CASE STUDY

ev.energy

16,000+ connected chargers • **160** Tonnes of CO_2 Saved • **10,000** MWh delivered

How ev.energy uses EMnify to help EV drivers save 160 tonnes of CO_2 and £215,000 (2020 figures)

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 charge experience for worldwide EV owners.

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 sessions to off-peak times, the resulted energy costs and carbon footprint can be minimized.

Working with the world's leading charge point manufacturers, automotive and energy companies 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 16,000 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.

EMnify's 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.

EMnify

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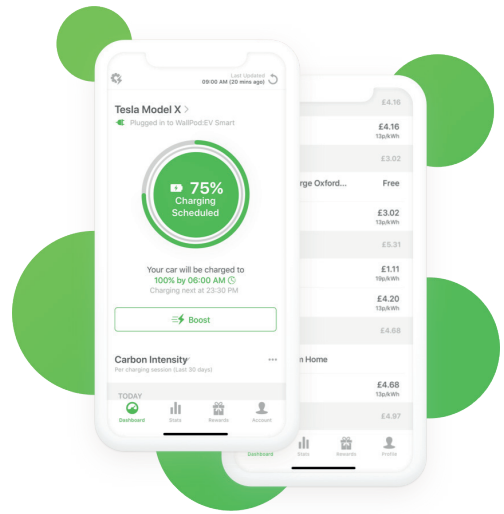
"EV charging is a universal business, and manufacturers look to distribute their products to the world. We want to reduce the complexities for our customers by bundling global network access with our software in a single offering." said Darby.

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.

> *"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 compared to our previous alternative."*

– Chris Darby
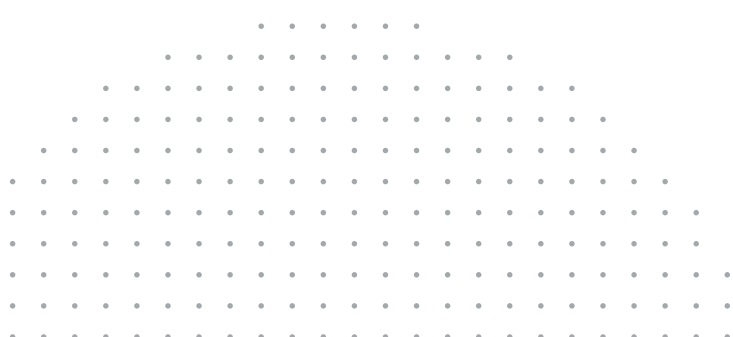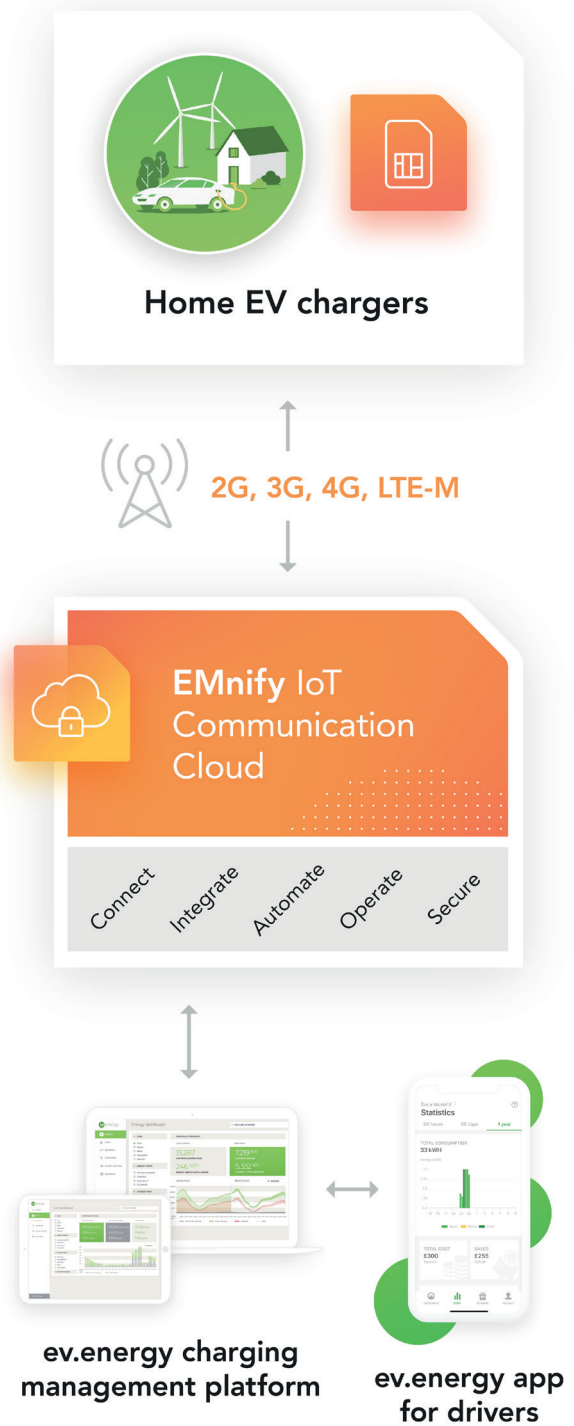*Chief Technology Officer at ev.energy*

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 the ability to configure custom DNS servers on the application side future-proofs our scalability while taking the whole DNS complexity out of the equation for our customers (charge point manufacturers)." stated Darby.

While remote charge point access and diagnostics is mostly not a requirement in the B2C EV charging market, the **OpenVPN** service - offered at no extra costs - 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 chargers

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.

Every IoT SIM deployed worked straightaway without any connectivity issues.

Using Intra-Cloud Connect drastically reduced integration time and resulted operational overheads.

Reliable managed communication contributes to a high service uptime.

EMnify's custom DNS service eliminates the need for firmware changes by charge point vendors while ensuring DNS security.

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