



Designing Infrastructure People Want to Live With

Globally, as we transition toward a cleaner, electrified future, one reality has become clear: we cannot decarbonise without building. New overhead lines, underground cables, substations, and renewable energy infrastructure will shape the energy landscape for decades to come.

By Adam Yates, GM Groundline UK

But the success of that transformation hinges on a critical factor that is often overlooked - **community acceptance**.

For too long, public engagement around energy infrastructure has been treated as a compliance exercise. Today, it's a strategic advantage. Communities aren't just 'stakeholders', they are residents, neighbours, landowners, and local voices whose daily lives are shaped by the assets we design and deliver. To build infrastructure that communities genuinely want to live with, the industry must evolve how it designs, communicates, and

collaborates.

INVOLVEMENT ISN'T AN OBSTACLE, IT'S A DESIGN REQUIREMENT

In my experience, communities challenge projects, not because they oppose progress, but because infrastructure can feel imposed, disruptive, or unclear in purpose. Concerns typically centre on

- Visual impact and landscape change
- Construction disruption
- Environmental and ecological effects
- Transparency and fairness in decision making
- Lack of early involvement

These concerns apply equally to overhead lines, underground cables, substation builds, solar farms and wind farms. Ignoring them often leads to delays, redesigns, public opposition, legal challenges, and spiralling costs. Addressing them early is not only respectful, it's commercially smart.

START WITH PEOPLE, LONG BEFORE THE DESIGN BEGINS

The most effective infrastructure projects are shaped with communities, not simply shown to them.

Early, intentional engagement

Bring communities into the journey before route or site options are fixed.

Ask:

What matters to you about the landscape?

What are your fears?

For substation projects, this often includes:

- Preferred screening approaches
- Acoustic concerns
- Floodlighting design
- Traffic flow and construction access

In our experience, when residents help shape constraints, options, and priorities, opposition gives way to partnership.

Transparency

Communities are far more accepting when they understand

- Why infrastructure is needed
- Why specific locations were shortlisted
- How overhead, underground and substation options differ
- How construction and operational impacts will be managed

Simple, jargon free explanations build trust faster than glossy brochures ever will.

DESIGNING BETTER OUTCOMES

In our experience, proactively taking a community-centred design ethos can dramatically change project perception.

Visual and environmental sensitivity

This may include:

- Aligning OHL and UGC routes to protect views, heritage, or habitats
- Locating substations to minimise visibility and noise impact
- Undergrounding selectively where it adds meaningful community value
- Designing reinstatement, acoustic bunds, planting schemes and biodiversity enhancements with residents
- Minimising disruption through smart construction planning

Digital tools can help demystify an approach

3D visualisations, immersive route flythroughs, substation massing models, and AR overlays help communities see the future, not imagine it.

We have found this a useful way to reduce community uncertainty, which in turn reduces resistance.

A NEW KIND OF SOCIAL LICENCE

Building infrastructure people want to live with requires four commitments:

1. Empathy

Understand the emotional, cultural, and practical significance of place, not just its technical constraints

2. Honesty

Be open about what can be changed, what can't and (most importantly)

why.

3. Inclusion

Give communities meaningful influence over decisions, not token consultation once the designs are fixed

4. Legacy

The objective should be to leave every place better than you found it – environmentally, socially and economically.

This isn't idealism, it's engineering maturity – and commercially sensible. Social licence is no longer won through persuasion; it's earned through participation.

THE FUTURE: TECHNICAL EXCELLENCE MEETS HUMAN EXPERIENCE

The coming decade will bring unprecedented investment in network reinforcement and expansion, spanning overhead lines, underground cables, and an increasing number of new and upgraded substations.

I believe that the engineering organisations who thrive won't just be those that simply deliver technically brilliant designs, they'll be the ones that deliver human-centred infrastructure.

- Infrastructure that fits landscapes
- Infrastructure that minimises disruption
- Infrastructure that communities help shape and feel proud to live alongside

Because in the end, the question is not just *"Can we build it?"*

It's *"Will people embrace it?"*

GROUNDLINE ENGINEERING

Groundline is a global consultancy specializing in transmission and distribution lines engineering services for network operators and service providers.

We bring creative thinking to projects, ensuring solutions are cost-effective, resilient, safe and good for the planet.

With offices in the USA, the United Kingdom, Australia and New Zealand, we

have experience in all aspects of the power lines industry - from 11kV to 500kV+, new builds to refurbishments, condition assessments to asset management, site support and design verifications, to project management. Our team have worked around the world, from remote, dry deserts, to wild, wet rainforests, urban cities, to cyclone-prone prairies.

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