

COMMUNITY INFORMATION SHEET · CONNECTIVITY

Networks as resilience — the diesel question

How strong connectivity can mean fewer generators, less fuel and cleaner sites

The key idea: resilience can live in the network, not just the site

Traditionally, every data centre defends itself alone: banks of batteries for the first minutes, then **diesel generators** (often dozens at large sites) with big fuel tanks, monthly test runs and fuel-truck logistics. Communities notice: gensets mean noise, stack emissions, stored diesel and regular testing. But there is another way to be reliable and it runs on fibre.

Spreading the risk across sites

Operators with several connected facilities can replicate work across them (cloud providers call these **availability zones**). If one site loses power, traffic and workloads shift to the others over high-capacity, diverse fibre, in seconds to minutes, by software. When the network itself carries the resilience, an individual facility can justify **less on-site backup**: battery-first designs, fewer or smaller generators, less stored fuel and lower emissions from standby fleets that no longer need to exist, or run tests, at full scale.

The honest limits

This works, to a point. Failover architectures are complex and not fail-safe; some customers and regulated workloads still insist on full on-site backup; and the whole idea rests on **genuinely separate network paths**. Two fibres in the same trench are one failure, not two. Distributed resilience is a credible design choice, not a universal replacement. The right amount of on-site backup is a per-facility engineering question, which is exactly why it belongs in the open, in planning.

The design question communities should ask

Generator counts, fuel storage and test regimes are approval matters with real local impacts and they are *choices*, shaped by network architecture. A proponent claiming modern distributed resilience should show the diverse routes and the failover design. A proponent proposing a large genset farm should explain why network-level alternatives don't apply. Either answer is legitimate; **no answer is not**.

What good practice looks like

- Generator numbers, fuel volumes and test schedules disclosed and explained in community materials.
- Battery-first and network-level resilience genuinely assessed and the assessment shared.
- Physically diverse fibre routes evidenced, not asserted.
- Noise and emissions from testing managed and communicated with neighbours.

Questions to ask

How many generators and how much stored diesel does this facility need and why that number? Was a battery-first or multi-site design assessed? How often will generators run for testing and what will we hear? Do the site's network connections actually reduce what must sit on the pad?

Want to know more? The data-centre series covers backup power and noise; sheets 02, 06 and 10 of this series cover the cables, capacity and route diversity this approach depends on. This sheet is general information, not legal or planning advice; a specific proposal is confirmed by qualified assessment.