ev.energy

12,000+ connected charge points • **160 Tonnes** of CO_2 Saved • **10,000** MWh delivered

Award-winning startup ev.energy helps EV drivers save 160 tonnes of CO_2 and £215,000 with smart charging.

Accelerating electric mobility adoption means removing the hurdles of owning an electric vehicle. To that end, ev.energy is focused on delivering the best at-home charging experience for EV owners around the world.

The company develops a smart charging management software that optimizes charge schedules based on drivers' energy tariffs and the estimated carbon intensity of the grid. By shifting charging to off-peak times, the energy cost and carbon footprint of each charging session can be minimized.

Working with the world's leading charge point manufacturers like Rolec EV and Tesla to deliver a complete smart charging solution to end users, ev.energy needed a robust IoT communication solution that works globally and securely integrates into their software. Using EMnify, ev.energy has scaled to support over 12,000 connected charge points in the UK and Ireland while continuing to test and expand their service in new markets.

About:
Offices:
- London, UK, and Palo Alto, USA

Industry:
- EV Charging

Goal:
Making EV charging simpler, cheaper, greener for everyone anywhere.

Solution:
Cloud-based software bundled with global network access for charge point vendors to deliver a complete smart charging solution to EV drivers.

Products in use:
Connect:
- IoT SIM: Reliable, out-of-the-box cellular connectivity no matter where the chargers are.

Integrate & Secure:
- Intra-Cloud Connect: Easy integration using the AWS Transit Gateway to prevent third parties from tampering with EV commands.
- Custom DNS: Flexible, secure DNS resolution for all charge point vendors.

Operate:
- OpenVPN: Remote device access for testing and onboarding new chargers during pilot phases.

Enabling future-proof smart charging solutions for home applications

"Around 80% of EV charging happens at home, and that's where we're focused on making an impact." said Chris Darby, Chief Technology Officer at ev.energy.

The ev.energy app benefits EV owners, energy suppliers, and grid operators alike with greener, off-peak charging sessions that put less strain on the electricity grid. As part of their value chain, ev.energy partners with multiple charge point manufacturers to integrate SIM connectivity and ensure software compatibility with their hardware.

"EV charging is a universal business, and manufacturers look to distribute their products to the world. We want to reduce the complexities for our clients by bundling global network access with our software in a single offering, making it easier for them to enter new markets." said Darby.

However, global connectivity alone does not suffice. *"As we scale up over the next years to support tens of thousands of connected chargers on our platform, communication security becomes a critical, if not a national matter."*

To ensure third-parties have no chance of getting unauthorized access to the chargers and manipulate the grid, ev.energy is dedicated to building a resilient, multi-layer security architecture.

Global, secure IoT communication with less complexity and more flexibility

Before EMnify, ev.energy was on a contract with a European network operator but soon decided to make the switch.

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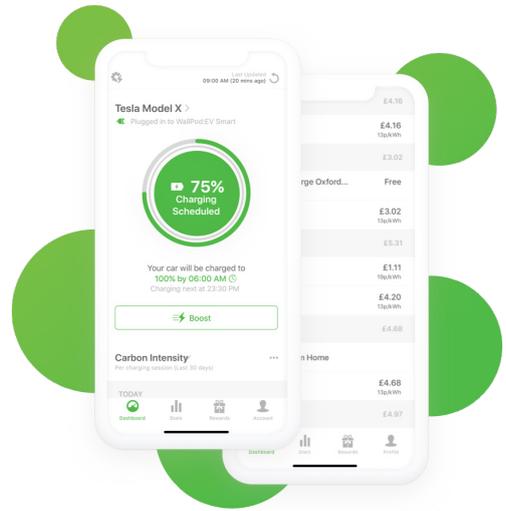
"EMnify is a great partner because we can enable our customers to connect their chargers no matter where they are in the world. We get better roaming at variable, fair pricing. And the platform is much easier to integrate with using Intra-Cloud Connect via AWS Transit Gateway. The other option would be configuring BGP over IPsec tunnels which could quickly turn into chaos."
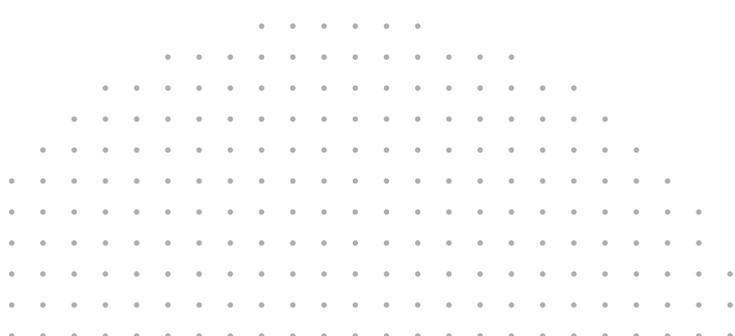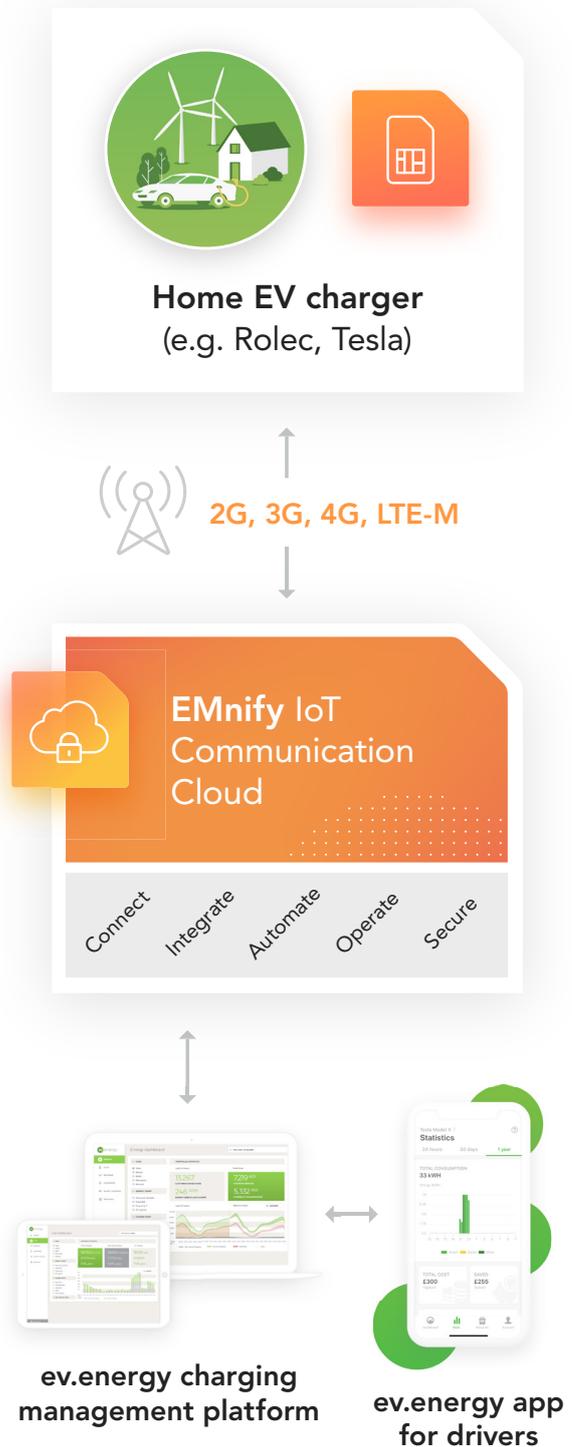
– Chris Darby
  Chief Technology Officer
  at ev.energy

EM*nify*

With many chargers having no OCPP support and TLS encryption, EMnify's **Intra-Cloud Connect** allows ev.energy to establish a **secure, private network between chargers and the software application without using the public Internet.** All communication remains invisible from the outside world to prevent false, unwanted control signals to the chargers.

Utilizing trusted DNS servers is another critical security and reliability element, and EMnify's **custom DNS** service brings just the flexibility ev.energy needs. *"Having custom DNS configuration on the application side future-proofs our scalability while taking the whole DNS complexity out of the equation for our customers."* stated Darby.

While remote charge point access and diagnostics is mostly not a requirement in the B2C EV charging market, EMnify's free **OpenVPN** service proves to be useful for ev.energy to onboard new charge points to their platform and test device behaviour during the pilot phase.

Home EV charger
(e.g. Rolec, Tesla)

2G, 3G, 4G, LTE-M

EMnify IoT Communication Cloud

Connect   Integrate   Automate   Operate   Secure

ev.energy charging management platform

ev.energy app for drivers

Results and Future Outlook

With the EMnify solution, ev.energy can better ensure service reliability, reduce costs while enhancing customer offering.

>99.7% of chargers experience zero connectivity issues

Reduce integration time and operational overheads using Intra-Cloud Connect

Reliable managed communication that contributes to a high service uptime

Secure DNS resolution without the need for firmware changes by charge point vendors

"Every EMnify's SIM that we put into the modem works straightaway. The connectivity is hardly a failure point in our system." – Chris Darby, Chief Technology Officer, ev.energy

Following strong growth in the UK and Ireland, ev.energy has conducted further tests with the EMnify solution for market expansion in Europe, North America, and Central America.

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