



Global
Disability
Innovation
Hub



Transforming
Energy
Access

#2 Inclusion in product development



Disability-Inclusive Clean Energy Product Testing

A case study prepared under the Disability Support Service (DSS) for the Transforming Energy Access (TEA) platform.

Ben Hardman,
Head of Innovation, Global Disability Innovation Hub.

Shantosh Cumarasurier,
Innovation Advisor, Global Disability Innovation Hub.

Bala Nagendran Marimuthu,
Senior Researcher, Climate and Cities, Global Disability Innovation Hub.

Cover source: AG Energies.

To cite this document: Cumarasurier, S., Hardman, B., and Marimuthu, B. (2026) Disability-Inclusive Clean Energy Product Testing. Global Disability Innovation Hub for the Transforming Energy Access platform.

Acknowledgement: This material was funded with UK aid from the UK government via the Transforming Energy Access (TEA) platform.

Disclaimer: This material has been funded by UK aid from the UK government; however, the views expressed do not necessarily reflect the UK government’s official policies.

Case Study Summary

‘Disability-Inclusive Clean Energy Product Testing’ documents how AG Energies Company Ltd., a grantee under the TEA-funded Powering Renewable Energy Opportunities (PREO) programme, in partnership with Kyaro Assistive Technology, through the Disability Support Service (DSS), piloted a disability-inclusive testing, governance, and procurement system for electric three-wheelers in Tanzania. Grounded in global inclusive design principles and real-world testing, the initiative embedded **lived experience, structured methodologies, and advisory governance** into the pre-procurement phase. The result is a **replicable operating model** that translates disability inclusion from intention into measurable design, procurement, and market outcomes, reducing risk, improving usability, and strengthening commercial viability.

Featuring:



Disability Support Service (DSS)

Transforming Energy Access (TEA) platform, supported through UK aid from the UK government and led by the Carbon Trust, developed the Disability Support Service (DSS) in partnership with the Global Disability Innovation Hub (GDI Hub) to co-design and deliver disability-inclusive, accessible, and affordable clean energy solutions for equal socio-economic participation of people with disabilities. DSS is a cross-platform delivery service that offers training, innovation support, and technical assistance (TA) and produces practical knowledge outputs for the TEA network by blending expertise in disability inclusion, innovation, assistive and accessible technology (AAT), and inclusive design. The DSS seeks to maximise access and impact for people with disabilities by sharing knowledge and alignment between the TEA platform and GDI Hub’s flagship AT2030 programme, also funded by UK aid.

Key Lessons Learned

1. Inclusion must be **designed as a system**, not added as a feature.
2. Real-world testing reveals **behavioural, ergonomic, and operational risks** which are invisible in conventional technical validation processes.
3. Inclusive governance mechanisms are critical to **institutionalising lived experience into decision-making**.
4. Translating insights into procurement specifications is the bridge between pilots and scale.
5. Inclusive design improves **performance for all users**, strengthening commercial viability.



Source: AG Energies.

Challenge

AG Energies Company Ltd., a clean energy mobility provider in Tanzania, faced a **critical gap between technical accessibility and real-world usability** in its electric three-wheelers. While conventional product validation focused on metrics such as battery performance, durability, and cost efficiency, the vision for disability inclusion highlighted a key opportunity to better understand how vehicles perform under actual operating conditions, including:

- prolonged use and fatigue
- navigation across uneven terrain and traffic density
- safe storage of assistive devices
- independent use for income generation

Accessibility compliance alone did not guarantee usability, safety, or economic viability for people with disabilities.

The core challenge was therefore twofold:

1. Shifting from compliance-based accessibility to system-level inclusive design
2. Embedding lived experience into decision-making before procurement and scale

Approach

To address this, DSS supported AG Energies, in collaboration with Kyaro Assistive Tech, in designing and implementing **a structured, multi-layered inclusive testing framework** that integrated real-world usability testing, co-design methodologies, governance mechanisms, data and measurement systems, and procurement translation processes into the company's e-mobility deployment approach.

As a Tanzania-based assistive technology enterprise, Kyaro Assistive Tech also played an important **contextual and ecosystem role** by contributing local disability inclusion knowledge, facilitating engagement with civil society and Organisations of Persons with Disabilities (OPDs), and helping connect the pilot to community stakeholders and not-for-profit organisations within the local disability ecosystem.



1. Structured Real-World Testing

The pilot moved beyond controlled environments into live transport corridors, using ride-alongs (where people with disabilities and project teams travelled together during actual journeys to observe mobility challenges in real time), accessibility audits, and time-and-motion analysis to capture real-world conditions.

Testing included:

- diverse participant cohorts (N ≈ 60, ≥ 50% women)
- disability-disaggregated data collection
- comfort, security, and independence metrics with defined acceptance thresholds



2. Embedding Lived Experience through Governance

The Inclusive Innovation Advisory Panel (IIAP), a formal governance mechanism integrating Organisations of Persons with Disabilities (OPDs) and people with disabilities into decision-making, was established.

Unlike traditional consultation, IIAP is set up to operate as:

- a decision-making body
- a rapid-response system during pilots (weekly cadence + 48-hour decision cycles)
- a governance layer ensuring accountability, transparency, and continuity



3. Safety, Ethics, and Operational Integrity

The pilot embedded **formal safety and safeguarding systems**, including:

- defined roles (Lead Safety Officer, marshals)
- stopping rules and incident protocols to pause or stop testing if safety concerns emerged
- accessible consent and safeguarding processes

This ensured that inclusion did not introduce unmanaged risk but instead operated within a controlled, ethical testing framework.



4. Data, Measurement, and Decision Frameworks

A robust Data and Measurement system enabled:

- disability-disaggregated analysis
- real-time dashboard tracking on operational, usability, and safety metrics during testing
- setting defined success thresholds (e.g., ≥80% independent boarding)



5. Translating Insights into Procurement

A critical innovation was the **Procurement Translation Sheet**, which converted testing insights into **technical specifications for future vehicle orders**.

For example, difficulty in navigating uneven terrain led to proposing the introduction of improved suspension and wheel design - specified as a requirement in future procurement orders.

This created a direct pathway from:

A

Lived experience validated insight

B

Engineering specification

C

Scalable deployment



Interventions

01

5 co-design and planning sessions involving AG Energies teams, Organisations of Persons with Disabilities (OPDs), technical advisors, and implementation stakeholders.

02

2 stakeholder engagement and dissemination sessions where pilot learnings and progress were presented to external audiences.

03

1 dedicated co-design workshop with Organisations of Persons with Disabilities (OPDs) and disability stakeholders in Tanzania to gather lived-experience insights on usability, accessibility, and operational challenges.

04

Real-world ride testing across urban and peri-urban transport corridors.

05

Development of an **'Inclusive Three-Wheeler Evaluation and Compliance Testing Protocol Pack'** that converts inclusive testing principles into a practical delivery framework. The pack includes the safeguarding guidance, data and evaluation tools, procurement translation materials, and implementation guidance needed to run safe, consistent and evidence-led testing with users.

06

Establishment of an **Inclusive Innovation Advisory Panel (IIAP)** that embeds lived experience and specialist inclusion expertise into the design, testing, and learning process. Supported by a practical governance pack, the panel is equipped to provide a clear structure for advisory input, roles, ethical engagement and decision-making.

Source: AG Energies.

Impact

The pilot has fundamentally reshaped the way AG Energies approaches product development, risk, and scale. The company has defined **a clear roadmap for inclusive vehicle specifications** and committed to integrating ergonomic, stability, and structured storage solutions into its next electric three-wheeler procurement cycle, rather than retrofitting the existing fleet. This approach balances cost efficiency with long-term structural inclusion.

- Internally, the pilot expanded the definition of risk to include usability, exclusion, and reputational risk. **Lived experience feedback is now treated as critical design data, strengthening alignment between engineering, field teams, and procurement.**
- The pilot **engaged 20 people with disabilities** across testing, co-design, and feedback activities, while also strengthening AG Energies' collaboration with disability stakeholders through engagement with civil society and disability inclusion partners, including Peace Life for Persons with Disability Foundation (PLPDF) and Empowerment for Persons with Disability and Gender Health Organization (TEPDGHO). Together, these partnerships reinforced a co-design approach to inclusive mobility innovation.

Commercially, inclusive improvements such as enhanced ergonomic layouts and structured storage solutions improve comfort and functionality for all users, reinforcing the case that **inclusive innovation strengthens product competitiveness while expanding market reach.**

“The experience of engaging with persons with disabilities during the testing of our 3-wheel electric vehicle was truly impactful. It gave us deeper insight into the importance of creating inclusive and empowering mobility solutions”

Fatuma Mussa Soud, Assistant Program Coordinator,
AG Energies Company Ltd

Way forward

AG Energies will embed inclusive testing earlier in the product development lifecycle, shifting inclusion from post-validation review to a core design input at the concept stage. Building on the pilot, the company has committed to integrating inclusive mobility considerations directly into future procurement, operational planning, workforce development, and stakeholder engagement processes.

Key priorities moving forward include:

- **institutionalising the Inclusive Innovation Advisory Panel (IIAP)** as a permanent governance and decision-support structure
- **integrating inclusive testing criteria** and disability-informed specifications into all future procurement processes
- **replicating inclusive testing protocols** across new geographies, operational contexts, and vehicle types
- **allocating dedicated budgets** for inclusion, safety, accessibility, and stakeholder engagement
- **strengthening disability-disaggregated data** collection and operational feedback systems
- **embedding co-design methodologies** into future product development and deployment cycles
- **expanding partnerships** with civil society, Organisations of Persons with Disabilities (OPDs), and disability innovators to support implementation and accountability

The pilot has also reinforced a broader organisational shift reflected in AG Energies’ **Disability Inclusion Action Plan**. This includes commitments to increase the participation of people with disabilities across the e-mobility value chain through inclusive hiring, entrepreneurship support, accessible product development, and community engagement initiatives. Targets include **increasing employees with disabilities** in technical and operational roles by 15% within two years, supporting at least 100 entrepreneurs with disabilities through financial or technical assistance, and **partnering with 10 disability-owned or disability-led enterprises**.

Beyond product design, the pilot highlighted that people with disabilities are not only end users but also operators, entrepreneurs, employees, suppliers, and active participants within the clean energy mobility ecosystem. The company now views inclusive innovation not as a standalone initiative but as a long-term operational and market development strategy.



Source: AG Energies.

Note

GDI Hub recognises the contributions of Muhammad Hauwa, Maud Le Boulh, Fatuma Mussa Soud, and Ahmad Taha of AG Energies Company Ltd., together with Colman Thadey Ndetembea of Kyaro Assistive Technology, whose collaborative leadership and commitment to structured inclusive testing were central to embedding lived experience into procurement and design systems. Their engagement demonstrates how cross-sector partnerships can translate inclusion into operational practice.

All self-identifying data or testimonials in this case study were included with explicit permission of concerned individuals or institutions.

References

1. Duboz, L., Máté, E., Mourtzouchou, A., Garus, A., Nahmias Biran, B.H. and Ciuffo, B. (2025) Requirements for Inclusive Automated Vehicle Services: Insights for Vehicle and Smartphone Application Design. Luxembourg: Publications Office of the European Union. Available at: [Publications Office of the European Union](#).



Global
Disability
Innovation
Hub



Transforming
Energy
Access