resill!on

Charging Ecosystem Assurance

Independent validation across vehicles, chargers, platforms, energy systems and grid integration.

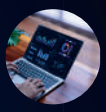
Helping charging, mobility and energy organisations move from interoperability claims to operational confidence

GRID INTEGRATION

Reliable power
Connected future.

ENERGY SERVICES

Access, Optimise.
Deliver value.



PLATFORMS

Orchestrate, integrate.
Oparate with confidence

PAYMENT

Secure transactions.
Trusted identies.

VEHICLES & CHARGERS

Interoperable. Reliable.
Ready for anything.

DATA & ANALYTICS

Reliable data.
Actionable insight.

USER EXPERIENCE

Seamless journeys.
Confident customers.

Charging assurance has become a service decision

Everything works. Until it has to work together.

A charging service may look ready at component level, yet still fail when vehicles, chargers, software platforms, payment systems and energy services have to perform as one.

The real challenge in connected charging is no longer whether one vehicle, charger or platform performs correctly. It is whether the complete service delivers the intended customer, operational and energy outcome.

A component can pass its own tests while the wider service still fails through incompatible versions, delayed messages, incorrect state, inconsistent data, supplier behaviour or incomplete recovery.

A single charging journey can depend on vehicle and charger communication, firmware and configuration, cloud and backend platforms, customer apps, payment and roaming services, energy optimisation, flexibility services, telecommunications and supplier support.

> Deployment risk often sits in the interfaces between systems, suppliers and service states.

What this means in practice

Customer disruption

Unreliable experiences erode trust and increase support burden.

Operational complexity

More moving parts create more failure modes and slower resolution.

Delayed launch

Integration and certification issues push go-live dates and cost more.

Cyber / supplier exposure

More connections and third parties widen the attack and risk surface.

The scale of the assurance challenge

1.83m
Pure battery-electric cars on UK roads
hplmotors.co.uk

80%
Of EV charging sessions take place at home in the UK
hplmotors.co.uk

119,080
UK public EV chargers at 1 April 2026
Gov.uk

99%
Annual reliability required for UK rapid charging networks
Gov.uk

Designed for engineering, Quality Engineering, product, platform, OT, operations and cyber leaders who need evidence to launch, release, onboard, scale, enter new markets or accept a service into live operation.

Independent assurance across the charging ecosystem

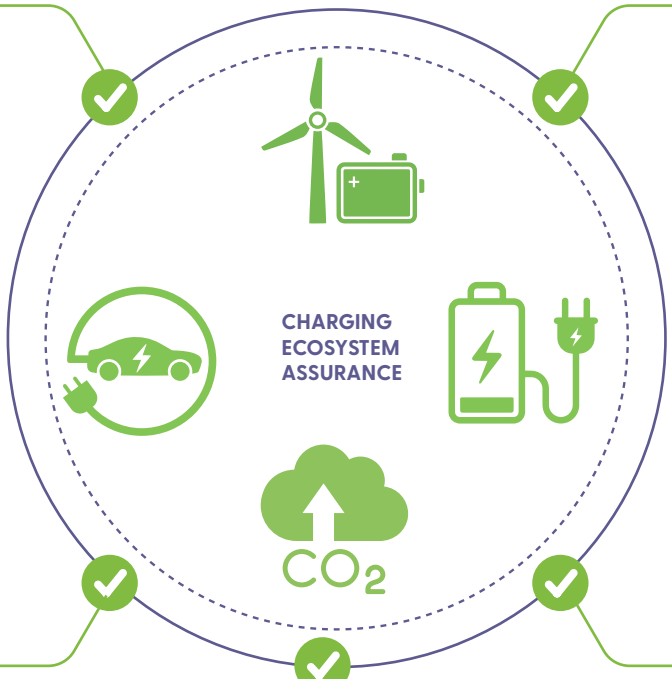
Confidence comes from evidence across the complete service, not from isolated component tests or supplier declarations. Resillion brings together quality engineering, interoperability, performance, cyber security and operational assurance around one outcome: confidence that the charging service will work securely, reliably and at scale.

1.ECOSYSTEM INTEROPERABILITY

Do vehicles, chargers, platforms and services behave consistently together?

2. PLATFORM QUALITY AND OPERATIONAL RELIABILITY

Can the service release, perform and recover consistently at scale?



3. ENERGY AND GRID READINESS

Can the proposition support smart charging, flexibility and grid-facing use cases?

4. CYBER AND OPERATIONAL RESILIENCE

Can the ecosystem remain secure, observable and trustworthy during disruption?

5. DECISION-QUALITY EVIDENCE

Can leaders make a defensible proceed, constrain, retest, delay or redesign decision?

Why this matters for functional leaders

Challenge the ecosystem, not just the component

Real confidence comes from testing how everything works together across devices, networks, platforms and markets under real-world conditions.

We validate experience, performance and resilience in the context that matters.

De-risk launches and improve time-to-value

Independent assurance identifies issues early, closes evidence gaps and reduces the risk of costly incidents, rework and reputational damage.

We replace uncertainty with evidence that speeds confident decisions.

Build trust with customers, partners and regulators

Assurance provides the proof points that demonstrate security, reliability and compliance.

We help you operate with confidence and sustain momentum.

From protocol compliance to service outcomes

Conformance remains important, but it does not prove that the intended charging service will perform across the deployed combination of devices, software, suppliers and operating conditions.

Vehicle and charging communication

Validate ISO 15118 communication, Plug & Charge authentication and smart charging exchanges end to end.

Charger, backend and platform integration

Verify OCPP connectivity, APIs, remote commands and firmware / release validation across platforms.

Roaming, identity and payment

Validate OCPI flows, customer identification, tariffs, payment and settlement consistency across parties.

Energy and grid integration

Validate V2G, V2X and flexibility services, OpenADR signals and grid-facing interactions.

Security and resilience

Validate identity, certificates, remote access, cloud exposure, failover and trusted recovery.

Standards conformance and protocol testing are essential. They confirm that individual components implement requirements correctly in isolation.

Ecosystem assurance goes further. It proves that the right components from vehicle to grid work together as intended across real networks, platforms, partners and operating conditions to deliver the service outcomes your customers expect.

Resillion's independent approach validates interoperability, operational reliability, market and grid readiness, and security and resilience so you can launch with confidence, scale without surprises and keep services performing in the real world.

Service coexistence

Plug & Charge, smart charging, V2G, roaming and payment journeys increasingly need to operate together. Coexistence across services, devices, platforms and partners must be validated in practice not assumed.

Standards define the layers. Quality Engineering proves the service.

A protocol or certification can prove conformance within one part of the ecosystem. Functional assurance must also prove the deployed combination, exception paths and service outcome.

VEHICLE -CHARGER

ISO 15118 / IEC 61851

ISO 15118-20 supports second-generation EV-EVSE communication and bidirectional power transfer. IEC 61851 covers conductive charging-system requirements.

Prove negotiation, authentication, Plug & Charge, certificate lifecycle, V2G state and safe fallback.

CHARGER - BACKEND

OCPP 1.6 / 2.0.1 / 2.1

OCPP 1.6 and 2.0.1 are not backward compatible. OCPP 2.1 adds ISO 15118-20 support, bidirectional charging and DER control.

Prove boot, authorisation, transactions, security, smart charging, firmware and device management.

ROAMING & CUSTOMER

OCPI / UK public-charge rules

OCPI 2.3.0 supports roaming data, direct payment and Plug & Charge indicators. UK rules include roaming, open data and rapid-network reliability requirements.

Prove availability data, pricing, tariffs, payment, session records, refunds and customer status.

ENERGY & GRID

G98 / G99 / CoP11 / OpenADR

G98 applies to fully type-tested microgenerators up to 16A per phase on LV networks. G99 covers generation operating in parallel. CoP11 sets asset-metering requirements for settlement.

Prove export and protection behaviour, metering accuracy, dispatch, market data and recovery.

What leaders need to prove

SUPPORTED MATRIX	Vehicles × chargers × firmware × OCPP version × backend × certificates.
SOFTWARE CHANGE	Regression in CI/CD; API contracts; data and configuration changes; rollback evidence.
DEGRADED OPERATION	Regression in CI/CD; API contracts; data and configuration changes; rollback evidence.
LIVE EVIDENCE	Journey success, availability, fault codes, payment success, support and recovery trends.
CRITICAL JOURNEYS	Authorise, start, stop, pay, roam, schedule, smart-charge, export and recover.
PERFORMANCE	Peak sessions, tail latency, supplier throttling, retry amplification, queues and backlogs.
RECOVERY	Failover, rollback, duplicate prevention, transaction and device-state reconciliation.

Illustrative evidence targets

99.9%	**0**	**100**	**≤30 min**	**99%**
critical charging-journey completion during representative peak testing	duplicate start/stop or export commands tolerated	transaction, payment and device-state reconciliation before closure	illustrative service-state reconciliation objective after recovery	UK regulatory annual-average reliability for rapid public networks

QUALITY ENGINEERING VALUE Make release evidence faster, more repeatable and more relevant to the service decision - not simply increase the number of tests executed.

Real-world testing. Independent assurance.

Charging services should be assured under the conditions they will actually face: normal operation, peak demand, degraded states and recovery.

1

NORMAL OPERATION

Expected journeys, supported combinations, routine data and session volumes.

1

PEAK OPERATION

Concentrated demand, concurrent sessions, supplier and API capacity, queue and retry behaviour.

1

DEGRADED OPERATION

Intermittent connectivity, unavailable cloud or supplier services, stale data, safe fallback behaviour.

1

RECOVERY

Failover and restoration, duplicate-command prevention, reconciliation and return to normal service.

INTEROPERABILITY

Validating services across devices, platforms and energy systems.

RELIABILITY

Assuring performance and resilience under real-world and degraded conditions.

DEPLOYMENT CONFIDENCE

Reducing risk and accelerating launch with evidence from the complete ecosystem. energy systems.

Octopus Energy: whole-system V2G assurance

A practical example of why export-capable charging requires system-level evidence rather than isolated component tests.

THE CHALLENGE

Octopus Energy needed to demonstrate that its Power Pack V2G service - the EV, bidirectional charger and software working together - could export safely to the UK grid and meet G99 requirements.

THE APPROACH

- Resillion led the compliance and evidence plan.
- The complete V2G system was taken into PNDC's controlled whole-energy-system environment.
- Testing covered the integrated behaviour required for G99 evidence.
- Efficient test and retest cycles produced repeatable, stakeholder-ready results.

THE RESULT

Octopus achieved G99 certification and support for the ENA Type Test Register submission, creating a stronger basis for commercial rollout of the customer offering.

Read full Octopus Energy Case study

What this demonstrates

INTEROPERABILITY

Prove the EV, charger and platform as one deployed system.

QUALITY ENGINEERING

Validate software, configuration and service journeys alongside physical behaviour.

GRID READINESS

Generate G99 evidence for the export-capable system operating in parallel.

INDEPENDENT EVIDENCE

Give engineering, network and commercial stakeholders one evidence base.

THE WIDER VALUE System-level assurance can shorten approval cycles, reduce deployment risk and give stakeholders evidence they can stand behind.

Review one charging service

A charging ecosystem assurance review component tests.

1

1. Map the service

customer, operational and energy journey; supported combinations; critical interfaces and suppliers.

2

2. Challenge the evidence

normal, peak, degraded and recovery conditions; existing assurance evidence; material gaps.

3

3. Decide the next action

proceed, constrain, retest, delay or redesign..

Suitable starting points

- New service launch
- Major platform release
- Charger or vehicle integration
- Roaming or payment integration
- Scaling to a larger estate
- V2G or flexibility participation
- Supplier onboarding
- Resilience concerns after an incident

Potential outputs

Ecosystem map

A clear view of the service, actors, interfaces and dependencies.

Supported-combination matrix

Visibility of supported combinations and known constraints.

Priority validation scenarios

Targeted scenarios covering normal, peak, degraded and recovery conditions.

Evidence-based next-step recommendation

A practical recommendation to proceed, constrain, retest, delay or redesign.

Proven capability. Global reach.

Independent Total Quality assurance across connected products, software platforms, cyber security and regulated ecosystems.

30 years of assurance expertise

700+ specialists across global markets

11 accredited labs

Broad suite of proprietary and industry-standard testing tools

Multiple energy, charging and grid standards

GLOBAL delivery across Europe, UK, USA, India and China

TOTAL QUALITY, ONE PARTNER

Quality Engineering: software, APIs, automation, performance and release confidence.

Conformance & Interoperability: standards, certification support and ecosystem validation.

Cyber Security: applications, platforms, connected devices, suppliers and operational resilience.

Independent evidence: clear results, limitations and recommendations for the next decision.

ACCREDITATIONS AND CERTIFICATIONS

- ISO 9001 and ISO 27001
- UKAS and CNAS ISO/IEC 17025 accredited activities
- CREST-accredited cyber security services
- Cyber Essentials and Cyber Essentials Plus
- CCV Cyber Pentest
- Europrivacy Partner status and recommendations for the next decision.

Gain one assurance partner able to connect software quality, interoperability, grid evidence, performance and cyber resilience around the complete charging-service outcome.

Get in touch

Providing solutions in a unified, structured approach across all critical domains to enable end-to-end quality – because we're the only ones who can.

✉ | Email us at: hello@resillion.com