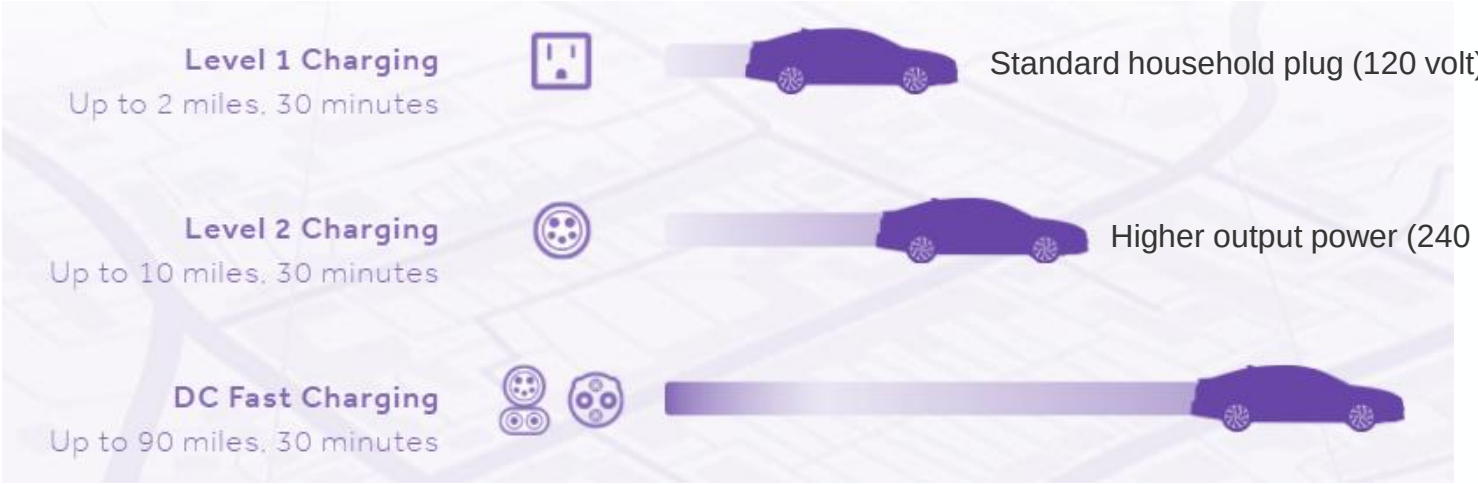
* Source: https://www.wolfspeed.com/knowledge-center/article/fast-charging-technology-the-key-to-speeding-electric-vehicle-adoption

Types of Chargers



3 pin	Type 1	Type 2	CHAdeMO	Combo 2	Type 2
Compatible with most models	Mitsubishi Outlander, Nissan Leaf (pre-2018)	BMW i3, Hyundai Ioniq, Nissan Leaf (2019-)	Mitsubishi Outlander, All Nissan Leafs	BMW i3, Hyundai Ioniq	Tesla Range

Types of Chargers

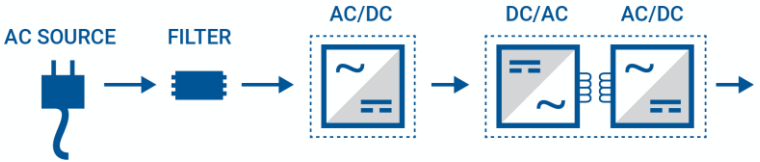


Standard household plug (120 volt)

Higher output power (240 volt)

Should I install AC or DC charging stations at my facility?

- AC chargers (Level 1, 2)
  - Potentially fit with the majority of vehicle models
  - Slower charging times
  - May be outdated in the near future
- DC chargers (Fast charger)
  - May not fit all vehicle models (especially older models)
  - Faster charging times
  - Reduces the “range anxiety” issue
  - Promotes further adoption of EVs
    - › Estimated 8-10 million fast charger stations expected to be needed by 2023 worldwide



Cree | Wolfspeed Charging Stations

- Installed in 2018
- Currently at our Durham, NC and RTP, NC facilities
  - 5 chargers total with 10 ports
- Level 2 (AC) chargers
- Located near our visitor/career center, gym/cafeteria area – centrally located
- Free of charge to all employees

Charging for Charging in North Carolina

- Prior to 2019, only electric utilities could charge money for electricity
  - Except for certain (non-EV) exceptions, anyone else selling electricity is illegal
  - All electric vehicle charging stations are free of charge
- New law introduced in 2019 now allows owners of publicly available EV charging stations to charge money for use of the stations
  - Charging money is not required by law but it's available as an option
  - Promotes adoption of more EV chargers
  - Cree continues to provide charging to employees for free

EV Charging Station Providers

One Account. Charge Everywhere.

The World's Largest EV Charging Network

Access to hundreds of thousands of places to charge with one ChargePoint account.

Our Stations Are Where You Are

At home, at work, around town and on the road.

Charge on Other Networks, Too

One account will cover 80% of Level 2 (AC) and 99% of DC fast charging spots.

Access to hundreds of thousands of places to charge with one ChargePoint account.

Download on the App Store

GET IT ON Google Play

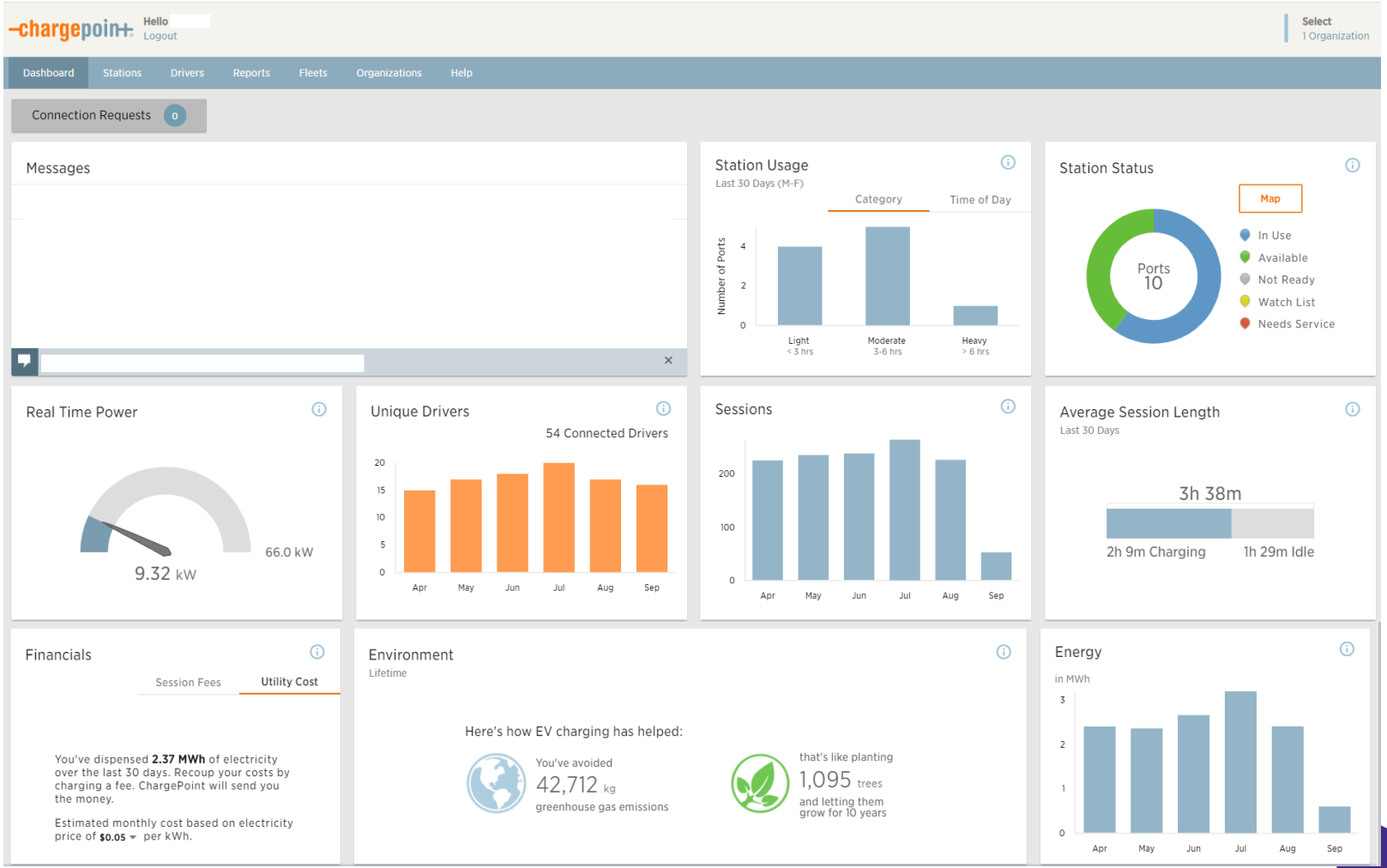
Our App Makes It Easy

Find a Place to Charge
Check for open spots in real time. Search by price and charging speed. Many spots are free to use.

Start a Charge from Your Phone
Start a charging session with the ChargePoint app. Or use your free ChargePoint card.

Track It All in One Place
See how much money you're saving. Compare your home and public charging.

Get the App


chargepoint+
Hello
Logout
Select
1 Organization
Dashboard
Stations
Drivers
Reports
Fleets
Organizations
Help
Connection Requests
0
Messages
Station Usage
Last 30 Days (M-F)
Category
Time of Day
Number of Ports
Light
< 3 hrs
Moderate
3-6 hrs
Heavy
> 6 hrs
Station Status
Map
Ports
10
In Use
Available
Not Ready
Watch List
Needs Service
Real Time Power
66.0 kW
9.32 kW
Unique Drivers
54 Connected Drivers
Apr
May
Jun
Jul
Aug
Sep
Sessions
Average Session Length
Last 30 Days
3h 38m
2h 9m Charging
1h 29m Idle
Financials
Session Fees
Utility Cost
You've dispensed 2.37 MWh of electricity over the last 30 days. Recoup your costs by charging a fee. ChargePoint will send you the money.
Estimated monthly cost based on electricity price of $0.05 per kWh.
Environment
Lifetime
Here's how EV charging has helped:
You've avoided
42,712 kg
greenhouse gas emissions
that's like planting
1,095 trees
and letting them grow for 10 years
Energy
in MWh

Cree | Wolfspeed Charging Stations Challenges

- Employees are required to move their cars after their charging is done
  - Employees are limited to 3 hours of charging
  - They get a notification when the 3 hours is over and have 30 minutes to move their car

Summary: What should I consider when choosing EV charging stations?

- Current infrastructure at your facility
- Individual needs of the business
  - Employees? Visitors? Other on-site vehicles?
- EV user needs
  - EV owners want as fast a charge as possible
  - What is the EV owner's main source of charging (home vs. work)
  - How long is the EV charging limit per person
- Budget
  - Fast chargers probably more preferred but more expensive
  - Consider whether you want to charge money for use of the EV chargers – could charge more at a fast charging station
  - Solar powered EV charging

Brightfield

EV Resources

- To learn more about EV charging: https://www.wolfspeed.com/knowledge-center/topics/ev-charging
- To find EV charging locations: https://www.plugshare.com/
- To learn more about individual vehicles (range and charge time): https://fueleconomy.gov/feg/findacar.shtml
- To learn more about EV charging/vehicles in North Carolina: https://pluginnc.com/
- Companies can make a public commitment to EV adoption: https://www.theclimategroup.org/project/ev100

Questions?

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